

CHILDREN'S MENTAL HEALTH RESEARCH

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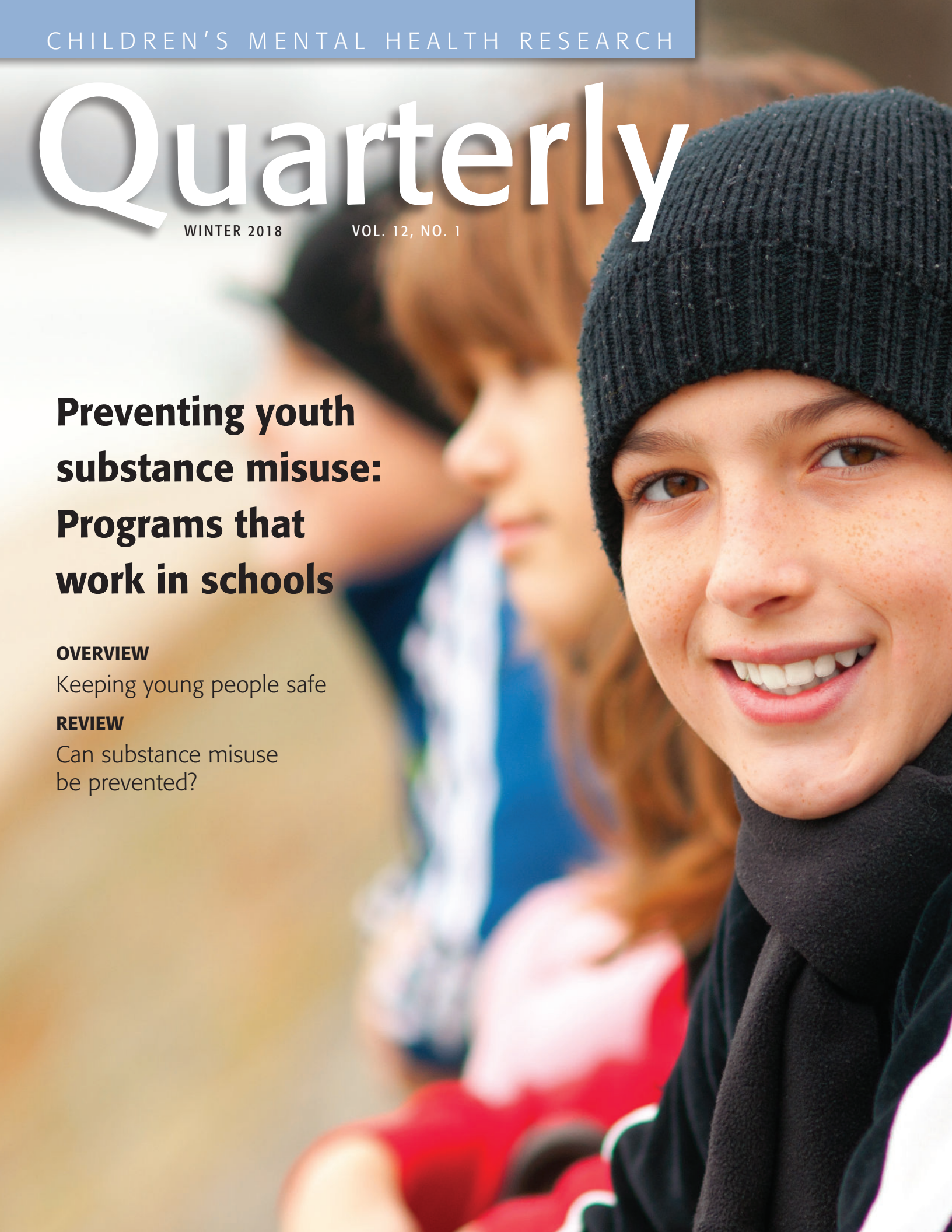
## **Preventing youth substance misuse: Programs that work in schools**

### **OVERVIEW**

Keeping young people safe

### **REVIEW**

Can substance misuse  
be prevented?





## Children's Health Policy Centre

### About the Children's Health Policy Centre

We are an interdisciplinary research group in the Faculty of Health Sciences at Simon Fraser University. We focus on improving social and emotional well-being for all children, and on the public policies needed to reach these goals.

To learn more about our work, please see [childhealthpolicy.ca](http://childhealthpolicy.ca).

### About the Quarterly

We summarize the best available research evidence on a variety of children's mental health topics, using systematic review and synthesis methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. We aim to connect research and policy to improve children's mental health. The BC Ministry of Children and Family Development funds the *Quarterly*.

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**Overview** 3  
**Keeping young people safe**  
What is typical when it comes to young people experimenting with substances? We look at patterns in BC, Canada and countries around the world. We also identify what may protect youth so that experimentation does not become misuse.



**Sidebar** How will legalization affect cannabis use for young Canadians? 5

**Review** 6  
**Can substance misuse be prevented?**  
We examine more than a decade of research evidence on universal school-based programs for preventing substance misuse, including how these programs may fit into larger frameworks for supporting healthy adolescent development.

