Alcohol and tobacco and, to a lesser extent, illicit drug use are responsible for enormous costs in Canada due to death, disease and disability. The first use of alcohol, cannabis, tobacco and other drugs usually begins during adolescence, so attention to adolescent substance use by schools and others is seen as an important opportunity to avoid future costs to society.

Substance Abuse and Educational Achievement

While the role of schools in addressing broad societal problems such as substance abuse may be debated, the need for schools to play a role on this issue becomes clearer when it is understood that student substance use can affect learning, and that prevention can improve student performance.

Although the relationship is complex, it is clear that substance involvement and academic performance are linked. Substance abuse can hamper a young person’s ability to master key developmental tasks (cognitive, emotional and social).

Students with positive teacher, learning and social connectedness fare best in terms of later mental health and involvement in health risk behaviours, and are more likely to have good educational outcomes.

Substance Use and Young People

While a significant proportion of Canadian middle school students do not use any substance, the use of alcohol becomes normative in the high school years and cannabis and tobacco use becomes common.

Regarding alcohol, students in Grades 7 and 8 may be more accurately termed “not-yet-users” rather than “non-users”. With increasing age, the rate of hazardous patterns of use also increases, and use of tobacco often goes hand in hand with these patterns.

Widespread use of alcohol and other substances by young people is not surprising given their developmental stage (e.g. their need to experiment, take risks, and gain autonomy) and various messages they receive.

These factors call for universal programming to help students navigate this period and to keep safe.

Some young people clearly experience a greater accumulation of risk factors. These usually arise early in life and interact with early school adjustment pathways. It is these young people that are at particular risk for early use of legal substances, harmful use of illicit substances and for other problems.

Targeted programming is necessary to shift the developmental trajectories of these higher risk children and youth.

Effective Programs

A range of universal programs aimed at all youth as well as targeted programs have been evaluated and while there is no silver bullet, a number of programs or initiatives have been found to be effective. Increasingly, researchers are measuring the benefits of school prevention programs against their costs, and a number are indeed showing savings to society.

Elementary School Programs

Addressing early use (age 12/13) of tobacco, alcohol and cannabis needs to be a priority for school prevention programs. Because early use is often due to factors evident in earlier childhood, universal and targeted programming prior to middle school is important.

Elementary school programming is not substance abuse-specific. Rather these programs focus on developing self-management skills among either a universal or targeted population by providing guidance to teachers, parents or both.

Family skills programs delivered to universal or higher risk families are effective in improving relationship skills and have been shown to prevent later youth substance use.

Comprehensive programs that focus on improving parenting skills and modifying teaching practices with the general student body or higher risk children have been shown to help students learn and to prevent later problem behaviours, including hazardous substance use.
Middle/High School Programs

Substance-specific education is particularly important at the middle school level and has been shown to be modestly effective. The model best supported by research is the Social Influences Model which helps students gain a greater awareness of media and social influences and develop skills to analyze and minimize their impact.

Programs shown to be effective invariably emphasize student-to-student (rather than student-to-teacher) interactivity, so it is critically important that teachers or leaders are comfortable with this approach.

Teachers need to be able to create a non-judgmental atmosphere and ensure that students acquire accurate information that is free of moralizing.

In many Canadian communities and school populations, the percentage of students using alcohol is disturbingly high. Because alcohol or other substance use can result in a range of problems, including unwanted sexual activity, injury, overdose and death, it is important to consider programming that explicitly helps students avoid these patterns of use and resulting harms. While few programs with these aims have been evaluated, those that have been show promising results.

Comprehensive, multi-component programs that combine attention to substance education with attention to the school environment are showing promise in reducing substance use, mental health problems, early sexual activity, and antisocial behaviour.

Of course, many of the factors contributing to student substance use problems fall outside the purview of the school, therefore schools should consider linking and integrating their programs with community programs. This can address a broader range of individual and environmental factors and may delay use of alcohol among adolescents more so than either initiative on their own.

For students at risk, including Aboriginal students, Canadian research is showing brief interventions (fewer than four sessions) to hold promise in promoting abstinence and reduced hazardous drinking and alcohol problems.

School policies are important in setting norms and expectations for all students. As challenging as it may be school policies need to try to help higher-risk students maintain links with school and with 'non-deviant' peers. Suspension often has the effect of increasing antisocial behaviour.

Implementation In Canadian Schools

The research shows that school-based and linked prevention programs can delay use of substances and can reduce hazardous use and harms. However, this research has been conducted in controlled settings, so it is fair to question whether these effects can be expected in the real-world circumstances in which Canadian teachers, counsellors and administrators work.

