



# ***What's With Weed: Responding to Problematic Marijuana Use by Youth in Ontario***

***A Final Report on Three Phases of the Project "Youth to Youth – The Risks and Realities of Marijuana Use"***

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## **Executive Summary:**

In 2005, Parent Action on Drugs received funds under Health Canada under the Drug Strategies Community Initiative Grant to implement "Youth to Youth – The Risks and Realities of Marijuana Use". This project developed and tested a peer-led approach to address problematic marijuana use in secondary schools in Ontario. Additional funding to enhance the project's resources and to outreach to a post-secondary school target group was received in two more phases in 2007-2008 and 2008-2009.

Four reports were created over the duration of the entire project:

- Glover, C, 2006, "Youth to Youth – The Risks and Realities of Marijuana Use: Evaluation Report Year 1", for Parent Action on Drugs, June, 2006
- Glover, C, 2007, "Youth to Youth – The Risks and Realities of Marijuana Use: Evaluation Report Year 2", for Parent Action on Drugs, May, 2007
- Sanagan, P, 2009, "*What's With Weed: Responding to Problematic Marijuana Use on Campus: A Report from the Field*", for Parent Action on Drugs, March, 2009
- Sanagan, P. 2009, "*What's With Weed: Responding to Problematic Marijuana Use. Annotated Bibliography*", for Parent Action on Drugs, 2009

This fifth report describes the outcomes of the entire project over the three Phases. The focus of this report is the outcomes which have not been previously addressed, plus final conclusions, lessons learned and recommendations.

In the early days of Phase I the project was renamed and branded by the Project Team as "*What's With Weed*" and this is the name that the project is most commonly known by. The report will use this name. The term "weed" was chosen by the Youth Advisors as the most common slang term for marijuana.

In Phase I, an evaluation methodology was developed that involved formative, process and summative measures. Logic models for each year (Glover, C, 2006; 2007) were developed with both short and intermediate objectives. It was felt by the project team that activities for Phases II and III enhanced the completion of those logic models. Each new Phase developed activities or resources which supported the longer-term objectives of the Logic Models already devised.

The primary tools for evaluation activities in all Phases were surveys with target groups (completed online or on hard copy) and focus groups with peer educators. Surveys were used as needs assessment in the formative phases (particularly Phases 2&3) and addressed learning, satisfaction and intention to act in the summative phases for all Phases. One site in Phase I and three sites in Phase 2 used pre and post questionnaires with younger students to gauge specific changes with regard to perception of risks

Each phase of the "*What's With Weed*" project met its objectives and it is recommended that the project's outputs continue to be made available to youth and intermediaries.

## **Introduction:**

### **Goal**

The Goal of the “*What’s With Weed*” project was to “reduce problematic marijuana use with youth in Ontario”. Problematic use was defined as “any use that was causing problems for the user including health, including mental health and dependency, safety, legal, school, family, or friends.”

### **Phase I**

“Youth to Youth: The Risks and Realities of Marijuana Use” was a two year project undertaken by Parent Action on Drugs (PAD) with the goal of reducing problematic marijuana use among Ontario youth ages 14-18. This goal was to be achieved through a health promotion approach that uses a comprehensive range of strategies including social marketing, skill-building, education, advocacy and policy to increase awareness, address attitudes and change behaviour regarding problematic marijuana use.

The Ontario Student Drug Use Survey (2003) and PAD’s work with students across the province indicate that most students believe that marijuana use has only minor risks associated with it, or is risk-free. Making students aware of the risks, addressing attitudes and changing behaviour were the goals of the program.

In Year 1, the core activity in the pilot project in Year 1 was a grade 9 workshop conducted by senior students. This core activity was supported with five other activities in each school: a senior student assembly, a senior student peer leader training day, a grade 9 assembly, a staff presentation, and the posting of a counselor (change facilitator) to each school.

The evaluation showed that the core activity – the workshop for grade 9 students – was very successful. 66% of grade 9 students reported that their assembly and workshop had changed their mind about the risks of marijuana use “a little” to “a great deal”. Another indicator of success was that over 70% of grade 9 students reported satisfaction with the classroom workshops run by peer leaders, in all schools except one.

Since this evaluation was completed, one region (Niagara) has replicated the results and another region (Toronto) has developed a process evaluation to identify what schools need to address the issues of marijuana use using the *What’s With Weed* program as an assessment tool for the level of need and effective responses identified in each school.

In Year 2, a social marketing strategy was adopted and was successful at meeting its objectives to increase awareness of the *What’s With Weed* program with intermediaries such as public health professionals, community health promoters, treatment providers and the general public. Activities included:

- an information package mailout,
- a website launch
- a media launch

Results demonstrated that the activities raised the profile of the program among intermediaries and stimulated their interest and support. More than 60 intermediary participants took part in the Learning Teleconferences that were designed to provide more information and stimulate interest in regional dissemination. An additional 40 took part in a half-day Train-the-Trainer workshop designed to prepare intermediaries to deliver the WWW program.

The feedback from intermediaries from both the teleconferences and the workshop indicate that participants learned more about the project, increased their skills to deliver the program and received the tools they needed for delivering the WWW program in a secondary school.

The social marketing strategy was also successful in building support for sustaining the project. Eleven Drug Awareness Community Coalitions and several other intermediaries expressed an interest in supporting the sustainability of the project by supporting a funding proposal, or by implementing the program in secondary schools. In addition, the project was chosen for one of two workshops for intermediaries in Peel Region – and from that exposure, further planning for the delivery of the project activities went forward with three regions/cities (Niagara, Toronto, London) developing programs within their own schools – in both catholic and public boards of education. In all these centers, it has been public health staff that have taken the lead.

As well as intermediaries, the social marketing strategy was directed toward parents and youth. Parents were to receive information and resources forwarded by intermediaries in their communities, and were to receive further information from the media campaign. It is difficult to determine the impact of the social marketing strategy on parents. Some intermediaries forwarded information in their communities. PAD also know that there were 1458 hits on the website, which was promoted both in the information packages and in the media campaign, but it is not possible to determine how many of those hits were from parents since at that time, the ability to track demographic characteristics was not available. It is currently, however (see Phase 3). A third measure of impact on parents – a tracking sheet of parent requests for information at the Parent Action on Drugs office – did not work because there were no requests. This could indicate that there was not enough of an impact on parents for them to seek further information, but could also indicate that the measure was inappropriate.

