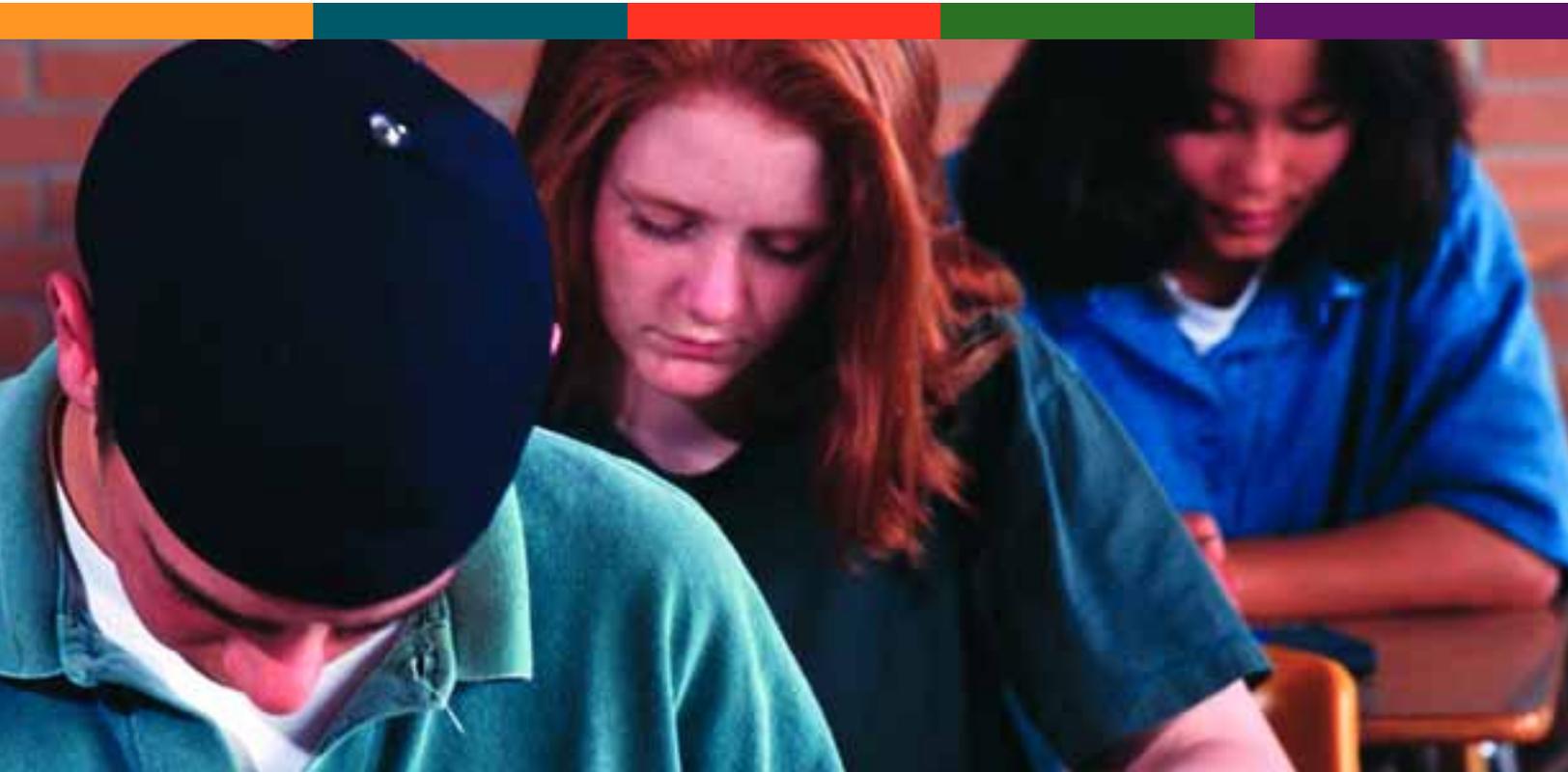# *Literature Review:*

**Best Practices in School-Based
Drug Education for Grades 7-9**

SEPTEMBER 2006

NOVA SCOTIA

**Health Promotion
and Protection**

Addiction Services

**Nova Scotia Department of
Health Promotion and Protection**

Addiction Services

Literature Review:
Best Practices in School-based
Drug Education for Grades 7-9

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Nova Scotia Junior High School Drug Education Curriculum Supplement Project

Preventing youth substance use problems is an important priority because it is during adolescence when enduring habits and attitudes towards various substances take shape, and when substance use can have the most calamitous consequences (Roberts et al., 2001; Rosembaum, 2002). As a result, among the various options available to our society to avoid the very significant economic and social costs associated with alcohol, tobacco and other substance abuse, primary or universal prevention[1] looms large. In fact, due to the potential for affecting change inherent in the educational process, expectations may be greatest for youth prevention, particularly that which is carried out in schools. Are these expectations fair? The answer is 'yes and no.' Educators have a definite role to play in preventing substance use problems, but their potential is limited, and other players and sectors certainly need to be involved.

Many of the factors that can influence youthful substance use lie beyond the school grounds. Since alcohol is the most pervasively available controlled substance, the norms for alcohol use in a community will have a fundamental influence on a young person's substance use attitudes, beliefs, and practices overall (Hanson, 1996). These norms will be determined to a large extent by the way alcohol is controlled and made available in a community (Hanson). The nature of regulations and the extent of their enforcement on such practices as off-premise sales to minors, on-premise serving practices, special occasion serving licenses, and drinking and driving, are critically important environmental influences (Holder, 2003)[2]. Similarly, penalties and enforcement levels in relation to the use and production of cannabis, Nova Scotia's most commonly used illegal substance, will help determine attitudes and use of this substance (Senate of Canada, 2002).

Beyond these important policy matters, many others have an opportunity to play a role in supporting the prevention of youth substance use problems. Parents clearly have a role to play and can be part of the solution – or the problem. The extent to which youth groups such as Girl Guides, Scouts, Boys and Girls Clubs, and Cadets engage youth in alternative activities and deliver evidence-based preventative programming will be influential (Schinke, Cole, & Poulin, 2000). Fully comprehensive prevention needs to involve many who have not traditionally been seen as players, such as urban planners, housing authorities, shopping mall management and employment policy-makers (Roberts et al., 2001).