In our schools there are a number of variables that affect how well a new initiative will be implemented, including system-level factors (school readiness, leadership, stakeholder support), teacher-related factors (self-efficacy, burnout, perception of the program's acceptability, training) and qualities of the program itself (preparation time, complexity). Viewed in this way, training of everyone concerned (teachers, counsellors, police and addiction and mental health professionals) should be seen as vitally important – but not sufficient. Substance abuse prevention in schools will be most effectively enhanced through a broad workforce development approach that accounts for and addresses the range of system and classroom level factors affecting practice.

Virtually all of the initiatives shown to be effective in this knowledge summary require precious resources and schools are justifiably hesitant to add another project to an often daunting workload.

Rather, it may be more fruitful to integrate substance abuse prevention and health promotion initiatives into the core aims of schools by focusing on factors that affect both learning and well-being.

This shift from program cooperation toward program integration calls for educators and substance abuse/health promotion professionals to work together to identify shared values, goals, and strategies and to develop joint agendas to improve the range of student outcomes.

From Lectures to Learning

Like health education generally, alcohol and other drug education has evolved over the years. In its earliest form, drug education was based on the premise that young people only needed sound information in order to make healthy decisions.

Typically these programs consisted of teachers presenting information on drug effects and dangers in the hope that the new knowledge would influence student behaviour. Although accurate, balanced drug-specific information is an important component of current good practice, the drug lectures that many grew up with are not effective; in fact, they've been shown to be harmful in that they served to increase experimentation.

These knowledge-based programs were replaced by affective education programs that focused on attitudes and values. These
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.

The next generation of drug education curriculum-based programs
had stronger theoretic roots, drawing from Social Learning
Theory and the Health Belief Model among others.

The two dominant models currently in use – the Social Influences
Model and Competency Enhancement or Life Skills Model –
are derived from these and have been the subject of numerous
evaluations over the years. The inescapable conclusion, drawn
by virtually all researchers, is that the best of these universal
curriculum-based programs show only modest effectiveness, with
even those effects eroding after a year or two, and that benefits
may be limited to those least at risk.

This important conclusion has elicited or given voice to four quite
different views from the research community on how school
substance use prevention can be best advanced:

- Given the range of harms linked to early substance use,
delay of use by even a year or two can have important
public health benefit and is worth pursuing;
- Achieving abstinence for all students is unrealistic;
consider other positive substance use outcomes in
addition to abstinence;
- Focus efforts on higher risk students rather than or in
addition to the general (universal) student population;
and
- Attention to curriculum is necessary but not
sufficient – it needs to be couched in a whole-school,
comprehensive approach.

Factors That May Affect Outcomes

Delivery Methods

The element of drug education programs with the strongest base
of research support is student interactivity, having been found to
be 2-4 times more effective than non-interactive programs. Tobler
and Stratton's meta-analysis (1997) provided useful insight into
the type of interactivity that is most effective. They found that
programs emphasizing student-to-student, rather than student-
to-teacher interaction, showed significantly more positive effects
on student substance use. They assert that it is the exchanged and
unstructured task-oriented peer interaction between classmates
that is the important variable in effectiveness. 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/leader 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 information as needed. 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.

Teacher/Leader Qualities

While most evaluated programs have been led by teachers, many
others, particularly peers, have also led programs. Gottfredson
and Wilson (2003), in their meta-analysis of 94 drug education
programs, found programs that were led by peers unassisted by
teachers to be clearly more effective than teacher-led programs or
programs co-led by teachers and peer leaders.

The Tobler et al 1998 meta-analysis found mental health
practitioners and peer leaders were superior to general classroom
teachers, but not significantly. A common use of peer leaders is
to lead the normative component of the program to enhance
the believability of normative information on drug use. Often
peer leaders gain greater benefit than classroom students from
peer led programs. Cautions have been identified in using peer
leaders, particularly the need for careful selection and training of
appropriate leaders. Peer programs also require more planning.
Practical considerations include timetabling, peer training, peer
leader absence, length of time between peer leader training and
their use in the classroom, and any additional funding required to
conduct such programs.

It is often concluded that drug education is best taught by
classroom teachers due to: the challenges of sustaining a peer-
led program; their first-hand knowledge of students’ needs and
developmental level, being best placed to deliver and if necessary
to modify program components at an appropriate time and level
for their students.