The social marketing strategy has been very successful in raising the profile of the program and in building support for the future. Renewed funding was received from Health Canada for two further phases to enhance resources and build community capacity and sustainability of the project,

## **Phase 2**

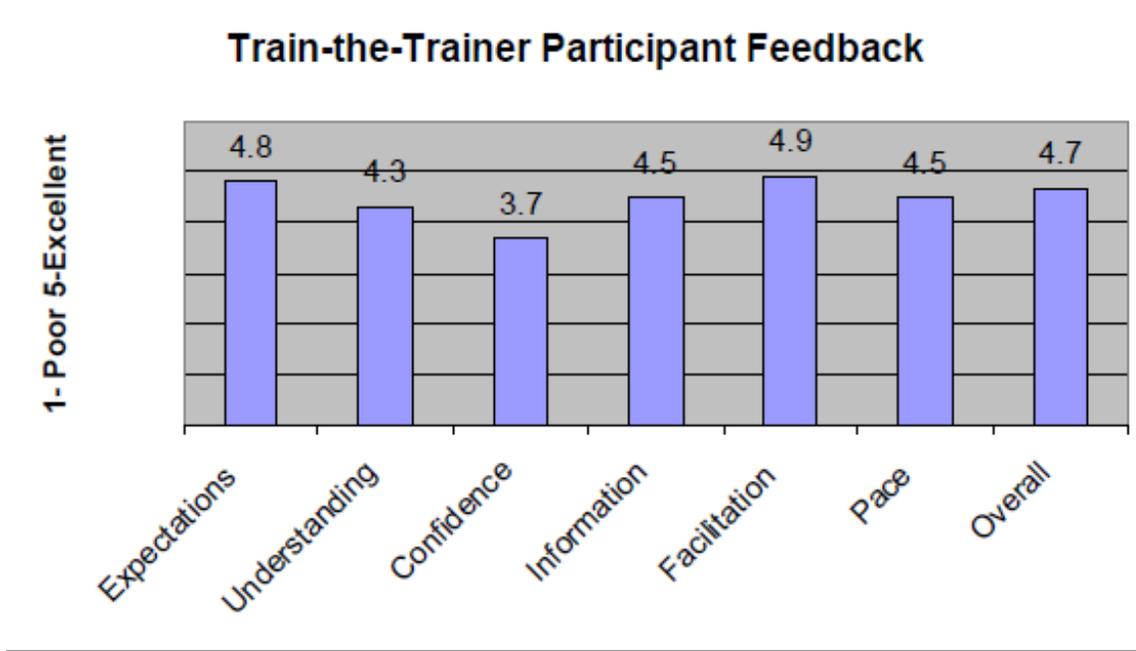
In April 2007, Parent Action on Drugs received further funding to support enhancements to the website and additional training opportunities with intermediaries. The latter was delivered at the end of Phase One with a Train-the-Trainer workshop for Niagara regional public health staff.

### ***Enhanced Community Capacity for Intermediaries:***

In Niagara, 15 Public Health staff were trained in the process and activities of the *What's With Weed* program for secondary schools.

Feedback from that workshop indicated the workshop met its objectives of:

- increasing understanding of problematic marijuana use
- increasing knowledge of how to respond to problematic marijuana use effectively
- increasing skills to deliver the WWW project activities in their communities
- increasing knowledge of PAD services available to support these activities
- increasing awareness of the need to address systemic solutions in education to problematic marijuana use.



From this workshop, representatives with the Niagara Drug Awareness Coalition began to advocate with both Boards of Education for a second pilot in the region which was undertaken in the fall and winter of 2007/08. This pilot involved two secondary schools with the addition of a pre and post-questionnaire delivered to all Grade 9 students involved with the pilot.

The short-term goal of the Niagara pilot project was to increase knowledge of the risks associated with marijuana use in students within two secondary schools. It is known that many students do not associate risk with marijuana use. The *What's With Weed* program is designed to increase knowledge to change students' attitudes and perceptions regarding the risks of marijuana use.

After reviewing the data, the *What's With Weed* program proved to change the knowledge, attitudes and perceptions regarding the risks of using marijuana in youth. It was encouraging to see the students who originally did not associate any risk with marijuana use, change their perceptions as a result of the program.

The pilot project focused mostly on Grade 9 students because it is known through research that rates of drug use increase with grade. However, the pilot program benefited the two schools entirely because both assemblies allowed for the entire population of the school to be exposed to the program.

The feedback from the peer educators was very positive. Several of the peer educators who were currently grade eleven students at the time inquired about participating again the following year.

The Niagara pilot project was featured at a local youth conferences (IMPACT, 2008) and in a provincial conference (Ontario Public Health Association, 2008). At both conferences Peer Educators presented part of the workshop.

The Niagara Boards of Education have taken on a commitment to support the continuation of the *What's With Weed* program in their secondary schools.

Further Train-the-Trainer opportunities occurred in the fall of 2007 with London Middlesex Public Health, and in the early part of 2008 with Toronto Public Health. The positive evaluations that were seen in Niagara were replicated. In both cases, the workshop led to the delivery of *What's With Weed* programs in secondary schools in 2008 and 2009. In the London region, seven secondary schools have received the *What's With Weed* program and in Toronto, four schools have been involved. Feedback from the first program indicated that while the time needed by staff to support the young people was quite extensive the first time, it was worth it in the end. It is assumed the workload will decrease as schools become familiar with the concepts and the process. The staff person also commented that she worked with the Peer Educators to follow their creative directions. The result was a terrific buy-in from both the peer educators and the younger students and the feeling that the program was a great success.

One unanticipated outcome of this delivery was the development of a short video which can be accessed on youtube at <http://www.youtube.com/watch?v=bwJ32XegxD8>

The video has been used as a resource for secondary schools since and the music – “Flawed Design” a song by Canadian Artists “Stabilo” from BC (<http://www.stabilomusic.com/>) has been approved for use on the video by the band.

### ***Enhancement of the Social Marketing Components and Website***

Based on interest from campus health promoters and from BACCHUS after the first round of funding, it was determined that further work should be done to ensure the website was useful for both secondary and post-secondary audiences and that resources were effective with a post-secondary school audience.