**Implications for practice and policy** 10

**Methods** 11

**References** 13

**Links to Past Issues** 15



### NEXT ISSUE

#### Treating substance misuse in young people

Substance use disorders are common and can cause considerable harm for young people. We examine effective ways to help youth who have these disorders.

### How to Cite the Quarterly

We encourage you to share the *Quarterly* with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

Schwartz, C., Waddell, C., Barican, J., Yung, D., & Gray-Grant, D. (2018). Preventing youth substance misuse: Programs that work in schools. *Children's Mental Health Research Quarterly*, 12(1), 1–16. Vancouver, BC: Children's Health Policy Centre, Faculty of Health Sciences, Simon Fraser University.



# Keeping young people safe

From their first day of high school to their first date, most adolescents seek out and explore new experiences. This is part of the “job” of adolescence — as young people discover who they are. For some teens, these experiences will include trying alcohol or cannabis. But just how common is it for young people to experiment with substances? To help understand what is typical, we identified patterns in BC, Canada and other countries. We also identified what may protect young people so that experimentation does not become misuse.

## A BC perspective

The BC Adolescent Health Survey has been tracking student substance use since 1992, enabling researchers to identify current patterns as well as changes over time.<sup>1</sup> The most recent (2013) survey included almost 30,000 students attending mainstream classes in Grades 7 to 12 in BC public schools.<sup>2</sup> According to this survey, 45% of students reported ever drinking alcohol, making it the most frequently used substance. Still, rates of ever using alcohol have declined over time — from 58% in 2003 to 54% in 2008 to 45% in 2013. The percentage of students who reported trying alcohol before age 15 has also decreased — from 80% in 2003 and 75% in 2008 to 65% in 2013. Binge drinking, defined as consuming five or more drinks within a couple of hours, has also declined over time. Rates of this higher-risk form of drinking within the past month dropped from 44% in both 2003 and 2008 to 39% in the current survey.<sup>2</sup>

The 2013 BC survey also revealed important information about youth cannabis use. Twenty-six percent of students reported ever using it, representing a decrease from 37% in 2003 and 30% in 2008.<sup>2</sup> Monthly use of cannabis also declined — from 21% in 2003 and 17% in 2008 to 15% in the current survey.<sup>2</sup>

Notably, other substances were used much less frequently than alcohol and cannabis, according to the 2013 BC survey.<sup>2</sup> The third most frequently used substances were prescription medications taken without a physician’s recommendation, with 11% of youth reporting ever having done so. The least frequently used substances were heroin and steroids, with 1% of youth reporting ever trying them.<sup>2</sup> And similar to alcohol and cannabis, fewer youth reported using these other substances over the past 10 years, with the exception of prescription medications, as depicted in Table 1.



Adolescents who felt strongly connected to their family were less likely to binge drink and consumed fewer drinks, on average, when they did drink.

While many adolescents experiment with substances like alcohol and cannabis, much can still be done to protect youth from substance misuse.

**Table 1: Substance Use by Grade 7–12 BC Students (%)<sup>2</sup>**

	2003	2008	2013
Alcohol	58	54	45
Cannabis	37	30	26
Prescription medications	9	15	11
Hallucinogens	7	9	6
Cocaine	5	4	3
Mushrooms	13	8	5
Amphetamines	4	3	2
Inhalants	4	4	2
Heroin	1	1	1
Steroids	1	2	1

## The bigger picture

Young Canadians have also been providing information about their substance use in surveys conducted by the World Health Organization (WHO). Health Behaviour in School-aged Children is a cross-national study that has tracked substance use in young people across three decades. The most recent survey — from 2013/14 — included almost 220,000 young people from 42 countries in Europe and North America. Similar to the BC

Adolescent Health Survey, data were encouraging, showing decreasing use of alcohol by youth in most countries since the early 2000s.<sup>3</sup>

This WHO survey also provided data on alcohol use by young people in Canada compared with other countries.<sup>3</sup> For weekly alcohol use, Canadian youth ranked in the middle-to-lower ranges. Specifically, 1% of 11-year-old Canadian girls and 3% of 11-year-old Canadian boys acknowledged weekly drinking, leading to a ranking of 20th of 40 countries. Weekly drinking for older Canadian youth was even lower, with 13-year-olds ranking 23rd of 41 countries and 15-year-olds ranking 30th of 42.<sup>3</sup> (The number of countries differs because some did not report on certain outcomes.)

However, the WHO survey revealed a dramatically different picture for cannabis use, with Canadian youth showing some of the highest rates. Specifically, Canadian 15-year-olds had the fifth-highest rate of lifetime cannabis use and the second-highest rate of use in the past month. Even more troubling, Canadian youth had the highest rates of first-time cannabis use at age 13 or younger.<sup>3</sup>

For teens who had experimented with cannabis, those reporting high levels of family support stopped using cannabis earlier than those with less supportive families.

## Family matters

While many adolescents experiment with substances like alcohol and cannabis, much can still be done to protect youth from substance misuse. By following large groups of children over time, researchers have identified a number of factors that can help. We highlight three large surveys conducted in representative samples of youth that identified potential ways to protect against misusing alcohol and at least one other substance.