> **"Among the various options available to our society to avoid the very significant economic and social costs associated with alcohol, tobacco and other substance abuse, primary or universal prevention[1] looms large. In fact, due to the potential for affecting change inherent in the educational process, expectations may be greatest for youth prevention, particularly that which is carried out in schools."**

FOOTNOTES:

[1] The aim of primary prevention is to ensure that a disorder, a process, or a problem does not develop. The term universal prevention has a similar intent but focuses on the target; it pertains to activity directed to a broad or "universal" population (e.g., all students in Grade 7) with the aim of promoting the health of that population, or preventing or delaying the onset of substance use (NIDA, 2003).

[2] Policy-based measures that aim to control the supply of alcohol are among the most effective measures for reducing alcohol use and related harms according to the scientific literature (Paglia & Room, 1999).

> *Today's young people are growing up in a world that tolerates more forms of substance use, both medical and non-medical, than at any other time in history.*

When attempting to support young people in navigating through adolescence with a minimum of substance-related harm, educators and community members are up against major societal forces. Today's young people are growing up in a world that tolerates more forms of substance use, both medical and non-medical, than at any other time in history (Roberts, 2003). An unprecedented ease of access to various media has meant that more young people than ever are 'consuming' a pop culture that tends to tolerate, and at times promotes, substance use (Olszewski et al., 2005). The powerful marketing capacities of the alcohol and tobacco industries, and their focus on the youth market, add to this environment (Roberts). Even these capacities, however, are dwarfed by the scale of the illicit drug industry which has been estimated to account for approximately 8% of world trade – more than that in iron and steel and about the same as that in textiles (Elvins, 2003).

In addition to these societal and community risk factors are a host of family factors (e.g., disorganized family environment, parental substance use problems, and/or genetics) and individual factors (e.g., emotional and mental health problems and/or lack of engagement with school) that may contribute to a young person using substances in risky or harmful ways (Dishion, 2000; Hawkins, Catalano & Miller, 1992).

> *Individuals, families, and communities carry with them a range of factors that have a protective effect that allow most youth to reach adulthood without having experienced harm from substance use.*

On the flip side, individuals, families, and communities carry with them a range of factors that have a protective effect (e.g., strong personal and social skills, positive relationships, a sense of belonging, and/or promoting goal setting) that allow most youth to reach adulthood without having experienced harm from substance use (Hawkins et al., 1992). Many of us have a resilience that permits us to cope, and even thrive, in the midst of challenging circumstances. The crucial feature of resiliency is the ability to cope, which in part is innate, but can be strengthened through appropriate social support (Benard, 1991; Spooner, Hall, & Lynskey, 2001). Factors that have been suggested as supporting resilience include having a relationship with at least one caring adult, having the opportunity to participate and be engaged in matters affecting oneself, and having high, positive expectations placed on oneself (Benard). Teachers are clearly in a position to provide these types of social support (Benard).

Nevertheless, all things considered, it is important to retain a sense of realism about how much schools can achieve in terms of preventing problematic substance use. Among the many individual, social, and cultural factors that can come into play as a young person navigates his or her way to adulthood, teachers are in a position to influence only a few of these factors through curriculum (Flay, 2000), so expectations for classroom-based programs must be tempered.

The factors that teachers do have an opportunity to address, and which have been shown to help young people avoid substance use problems, lie in the realm of understanding and coping effectively with social influences that promote substance use, and supporting the development of other pertinent personal and social skills (e.g., assertiveness, decision-making and stress management) (Cuijpers, 2002; Roona, Streke, Ochshorn, Marshall, & Palmer, 2000). Although drug-specific information (e.g., short-term effects of various drugs) is an important component of current best practice, the drug lectures that many grew up with are not effective, and have in fact been shown to be harmful in that they served to increase experimentation (Goodstadt, 1990). Affective education programs that focused on attitudes and values also failed to produce desired effects, perhaps because they were too abstract to truly engage young people – that is, they did not explicitly relate skill-building to drug-specific situations (Paglia & Room, 1999).

The current best practices presented below reflect the cumulative findings and insights of 1,000s of studies over the past 25 years. The aim of evaluation research is to increase certainty that a change was due to the intervention by ruling out as many possible competing explanations for why a change may have occurred. Necessarily then, evaluation research is an exacting science, and studies have been strenuously criticized for a range of limitations over the years (Foxcroft, Ireland, Lister-Sharp, Lowe, & Breen, 2003). Some studies are simply not as independent as they ought to be, with those conducting the evaluation also marketing the resulting curriculum. Other criticisms are inherently difficult to address in the 'real world' school setting. For example, the gold standard in evaluation research is the Randomized Control Trial (RCT), which requires that students or classrooms be randomly selected in order to rule out other factors that may explain changes between the experimental group and the control group (Roberts & Ogborne, 2005). For various reasons, this is usually not possible, so researchers are left to conduct quasi-experimental studies that use comparison groups that share as many features with the experimental group as possible (Uchtenhagen & Okulicz-Kozaryn, 1998). Another inherent limitation is the fact that most studies rely on students to self-report their substance use on a confidential questionnaire. While this has been found to be reasonably accurate when students feel assured of anonymity, drug testing students to confirm their responses would likely yield more accurate responses; however for ethical and financial reasons this is rarely done (Roberts & Ogborne). Scientists are generally conservative in reporting their findings and science is necessarily provisional in nature, however some

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have been criticized for not applying fully rigorous methods. For example, Foxcroft and colleagues have criticized the general drug education literature for tending to exclude those students that have not received all of the sessions of a program (e.g., having dropped out or have simply not attended) from analysis, rather than using an 'intention to treat' analysis that would include all students and therefore maintain the comparability between the two groups.

Nevertheless, during the past 25 years, the quality of school drug education evaluation studies has improved significantly (McBride, 2003), allowing policy-makers and practitioners to feel more confident than ever with resulting advice. In a rare cost analysis of a drug education program, Caulkins (2002) estimated that for every $US150 per participant in a school program, $US840 is saved in health care, economic, and social costs. This figure takes into account that the studied program, as is the case for all of the most effective programs, is not able to sustain its effects indefinitely. The effects of even the most effective drug education programs tend to erode. Studies show that the group that received what is usually a 10-session program is generally found to be using substances at a similar rate to comparison groups one or two years following the completion of the program. Some observers see this as an indictment on drug education programs, while others suggest that it is not surprising that the effects do not last too long when the various other influences are accounted for (McBride, 2004). They contend that even a delay in use or reduced use over one or two adolescent years is an important contribution during a period when prevalence rates escalate quickly, and early use can be particularly risky (McBride). Seen in this light, the erosion effect simply highlights the need for ongoing attention to the issue in the classroom to reinforce earlier-acquired knowledge and skills.