To ensure the latter, the WWW Youth Advisors – who by this time were all in post-secondary institutions – reviewed the website for appropriate language, and worked with the social marketing consultant to develop resources to promote the website. A new brochure for intermediaries was developed that explained the value and impact of the program. Samples of these resources are available on request from the PAD office.

At the same time, consultations began with Dr. John Cunningham from the Centre for Addiction and Mental Health and with V-CC organization which supports similar online assessment tools for alcohol and tobacco use.

With that support, an additional assessment tool was developed which compares the website visitor's use with that of others of the same demographic (age and gender). The resulting information is presented in a graphic format which identifies use patterns and the level of risk that can be ascribed to the use. This information can be printed out or emailed to the user or to others, such as a counsellor.

With this online support tool enhanced, it was expected that more visitors would have more information to evaluate their own use, although it was acknowledged that a website without promotion would probably not result in increased traffic. Promotional opportunities occurred through placement of media articles (Cross Currents, CAMH, Spring, 2007) and invitations to conferences where workshops were presented on the project outcomes and plans for the future. The project was featured at the following conferences in 2007:

- February – Peel Harm Reduction Network – Plenary
- May – Ontario Drug Awareness Partnership/FOCUS Resource Centre Symposium - Workshop
- October – BACCHUS Regional Conference - Workshop
- November – Issues of Substance National Conference – Workshop
- November - Ontario Campus Health Organization – Regional Planning Meeting
- November – IMPACT Youth Conference – 2 Workshops with youth in Niagara region
- November – In The Driver's Seat – Workshop with youth in Toronto

The Workshop at the national conference was delivered by one of the Peer Educators, in collaboration with other members of the Project Team.

Along with the new resources and enhanced website tools, an annotated bibliography was developed that links research to *What's With Weed* activities. The current iteration of the annotated bibliography is available in Appendix I.

### ***Move to Campus support***

These activities were begun in Phase 2 funding and enhanced in Phase 3 funding. In a teleconference with several health promoters/educators and support people in 2007, three key issues were identified as potentially problematic when it came to marijuana use on campuses. These included:

- lack of awareness of potential harms or risks associated with marijuana use by the majority of students either using or non-using
- lack of capacity in professionals in ways to address marijuana use with individuals
- Policy initiatives which were not comprehensive in their approaches to marijuana use.

Through a series of consultations, needs assessments, and training workshops, PAD worked with campuses from June 2007 till March 2009 to provide effective responses to problematic use.

A full report on the work completed with campuses for these Phases of the project has been completed (Sanagan, P, 2009) and is available by request from the PAD office.

### **Phase 3**

While the campus support activities continued, there were some challenges in having campus events after February, 2009, given student schedules. Therefore a webinar was developed for campus representatives and health promoters across the province. This was promoted aggressively using common listservs and networks in both the health promotion and the campus communities. As a result, over 40 registrants/sites, including a class of students from Humber College, took part in the webinar. A Community of Practice portal was developed for ongoing discussion after this webinar.

Work also continued on the website and its promotion to intermediaries, and youth alike.

Consultation with the web manager resulted in accessing a google analytics tool which allowed PAD to track and cross-tabulate the following website data:

- number of visitors
- number of pages viewed
- time spent on the site
- favourite landing page
- and most importantly, the number of people taking the assessment tools, and movement between assessment tools.

Also a strategy was developed to promote the website.

The strategy involved outreach and information-sharing with several target groups through dissemination in conferences and workshops plus the placement of articles where the target audience were most likely to see them. These groups included:

1. Youth Counsellors - Because the website and the DVD had proven to be so useful for counsellors, an article was accepted for the Ontario Association of Child and Youth Counsellors Newsletter for the fall of 2008. As well, a presentation was made at the Addiction Ontario's annual Youth Sector meeting.
2. Public Health intermediaries – With the arrival of the new Ontario Public Health Standards in the fall of 2008, information on the project and the value of the website was delivered
  - a. in three installments to the apolnet listserv – a tool of the Ontario Public Health Association for those public health professionals working in injury and substance abuse prevention.
  - b. via an article for the Ontario Health Promotion Bulletin.
  - c. via a presentation at the Ontario Public Health Association's annual conference, along with Peer Educators
  - d. via a peer-reviewed journal article. Cunningham, J, van Mierlo, T, 2009, "The Check Your Cannabis screener: A new online personalized feedback tool", *The Open Medical Informatics Journal*, 2009, 3, 27-31
3. Students – A workshop at the Canadian Students for Sensible Drug Policy brought about an opportunity to continue to work with this organization around drug policy and drug education at the campus level which included the promotion of the website. Another workshop with Peer Educators at York campus identified strategies for communication of the website on campuses.

4. The Internet community - Knowing that cross-promotion is a key tool in increasing traffic to websites, PAD was able to get links to the WWW website from the following sites:
  - www.ementahealth.ca – a mental health and addictions services website
  - mindyourmind.ca – a youth-oriented mental health website
  - youthconnect.ca – a youth services website
  - the healthline.ca – serving southwestern Ontario health practitioners
  - several Ontario public health organizations
  - several school boards
  - women’s health matters network
  - BACCHUS/Student Life Education
  - Addictions Ontario
  - Ontario health promotion
  - Several FOCUS Community Coalition websites
  - Addiction Services of Thames Valley

### **Website statistics**

The promotional work has increased traffic to the website significantly.

Before the google analytic tool was in place (July, 2008), PAD tracked hits to the site through tools with fewer functions. For instance, in the first 5 months after the site became active, there were 1500 visitors in total and 4200 page loads (November 06 to April 07). In the first 6 months after the second assessment tool went live, there were again about 1200 website visits with about 1/3 of visitors taking the second assessment tool.

In the 8 months since the google analytic tools was added and since the increase in promotional work, there have been 10,710 visitors with 39,324 pages being viewed - about 1300 visitors a month ( rather than in 5 or 6 months) with nearly 5000 page views a month.

Benchmarking the website traffic against sites of similar size which address substance abuse demonstrated that the WWW website receives more new visitors, they stay longer and they view more pages than other sites.