The question of who delivers is quite possibly secondary to the
question of what qualities are important for the person who
delivers. It is speculated that mental health practitioners are
effective because they have skills and training in facilitation and
group process, such as creating a non-judgmental atmosphere,
being comfortable in a non-directive role. Regardless of who is
delivering, best results can be expected from selecting teacher/leaders
with these qualities, acquired through some mix of personal
attributes and pre- or in-service training. Guest presenters are
often considered for drug education sessions. Given this evidence,
it is important that guest presenters be able to address curriculum
objectives and work interactively with the students, rather than
present an isolated session unconnected with the curriculum. Newer interactive technologies (CD-ROM, DVD, Internet) to present or reinforce relevant knowledge and skills may be a useful adjunct to classroom prevention programs.

Timing of Programs

Primary School

While relatively few in number, primary school programs (for children aged 5-10 years) aiming to prevent later substance use do exist and a few have been evaluated. A challenge for these programs is the length of time required for follow-up in order to show results. When asked, teachers suggested that primary school drug education is best suited to address the safe handling of medication and alternatives to medication and that drug issues are best placed within much broader questions such as “how do I make healthy decisions about life” and “how do I make decisions about my health”. However, there is little evidence supporting the effectiveness of drug education curriculum at the primary level. The limited literature available suggests that primary school interventions should instead focus on fundamental risk factors and devote attention to family/parent programming, school organization and behavioural management.

Middle/Junior High School

Most drug education programs and evaluations are directed to middle/junior high school students. Gottfredson and Wilson (2003) found that programs directed to this population were more effective than those directed to younger and older students, but that the effects were weak in all cases. The meta-analysis by Roona et al (2000) found that the most effective method at this level was the social influence model.

Senior High School

Another approach to determining timing of programming is to base the decision on local student drug use data. McBride (2003) has put forward a three-stage approach that is based on students’ behavioural development and use patterns. No evidence was found on the value of this approach but it is based on data and theory. The suggested age ranges presented here are based on the general Canadian picture; if there is reason to believe that the situation differs in a particular school or region, the curriculum should be adjusted accordingly.

According to this approach, the first stage of drug education is inoculation, which should occur prior to the average age of first use of a substance but when interest in the substance is occurring (e.g., for alcohol, about age 11-12 years or Grade 5-6). Early relevance, when most students are experiencing initial exposure and some are experimenting with the substance is the second stage (e.g., for alcohol about 13-14 years of age or Grade 7-8). An increasing number of students are beginning to use alcohol at this time, so providing relevant interactive opportunities to engage on issues relevant to them is likely to have meaning and practical value. 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., alcohol, 15-17 years of age or Grade 9-11). Later relevance messages need to account for the level and pattern of use; for example, an alcohol abstinence message in a class where 60-70% of the students have used in the past year, and a quarter to a third have been drunk, will likely not be taken seriously by many. Recognizing that those students who choose not to use need to be supported in that decision, strategies for promoting safety and minimizing hazardous patterns of use need to be considered for relevant substances at this point.

Programs can be best tailored to a population group by using local prevalence data. It is likewise important to have some insight into local youth culture, which tends to evolve rapidly. 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. Doing this 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.
Program Length

It has been commonly accepted that when it comes to program effectiveness, more program hours is better. McBride suggests that 10 or more sessions per year through junior high school is preferable but if that is not possible, to follow the initial 10-session module with 4-8 sessions, followed by 3-8 second boosters and, if prevalence indicates, 3-5 third boosters in each subsequent year. While it remains clear that ‘one-offs’ or occasional presentations have no measurable effect on behaviours, the research on this question is not clear, and it may be in part due to confusion around the terms “intensity” and “duration”. White and Pitt (1998) in their review of programs focusing on illicit drugs found that 80% of effective programs had 10 or more sessions. However, Cuiper 2002 concluded that there is no definite evidence that intense programs are more effective than less intense programs. Gottfredson and Wilson (2003) found no difference in effectiveness between programs longer than 4.5 months duration and those shorter, but they acknowledged that duration may be a poor proxy for number of contact hours.

Evidence concerning booster sessions (i.e. shorter programs [3-5 sessions] offered in succeeding years to reinforce concepts and skills) is similarly mixed. Skara and Sussman (2003) found that programs using booster sessions were less likely to decay over the longer term (2 or more years), while Gottfredson and Wilson (2003) found no evidence that booster sessions improved outcomes.

It may seem counterintuitive that a shorter program can be as effective as a longer one, but brief interventions (1-6 sessions) have been found effective with various higher risk populations. While awaiting research to provide more clarity on this, decisions around program length are best driven by the particular aims of a program, bearing in mind that recommended interactive programs tend to require more time to process than lecture-based programs.