A major point arising from the literature is the need to clarify the goals of a drug education program (Roberts et al., 2001). Due to societal ambivalence and divergent values on drug issues, this is not necessarily a straightforward task. In the United States, where most of the world's evaluation research is conducted, the goal of school drug education programs is abstinence or delayed use (McBride, 2003). Consequently, most studies do not measure whether students may use a substance in less risky ways as a result of drug education programming. Yet, a significant percentage of 15- and 16-year-old students use alcohol, tobacco, and other drugs in North America, Australia, New Zealand, and parts of Europe (regions reporting the highest substance use globally) and many use them in risky ways (Roberts, 2003). Increasingly, experts in these regions argue that the safety of students should be viewed as

paramount and that they need to be taught ways to reduce substance abuse, or to put it another way, to minimize harm when they, or others around them, are using a substance (Roona et al., 2000).

There is a need for more evaluation research on this issue. It is possible that abstinence programs also have the effect of guiding students to less risky ways of using substances (e.g., not mixing drugs, not using before driving). On the other hand, they may not. As one review suggests, an abstinence program "may promote drinking games and other high-risk activities among those youths who are predisposed to consume alcohol" (Roona et al., 2000, p. 21) because these activities are never discussed in an abstinence-oriented session. The converse may be true – a program oriented to minimizing harms may reduce alcohol abuse, but not reduce prevalence of use. So, if the reduction of alcohol and other drug abuse or harms is the main aim of a program, this lack of research knowledge has major implications and represents a large caveat for assessing the effectiveness of programs.

Since young people get hurt and some times die from their use of substances (e.g., through non-fatal and fatal overdoses fighting and other violent incidents, and unintentional injuries), these issues need to be seen as a priority for future research (Adlaf & Paglia, 2005; McBride, 2003; Roona et al., 2000). Another focus for future research will be a search for the active ingredients in drug education. To this point, the focus of most evaluation research has been on testing one program against another in terms of their impact on tobacco, alcohol, and other drug use. Increasingly, researchers and reviewers are calling for more studies on mediating factors or components within these programs that contribute to positive effects (Botvin, Griffin, Diaz, & Ifill-Williams, 2001).

In the meantime, while some enthusiasts insist that the current state-of-the-art drug education programs *will* prevent or reduce use significantly, this review of the literature has concluded that these programs, when developed according to the evidence as presented below and followed faithfully by teachers, *can* have this effect. When the health and safety of our young people is at stake, do we have a choice but to try to achieve it?

> *The safety of students should be viewed as paramount; they need to be taught ways to reduce substance abuse, or to put it another way, to minimize harm when they, or others around them, are using a substance.*

Purpose

The purpose of this report was to complete a review of the school health and drug education literature (published and grey) from 1995 to the present, and to identify best practices for junior high school drug education in order to inform curriculum supplement development and classroom teacher practice. The review has served as one of four primary references (along with departmental curriculum guidelines, student substance use survey data, and educator/student consultations) in the development of the Nova Scotia junior high school drug education curriculum supplement, entitled *A Question of Influence*.

Methodology

A primary consideration in determining a methodology was the limited amount of time available for identifying, accessing, and reviewing the literature. Given the aim of the review, and this limitation, an efficient two-stage process was employed. The first stage was to review and summarize credible systematic reviews, meta-analyses, consensus panel reports, best practice summaries, and structured consultations with educators and students, published in the scientific literature or by government agencies between 1995 and 2004. The second stage was to review primary studies that used experimental or quasi-experimental study designs, published from the year 2000 onward, that were not accounted for in the foregoing reviews.

The databases searched were: ERIC (Education Resource Information Center) Database; ETOH Archival Database (Alcohol and Alcohol Problems Science); DrugScope; Canadian Centre on Substance Abuse (CCSA) Library Collection Database; and Centre for Addiction and Mental Health (CAMH) Library Database. Web sites searched include Cochrane Reviews, as well as government agencies in Australia, New Zealand, United Kingdom, and the United States. Junior high school health and/or drug education curriculum resources used by provincial ministries of education were identified through assistance from the Nova Scotia Department of Education and an Internet search.

The efficiency of the review of reviews approach is furthered by virtue of the fact that the unit of investigation for this task (i.e., effective components of drug education) typically differs from that of the primary literature. Much of the school health and/or drug education effectiveness literature is still concerned with measuring or comparing outcomes of delivered drug education programs. Often, these studies do not attempt to isolate effective program elements, whereas the reviews usually aim to isolate components that contribute to effect sizes in individual studies, through meta-analysis or another systematic process.

Some of the evidence presented in the reviews is not of central interest to the classroom drug education teacher (e.g., school policy, community partnerships). Since the focus of this review was to identify best practices that can inform supplement development and classroom teacher practice, these contextual topics go beyond the scope of this review and were excluded.

Although most of the school drug education evaluation research is from the United States, a concerted effort was made to include reviews from countries where there is greater openness to harm reduction-

oriented approaches and outcomes other than abstinence. Reviews prepared by credible bodies from New Zealand, Australia, and the United Kingdom have been included in this review.

There is an increasing degree of consensus on the components of effective drug education (Hawks, Scott, & McBride, 2002; McBride, 2003; Roona et al., 2000). These areas of consensus will be discussed and identified as best practice. However, there are several areas of contention, and still other areas that await further research. This review will discuss where disagreements exist, and where there is insufficient scientific evidence to suggest a science-based best practice.

Due to the gaps in knowledge derived from evaluation research, it is important, where possible, to draw insights from the field. This review will present knowledge from educators and students drawn from reports prepared by credible bodies from New Zealand, Australia, and the United Kingdom. When there is consensus among these sources, it will be discussed and identified as a good practice. Again, where disagreement exists, this will be noted.