A survey of nearly 4,000 American and Australian adolescents found many factors that protected young people from misusing alcohol and cannabis. Yet family variables stood out. These variables consisted of having strong connections with parents and having opportunities to meaningfully participate within the family, for example, by providing opinions on family decisions.<sup>4</sup> Young people who had a strong sense of ethics (e.g., endorsing that it was important to be honest even if that led to punishment) were also less likely to misuse alcohol or cannabis.<sup>4</sup>

Parenting as an important protective factor was also identified in the National Longitudinal Study of Adolescent to Adult Health, which tracked substance use by American youth. The number of young people in this study ranged from approximately 1,700 to 18,700 across three publications using data from this study. Young people were significantly less likely to binge drink if they had high levels of maternal supervision.<sup>5</sup> Adolescents who felt strongly connected to their family were also less likely to binge drink and consumed fewer drinks, on average, when they did drink.<sup>6</sup> Teens who believed that their parents would disapprove of them engaging in sexual behaviours, furthermore, were less likely to binge drink or to be intoxicated, consumed fewer drinks, and had fewer days when they drank in the past year.<sup>6</sup> As well, for teens who had experimented with cannabis, those reporting high levels of family support stopped using cannabis earlier than those with less supportive families.<sup>7</sup>

Finally, a survey of more than 2,300 American high-school students found that adolescents were less likely to use alcohol or other substances when their parents provided high levels of supervision and also disapproved of misuse.<sup>8</sup> This survey again highlighted the importance of parenting.

## Learning from experience

Important lessons can be learned from the experiences of the youth participating in these surveys. One is that while the use of alcohol and cannabis is relatively common, experimenting with other substances is not. The experiences of these youth also highlight the importance of parenting in protecting teens from misusing substances. By building strong relationships, encouraging meaningful participation in family decisions and expressing healthy attitudes about substance use, parents and other caregivers can help teens safely navigate their adolescent years.

Policy-makers can also play a role. For example, research evidence strongly suggests that regulating alcohol marketing and sales can affect the burden of harm caused by this substance. Banning alcohol advertising, increasing prices and limiting availability have been identified as three cost-effective harm reduction policies.<sup>9</sup>

On balance, the available evidence suggests that taking a comprehensive public health approach is the most effective way to protect young people from substance misuse.<sup>10</sup> This approach includes identifying prevention and harm reduction strategies, supporting parents to support their children, and enacting policies that limit young people's access to substances.<sup>10</sup> The [Review article](#) that follows discusses the role schools can play in offering effective prevention programs. 🖐️

**Taking a comprehensive public health approach is the most effective way to protect young people from substance misuse.**

## How will legalization affect cannabis use for young Canadians?

The Canadian government has announced that it intends to legalize cannabis use for adults by July 2018.<sup>11</sup> It remains to be seen how this new legislation will affect youth cannabis use. Lessons will be learned after the provinces have implemented the new legislation and researchers have had time to assess the impact. But in the interim, two US surveys provide some information. These surveys were conducted in representative samples of young people before and after decriminalization in California and legalization in Washington state. (*Decriminalization* entails creating laws that reduce or eliminate penalties for cannabis possession while the drug remains illegal; in contrast, *legalization* removes all penalties for private possession or consumption.)<sup>12</sup>

One survey compared youth cannabis use in California and other states for the three years before and after California decriminalized use by adults aged 21 years and older in 2010.<sup>13</sup> A mixed pattern emerged. Some measures were significantly worse after decriminalization, including recent use (past month and past year) as well as lifetime use for Grade 12 California students in 2012 and 2013.<sup>13</sup> However, other (non-behavioural) outcomes, such as plans to use cannabis within the next five years, were not significantly different for California students compared to those from other states.

The other survey compared youth cannabis use within Washington state before and after legalization occurred in 2012 for adults aged 21 years and older.<sup>14</sup> Rates of use in the past 30 days remained relatively stable for all youth assessed from 2006 to 2016.<sup>14</sup>

These data suggest that legalization may be only one of many factors affecting cannabis use. Factors such as ease of access may be even more critical.<sup>13</sup> So when Canadian provinces implement the new federal legislation, they will need to mitigate the health risks for youth. Researchers have suggested several approaches to achieve this aim:

- selling cannabis in government-controlled stores
- setting age restrictions for purchasing cannabis that parallel those for alcohol
- banning advertising of cannabis to young people
- applying a 10% sales tax to fund health promotion, education, research and treatment<sup>15</sup>

These steps can help to ensure that young people do not experience unintended negative consequences once cannabis is legalized in Canada.



# Can substance misuse be prevented?

Adolescents typically experiment with substances like alcohol and cannabis. But it is important to ensure that “normal” experimentation does not become misuse. Many prevention programs have been developed to address this issue. But how well do these programs actually work? And in particular, what can be done in schools, given their ability to reach large numbers of youth?

To answer this question, we searched for randomized controlled trials (RCTs) evaluating substance misuse prevention programs that were published between 2009 and 2017. This time frame enabled us to build on findings from our [Spring 2010 issue](#) on preventing substance abuse, while also showcasing new research. For this review, we also specifically focused on universal programs delivered in schools — to provide options for reaching the greatest number of young people. To ensure we reported on the best available evidence, we built quality assessment into our inclusion criteria, as detailed in our [Methods](#).