References

References cited in this article are available at:

www.safehealthyschools.org/initiatives/initiatives.htm

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For more information on this national project, go to:
  www.safehealthyschools.org/initiatives/initiatives.htm

Table 1: Protective and Risk Factors in the School Setting

Considering the amount of time students spend in school, it should not be a surprise to learn that there are important opportunities to contribute to student well-being in this setting. There is good evidence that supportive and caring relationships within schools promote academic motivation and performance among students. Less is known about the influence of the school environment on adolescent health risk behaviours but it is getting increasing research attention. Because it is a relatively young area of research, it lacks a clear theoretic basis and the social environment isn't yet consistently defined. School connectedness is often seen as comprising student-teacher relationships and social or peer relationships. The Social Development Model has been suggested as a theoretic model, viewing connectedness to family, schools, peers, and community as protective against substance use and antisocial behaviour. Another model, the Schools as Communities perspective, views schools with a culture characterized by caring and supportive student and teacher relationships and student input into school policy and classroom practices as promoting academic success and health.

Student-Teacher Connectedness

It is apparent that a perception of teacher connectedness has a protective effect on substance use and a wide range of other problem behaviours at the late elementary, middle and high school levels. In an Alberta high school, students who liked only half their teachers or less (44% of the student total) were 70% more likely to use marijuana, 20% more likely to smoke, 43% more sexually active and two and a half times more likely to report depression. Middle school appears to be a critical period when students often sense a lack of connectedness; when they do perceive it during this period, it bodes well for them in high school. By concentrating not only on the curriculum content but also on the context, relationships, and processes for learning and teaching, teachers can contribute to well-being and academic success.

Social Connectedness

It also appears that social or peer bonding may have a protective or risk enhancing effect depending on the nature and quality of the relationships; if bonding occurs with non-conventional peers or if social life is characterized by bullying or being threatened, social connections will have a risk enhancing effect. Ongoing teacher connectedness can offset the effects of poorer social connections.
Overall School Connectedness

Students with positive teacher, learning and social connectedness fare best in terms of later mental health and involvement in health risk behaviours, and are more likely to have good educational outcomes. So, it is important to consider how to enhance both teacher connectedness and social connectedness in ways that promote learning and well being.

Lack of School Connectedness

Young people who are not engaged with learning and who have poor relationships with peers and teachers (e.g. being bullied, feelings of not belonging and feeling under stress) are more likely to experience academic problems, mental health problems and be involved in various health risk behaviours including substance use.

Higher Risk Students

Even students at high risk (e.g. having been suspended or detained) who perceive a connectedness with teachers are less likely to become involved in harmful substance use or other problem behaviours than counterparts who don’t have that sense.

Gender

Because girls tend to give greater priority to relationships than do boys, they are more likely to judge school culture in favourable terms and express a stronger sense of school belonging and attachment. Interpersonal dimensions of school environment are likely to have a stronger impact on their level of classroom participation and motivation for learning.

School Norms

Students in junior and senior high school are more likely to use substances when the norms in school reflect a greater tolerance for substance use. These findings hold even after controlling for students’ own disapproval and for other student and school demographic characteristics.

Physical Environment

Unsafe places or “unowned” places, such as hallways, dining areas, and parking lots, where school personnel are not typically present and rules are more difficult to enforce can contribute to problems, including substance use problems. This relationship is important in understanding the problem as well as how best to intervene.

The Importance of Leadership

Many elements feed into the nature and quality of the relationships that determine the level of protection or risk to be found in a school but it is apparent that the tone needs to be set by school leadership. Leadership will determine the kinds of policies, the consistency with which they are enforced, and the extent to which students are able to contribute to them. Leadership (through hiring, training and modelling) can also influence the nature of the teacher-student relationship toward high expectations, respect, and task-focused learning (rather than a preoccupation with a results focus).

School Effect

It is important to note that much of this research is based on cross-sectional surveys that are not able to determine causal effect. So, much of the school connection research is not designed to determine how much of the sense of connection comes from attributes of teachers and schools and how much is due to student traits and motivation or even parent or neighbourhood attributes. One recent study did show evidence of a “school effect” – a study of 2,500 Scottish students who attended elementary schools that had a positive school “ethos” (i.e. students felt attached to school, engagement with education, and got along with their teachers) and which took account of a wide range of other possible contributing factors (e.g. social class, deprivation, religion, family structure, parenting, disposable income and parental health behaviours, as well as prior health behaviours) found that they were less likely to smoke, drink and use illegal drugs at age 13 and 15 than students attending schools with a poor “ethos”.

Table 1 (Continued)