Best Practices for Junior High School Drug Education
(Grades 7-9)

DEVELOPMENTAL NEEDS

Drug education should be linked to the cognitive, emotional, and social development of students and to their use patterns (Paglia & Room, 1999; Roberts et al., 2001). While cognitive ability in pre-adolescence is characterized by black and white, concrete thinking, during early and mid-adolescence, the ability to handle abstract or 'grey' concepts increases (Quadrel, Fischoff, & Davis, 1993, Piaget & Inhelder, 1969). At the same time, young people at this point are establishing their own identity and are beginning to test new ideas apart from those drawn from parents and other authorities (Roberts et al.). This developmental process may be characterized as one of 'experimentation.' In a gradual, hesitant process the adolescent takes on new viewpoints and tries out various behaviours (Roberts et al.). As time goes on, earlier opinions and ways of behaving may be rejected, modified in some respects, or regarded as acceptable (Roberts et al.). So, while simplistic concepts such as 'good drugs/bad drugs' or any use of illegal drugs is abuse may resonate for elementary school students, by junior high school, it is less likely they will (Kay, 1994; Roberts et al.; Rosembaum, 2002; Shenk, 1999). Early adolescence is often associated with a number of traits or behaviours (e.g., risk taking, questioning authority, the desire to be part of a peer group, seeking novel and exciting experiences, a lack of caution, and a need to satisfy curiosity) that could lead to substance use. (Paglia & Room, 1999; Roberts et al.). To be relevant and useful, universal drug education at this point needs to address the traits that can arise as a result of this intense period of identity development (Roberts et al.).

PROTECTIVE AND RISK FACTORS

When discussing risk and protective factors, it is important to distinguish between use and abuse of substances (Paglia & Room, 1999). For reasons mentioned above, the use of alcohol, tobacco, and/or cannabis is not uncommon among adolescents in Canada (Adlaf & Paglia, 2005; Poulin, 2002). For the vast majority, this use could be best described as experimental or occasional (bearing in mind that even experimental use by an inexperienced user can result in harm) (Adlaf & Paglia, 2005; Boys, Lenton, & Norcross, 1997). Since alcohol and cannabis use is relatively normative and not necessarily harmful, it is more helpful to examine risk and protective factors in relation to

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abuse of these substances rather than simply their use (Paglia & Room, 1999). Tobacco use is increasingly non-normative in Canadian society. For this reason and because much cigarette use results in addiction with serious associated harms, it is more appropriate to consider risk factors for tobacco use. Risk factors for tobacco use include having parents (particularly, the mother) and best friends who smoke, having early emotional or psychological problems, and unhappiness with home life.

Some young people do not navigate the road to identity development fully well and for that reason are at risk of substance use-related harms (Paglia & Room, 1999; Roberts et al., 2001). Feelings of incompetence, questioning of self worth, negative social experiences, and having no particular belief system can lead a young person to a sense that it does not matter what he or she does (Caputo, Weiler, & Anderson, 1997). The quality of a young person's school experience is a very significant factor for substance use problems and a number of other problems (Eggert & Herting, 1993). Influences on the school experience include academic success, reading skills, problem-solving abilities, feeling a part of the school scene (as opposed to feeling alienated), and participation in extracurricular activities (Eggert & Herting).

> **The risk of a young person developing substance use problems, involves a complex mix of genetic and environmental factors.**

Not surprisingly, the quality of family life (i.e., effectiveness of family management, structure and coping strategies, the level of parent-child attachment, the nature of rules and parental expectations) has been shown to play a very significant role in predicting youthful substance abuse (Bray, Adams, Getz, & Baer, 2001). Parental alcohol or other substance dependence increases the risk of a young person developing substance use problems, involving a complex mix of genetic and environmental factors (Dishion & Kavanagh, 2000). Having a particularly difficult family background (e.g., physical or sexual abuse, and/or forced institutionalization) is also considered a significant risk factor for a range of problems, including substance abuse.

Transitions or significant changes in one's environment such as moving to a new neighbourhood or school, the loss of a close family member, and/or parental separation can be a significant point of vulnerability for a young person (Brounstein & Zweig, 1999). It is clear that school drop-outs and those with poor marks or little attachment to their school are either at higher risk for substance use, or are already regular or heavy substance users (Eggert & Herting, 1993; Fuller et al., 2002).

At the broader community level, the prevailing norms and attitudes toward substance use, the prevalence of crime, the price and availability of various substances, and economic conditions will all come

into play in determining the extent and nature of substance use problems (Hawkins et al., 1992; Spooner et al., 2001).

Some, including youth themselves, contend that promoting protective factors is more powerful than trying to reduce risk factors (Roberts et al., 2001). Given the opportunity to generate and explain their own solutions, youth in an economically disadvantaged neighbourhood in the U.S. judged the best prevention to be "more jobs, more education and more scholarships for teenagers" (Ginsburg et al., 2002, p. 1138), rather than more prevention programs focusing on risk behaviours. In a similar vein, youth groups in developing countries often include 'income-generating programs' in their prevention work (Roberts, 2003). Observations by these at-risk young people underscore the wisdom of building on protective factors rather than focusing only on reducing risk factors in selective prevention work.

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DRUG USE PATTERNS

It is critical that drug education programming reflect current, local drug use patterns (Roberts et al., 2001). With the exception of inhalant use, rates of substance use always increase through the junior and senior high school years, beginning at age 12 or 13 years and leveling off at age 16 or 17 years (Adlaf & Paglia, 2005; Poulin, 2002). Researchers (Hawks et al., 2002; McBride, 2003) have posited a three-stage approach to drug education that is based on use patterns. The suggested age ranges presented here are based on the general Nova Scotia picture. If there is reason to believe that the situation differs in a particular school or region, the curriculum should be adjusted accordingly.

<blockquote>" *It is critical that drug education programming reflect current, local drug use patterns.* "</blockquote>

According to Hawks and colleagues (2002), the first stage of the drug education approach is *inoculation*. Inoculation should occur prior to average age of onset (e.g., 10-11 years of age or Grade 4 or 5) and should present general knowledge and skills on substances and risk. *Early relevance* is the second stage, and should occur just prior to the average age of onset of earliest substance abuse (e.g., 12-13 years of age or Grade 6 or 7 for tobacco and alcohol and 14 years of age or Grade 8 for cannabis). An increasing number of students are beginning to use alcohol and other substances at this time, so providing information and skills is likely to have meaning and practical application. The third and final stage is *later relevance*. The later relevance stage should be delivered at a point when students are exposed to higher risk forms of use, different situations, and/or different substances (e.g., 15-17 years of age or Grade 9 or 10). Later relevance messages need to account for the level and pattern of use (for example, an alcohol abstinence message in a class where 60% of the students have used

in the past year, and a third have been drunk, will likely not be viewed seriously). Harm minimization messages for relevant substances need to be considered at this point.

In order for a drug education program to be effective and credible to students, they need to not only reflect scientific evidence, but also be geared to the local situation as much as possible (Hawks et al., 2002). A recommended way to arrive at this information is through formative research, prior to program development, that provides information on drug use patterns, reasons for use, attitudes toward different drugs, and other issues of relevance to young people (McBride & Farringdon, 2004). It is likewise important to have some insight into local youth culture, which tends to evolve rapidly (Paglia & Room, 1999). This represents an impossible challenge to most adults so it is best accomplished through activities that allow students to create their own 'real world' scenarios (Hawks et al.). This approach builds in a flexibility that allows the targeting of drug issues as they arise or become pertinent, and the delivery of sessions that engage students with real, rather than abstract, scenarios.