We retrieved and assessed 152 RCTs, eight of which met our inclusion criteria. These eight RCTs evaluated seven programs: *Adolescent Transitions Program*, *Life Skills Training*, *Project ALERT*, *Project PATHS*, *Strengthening Families*, *Unplugged* (two RCTs) and a type of yoga.<sup>16–23</sup> (Earlier outcomes from the *Life Skills Training* RCT were included in our [Spring 2010 issue](#).) All eight RCTs included a universal prevention program delivered to youth attending intervention schools. *Adolescent Transitions* and *Project PATHS* supplemented the universal program with a targeted component for higher-risk youth.

## What was included in the programs?

Five of the seven programs provided youth with information on avoiding substance misuse as well as specific skills for achieving this, such as resisting peer pressure and coping with stress without using substances.<sup>16–18,</sup>

<sup>21–22, 24</sup> Two programs took a different approach. *Project PATHS* focused on positive development, including strengthening empathy, teaching problem-solving and decision-making, and building family relationships.<sup>25</sup> Meanwhile, the yoga program (which used the Kripalu style) involved teaching poses as well as breathing and relaxation exercises and related activities such as journaling.<sup>23</sup>

Parent participation was integral to two programs. In *Strengthening Families*, parents were taught skills such as communicating and setting limits.<sup>17</sup> The program also included sessions for parents and youth to practise new skills together.<sup>17</sup> Meanwhile, *Adolescent Transitions* included two components for parents. All intervention schools established a family resource centre that provided supports ranging from books to meetings with parenting consultants.<sup>16</sup> The targeted component of this program also provided family sessions exploring parents’ concerns, assessing parent-youth interactions and supporting parent behaviour change. Additional interventions, such as parenting groups and family therapy, were also made available as needed.<sup>16</sup>

**The *Unplugged* program successfully reduced substance use in youth from eight European countries for up to two years.**



Compelling evidence shows that substance misuse prevention programs can be successfully delivered universally in schools.

## Defining risk and then addressing it

The two programs with a targeted component had teachers identify at-risk youth. In *Adolescent Transitions*, teachers completed rating scales assessing a variety of problems, including aggression and moodiness.<sup>16</sup> Overall, 27% of intervention youth were identified as being at risk. While families of these youth were then invited to participate in the targeted components, all intervention families could also participate if they chose.<sup>16</sup>

In *Project PATHS*, meanwhile, teachers and school social workers identified at-risk youth based on their assessments of those who had greater psychosocial needs.<sup>26</sup> Approximately 20% of intervention youth met this criterion.<sup>27</sup> Targeted interventions were then offered to these youth. Social workers designed these added interventions to address specific needs of students in their schools.<sup>27</sup> This resulted in the targeted interventions being quite varied, including programs focusing on parenting, mentorship and mental health promotion.<sup>27</sup> Table 2 provides more information on all seven programs.

Table 2: Substance Misuse Prevention Programs			
Program	Program content	Grade(s) (Duration)	Country (Sample size)
Universal Programs			
Life Skills Training (LST) <sup>17</sup>	20 group youth sessions delivered by teachers	7, 8 + 11* (3 years)	United States (1,677)
LST + Strengthening Families	As above + 11 group youth sessions, 11 group parent sessions + 11 conjoint family sessions delivered by facilitators**		
Project ALERT <sup>18</sup>	14 group youth sessions delivered by teachers + school counselors	6 + 7 (2 years)	United States (6,040)
Strengthening Families <sup>20, 24</sup>	10 group youth sessions, 10 group parent sessions + 2 family sessions delivered by teachers + facilitators	6 + 7 (2 years)	Sweden (587)
Unplugged I <sup>† 21</sup>	12 group youth sessions delivered by teachers	Junior high (2.8 months)	7 European countries (7,079)
Unplugged II <sup>22</sup>	As above	6 (1 year)	Czech Republic (1,874)
Kripalu Yoga <sup>23</sup>	32 group youth sessions delivered by teachers + assistants	7 (6 months)	United States (211)
Universal + Targeted Programs			
Adolescent Transitions <sup>16</sup>	Universal: 6 group youth sessions delivered by facilitators + family resource centre providing parenting resources	7–8 (2 years)	United States (998)
	Targeted: 3 individual family sessions +/- 3 individual youth sessions delivered by facilitators††	7–11 (5 years)	
Project PATHS <sup>26–27</sup>	Universal: 60 or 120 group youth sessions delivered by teachers, social workers, psychologists + occupational therapists	7–9 (3 years)	Hong Kong (7,846)
	Targeted: A wide variety of interventions, from parenting to mental health promotion, delivered by facilitators		
<div>* In Grade 11, half of the intervention schools provided 4 additional <i>LST</i> sessions while half of <i>Strengthening Families</i> schools provided educational materials on parenting and community resources as well as a goal-setting seminar for youth.</div> <div>** The term <i>facilitator</i> was used for all studies that did not identify the specific training or background for individuals delivering the intervention.</div> <div>† A third of intervention youth received an extra peer intervention, which included 7 short meetings to support students in applying the program, while parents of another third of intervention youth received 3 workshops focused on parenting skills.</div> <div>†† Additional services, such as a parenting group or family therapy, were offered on an as-needed basis, following the family/youth sessions.</div>			