It is also clear that the number of visitors increases whenever there is a promotional activity. The higher numbers in November of 2008 coincide with Drug Awareness Week promotions across the province, as well as apolnet listserv information, and the workshop with students at the CSDDP conference, while the spike in numbers in January coincides with the national webinar through the Healthy Schools Coalition, plus secondary school and campus workshops.

### **Conclusions**

Lessons Learned: What worked -

- Marijuana use continues to be a challenge for educators and treatment providers as well as parents and some youth. While trends show that use is stabilizing, it does not seem to be decreasing as might be hoped. Currently there are few education or awareness programs addressing only marijuana use except those looking at primary prevention. For those youth who are already using, there need to be comprehensive and effective programs to support

potential changes in behaviour. We believe *What's With Weed* is one program that will help schools and campuses in these endeavours.

- However, we understand that the issue itself and the WWW activities are challenging when it comes to schools and campuses where drug policies do not support a spectrum of services for those who use marijuana. As well, the *What's With Weed* program takes a large investment in time and resources if the program is followed in the way set out to give the best results. Each secondary school is expected to deliver seven activities addressing staff, parents, senior students, peer educators and younger students. At the campus level it means spending time to address an effective communications campaign including the training of peer educators. The legal status of marijuana increases the challenges because so much time is spent on something that many see as an enforcement issue alone. We have learned through this project however, that if the school buys into a comprehensive approach, and invests the time and resources, their outcomes will be similar or better than what we have seen.
- Partnership is key. The collaboration between education and treatment providers supporting peer educators in this project ensured that both non-users and users were getting and giving information which was accurate, realistic and important
- Always involve youth. Get them on board early in the process as part of the needs assessment, as part of the training day and as evaluation consultants
- Recruiting students is very important. Those schools which identified a specific group of students who would be peer educators (“voluntold”) had poorer outcomes
- Invite students who are users as well as those who are non-users. No one has to actually declare their use patterns, but make sure users know that they are welcome.
- School drug policies which mandate zero tolerance are not effective in reducing drug use. This is shown time and again in the research. School drug policies must include education and support as well as punishment to be effective in meeting the needs of students and helping those who are using problematically to change their behaviour
- Extended funding support was very important. It gave the project the time that it required to see results

What didn't work:

- As was addressed in the report, reaching parents was very challenging. The strategy for increasing their awareness about the project was comprehensive – reaching them through the media, and then within communities by intermediaries, but tracking that was very difficult and the impact of the outreach was not identified.

## **Recommendations**

It is clear the “*What's With Weed*” program has been successful in meeting the needs of its different audiences to increase awareness of the risks associated with marijuana use as well as develop effective resources to support responding to that use – resources for individuals, schools, campuses and communities.

What is not clear is whether the increase in awareness of risks, and an increase in knowledge of options for change, and a new tool for change (the website) has resulted in actual changes in behaviour beyond anecdotal responses from treatment providers, peer educators, public health staff, campus representatives and students themselves. A more comprehensive study of these changes would be needed to determine behaviour change.

Health promotion has been the main approach of the project and it has proven to be a useful framework for the activities:

1. Awareness and education.

- a. When the project began it was assumed that the project fit criteria for targeted education – for those who were using marijuana and doing so problematically. However, given the number of youth using marijuana and the common perception that marijuana is a benign substance, it was clear that education was necessary for a universal audience. There continues to be controversy about harm reduction as a part of universal drug educational initiatives and curriculum, however as more research into best and better practices comes to light, identifying ways to reduce risks associated with marijuana use which do not necessarily include abstinence are being seen as effective and helpful without condoning or promoting use.

2. Re-orientation of health services

- a. According to best practices for youth treatment and the Ottawa Charter, health services need to embrace a spectrum of services from prevention and education, to harm reduction as well as treatment. *What's With Weed* provides a process where this spectrum can be supported. As well as the education and awareness opportunities, there are two channels for assessment and support. In the school-based program, youth counselors are part of the school's WWW planning team. They are introduced during assemblies and support the peer educators' workshops. This "Change Facilitator" may be an existing staff person or a community service person. The "Stages of Change" model is a predominate feature of the program. As noted, evaluations demonstrated a marked increase in awareness of these services and in several schools there was an increased uptake in counselling services. The collaboration between education and treatment providers is a successful model when addressing marijuana use, particularly in school settings
- b. The second tool for assessment and referral is the website [www.whatswithweed.ca](http://www.whatswithweed.ca) where students can assess their use then click to hear how others have changed or they can move to a referral site. Online assessment and feedback is a proven tool for many drug problems including alcohol and tobacco.

3. Supportive environments and community action

- a. The project's guiding principles identified the need for inclusion of young people who were using marijuana as well as those who were not. This ensured that youth could share what they saw as risks or potential problems as well as what they saw as helpful in reducing these risks. To date, the feedback from both users and non-users is that the mix of students is a good idea.
- b. On the website, five young people discuss their use and what they have done to avoid, reduce or prevent problems. Strategies range from cessation to harm reduction. Some are very strong in their belief that they must be abstinent from cannabis. There are others who believe that as long as they are only using in moderation, problems are minimal. What is happening in this discussion however is that young people are moving from denying any problems with "weed" to identifying when and how it may become a problem.

4. Healthy public policy
  - a. While specific policies have yet to be developed, “*What’s With Weed*” has the potential to influence the development of effective drug use policies with secondary schools and with campuses. Currently, many school and campus drug policies do not reflect what is deemed to be a healthy policy. There are few opportunities to learn about cannabis, and assessment of and support for problematic use is not discussed. This was identified as a singular concern at campuses where students may be suspended or expelled from residence for their use

## Recommendations

1. The Ontario Ministry of Health and Long Term Care has recently revised the Ontario Public Health Standards including programs for injury and substance abuse prevention. *What’s With Weed* is a resource that can be very helpful for staff working with secondary schools and campuses. **It is recommended that Parent Action on Drugs continue to provide access to the program and support with the resources, and to develop collaborative partnerships with public health to sustain this work.**
2. Specifically with regard to the campus program, the consultations with campus representatives indicate that problematic marijuana use is an emerging issue. **It is recommended that a community of practice begin to develop around this issue with PAD and BACCHUS taking the lead for support and promotion.**
3. While the program and resources developed to date have proven to be effective in increasing awareness of risks and risk reduction , actual behaviour change has not been noted. **It is recommended that further resources be put in place to support long-term evaluation on changes to behaviour because of the program and resources.**
4. Marijuana use will be a challenge for health promoters, educators and treatment providers as long as the debate about its risks and benefits continues. **Given the positive results of this program, and the wealth of knowledge gained by the organization over the past four years about challenges and effective responses, it is recommended that PAD continue to support intermediaries in finding ways to address marijuana use that will increase the health and safety of young people within this challenging environment.**

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Appendices –

I. Annotated bibliography

### Levels of Use:

1. Adlaf et al, 2007, Ontario Student Drug Use and Health Survey, Centre for Addiction and Mental Health, Toronto, Ontario.  
“ 26% of all Ontario students in Grades 7-12 report using marijuana at least once in last 12 months. By Grade 12, this increases to 44.7%. About 1/5 of all users use weekly and another 10% use daily. Among cannabis users, about 10% indicate dependence. Perceptions of risk increase with grade for most drug use but decrease with grade for cannabis.”