This local information can be gathered through the review of existing data and the collection of new data to fill gaps in the research. New data can be gathered by a variety of methods, including focus groups, key informant interviews, surveys, and observation. This may be beyond the scope of a typical school drug education program, however students can be trained to undertake this work, further increasing relevance to the target group while engaging and mobilizing them (United Nations Office on Drugs and Crime, 2004).

Best Practice 1: Drug education needs to be age and developmentally appropriate, to focus on risk and protective factors, and to address local substance use patterns.

Best Practice 2: Key features of the provincial and, where possible, the local situation should be compiled and analyzed through formative research at the program design stage.

CONTENT OF DRUG EDUCATION PROGRAMMING

One of the reasons it is important to base drug education on current local data is that a program should only address those substances that are being used by youth in the area (Roberts et al., 2001). Adolescent drug use being fueled by curiosity arising from media reports has been well documented (Brecher, 1972; Jenkins, 1994) and it is commonly accepted that drug education classes could have the same effect (Midford, Munro, McBride, Snow, & Ladzinski, 2002; Paglia & Room, 1999). On the other

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hand, it is important that drug education programming respond to emerging use patterns as quickly as possible to reduce the 'honeymoon' period that new drugs experience when there is little information available in a community on the risks associated with it (Johnston, O'Malley, & Bachman, 2002). There is evidence that by around Grade 8, single drug-focused units are more effective than units that address a number of substances. Tobler & Stratton (1997), through their meta-analysis, found that tobacco-only and alcohol-only programs were more effective than multi-drug programs after age 14. Again, the determination of which substances are to be focused on ought to be based on the best prevalence data available, but there is an argument for reducing the number of substances being addressed.

People who use substances for certain benefits tend to minimize the negative effects of their substance use (Paglia, 1998). This is especially the case for youth, with young men being more likely to do so than young women (Paglia). Many of the harms associated with substance use are chronic health problems resulting from longer-term use (Paglia & Room, 1999). Young people by their nature have difficulty personalizing risks that may occur 30 or 40 years later in life (Paglia & Room). Consequently, drug educators are encouraged to focus on short-term, preferably social consequences (e.g., bad breath and/or looking stupid), rather than longer-term effects when providing drug-specific information (Paglia & Room; Tobler, 2000).

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Since information-only drug education programs have been found to have no effect or to increase substance use, it is fair to ask whether there is a role for drug-specific information at all. The answer is yes, but the information needs to be fully accurate and balanced (i.e., acknowledging the benefits that users perceive from their use), otherwise young people whose experience differs will question the credibility of all information passed along during a drug education class (Paglia & Room, 1999). Even if younger participants initially accept messages that focus solely on the negative aspects of drug use, once they receive more accurate information, there is a danger that all the messages received earlier will lose credibility (Paglia & Room).

One thing is certain – new substances of abuse will continually emerge in our communities. Information that is fundamental to an understanding of drug effects and harms – regardless of the specific substance – is knowledge of the interrelationship between the drug (e.g., purity of drug, size of dosage, and/or method of administering), the individual (i.e. traits, mood, and/or expectations), and the social context (e.g., relaxed versus chaotic situations) (Midford et al., 2002).

Best Practice 3: Address only those substances for which there is a pattern of use in a population.

Best Practice 4: Units that focus on a single drug appear more effective after 14 years of age than units that address a number of substances.

Best Practice 5: Focus on short-term, preferably social consequences, rather than longer-term effects when providing drug-specific information.

Best Practice 6: Ensure that the information is accurate and balanced, acknowledges the benefits that users perceive from their use, and highlights the fundamental relationship between the user, the substance, and the context of use.

Best Practice 7: Drug education programs need to give priority to behavioural, rather than knowledge or attitudinal, outcomes.

PROCESS OF DRUG EDUCATION

To increase the likelihood of a positive impact on student substance use, drug-specific information needs to be couched in an interactive, activity-oriented process (Hawks et al., 2002; McBride, 2003). Tobler & Stratton's (1997) meta-analysis provided useful insight into the type of interactivity that is most effective. Programs emphasizing student-to-student interaction, rather than student-to-teacher interaction, showed significantly more positive effects on student substance use. In this process, students need to have the opportunity to interact in a small group context, to test out and exchange ideas on how to handle drug use situations and to gain peer feedback about the acceptability of their ideas in a safe environment. Tobler (2000) even goes so far as to suggest that it is the exchange of ideas and experiences between students, and the opportunity to practice new skills, and to obtain feedback on skills practice that acts as a catalyst for change rather than any critical content of the program.

The role of the teacher in these types of sessions is to set an open, non-judgmental atmosphere, manage the process as a facilitator (rather than as a presenter), and maximize the opportunity for peer interchange and skills practice. The teacher also plays an important role in correcting misperceptions that may arise, and in offering utility information as needed (Hawks et al., 2002; McBride, 2003). The specific techniques that work well in this process are role-plays, Socratic questioning, simulations, brainstorming, cooperative learning, peer-to-peer discussion and service-learning projects.

Best Practice 8: Accurate and balanced information is important, and it needs to take the form of "utility knowledge", which helps students build relevant and useful skills.

Best Practice 9: Sessions need to emphasize "student-to-student", rather than "student-to-teacher" interactivity, employing role-plays, Socratic questioning, simulations, service-learning projects, brainstorming, co-operative learning, and peer-to-peer discussion. Teachers need to establish an open non-judgmental atmosphere in order to effectively process these activities.

COMBINING CONTENT AND PROCESS

The *Social Influences Model* is one of two approaches that combine process and content effectively. This model, which has been the subject of much research over the years, conceptualizes adolescent use of substances to be the result of social influences from peers and the media (McBride, 2003). These social influences take the form of the modeling of drug use by peers and media personalities, persuasive advertising appeals, and/or direct offers by peers to use drugs (Botvin, 2000). This model aims to create greater awareness of the media and peer influences, and to help students develop skills to analyze and minimize their impact on student substance use (McBride). Overall, this model appears to be more effective with junior high than senior high school students (Cuijpers, 2002; Roona et al., 2000).

