INTRODUCTION

Most young people have experimented with some form of substance: alcohol, tobacco or illegal drugs. Some have gone on to use drugs frequently or to misuse them in a way that causes problems in their lives. This has long been a concern of parents, teachers, public health agencies, police and others.

One way to help young people is to develop effective prevention programs that can not only help them immediately, but also set the stage for better health throughout their lifetimes.

For parents, educators, service providers and policy makers the question is, What works? How do we reach young people and help them live a healthy lifestyle? There is no secret formula, but many options have been tested and evaluated. Programs that recognize the reality of adolescent substance use, and that focus on reducing the potential for related harm, are more likely to be successful than programs that focus on abstinence alone. This document reviews different approaches to education and prevention, and outlines a number of practical implications.

TRENDS IN SUBSTANCE USE

A number of studies have tracked adolescent substance use, giving us a revealing picture of the drugs young people use and how they use them. Surveys of students in several jurisdictions indicate that, after an increase in the early 1990s, youthful substance use has levelled off. However, even with the increases, overall substance use is still lower than it was in the late 1970s and early 1980s. This is true for other provinces and the United States, as well as Ontario. Currently, the use of alcohol, tobacco and illicit drugs is relatively stable.

Ontario

The longest ongoing study of adolescent substance use in Canada is the Ontario Student Drug Use Survey, conducted by the Centre for Addiction and Mental Health (Addiction Research Foundation division). Since 1977, surveys have been conducted every two years in schools across Ontario, among students in Grades 7, 9, 11 and 13.

Among students, the three most-commonly-used drugs are alcohol, tobacco and cannabis (marijuana, hash, hash oil). The 1997 Ontario survey found that 75 per cent of students had used alcohol in their lifetime and 60 per cent had used during the past year (Adlaf et al., 1997). Roughly 40 per cent of young drinkers (past year use) reported becoming drunk or consuming at least five drinks on one occasion.

In the same survey, 50 per cent of students reported using tobacco at some time in their lives, while 28 per cent were current smokers (past year use). Cannabis is the most common illicit drug, with 30 per cent reporting use at least once in their lives and 25 per cent reporting use in the previous year.

Age of First Use

The first use of alcohol, tobacco, and cannabis occurs at a later age for today's students than it did for students growing up in the late 1970s and early 1980s (Adlaf et al., 1997). A recent study of Ontario students showed that the average age of first use for alcohol and tobacco is approximately 12 (Grade 7), while the average age for first marijuana use is about 14 (Grade 9) (Adlaf, Ivis et al., 1996).

"Binge drinking," defined as consuming five or more drinks on one occasion, usually begins between the ages of 13 and 15 and is more common among males (Windle et al., 1996).

Substance Use and Adolescent Development

Adolescence is a time for people to experiment and form their own identities. Part of this developmental process includes risk taking, whether it be unsafe sex, dangerous driving, not using seat-belts, or substance use. Motives for experimenting with substances vary. Some young people see alcohol and other drug use as a form of rebellion or as a way to facilitate social bonding or increase their status among peers. They may also view

substance use as a way to find pleasure, alleviate boredom, satisfy curiosity, or escape or cope with problems (Amos et al., 1997; Arnett, 1992; Banwell & Young, 1993; Franzkowiak, 1987; Igra & Irwin, 1996; Wilks, 1992).

Substance use can also be a symbolic behaviour. Drinking or drug use is often a performance in front of peers and others, expressing solidarity within a group or marking off social boundaries (Room, 1994). Messages about not drinking or smoking "until you are old enough" have a double edge. They reinforce the status of alcohol or tobacco use as adult activities. In light of the social acceptance of drinking and smoking among adults, young people see abstinence messages as hypocritical and are likely to reject them (D'Emidio-Caston & Brown, 1998).

Experimentation with alcohol or illicit drugs is common among Canadian teenagers. Yet, most adolescents who try alcohol or other drugs do not become frequent or problem users. Substance use usually declines when people are in their mid-to-late 20s (Chen & Kandel, 1995; DeWit, Offord et al. 1997; Kandel & Logan, 1984). This "maturing out" process usually happens when young people assume adult responsibilities (Bachman et al., 1997).