2. Adlaf, Edward M., Demers, Andrée, and Gliksman, Louis (Eds.)  
Canadian Campus Survey 2004. Toronto, Centre for Addiction and Mental Health. 2005.  
Available online:  
[http://www.camh.net/research/population\\_life\\_course.html](http://www.camh.net/research/population_life_course.html)  
“ 35% of post-secondary students report use in the previous year, 17% report use in the last month and 6.3% report daily use.”
3. DATIS (Drug and Alcohol Treatment Information System)\_Substance Abuse Statistical Tables, 2008, available online at <http://www.datis.ca/download/SA%20Statistical%20Tables%20v1.pdf>  
“8-19% of new admissions for treatment in 2008 were from the age group 16-24 and about 30% of that group identify cannabis as their presenting problem substance”.

### **Cannabis Risks and Reality in Research:**

#### *Mental Health and Addiction:*

4. Zammit, S., Lingford-Hughes, A., Barnes, T., Jones, P., Burke, M., Lewis, G ( 2007), Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review, *The Lancet* (2007) 370:319-328  
“The evidence is consistent with the view that cannabis increases risk of psychotic outcomes independently of confounding and transient intoxication effects, although evidence for affective outcomes is less strong. The uncertainty about whether cannabis causes psychosis is unlikely to be resolved by further longitudinal studies such as those reviewed here. However we conclude that there is now sufficient evidence to warn young people that using cannabis could increase their risk of developing a psychotic illness later in life.”
5. Coffey, C, Carlin, J, Lynskey, M., Li, N. Patton, G, (2003) Adolescent Precursors of Cannabis Dependence: Findings from the Victorian Adolescent Health Cohort Study, *British Journal of Psychiatry* (2003) 182 (330 – 336)  
“ Regular cannabis use increased the risk for dependence only in the absence of persistent problematic alcohol use.”
6. Hall, W, (2006), The Mental Health Risks of Adolescent Cannabis Use, *PLoS Med* 3 (2):e39  
“The major explanations of this association (cannabis use and schizophrenia) have been that: (1) cannabis use precipitates schizophrenia in persons who are vulnerable to the disorder (2) cannabis is used to self-medicate symptoms of schizophrenia, or (3) the association arises from uncontrolled confounding by variables that predict an increased risk of both cannabis use and schizophrenia “
7. Fergusson, D., Poulton, R, Smith, P, and Boden, J, (2006), Cannabis and Psychosis, *BMJ*, 2006; 332; 172-175  
“ Neuroscientific studies show that cannabis may lead to psychosis through effects on the processing of dopamine in the brain.  
Taken together, this evidence suggests a causal relation in which frequent use of cannabis leads to a greater risk of psychotic symptoms.  
The implications for policy and the legal status of cannabis are unclear as most people who use cannabis do not develop psychotic symptoms.”

8. Henquet, C., Krabbendam L., Spauwen, J., Kaplan, C., Lieb, R., Wittchen, H., van Os, J (2005), Prospective cohort study of cannabis use, predisposition for psychosis and psychotic symptoms in young people, *BMJ* 2005; 330;11  
 “ What is already known on this topic? – It is generally accepted that cannabis use is strongly associated with psychosis but we do not know whether the association is causal or whether those with a predisposition for psychosis are particularly at risk. What this study adds? – Cannabis use in young people moderately increased the risk of developing psychotic symptoms. The risk was much higher in those with a pre-disposition for psychosis. Predisposition at baseline did not predict cannabis use at follow up thus refuting the self-medication theory”.
9. Looby A, Earleywine, M, (2007), Negative consequences associated with dependence in daily cannabis users, *Substance Abuse Treatment, Prevention, and Policy*,2007, 2:3 Available also as well at <http://www.substanceabusepolicy.com/content/2/1/3>  
 “ The notion that cannabis use in moderation may not be problematic, especially if alcohol consumption is also limited, might be particularly salient to those users who recognise problems associated with cannabis use but who are not motivated to completely abstain”

*Injuries:*

10. Mann, R., Adlaf E., Zhao, J., Stiduto G., Ialomiteanu, A., Smart, R., Asbridge, M, ( 2007) in press, Cannabis Use and Collision Risk: Cannabis Use and Self-reported Collisions in a representative Sample of Adult Drivers, *Journal of Safety Research*, received from author.  
 “While the overall prevalence of driving after cannabis use in the general population is relatively low, among cannabis users and some sub-groups of the population such as high school students and university student, the prevalence is relatively high. Our data reveals an association of cannabis use and driving under the influence of cannabis with increased likelihood of collision.”
11. Asbridge, M., Poulin, C, Donato, A (2005), Motor vehicle collision risk and driving under the influence of cannabis: Evidence from adolescents in Atlantic Canada, *Accident Analysis and Prevention* 37 (2005) 1025-1034  
 “The current study found that among the general adolescent population in Atlantic Canada, driving under the influence of cannabis has become a prevalent activity surpassing driving under the influence of alcohol, and it has played an important role in motor vehicle collision risk, independent of drinking and driving, driver experience and other risk factors.”
12. Adlaf, E, Mann, R., Paglia, A, (2003), Drinking, cannabis use and driving among Ontario students, *CMAJ*, Mar. 4, 2003;168 (B), 565-566  
 31 % of students identified driving with someone who had been drinking, and 15% reported driving after consuming 2 or more drinks. Nearly 20% reported driving after consuming cannabis.
13. MacDonald S., Anglin-Bodrug K., Mann, R., Erickson, P., Hathaway, A., Chipman, M., Rylett, M, ( 2003) Injury risk associated with cannabis and cocaine use, *Drug and Alcohol Dependence* 72 ( 2003) 99-115  
 “Studies of non-clinical samples have shown that both cannabis and cocaine use are related to intentional injuries and injuries in general. Results indicate higher risk for all types of injuries among cannabis and cocaine clients in treatment. Strengths and limitations of the different

types of studies are discussed. More rigorous studies are needed which should focus on ruling out alternative explanations for relationships between drug use and injuries.”