In its earliest forms, social influence programs included a component referred to as *psychological inoculation*, which exposed students to increasingly persuasive pro-drug messages as a way of inoculating them or building resistance to real-life drug-related messages (Botvin, 2000). Studies have not shown inoculation to contribute to the effectiveness of drug education, so more recent program designs do not include this element (Botvin).

An element of social influence programs that continues to be popular is *resistance skills training*. This element is based on the assumption that adolescents begin to use substances largely because they lack the confidence or skills to resist social influences to smoke, drink, or use other drugs (Paglia & Room, 1999). Therefore, this approach focuses on identifying instances when these types of influences are at play. Emphasis is often placed on teaching students to identify the techniques used by advertisers to influence consumer behavior (Botvin, 2000). Once these instances and messages are recognized and identified, students can be taught tactics for dealing with the messages (Botvin). For instance, students may be taught to recognize advertising appeals designed to sell tobacco products or alcoholic beverages as well as how to formulate counter-arguments to those appeals. Similarly, they learn about various situations involving peer influence, and develop a repertoire of responses to the influences. Attention is

> *Students may be taught to recognize advertising appeals designed to sell tobacco products or alcoholic beverages as well as how to formulate counter-arguments to those appeals.*

paid to the content of responses, their tone, and accompanying body language (Botvin; McBride, 2003).

Resistance skills training is controversial in the research community in that some continue to advocate its use while others contend that a portion of it is based on a faulty assumption (Paglia & Room, 1999). The evidence indicates that peer pressure has been exaggerated as a causal factor in risk behaviours (Allott, Paxton, & Leonard, 1999; Paglia, 1998). First of all, anyone who begins to use a substance, including young people, does so for a variety of reasons, and to fulfill a range of needs (Paglia & Room). In terms of social factors, the influence is more nuanced and might be better termed 'peer preference,' with a young person picking a peer group on the basis of its preferences on a number of fronts, such as music, clothing, use of substances, or social justice concerns (Paglia & Room). While they may not have been pressured into using by peers, they may be pressured not to quit, or to drink or use to a certain level (Allen & Clarke Policy and Regulatory Specialists Ltd., 2003; Sheppard, Wright, & Goodstadt, 1985). Another element of this approach for which there is no consensus is making a public commitment not to smoke, drink, and/or use other substances. While a common element in earlier programs, public commitments have little support in the scientific literature (Botvin, 2000).

> **Young people generally overestimate the prevalence of smoking, drinking, and other drug use among other adolescents and adults.**

An element in social influence programming that is well supported by scientific evidence is *normative education* (Hansen & Graham, 1991). It is commonly accepted that young people generally overestimate the prevalence of smoking, drinking, and other drug use among other adolescents and adults (Hansen & Graham). This leads to an inaccurate sense of how 'normal,' or accepted, drug use is in a young person's school, neighbourhood, or community (Botvin, 2000). Normative approaches are designed to correct the misperception that 'everyone is doing it.' A method that has been used to modify or correct normative expectations involves providing students with information about the prevalence of drug use from national or local surveys (Hansen & Graham). Since the actual rates of drug use in most classes, schools, and communities is far lower than adolescents believe, this activity helps correct the misperception that most people use drugs and helps to shift norms (Hansen & Graham). However, this approach can obviously only work with substances and student populations where the prevalence of use is in fact reasonably low (for example, less than 40% of students using in the past year) (McBride, 2003).

> **Normative approaches are designed to correct the misperception that 'everyone is doing it.'**

Using this line of thinking, in the Nova Scotia junior high school context, normative education would be appropriate for alcohol in Grade 7 and 8,

tobacco in Grade 7, 8, and 9, and cannabis in Grade 7, 8, and 9. Although using a normative approach to support a harm reduction aim has not been studied, the logic applies. Norms around harmful behaviours (not just substance use per se), such as binge drinking or riding with someone who is impaired, could also be the focus of normative education, if supporting data are available.

Overall, the social influences approach is the drug education method best supported in the literature. Of particular relevance to this review, it appears to be clearly effective in reducing incidents of heavy drinking at the junior high school level (Roona et al., 2000).

Best Practice 10: Social influences programming can be effective. It can create a greater awareness of media and social influences, and help students develop skills to analyze and minimize their impact.

Best Practice 11: Normative programming, highlighting the percentage of students not using, and correcting misperceptions, can be effective, particularly in the early junior high school years.

Along with the Social Influence Model, a second model that has been extensively studied and receives some support in the literature is the *Competency Enhancement Model* (Botvin, 2000). This model emphasizes the teaching of generic personal and social skills either alone or in combination with elements of the social influence approach (Botvin). These skills are taught using a combination of well-supported cognitive-behavioral skills training methods that can include instruction and demonstration, behavioral rehearsal (in-class practice), feedback and reinforcement, and out-of-class practice through behavioral homework assignments (Botvin). The personal and social skills typically included in competence enhancement approaches are decision-making and problem-solving skills, cognitive skills for resisting peer and media influences, skills for increasing personal control and enhancing self esteem (e.g., goal-setting and self-directed behavior change techniques), coping strategies for managing stress and anxiety, and assertive skills (Botvin). This approach has been a common element in prevention programs to help young people address a number of issue areas (e.g., mental health, sexuality) (Botvin). Proponents of this approach however claim that the approach is only effective in reducing youth substance use if the skills practice and development are tied directly to drug-related situations or scenarios (rather than generic scenarios) (Botvin).

Historically, competence enhancement programs have been held to be more effective than social influence programs (Roona et al., 2000).

> " *The Competency Enhancement Model emphasizes the teaching of generic personal and social skills. This approach is only effective in reducing youth substance use if the skills practice and development are tied directly to drug-related situations or scenarios (rather than generic scenarios).* "

However, Roona and colleagues, in their meta-analysis of 128 interactive drug education programs, found that competence enhancement approaches were no more effective than social influence programs, and at the middle school level were in fact, less effective. Also, the most visible of the competence enhancement programs, Botvin's Life Skills Training (LST) program (Botvin et al., 2001) has been criticized by several reviewers on a number of grounds, including failing to report negative results on alcohol use, as well as for issues surrounding sample selection (Allen & Clarke Policy and Regulatory Specialists Ltd., 2003; Coggans, Cheyne, & McKellat, 2002; Foxcroft et al., 2003; Hawks et al., 2002; Paglia & Room, 1999).

Best Practice 12: Adding general competency enhancement, or life skills training (e.g., developing skills such as communication, assertiveness, goal orientation, decision-making and stress management) may strengthen program effects when it is tied to drug-related situations or scenarios.