Many researchers consider alcohol and tobacco to be "gateway" drugs because a person's marijuana use is most often preceded by the use of tobacco and alcohol. Similarly, the use of "harder" illicit drugs, such as cocaine and heroin, is generally preceded by marijuana use (Kandel et al., 1992; Yamaguchi & Kandel, 1984a, 1984b). However, the use of "softer" drugs does not necessarily lead to "harder" drug use (Peele & Brodsky, 1997). Indeed, a large majority of people who use alcohol, tobacco, and marijuana *do not* progress to use cocaine or heroin.

STRATEGIES TO PREVENT SUBSTANCE USE

EDUCATION AND SKILL DEVELOPMENT APPROACHES

Educating young people about alcohol, tobacco and other drugs and the risks associated with their use has been a primary feature of most prevention initiatives. Prevention efforts have also focused on helping youths develop life skills to help them avoid problems with substance use. While prevention programs have often focused on schools, important initiatives have also made use of mass media campaigns and community- and family-based programs.

School Programs

Truly effective prevention programs in schools are difficult to implement. The most promising of the prevention approaches to date is the social influence model. The basic premise is that youths who use substances do so because of social pressures from peers, the family, and the media, as well as internal pressures (e.g., the desire to be "cool" and popular). Social influence programs provide information on health and social consequences and attempt to motivate students to resist the pressures to use. (Ellickson, 1995).

However, some studies have shown that it is not "peer pressure" *per se* that leads to substance use. Rather, it may be "peer influence" or "peer preference." Only rarely is there overt coercion by peers to try drugs. And most adolescents are not socially incompetent and lacking in self-esteem. They play an active role in decisions of first use, already having the intentions or "readiness" to experiment, and tend to select users as peers (Banwell & Young, 1993; Coggans & McKellar, 1994; Michell & West, 1996; Warner et al., 1997).

Research has also identified several approaches that have not been successful. These include approaches that simply provide information about

alcohol, tobacco and other drugs (Botvin, 1995; Tobler, 1992); those that provide only information on the health risks and consequences of drug use (Bachman et al., 1991); and those that focus exclusively on personal problems such as low self-esteem, inadequate social skills, and poor values (Donaldson et al., 1995; Hawthorne et al., 1995; Tobler, 1992).

By studying both effective and ineffective prevention programs, researchers have identified a number of features that are associated with positive results. Based on this research, it is possible to make the following recommendations to increase the success of school-based programs for the general student population.

Structure

- Programs should be on-going from kindergarten to the final year of high school, and should be especially intensive just prior to the average age of first use.
- Different approaches should be used for various subgroups (e.g., those with different levels of drug sophistication, levels of use or demographic characteristics).
- Programs should involve students in curriculum planning and implementation.

Content

- Programs should discuss the reasons people use drugs — e.g., for self-discovery, self-expression or some perceived benefit — and present alternatives to substance use.
- They should present honest factual material. Where there are no answers, program leaders should admit it. Programs should present both the dangers and the benefits of using and not using drugs, and focus discussion on short-term effects. Students will dismiss information that they perceive as contradictory to their personal experiences or reflecting adult exaggeration and hysteria.
- It is important to discuss and correct perceptions regarding occasional or social use; life-skills development may also be beneficial (e.g., assertiveness, decision-making and communication techniques).

Delivery

- It is important to provide a tolerant atmosphere, free of moralizing and scare tactics; there should be an open dialogue between the program leader and students.
- Programs should emphasize active learning about drug effects rather than relying on passive lectures and films; interactive delivery methods, such as small-group discussions and role playing, are best.
- Program leaders should be people the students trust, and who will present the facts accurately and in an unbiased manner. Teachers can be effective with assistance from peer leaders. It is important to choose peer leaders carefully; rigid social groups already exist among students and, consequently, some students may be alienated or plainly "turned off" by the choice of peer leader.

For school-based programs to have the greatest impact, it is also important that anything taught in the school be reinforced in the community by parents, the media and health policies.