## What did comparison youth get?

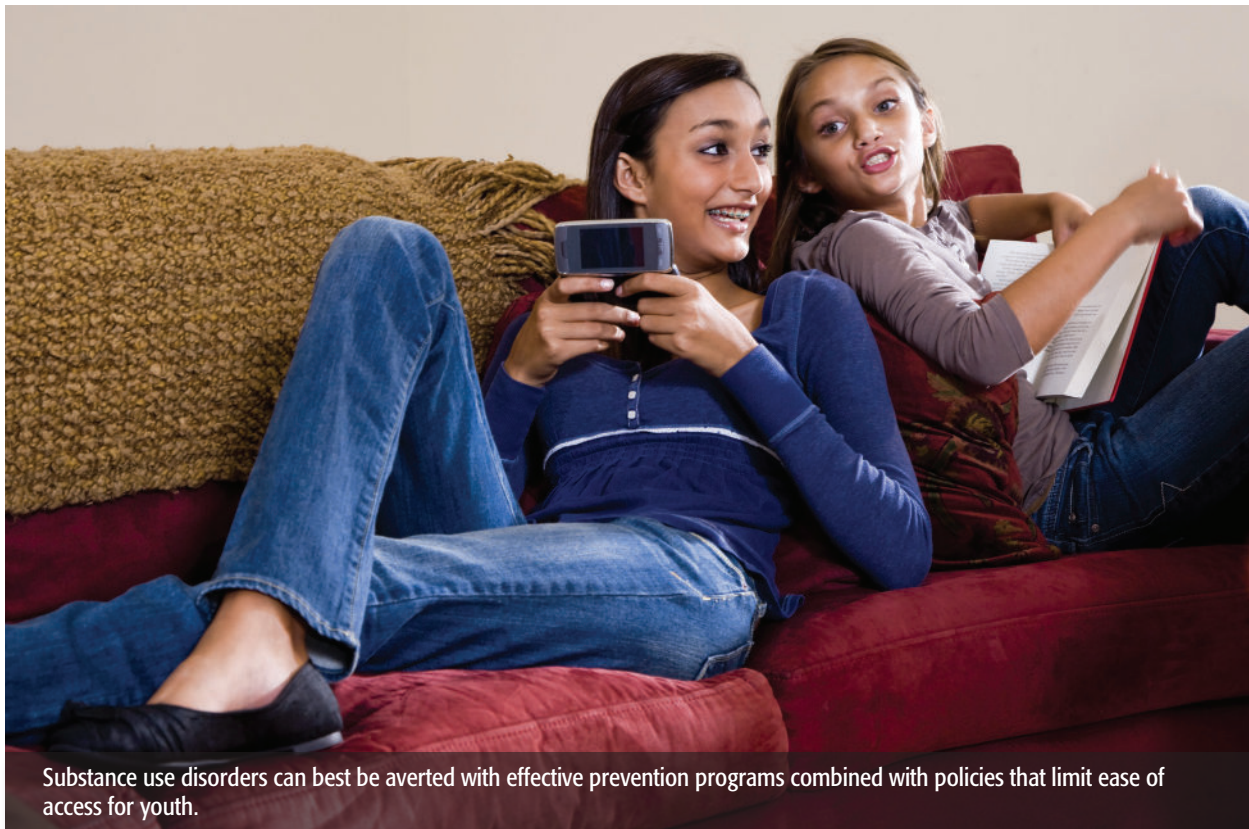
In all RCTs, comparison youth received the standard school curriculum. For two RCTs, the standard curriculum included short interventions designed to prevent problematic substance use. For *Strengthening Families*, this involved interventions such as a single lesson taught by a school nurse.<sup>20</sup> For the *Unplugged II* RCT, this consisted of a minimal prevention program targeting substance use and other risky behaviours.<sup>22</sup> Meanwhile, parents of comparison youth in the *Life Skills Training* RCT received a leaflet on adolescent development.<sup>28</sup>

## How effective were these seven programs?

Of the five programs with solely universal delivery, four failed to make a positive difference in young people's substance use at final follow-up. These four were *Life Skills Training* (either on its own or delivered with *Strengthening Families*), *Strengthening Families* and yoga.<sup>17, 20, 23</sup> However, *Life Skills Training* did show benefits at one-year follow-up, which we reported on in our [Spring 2010 issue](#).<sup>29</sup> Benefits included significant fewer intervention youth reporting ever using marijuana or methamphetamines — a finding that applied for *Life Skills Training* alone and in combination with *Strengthening Families*. *Project ALERT* also failed to reduce alcohol and cannabis use. In fact, intervention youth had 30% to 40% greater odds of inhalant use than comparison youth.<sup>18</sup> (The study authors did not offer an explanation for this negative finding.)

*Project PATHS* reduced substance use in youth from Hong Kong by focusing on positive adolescent development.