OPENNESS TO POSITIVE OUTCOMES OTHER THAN ABSTINENCE

Over the past 10 years, researchers have increasingly advocated for the implementation and testing of school-based drug education programs that include a harm minimization element (Hawks et al., 2002; McBride, 2003; Roona et al., 2000). This is based on the fact that a significant percentage of students in Western societies use alcohol and other substances (particularly cannabis) in the later high school years, often in risky ways (Roberts, 2003). However, most current school programs do not reflect this reality. In this context, a program that promotes abstinence as the only viable option may not be taken seriously by students (Kay, 1994; Rosembaum, 2002). Even though official U.S. drug policy does not support outcomes to interventions other than abstinence, a recent U.S. review has expressed support for this approach. Roona and colleagues, as a result of their meta-analysis, "concludes that promoting abstinence may not be a viable objective when substance use is normative in the culture, but preventing abuse and its attendant harms may be viable" (p. 20). By neglecting to give attention to risky situations and how to avoid these situations, or minimize danger associated with them, a program misses an important opportunity to provide a practical, possibly lifesaving, education on this issue (Roona et al., 2000). This message can be presented alongside a message that identifies abstinence as the option that holds the best promise for avoiding drug-related harms. McBride suggests replacing resistance skills training (which has been shown to be based on faulty assumptions) with harm reduction skills training to help youth reduce

> *By neglecting to give attention to risky situations and how to avoid these situations, or minimize danger associated with them, a program misses an important opportunity to provide a practical, possibly lifesaving, education on this issue.*

harms or when they do occur, to reduce their impact.

Since a mistake or poor choice can result in drug-related harm or even death, high school students should be made aware of the ways to minimize harms that can arise from patterns of use seen in that population. A suggested rule of thumb is that at, or just prior to, the point where significant numbers of students are using a particular substance[3], messages that promote safety and ways of minimizing harm should be provided within an overall message emphasizing abstinence as the safest option (Roberts et al., 2001). In the general Nova Scotia context, this would mean harm minimizing messages being appropriate in regard to alcohol use for Grade 9 students. This is a controversial topic, however, and it is important that all stakeholders (i.e., students, teachers, parents, and public health) are clear about the approach and supportive of it. It could be surmised that harm reduction messaging would currently be viewed as more acceptable with senior high school populations, and there is Nova Scotia-based research to support this (Poulin & Nicholson, 2005).

Although little research has been conducted on the use of harm reduction programming, McBride and Farrington (2004) did report "lower levels of total and risky consumption of alcohol, and lower levels of harms associated with alcohol use" (p. 22) in their evaluation of a harm reduction-oriented program for 13- to 16-year-old students in Australia. Likewise, Poulin and Nicholson (2005) reported encouraging results on the prevalence of use of several substances and of several risk behaviours when using a harm reduction-oriented program with a sample of senior high school students in Nova Scotia. Among Grade 10-12 students significant differences in prevalence between experimental and comparison students were reported for use of LSD, non-medical amphetamine/methylphenidate, and for being a passenger with a driver who has drank. Results of borderline significance were reported for heavy episodic drinking, driving after cannabis use and having damaged things after drug use.

An alcohol-focused harm minimizing approach should provide messages for both drinkers and non-drinkers on strategies for minimizing harms and reducing the impact of harms that do occur. These messages, which would be best developed with the active participation of students, could include (Roberts et al., 2001):

- Avoid high-risk situations such as using before driving a car, boat, ATV or snowmobile, or being in a vehicle operated by a person who has been using, or using other machinery; before studying or working; before sports or other physical activity; before sexual

> **"Messages that promote safety and ways of minimizing harm should be provided within an overall message emphasizing abstinence as the safest option."**

FOOTNOTE:

[3] Although there is no research or discussion on what constitutes 'significant', this report will consider a prevalence rate of more than 40% of students having used in the past year as significant.

activity; when pregnant; when using medication or other substances; or when sick.

- Do not use too much – binge use greatly increases the chance of unintentional injury and overdose.

- Discourage high-risk use among friends. Closely monitor someone who has used too much to ensure their safety by, for example, helping them avoid a high-risk context (e.g., driving a vehicle). In the case of individuals who appear agitated or restless from use of a substance, providing calm support will often help.

- Learn the signs and symptoms of overdose for alcohol and other prevalent substances to allow you to determine whether a person needs medical assistance and how and when to activate emergency measures.

- If you are drinking or using other drugs regularly, ask yourself why? It may be that substance use is becoming too central an activity in your life, possibly masking other problems that you should be dealing with. Pose this question to those whose alcohol or other substance use is a concern to you.

- If someone you know is being harmed by their own substance use or that of a parent, learn what resources are available locally, and in a sensitive way, provide them this information.

In some communities, other drug use, including ecstasy use, may be a concern and warrant a harm minimizing message such as:

- Most street drugs have uncertain ingredients, which makes the effects of these drugs unpredictable and possibly dangerous. If intent on using, try only a little bit at first to determine the strength of the effect;

- In cases of ecstasy use, ensure that breaks are taken from dancing. Cool down and drink water regularly (to replace that lost by sweating) to prevent overheating and dehydration. Drinking too much water all at once can also be dangerous. Instead, sip no more than a pint of water an hour when dancing is recommended (DrugScope, 2006).

Best Practice 13: At, or just prior to, the point where significant numbers of students are using a particular substance (e.g., greater than 40% have used in past year), provide messages that promote safety and ways of minimizing harm within an overall message emphasizing abstinence as the safest option.

DURATION OF PROGRAMMING

There is a 'dose-response' relationship between the number of hours of program delivery and the ability of the program to show behavioural effects (McBride, 2003). 'One-offs' or occasional presentations have been shown to have no measurable effect on substance use behaviours (Dusenbury, Falco, & Lake, 1997; Hawks et al., 2002; Roberts et al., 2001). White and Pitt (1998) in their review of programs focusing on illicit drugs found that 80% of effective programs had 10 or more sessions. Delivering this number of sessions is important, but of course is not a guarantee of effectiveness – it should be apparent from the foregoing discussion that the sessions need to reflect content and process that are based on evidence. If it is not possible to sustain 10 or more sessions per year through junior high school, following an initial 10-session module, researchers recommend providing 3-5 booster sessions in each subsequent year (McBride).

Best Practice 14: To sustain behavioural effects, drug education needs to provide adequate coverage from year to year, with approximately 10 sessions per year. If this cannot be achieved, 3-5 booster sessions per year, following an initial 10-session module, can be effective.