Programs for Students at Risk

Schools can also deliver programs targeted to young people who are "at-risk" for problems related to their substance use. This includes youths who may become dependent on substances and develop problems that continue into their adult years.

Opening Doors (Addiction Research Foundation, 1995) is a program for at-risk students in Grades 8 to 10. The program aims to prevent or reduce substance use and other problems, such as dropping out of school and violence. In this context, "at-risk" is defined as those likely to experience drug use, truancy, school problems or violence. The preliminary results of an evaluation of Opening Doors were encouraging (DeWit, Braun et al., 1997). After participating in the program, at-risk students were found to drink alcohol less frequently, to have

less favourable attitudes to alcohol, tobacco and cannabis use, and to be less susceptible to peer pressure to misbehave or behave violently. Opening Doors has been implemented in more than 50 communities throughout Ontario and will be introduced elsewhere, as needed.

Mass Media Campaigns

For several decades mass media campaigns have been used in attempts to reduce youthful substance use. Such campaigns have the potential to be effective communication and education tools. Young people report obtaining most drug information from television, followed by parents and other print media (Mirzaee et al., 1991).

However, studies have shown that mass media campaigns have had their greatest impact on increasing knowledge and awareness, but modest success in affecting attitudes and behaviours (Bauman et al., 1991; Murray et al., 1994; Popham et al., 1994).

The mass media are most likely to be effective when they are used to set the agenda for public discussion (Pentz, 1995; Redman et al., 1990). For example, they are believed to have been a significant factor in making drinking and driving socially unacceptable and increasing public support for tougher laws (Casswell et al., 1989; Zunz, 1997).

Alternative Activities and Youth Groups

One prevention strategy, popularized in the 1970s, is to provide youths with recreational activities and projects, such as tutoring, sports, art, entertainment or business ventures. It is believed that these programs provide participants with a sense of responsibility, self-esteem and fulfilment and an environment that reinforces community values.

However, on their own, alternative activity programs have not been found to substantially decrease rates of substance use among participants (for a review see Norman et al., 1997). Still, this does not rule out the possibility that such programs could play an important role in larger community interventions.

Family-Based Approaches

In recent years there has been a growing "parents' movement" in the United States. While the movement has also had more general policy concerns, it has focused on the role of parents in preventing drug use and abuse. Based on research related to the development of alcohol and drug use among young people, this movement has promoted good parent-child communication, having parents serve as positive role models, and strong parenting skills as strategies to prevent or reduce youthful substance use.

The Strengthening Families Program (Kumpfer et al., 1989, 1997) is an example of a successful prevention program. The target group is six- to 10-year-old children of substance abusers (a program for children aged 11–14 has also been recently designed). Strengthening Families includes parent training, children's skills training (designed to increase socially acceptable behaviour) and family skills training to improve family interaction. The Centre for Addiction and Mental Health is adapting and pilot testing the Strengthening Families Program in Ontario in collaboration with community partners.

An evaluation of the original experiment showed that the combination of the three skills training components was the most effective in reducing children's problem behaviours, as well as *intentions* to use alcohol and tobacco. Improvements were also found in parenting skills, family conflict and family communication (DeMarsh & Kumpfer, 1986). Generally, these positive results have since been replicated across different ethnic subgroups in urban and rural settings (Aktan et al., 1996; Kumpfer & Alvarado, 1995; Kumpfer et al., 1996). Results of a five-year follow-up study should be forthcoming, which will likely speak to the issue of whether the program can be effective in preventing substance use among adolescents in high-risk families.

Multi-Level Community Approaches

Research suggests that comprehensive community programs are more promising than the single preventive strategies discussed above. This type of program requires participation from various sectors: schools, families, workplaces, churches, governments and the mass media.

The Midwestern Prevention Program (MPP) is an example of an ambitious five-year program implemented in Kansas City and Indianapolis during the late 1980s (Pentz, 1986; Pentz, et al., 1989). The MPP consisted of five components sequentially introduced into the community: a school program (Project STAR), a parent program, mass media advertising, community organization, and policy changes that restricted access and availability. The aim in using different methods at various times was to make the prevention messages novel and memorable.