*Chronic disease:*

14. British Lung Foundation, 2002, “A Smoking Gun? The Impact of Cannabis Smoking on respiratory Health, found at [http://www.lunguk.org/Resources/British%20Lung%20Foundation/Migrated%20Resources/Documents/A/A\\_Smoking\\_Gun.pdf](http://www.lunguk.org/Resources/British%20Lung%20Foundation/Migrated%20Resources/Documents/A/A_Smoking_Gun.pdf)  
“Studies comparing the clinical effects of habitual cannabis smokers versus non-smokers demonstrate a significantly higher prevalence of chronic and acute respiratory symptoms such as chronic cough and sputum production, wheeze and acute bronchitis episodes.3-4 Cannabis cigarettes a day are associated with the same evidence of acute and chronic bronchitis and the same degree of damage to the bronchial mucosa as 20 or more tobacco cigarettes. In general, the studies indicate that there is an increased negative health impact on those who smoke cannabis compared to those who do not smoke at all. When cannabis is smoked together with tobacco then the effects are additive. However, what is not clear is whether it is the addition of the cannabis or the tobacco which is more harmful or whether this is the result of the combined effects of equally harmful substances.”

**Cannabis Risks and Reality from Users:**

15. Hathaway, Andrew, (2004), Cannabis careers reconsidered: transitions and trajectories of committed long-term users, *Contemporary Drug Problems* 31/Fall 2004.  
“The findings from this study suggest that the association between levels (of use) and problems is not necessarily straightforward. Problematic use of cannabis is highly subjective and inexorably dependent on context and circumstances.”
16. Hathaway, Andrew, (2004), Cannabis users’ informal rules for managing stigma and risk. *Deviant Behaviour*, 25: 559-577, 2004  
“ Experienced users develop strategies to manage their risks that are most salient to the situated context of their lifestyles. Perceived risks clearly vary, and yet there are generic features that permeate most users’ perceptions of control. Advice for novice users is generally consistent across all categories, suggesting the informal rules are recognized in practice. Moderation and discretion are the dominating themes around amounts and frequency, and where and when to use.”
17. Hathaway, Andrew, (2003), Cannabis Effects and Dependency Concerns in Long-Term Frequent Users” A Missing Piece of the Public Health Puzzle, *Addiction Research and Theory*, December 2003, Vol. 11 No. 6, pp 441-458  
“Whereas concerns about use levels nonetheless overshadowed other dependency indicators, including concern for personal health, however, no association was found between amounts nor frequency of use and the number of DSM-IV items reported by respondents. Users acknowledged and accepted the potential for dependence, adapting use levels accordingly when seen as problematic.”

18. Moffat, B., & Johnson, J. (2006). Marijuana use by youth: When is it a problem? *Visions*, 3, no. 2, pp. 13-14.  
 “As noted, teens use marijuana to manage the difficulties in their lives. Often, youth smoke marijuana because they feel there are no other options. However, frequent use can affect teenagers’ school performance and their relationships with family members. Earlier and greater involvement with marijuana has also been associated with increased risk of poor mental health. Frequent use is a concern for some youth; they acknowledge the difficulties they have cutting back or quitting. Frequent use may well be a sign of other distress in their lives.”
19. Moffat, B., Mulvogue, T., Haines, R., & Johnson, J. (2007). TRACE Project: ‘L’ School students talk about marijuana, Nursing and Health Behavior Research: Unpublished report. Available through [nahbr@nursing.ubc.ca](mailto:nahbr@nursing.ubc.ca)  
 In this ethnographic study, students from a secondary school spoke about the culture of cannabis use including reasons for using, and patterns of using that could be seen as dependent “Youth refer to this pattern as “wake and bake,” and they apply the terms “stoner,” “chronic” and “lifer” to themselves and others who use marijuana often.” Students identified that they enjoyed the opportunity of just talking about marijuana, not being told not to do it.
20. Moffat, B., Mulvogue, T., Haines, R., & Johnson, J. (2007). TRACE Project: ‘T’ School students talk about marijuana, Nursing and Health Behavior Research: Unpublished report. Available through [nahbr@nursing.ubc.ca](mailto:nahbr@nursing.ubc.ca)  
 Similar process as above but with middle school students. Again, students identified the value in talking about cannabis and not being shut down.
21. Tutt, A et al, 2008, “What’s With Weed”: A program to reduce problematic marijuana use in secondary schools Niagara Region Pilot Project
- I found this was very important for everyone and I think everyone learned something new and important about marijuana.
  - I learned a lot from the workshop about weed.
  - Well, before this workshop, I knew most of the risks they just explained it better.
  - I already decided that I would never use marijuana. This did not change that
22. Cunningham, J and Selby, P, 2007, “Implications of Normative Fallacy in Young Adult Smokers, Aged 19-24”, *American Journal of Public Health*, 2007;97  
 “Approximately three quarters of young adult (aged 19-24 years) smokers overestimated by 20% or more the proportion of their peers who smoked. The effect of this normative fallacy was significantly greater in young adult smokers than in smokers aged 25 years or older”
23. Glover, Chris, (2005)(2006), “Youth to Youth – The Risks and Realities of Marijuana Use”, Evaluation Reports for “What’s With Weed” Project, Years 1 and Year 2 for Parent Action on Drugs. Health Promotion Consulting Group, Toronto, Ontario. Available from the Executive Director, Diane Buhler, Toronto (416) 395-4970  
 “Grade 9 students said – “I became more aware of risks I had never thought about.” “It won’t change if I use it or not, but I know it’s risky now.” “What changed my mind was knowing that it could hurt my relationships with people who I care about.”