DELIVERING DRUG EDUCATION WITH FIDELITY

Overall, the literature provides reason for optimism that an interactive junior high school program with a sufficient number of sessions can delay onset of use and, if intended, reduce related harms (McBride, 2003). However, this is contingent on the program being delivered as intended. Research has shown that the use of evidence-based content and process do not tend to be common in school drug education programs (Ennett et al., 2003). Programmers often adapt programs for good reasons (e.g., to address local needs) and it is not clear from research what impact this has on substance use-related outcomes (Dusenbury, Brannigan, Falco, & Hansen, 2003).

Research suggests that teachers are, for the most part, the most appropriate vehicles for school drug education. (Allott et al., 1999; Gottfredson &Wilson, 2003; McNeal, Hansen, Harrington, & Giles, 2004). However, to effectively deliver this programming, teachers need to be competent with small group interactive instructional methodology, which will normally be achieved through pre- or in-service training (Hawks et al., 2002). There is some support for the use of peer educators in the scientific literature, but cautions have also been identified, particularly the need for careful selection and training of appropriate leaders (Hawks et al., 2002; Loxley, Toumbourou, & Stockwell, 2004). If an external provider is invited to deliver a drug

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> *Literature provides reason for optimism that an interactive junior high school program with a sufficient number of sessions can delay onset of use and, if intended, reduce related harms.*

education session, it is important that this person be able to address curriculum objectives and work interactively with the students, rather than present an isolated session unconnected with the curriculum (U.K. Department for Education and Skills, 2004).

Best Practice 15: All in all, teachers who have been trained in interactive instructional methods are best able to deliver a drug education program as intended.

Best Practice 16: Guest presenters invited to deliver a drug education session, need to be able to address curricular goals and work interactively with the students, rather than present an isolated session unconnected with the curriculum.

Conclusion

This review has confirmed that drug education programs need to have a firm foundation in adolescent development, protective and risk factor research, and current local data on substance use patterns. The school drug education practice for which evidence is strongest is interactivity among students. There is clearly no role for sessions that are predominantly didactic or where the bulk of the exchange is between teacher and students. That said, there remains an important role for accurate and balanced drug-specific information, however this information needs to be brought out through the interactive sessions and needs to take the form of relevant, practical knowledge. Interactive programs at the junior high school level should draw heavily from the Social Influences Model that aims to furnish young people with the insights and skills to respond to various social messages promoting substance use. Within this model, it is important that significant attention be given to clarifying normative use in that population, and in supporting and justifying these norms. The other dominant drug education model, Competence Enhancement Training, has a strong theory base, but appears to be less effective at the junior high level.

Overall, the literatures provides reason for optimism that an interactive junior high school program with a sufficient number of sessions can delay the onset of use and, if intended, reduce related harms. However, this is contingent on the program being delivered as intended. Teachers appear to be the most appropriate vehicles for school drug education. However, to effectively deliver this programming, it is imperative that teachers be comfortable and competent with small group interactive instructional methodology. If an external resource person is invited to augment a program, it is important that this person be able to address curriculum objectives and work interactively with the students.

Of course, schools cannot be expected to shoulder the burden of preventing substance use problems on their own. Over the years, experts have advocated comprehensive multi-year, multi-component (school, media, family, and community) programs (Paglia & Room, 1999). This has been largely based on two US studies that showed effect in reducing a range of drug-related measures (Pentz, 1998; Perry et al., 1996). However, Flay (2000) questions how much of a contribution the non-school components of the program make to the overall effectiveness of comprehensive strategies. This conclusion was drawn, not because research has conclusively found the additional components to be ineffective, but because there have been few

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studies that tried to account for the differential contribution that the various elements make to the overall effect. Given their potential, but also the resources required to mount comprehensive programs, this is an important area for further research.

In conclusion, ongoing delivery of evidence-based drug education programs through the junior high school years can, when delivered as intended, delay the use of substances and quite possibly reduce associated problems during a critical period of development when substance use tends to escalate.

Summary of Best Practices for Junior High School Drug Education

Best Practice 1: Drug education needs to be age and developmentally appropriate, to focus on risk and protective factors, and to address local substance-use patterns.

Best Practice 2: Key features of the provincial and, where possible, the local situation should be compiled and analyzed through formative research at the program design stage.

Best Practice 3: Address only those substances for which there is a pattern of use in a population.

Best Practice 4: Units that focus on a single drug appear more effective after 14 years of age than units that address a number of substances.

Best Practice 5: Focus on short-term, preferably social consequences, rather than longer-term effects when providing drug-specific information.

Best Practice 6: Ensure that the information is accurate and balanced, acknowledges the benefits that users perceive from their use, and highlights the fundamental relationship between the user, the substance, and the context of use.

Best Practice 7: Drug education programs need to give priority to behavioural, rather than knowledge or attitudinal, outcomes.

Best Practice 8: Accurate and balanced information is important, and it needs to take the form of "utility knowledge", which helps students build relevant and useful skills.

Best Practice 9: Sessions need to emphasize "student-to-student", rather than "student-to-teacher" interactivity, employing role-plays, Socratic questioning, simulations, service-learning projects, brainstorming, co-operative learning, and peer-to-peer discussion. Teachers need to establish an open, non-judgmental atmosphere in order to effectively process these activities.

Best Practice 10: Social influences programming can be effective. It can create a greater awareness of media and social influences, and help students develop skills to analyze and minimize their impact.

Best Practice 11: Normative programming, highlighting the percentage of students not using, and correcting misperceptions, can be effective, particularly in the early junior high school years.

Summary of Best Practices for
Junior High School Drug Education continued...

Best Practice 12: Adding general competency enhancement, or life skills training (e.g., developing skills such as communication, assertiveness, goal orientation, decision making, and stress management) may strengthen program effects when it is tied to drug-related situations or scenarios.

Best Practice 13: At, or just prior to, the point where significant numbers of students are using a particular substance (e.g., greater than 40% have used in past year), provide messages that promote safety and ways of minimizing harm within an overall message emphasizing abstinence as the safest option.

Best Practice 14: To sustain behavioural effects, drug education needs to provide adequate coverage from year to year, with approximately 10 sessions per year. If this cannot be achieved, 3-5 booster sessions per year, following an initial 10-session module, can be effective.

Best Practice 15: All in all, teachers who have been trained in interactive instructional methods are best able to deliver a drug education program as intended.

Best Practice 16: Guest presenters invited to deliver a drug education session need to be able to address curricular goals and work interactively with the students, rather than present an isolated session unconnected with the curriculum.

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