The evaluation of the program at a one-year follow-up indicates that students who participated in Project STAR showed significantly lower rates of tobacco, alcohol and marijuana use compared to the control group (Pentz, et al., 1989). After three years, the rates for tobacco and marijuana use were still low, but the prevalence of alcohol use was not significantly different from the control group once the students reached senior high school(Johnson et al., 1990).

POLICY APPROACHES

Policy approaches have been shown to be effective in reducing problems related to substance use, particularly when combined with other educational and community approaches.

School Policy

While schools appear to have inherited the "drug problem," the reality is that they cannot solve it alone. Nonetheless, a uniform policy on substance use and possession on school property is an important component of a comprehensive prevention strategy for youth.

In Ontario, all school boards were mandated to develop and implement drug education programs and policies by 1991. Guidelines highlighted three major elements of a comprehensive policy: a preventive curriculum, early intervention and disciplinary action (Addiction Research Foundation, 1991). Gliksman and colleagues (1992) sought to assess the impact of school policy on students' levels of alcohol use and related problems. School policies were separated into three categories, depending on how extensive the policies were.

The study showed that drug policies in schools can have some effect on student substance use. Students who were in schools with comprehensive policies showed less alcohol consumption than those with minimal or moderate policies. In addition, students in schools with full or moderate policies showed less frequent heavy drinking.

There has been recent public debate about a "zero tolerance" environment in schools. This would emphasize punishment — ranging from automatic school suspensions to raising the legal age for various activities (e.g., drinking, obtaining a driver's licence) — for students found possessing or distributing any substance, including cigarettes.

However, punitive school policies are not effective in preventing or curbing substance use (Pentz, et al., 1989). Furthermore, imposing sanctions for use may also further alienate those students already at-risk (D'Emidio-Caston & Brown, 1998). The result may be to discourage those who are experiencing or are at risk for drug-related problems from seeking help.

Health Warning Labels

Studies show that cigarette warning messages have had some positive effects on young people. The national 1994 Youth Smoking Survey found the majority of 10- to 19-year-olds have seen the warnings and find them credible and important (Paglia, de Groh, & Pederson, 1996; Paglia, de Groh, Rehm et al., 1996).

A warning label has been on alcohol beverage containers in the United States since 1989. The warning is lengthy, printed in small type and is hard to read. One study evaluated it one year after implementation using a sample of adolescents (MacKinnon et al., 1993). Results showed that only 40 per cent reported seeing the warning, and, not surprisingly, alcohol consumption did not change among youth.

Taxes

Adolescents are sensitive to high prices. Raising the price of alcohol and cigarettes through tax hikes reduces consumption. Studies of Canadian and U.S. increases in cigarette taxes have shown significant drops in smoking among youth (Department of Finance Canada, 1993; Ferrence et al., 1991; Harris, 1987; Lewit et al., 1981; Sweanor et al., 1993). Meanwhile, tax decreases have led to rises in smoking rates (Hamilton et al., 1997) as well as the amount smoked (Brown et al., 1996).

Studies of alcohol taxes have shown similar effects on rates of drinking as well as motor vehicle deaths (Chaloupka et al., 1993; Saffer & Grossman, 1987). Simulation studies show that heavy drinking would be reduced among youth if taxes on alcohol were increased (for a review see Grossman et al., 1995).

Minimum Drinking Age

During the 1980s, the minimum drinking age was raised to 21 in the United States. Subsequent studies have shown that this reduced alcohol-related problems among youth, such as suicides and injuries (Jones et al., 1992; O'Malley & Wagenaar, 1991). Moreover, young people did not turn to marijuana, as is commonly thought to occur when alcohol becomes less available (O'Malley & Wagenaar, 1991). The rise in legal drinking age has also been found to be a factor in reducing the drinking and driving rates among youth (Klepp et al., 1996; Moskowitz, 1989; O'Malley & Wagenaar, 1991; for a review see Wagenaar, 1993).