In contrast, both RCTs on the universal *Unplugged* program showed benefits. Adolescents in *Unplugged I* were significantly less likely to have been drunk in the past month or to have drunk alcohol three times or more in the past month by final (1¼-year) follow-up.<sup>21</sup> The odds of an *Unplugged* participant drinking in the past month were 80% lower, and the odds of drinking three or more



Substance use disorders can best be averted with effective prevention programs combined with policies that limit ease of access for youth.



times in the past month were 62% lower.<sup>21</sup> Meanwhile, teens in *Unplugged II* had 56% lower odds of having used cannabis in the past month by final (two-year) follow-up.<sup>22</sup> Young people in *Unplugged II* also reported engaging in frequent cannabis use (defined as three or more uses in the past month) less often at three-month and one-year follow-up but not at final (two-year) follow-up.<sup>22</sup>

The two programs with both universal and targeted components had contrasting outcomes. (Both programs analyzed results for the program overall, without separating outcomes for the universal versus the universal plus targeted versions.) *Adolescent Transitions* had no impact on young people's alcohol or cannabis use at six-year follow-up.<sup>16</sup> In contrast, *Project PATHS* led to significantly less use of cannabis, ecstasy, heroin, ketamine and solvents at two-year follow-up.<sup>19</sup> A measure combining use of alcohol, cannabis, cough mixture, ecstasy, heroin, ketamine, solvents and tobacco was also significantly lower among *Project PATHS* youth at two-year follow-up.<sup>19</sup> (Effect sizes were not reported for any of these positive outcomes.) Table 3 details outcomes for the eight RCTs evaluating the seven programs.

<b>Table 3: Substance Misuse Prevention Program Outcomes</b>			
<b>Program</b>	<b>Follow-up</b>	<b>Favouring intervention</b>	<b>No significant difference</b>
<b>Universal Programs</b>			
<i>Life Skills Training (+/- Strengthening Families)</i> <sup>17</sup>	4–5 years	None	Drunkenness – frequency* Illicit drugs – past year frequency
<i>Project ALERT</i> ** <sup>18</sup>	1 year	None	Alcohol – ever or past month Cannabis – ever or past month
<i>Strengthening Families</i> <sup>20</sup>	1 year	None	Drunkenness – ever or past month Illicit drugs – ever
<i>Unplugged I</i> <sup>21</sup>	1 ¼ years	↓ Drunkenness – past month ↓ Drunkenness – 3+ times in past month	Cannabis – past month or 3+ times in past month
<i>Unplugged II</i> <sup>22</sup>	2 years	↓ Cannabis – past month	Drunkenness – past month or 3+ times in past month Cannabis – 3+ times in past month Illicit drugs – ever
<i>Kripalu Yoga</i> <sup>23</sup>	1 year	None	Alcohol, cannabis, cocaine, inhalants, steroids or other prescription drugs – ever
<b>Universal + Targeted Programs</b>			
<i>Adolescent Transitions</i> <sup>16</sup>	6 years	None	Alcohol – past month or problematic use† Cannabis – past month or problematic use†
<i>Project PATHS</i> <sup>19</sup>	2 years	↓ Cannabis – past 6 months ↓ Ecstasy – past 6 months ↓ Heroin – past 6 months ↓ Ketamine – past 6 months ↓ Solvents – past 6 months ↓ All substances combined – past 6 months††	Alcohol + tobacco combined – past 6 months
<p>* No time frame for frequency of drunkenness was reported.</p> <p>** Students participating in <i>Project Alert</i> had higher rates of inhalant use than youth in the comparison condition.</p> <p>† Problematic use included unsuccessful efforts to stop using, developing tolerance, attending school or work while intoxicated, and school or work difficulties arising as a result of substance use.</p> <p>†† Substances were alcohol, cannabis, cough mixture, ecstasy, heroin, ketamine, solvents and tobacco.</p>			

## Implications for practice and policy

Our current and past reviews on preventing substance misuse provide insights based on more than a decade of research. The *Unplugged* program focused on improving knowledge and attitudes about substance use and on developing skills such as assertiveness and decision-making — and successfully reduced substance use in youth from eight European countries for up to two years. A program based on similar concepts, *Life Skills Training*, was successful in reducing substance use in American youth at one-year follow-up (although not at four-year follow-up). Yet other programs with similar content, including *Project ALERT* and *Adolescent Transitions*, did not significantly reduce substance use in American teens. As well, *Project PATHS* reduced substance use in youth from Hong Kong by focusing on positive adolescent development — including strengthening empathy, problem-solving, decision-making and family relationships — yet without including core content on substance use. These findings suggest four recommendations for practitioners and policy-makers.