## Best Practices

*Social Marketing, Drug Awareness and Education,*

24. Legarde, Francois, 1998, "Best Practices and Prospects for Social Marketing in Public Health" Canadian Public Health Association Conference, accessed at Health Canada website [http://www.hc-sc.gc.ca/ahc-asc/activit/marketsoc/tutorial-guide/appendix-annexe\\_a-eng.php](http://www.hc-sc.gc.ca/ahc-asc/activit/marketsoc/tutorial-guide/appendix-annexe_a-eng.php)  
"Social marketing is the application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society."  
(Andreasen, 1995)
25. Tupper, K. W., "Teaching teachers to just say "know": Reflections on drug education", *Teaching and Teacher Education* (2007)  
"This article looks at the history and queries the purposes of contemporary drug education. It compares current approaches to drug education with those of other "vice" issues addressed in the history of public schools, such as sex education and temperance education. It critically challenges the question of knowledge definition and production related to psychoactive substances. Finally, some of the theoretical groundings on which to base teacher education for drug education are considered."
26. Tupper, K.W. "Drugs, discourses and education: a critical discourse analysis of a high school drug education text", *Discourse: Studies in the Cultural Politics of Education*, Vol. 29, No. 2, June 2008, 223\_238  
"Paying careful attention to features such as genre, syntax, interdiscursivity, and lexicalization, (the author) questions core assumptions made by both a drug education text and the broader medical, public health, legal and drug policy discourses from which it draws."
27. Canadian Centre on Substance Abuse (2007). *Substance Abuse in Canada: Youth in Focus*. Ottawa, ON: Canadian Center on Substance Abuse, extracted from website, [www.ccsa.ca](http://www.ccsa.ca)  
"Rather than focusing solely on drug-related knowledge, prevention programs need to use techniques that directly address participants' attitudes in order to help them acquire skills they can use to resist drug abuse. The most effective prevention programs usually rely on the active participation of peers to provide a positive influence. They teach participants to reframe their perceptions and to adopt refusal strategies, while remaining interactive and focused on rational and behavioural learning."
28. Join Together Online, 2007, *Prevention Education in America's Schools: Findings and Recommendations from a Survey of Educators*, published by Join Together, Boston University School of Public Health, extracted from website for Join Together Online, <http://www.jointogether.org/resources/2007/prevention-education-in.html>  
"Schools should not be relied upon or act as the principal provider of general prevention education. They can and should play a role as part of a comprehensive community prevention strategy including parents and other social institutions."  
"School systems should carefully re-evaluate money and time spent on outside programs and speakers and unfocussed printed materials because they are likely to have no lasting impact on what students know about alcohol and drugs or on their drinking or drug-taking behaviour."

29. Cheon, J.W. (2008). Best practices in community-based prevention for youth substance reduction: Towards strengths-based positive development policy, *Journal of Community Psychology*, 36, 761-779.  
 “In this article, the author offers a best practice analysis of systematic review about 12 selected community-based preventions, and proposes policy changes towards incorporating a strengths perspective. A substantive, methodological, and value-based critical analysis of the strongly effective preventions was conducted. A strengths-based positive youth development perspective is specified as one feasible needed improvement and subsequent policy changes in the school district as well as in the local, state, and federal levels are proposed along with the suggestion of a mandated community youth participation strategy.”
30. Werch, C. E. & Owen, D. M. (2002). Iatrogenic effects of alcohol and drug prevention programs. *Journal of Studies on Alcohol*, 63, 581-590.  
 “Evidence of negative program effects was found in 17 evaluation studies for which 43 negative outcomes were documented. The most common type of negative outcome resulting from prevention programs was behavioral effects consisting primarily of increases in consumption, especially alcohol use. Drug prevention programs resulted in greater increases in alcohol use, cigarette use, marijuana use and multiple drug use than did alcohol prevention programs.”

#### *Intervention, Counselling*

31. Currie, Janet, 2001, “Best Practices for Treatment and Rehabilitation for Youth with Substance Use Problems”, Health Canada, accessed at [http://www.hc-sc.gc.ca/hl-vs/alt\\_formats/hecs-sesc/pdf/pubs/adp-apd/youth-jeunes/youth-jeunes-eng.pdf](http://www.hc-sc.gc.ca/hl-vs/alt_formats/hecs-sesc/pdf/pubs/adp-apd/youth-jeunes/youth-jeunes-eng.pdf)  
 “A realistic view of relapse, a focus on harm reduction, a client-centred, flexible approach to treatment and involvement of the family are essential approaches to retain youth in treatment. A broad psycho-social approach with a focus on skill building, culturally appropriate activities (where applicable) and a recreational component are seen as optimal components of youth treatment.”
32. Breslin et al, “First Contact: A Brief Treatment for Young Substance Users” in Youth, Drugs and Mental Health: A Resource for Professionals, 2004, Centre for Addiction and Mental Health.  
 “Designed to strengthen young clients' motivation and commitment to change, this outpatient program combines elements of cognitive-behavioural and motivational interviewing approaches. The program can be a first step for youth with substance use problems, fostering motivation for change before addressing more specialized or long-term needs.”
33. Marlatt et al, 1998, “Screening and Brief Intervention for High-Risk College Student Drinkers: Results From a 2-Year Follow-Up Assessment, *Journal of Consulting and Clinical Psychology*, August 1998 Vol. 66, No. 4, 604-615
34. Walters, S, Baer, K., *Talking with College Students about Alcohol: Motivational Strategies for Reducing Abuse*, The Guilford Press, New York, 2006
35. Martin, G et al, 2004, “The Adolescent Cannabis Check-up: A Brief Intervention for Young Cannabis Users. Findings and Treatment Manual”, Technical report Number 200, National Drug and Alcohol Research Centre, University of New South Wales, Sydney, 2004,

“Through the explicit inclusion of non-treatment seekers in the trial the project broadened the potential catchment for participants in an intervention, which may be particularly relevant for this age group who are rarely active treatment seekers. The trial’s focus on early and brief intervention for young cannabis users (irrespective of treatment seeking) is consistent with the goal of providing access to effective, low cost, low intensity intervention at a population level to any young people who may benefit from it”. Available at [http://ndarc.med.unsw.edu.au/NDARCWeb.nsf/resources/TR\\_3/\\$file/TR.200.pdf](http://ndarc.med.unsw.edu.au/NDARCWeb.nsf/resources/TR_3/$file/TR.200.pdf)