Deterring Sales to Minors

In Ontario, the main source for cigarettes among students is the local grocery/convenience store. Less than half of the underage youth attempting to purchase tobacco are usually asked for identification (Hobbs et al., 1997). Research demonstrates that, at least in the short-term, enforcing the law restricting sales to minors and/or providing education can reduce the number of over-the-counter sales, and possibly the rate of smoking, among young people (Altman et al., 1991; DiFranza et al., 1992; Feighery et al., 1991; Hinds, 1992; Jason et al., 1991; Keay et al., 1993).

Restrictions for Young or New Drivers

Two studies have found that "zero tolerance" laws regarding blood alcohol levels (i.e., lowering limits to 0.02 per cent or lower) have been effective in significantly reducing alcohol-related car crashes among young drivers (Blomberg, 1992 as cited in Hingson et al., 1997; Hingson et al., 1994). Public awareness campaigns help the laws' effectiveness.

Graduated licencing is a staged approach to obtaining a full-status driver's licence, allowing new drivers to gain experience while minimizing the risks. Early stages do not allow drivers to have any alcohol in their blood, restrict the number and age of the passengers and prohibit driving at night. Studies of graduated licensing in New Zealand and a preliminary study of the Ontario system show that it significantly reduces drinking and driving and the number of crashes among youth (Langley et al., 1996; Mann et al., 1997; Mayhew & Simpson, 1990; Sweedler & Stewart, 1993).

HARM-REDUCTION APPROACHES

It is important to recognize that education and prevention programs have had mixed success in reducing substance *use*, depending on the pattern of substance use among the young people in question. However, programs aimed at reducing both *risky behaviours* and *harmful consequences* related to the use of drugs, particularly alcohol, have shown some success. As a result, the harm reduction model, which starts from a recognition that

most adolescents use alcohol, has gained some acceptance in programs aimed at preventing driving injuries.

In a comprehensive community program aimed at reducing drinking and driving among youth as well as adults, six communities in Massachusetts introduced a variety of initiatives. Among them were: media campaigns, report hotlines, awareness days, peer-led high-school education, Students Against Drunk Driving chapters, alcohol-free prom nights and college prevention programs (Hingson et al., 1996). Results after the five years showed fatal crashes involving 15- to 25-year-old drivers declined by 39 per cent relative to the rest of the state. Furthermore, there was a 40 per cent relative decline in the proportion of 16- to 19-year-olds who reported driving after drinking during the previous month.

IMPLICATIONS

1. The goals of any alcohol and drug prevention program for youth should be realistic. The main goal should be preventing or reducing harms associated with alcohol and other drug use, as opposed to preventing use completely. A positive result of an effective drug prevention program would be to delay a young person's first use of a drug or to limit or shape his/her drug use in a safer way.

2. Alcohol and drug education programs should be based on practical educational principles, not ideology. They should be ongoing from kindergarten to the final year of high school, with messages that are appropriate for different age levels. Educational approaches should be matched to their target audiences, based on age, gender, level of use, attitudes towards drug use, etc. They should combine accurate, factual information and strategies for developing skills such as communication, decision-making and conflict resolution.

3. Alcohol and drug prevention programs should be comprehensive. They should include different components that complement each other, such as media campaigns, in-school programs, family education and policy interventions. Special programs are required to target youth who are at risk of developing problems, as well as general programs for the broad student population.

4. Young people need to be directly involved in program planning and implementation. Programs should capitalize on the strengths of the youth themselves. Young people are well positioned to identify the issues, and develop solutions, as well as deliver appropriate messages to their peers.

5. Policies and regulations can be successful in limiting and shaping substance use, and reducing harm, as shown by the success of graduated driver's licence programs. Policy initiatives should be combined with other approaches.

6. Zero tolerance and other "hard line" approaches do not work and may in fact increase the risk of serious problems. They can end up punishing students who are experimenting, as most adolescents do, and discouraging those students who are at risk of developing problems from getting the help that they need.

7. Alcohol and drug education programs should be evaluated in an ongoing effort to determine what works and what doesn't work.

8. Adults, including parents, educators, service providers and policy-makers**,** need to be informed about drug education. They need to be aware of alcohol drug use and trends among young people, as well as the effectiveness of various prevention approaches.

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