- **Deliver programs in schools.** Compelling evidence shows that substance misuse prevention programs can be successfully delivered universally in schools. For example, teachers in eight countries effectively delivered *Unplugged* after taking a 2½-day training course.<sup>21–22</sup> Notably, this program was delivered in only 12 sessions, over a single school year, and it reduced use of both alcohol and cannabis — the substances Canadian youth use most frequently.<sup>2, 21–22</sup>
- **Tailor programs to the local context.** Good evidence supports the effectiveness of *Unplugged* for European youth. This program could be implemented in Canada — with local adaptation, pilot testing and full-scale evaluation prior to widespread delivery. The cultural and linguistic adaptations made for Czech schools, for example, suggest that adaptations should be feasible in Canada.
- **Consider health promotion programs.** Although *Project PATHS* was designed to promote healthy development, it also reduced substance use for Hong Kong youth. Still, many of this program's lessons were specific to Hong Kong — for example, learning about specific ethnic minorities in that region.<sup>25</sup> If this or a similar health promotion program were being considered for implementation in BC schools, it too should be adapted, piloted and evaluated prior to widespread delivery — to reflect local needs.
- **Implement higher-level policies to reduce youth substance use.** As noted in the [Overview](#), specific policies have been linked to mitigating substance use or reducing harm. For alcohol, these policies include banning advertising, increasing prices and reducing availability.<sup>9</sup> Researchers have proposed similar strategies for preventing potential harms with cannabis.<sup>15</sup> A comprehensive approach to youth substance misuse will need to involve not only ensuring effective prevention programs, but also ensuring that policies are in place to address pricing, marketing and access.

Substance misuse comes with great costs for individuals and for society. These costs include compromised mental and physical health, loss of productivity, reduced quality of life, increased justice and health care costs, and even premature disability and death.<sup>10, 30</sup> The most effective and humane way to avert these costs is to prevent substance misuse from occurring by intervening before young people start experimenting with substances. Delivering effective universal prevention programs in Canadian schools is an important part of preventing substance misuse. 🖐️

We use systematic review (SR) methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. We build quality assessment into our inclusion criteria to ensure that we report on the best available evidence — requiring that intervention studies use randomized controlled trial (RCT) methods and also meet additional quality indicators. For this review, we searched for RCTs on preventing substance misuse in young people. Table 4 outlines our database search strategy.

**Table 4: Search Strategy**

<b>Sources</b>	• Campbell, Cochrane, CINAHL, ERIC, Medline and PsycINFO
<b>Search Terms</b>	• Substance-related disorder, substance abuse, substance use, drug abuse or addiction <i>and</i> prevention or intervention
<b>Limits</b>	• Peer-reviewed articles published in English between 2009 and 2017 • Children aged 18 years or younger • Systematic review, meta-analysis or RCT methods used

To identify additional RCTs, we also hand-searched reference lists from previous Children's Health Policy Centre publications. Using this approach, we identified 152 RCTs. Two team members then independently assessed each RCT, applying the inclusion criteria outlined in Table 5.

**Table 5: Inclusion Criteria for RCTs**

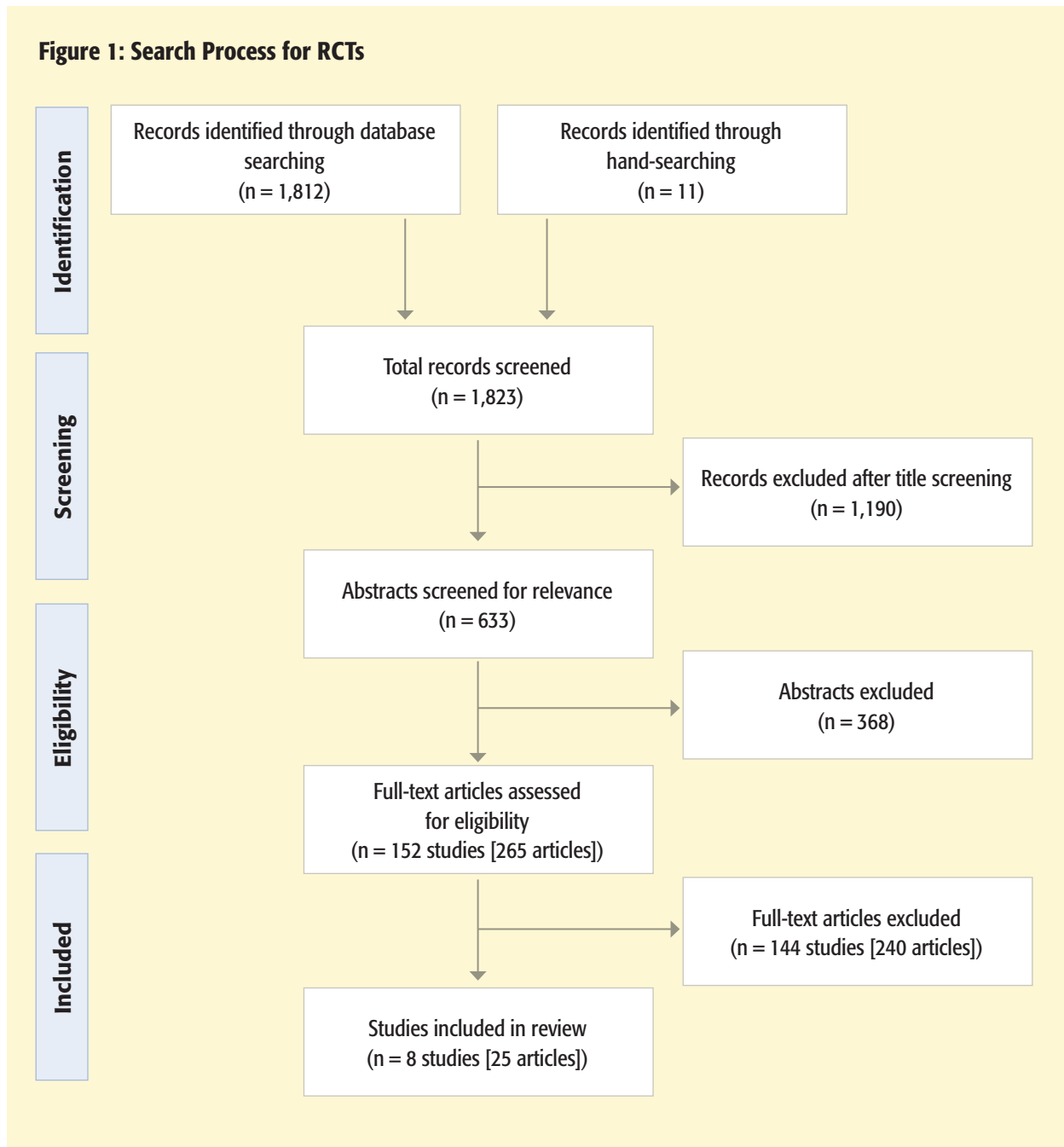
<ul style="list-style-type: none"> <li>• Participants were randomly assigned to intervention and comparison groups (i.e., no intervention or minimal intervention comparison groups) at study outset</li> <li>• Clear descriptions were provided of participant characteristics, settings and interventions</li> <li>• Interventions were evaluated in a high-income country (according to <a href="#">World Bank</a> standards), for comparability with Canadian policy and practice settings</li> <li>• Interventions were delivered universally within schools</li> <li>• Follow-up was 12 months or more (from the end of the intervention)</li> <li>• Attrition rates were 20% or less at follow-up and/or intention-to-treat analysis was used</li> <li>• Child outcome indicators included (self-reported) alcohol and drug use, assessed at follow-up</li> <li>• Levels of statistical significance were reported for primary outcome measures</li> </ul>
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Eight RCTs met all the inclusion criteria. Figure 1, on the following page, shows a flow diagram of our search process, adapted from *PRISMA*. Data from these studies were then extracted, summarized and verified by two or more team members. Throughout our process, any differences between team members were resolved by consensus. 🤝