36. Cunningham, J, (2006), “Internet-based Interventions for Alcohol, Tobacco and Other Substances of Abuse”, in Peter Miller and David Kavanagh (Eds.). Translation of Addictions Science into Practice: Update and Future Directions, Elsevier Publishers.
37. Cunningham, J et al, (2009), “The Check Your Cannabis screener: A new online personalized feedback tool” (in press)(available on request from Parent Action on Drugs)
38. MacMaster, S.A., Holleran, L., & Chaffin, K. (2005). Empirical and theoretical support for non-abstinence-based prevention services for substance using adolescents. *Journal of Evidence-Based Social Work*, 2 (1-2), 91-111.  
“This article proposes Harm Reduction as a complimentary or alternative perspective for work with adolescents for whom abstinence may not be immediately possible and/or may not be a realistic outcome for services. This article outlines the abstinence-oriented and Harm Reduction perspectives, as well as the Stages of Change model; utilizing empirical support, it then discusses how these perspectives can work together in social work practice in the adolescent substance abuse prevention arena.”
39. Poulin, Christiane, (2006), Harm reduction policies and programs for youth, Harm Reduction for Special Populations in Canada, CCSA, 2006, extracted from website, <http://www.ccsa.ca/CCSA/EN/Publications/>  
“ Evidence is especially needed as to the age/grade at which school-based drug education can appropriately graduate from a message of “don’t use” to one of, “if you use, remember this.”
40. Poulin, Christiane, Nicholson, Jocelyn, (2005), Should we teach harm minimization to teenagers in school? The production and translation of controversial new knowledge in addictions. In *CIHR Institute of Population and Public Health, Canadian Population Health Initiative, Moving population and public health knowledge into action* (2006) extracted from website [http://www.cihr-irsc.gc.ca/e/documents/ipph\\_ktcasebook\\_e.pdf](http://www.cihr-irsc.gc.ca/e/documents/ipph_ktcasebook_e.pdf)
41. Earlywine M., Barnwell, S, (2007), Decreased respiratory symptoms in cannabis users who vaporize, *Harm Reduction Journal* 2007, 4:11  
“Data from a large Internet sample revealed that the use of a vaporizer predicted fewer respiratory symptoms even when age, sex, cigarette smoking, and amount of cannabis used were taken into account. Age, sex, cigarettes, and amount of cannabis also had significant effects. The number of cigarettes smoked and amount of cannabis used interacted to create worse respiratory problems. A significant interaction revealed that the impact of a vaporizer was larger as the amount of cannabis used increased. These data suggest that the safety of cannabis can increase with the use of a vaporizer.”

### *Student Drug Use Policy*

42. Tracy Evans-Whipp et al, (2004), "A review of school drug policies and their impact on youth substance use", *Health Promotion International*, Vol. 19, No. 2, 227-234, June 2004.  
"The first part of this paper reviews the known status of school policies on tobacco, alcohol and other illicit drugs in a number of Western countries and the existing evidence for the effectiveness of school drug policy in preventing drug use. The review shows that most schools in developed countries have substance use policies but that there is substantial variation in comprehensiveness, and the orientation of their enforcement (e.g. punitive versus remedial). The second part of the paper introduces the International Youth Development Study, a new longitudinal research project aimed at comparing school policies and the developmental course of youth drug use in the United States, where drug policies are abstinence-based, with Australia, which has adopted a harm minimization approach to drug policy."
43. Johnson et al, Johnson, J., Moffat, B., Bottorff, J., Shoveller, J., Fischer, B., & Haines, R.(2008), "Beyond the barriers: Marking the place for marijuana use at a Canadian high school". *Journal of Youth Studies*  
"We trace the interplay between high school staff and students with regards to marijuana use in the proximity of a local high school and the shifting geographies of use in this setting. Groups of students would leave the school and smoke marijuana in school time. Students were aware that they needed to keep their use discrete. Teachers and staff unintentionally conveyed the message that marijuana use was acceptable provided it did not take place on school property. Students and staff thus enacted and reinforced the barriers to open communication about marijuana use."
44. Nova Scotia Department of Health Integrated Primary/Population Health Branch Addiction Services, (2002), *When Drugs Come to School, A Resource Manual for Student Substance Use and School-Based Policy Development*.  
"Best Practices indicates that it is NOT a good idea to implement a zero-tolerance policy (i.e. immediate suspension) regarding student substance use. Instead a series of responses should be outlined using alternatives to suspension, guided by an overall concern for the health, safety, and well-being of the student, staff, family or guardian, and school community."
45. AIMS 2007, Alternative Intervention for Marijuana Suspension (AIMS) 2006/07, University of British Columbia, Okanagan District. Email correspondence from AIMS Program Coordinator Aarin Frigon, November, 2007.  
"Overall, the AIMS Program has shown to be a success and has met many of the goals it set. In relation to marijuana use, it has: 1. Reduced participants use of marijuana before going to school; 2. Reduced participants use of marijuana during breaks at school; 3. Reduced the general frequency of marijuana use among participants in the program."
46. Hathaway, Andrew, Erickson, Patricia, (2003) Drug reform Principles and Policy Debates: Harm Reduction Prospects for Cannabis in Canada, *Journal of Drug Issues*, 0022-0426/03/02 467-496  
"Despite its official manifestation as the goal of Canada's Drug Strategy, the marginality of harm reduction in practice is noteworthy. (In the Canadian Senate Committee's statement of guiding principles in 2002) Scientific evidence is but one of those listed alongside more

fundamental, overarching reflections on ethics and values and the primary role of the State in promoting or restricting individual autonomy.”

47. Swift, Wendy, Copeland, Jan, Lenton, Simon, (2000), Harm Reduction Digest 8: Cannabis and harm reduction, *Drug and Alcohol Review* (2000) 19, 101-112.

“The paucity of information on correlates and consequences of cannabis use among adolescents, particularly its relationship to co-morbid psychopathology, have allowed an ill-informed and polemic community debate about cannabis to flourish. As a result, young people are increasingly skeptical about public messages on the harms associated with cannabis use. School-based programs should at least be based on educational principles rather than drug ideology.”