**For more information on our research methods, please contact**

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**Figure 1: Search Process for RCTs**

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### 2017 / Volume 11

- 4 – [Helping children with depression](#)
- 3 – [Preventing childhood depression](#)
- 2 – [Supporting LGBTQ+ youth](#)
- 1 – [Helping children with ADHD](#)

### 2016 / Volume 10

- 4 – [Promoting self-regulation and preventing ADHD symptoms](#)
- 3 – [Helping children with anxiety](#)
- 2 – [Preventing anxiety for children](#)
- 1 – [Helping children with behaviour problems](#)

### 2015 / Volume 9

- 4 – [Promoting positive behaviour in children](#)
- 3 – [Intervening for young people with eating disorders](#)
- 2 – [Promoting healthy eating and preventing eating disorders in children](#)
- 1 – [Parenting without physical punishment](#)

### 2014 / Volume 8

- 4 – [Enhancing mental health in schools](#)
- 3 – [Kinship foster care](#)
- 2 – [Treating childhood obsessive-compulsive disorder](#)
- 1 – [Addressing parental substance misuse](#)

### 2013 / Volume 7

- 4 – [Troubling trends in prescribing for children](#)
- 3 – [Addressing acute mental health crises](#)
- 2 – [Re-examining attention problems in children](#)
- 1 – [Promoting healthy dating relationships](#)

### 2012 / Volume 6

- 4 – [Intervening after intimate partner violence](#)
- 3 – [How can foster care help vulnerable children?](#)
- 2 – [Treating anxiety disorders](#)
- 1 – [Preventing problematic anxiety](#)

### 2011 / Volume 5

- 4 – [Early child development and mental health](#)
- 3 – [Helping children overcome trauma](#)
- 2 – [Preventing prenatal alcohol exposure](#)
- 1 – [Nurse-Family Partnership and children's mental health](#)

### 2010 / Volume 4

- 4 – [Addressing parental depression](#)
- 3 – [Treating substance abuse in children and youth](#)
- 2 – [Preventing substance abuse in children and youth](#)
- 1 – [The mental health implications of childhood obesity](#)

### 2009 / Volume 3

- 4 – [Preventing suicide in children and youth](#)
- 3 – [Understanding and treating psychosis in young people](#)
- 2 – [Preventing and treating child maltreatment](#)
- 1 – [The economics of children's mental health](#)

### 2008 / Volume 2

- 4 – [Addressing bullying behaviour in children](#)
- 3 – [Diagnosing and treating childhood bipolar disorder](#)
- 2 – [Preventing and treating childhood depression](#)
- 1 – [Building children's resilience](#)

### 2007 / Volume 1

- 4 – [Addressing attention problems in children](#)
- 3 – [Children's emotional wellbeing](#)
- 2 – [Children's behavioural wellbeing](#)
- 1 – [Prevention of mental disorders](#)



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