



Severe alcohol intoxication in adolescents

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What is the epidemiology of alcohol use among Canadian adolescents?

Alcohol consumption by adolescents continues to be an important health concern in Canada, where it is the most commonly used drug among early to late adolescents.^{1,2} The recent cross-Canada report by the Canadian Centre on Substance Abuse combined data from the various regularly occurring provincial student alcohol and drug use surveys for students aged 12 to 18.³ It indicates that 19% to 30% of all students reported consuming five or more drinks on one occasion in the past month; however, for grade 12 students, it is significantly higher, with almost half of these students reporting drinking more than five drinks on at least one occasion in the past month. Few gender differences exist, but more males than females reported drinking alcohol before driving. These patterns of alcohol use are consistent across provinces, as well as at the national level. While this trend in alcohol consumption for this particular group has declined compared to the peaks in the 1970s and late 1990s, the prevalence remains high, and current reported rates of binge drinking have in fact increased.^{1,2,4} While the adult definition of binge drinking (five or more alcoholic drinks on one occasion)^{1,2,4} is used in reporting these statistics, recent literature suggests that three drinks should be used as the definition in girls aged less than 18 and boys less than 14, and four drinks as the definition in 14- to 15-year-old boys.⁵

What are the potential complications and adverse outcomes associated with adolescent alcohol use?

Alcohol use in adolescence is a risk factor for future drug and alcohol problems,⁶⁻⁸ and young people who drink before the age of 15 are four times more likely to become addicted to alcohol.^{6,8} Neurobiological and neurocognitive studies have demonstrated that the immaturity of the adolescent brain confers greater vulnerability to the toxic and addictive effects of alcohol.⁹⁻¹¹ Evidence suggests that individuals who initiate drinking by age 15 are more susceptible to alcohol dependence than those who initiate drinking later in life.^{6,8} Early alcohol use has been associated with greater sexual risk-taking, including unprotected sex and multiple partners, unwanted sexual advances, poor school performance, abuse of other substances and delinquent behaviour.^{4,12-18} When intoxicated, adolescents are more likely to use other drugs, including prescription medication, as well as have an increased likelihood of acute cocaine intoxication during episodes of alcohol binge drinking.¹⁹⁻²⁰ From 2007 to 2008, 12% to 20% of grade 12 students reported having driven in the past year within an hour of drinking, and from 2000 to 2007, 47% of all drivers 19 years of age or younger who died in traffic fatalities tested positive for alcohol and/or drugs.³ This relationship is highlighted by the significant decrease in motor vehicle fatalities in those less than 21 years of age in the United States following the uniform change in the legal drinking age. Youth suicide rates show a similar pattern with

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higher suicide rates being associated with lower minimum legal drinking limits,⁵ and male youths who abuse alcohol are the highest risk group for successful suicides.²¹

Does severe alcohol intoxication in adolescents cause medical complications?

In Canada, the acute health implications of severe alcohol intoxication in adolescents are not well described. However, in the Netherlands, a recent surveillance study found that there was an increase in hospitalizations of adolescents with reduced consciousness due to alcohol intoxication from 2007 (203 cases) to 2008 (245 cases).²² The duration of reduced consciousness secondary to alcohol intoxication varied from several minutes to 24 hours, and there was a significant increase in the duration of reduced consciousness from 2007 to 2009. Girls aged 13 and 14 were found to have a significantly higher hospitalization prevalence due to alcohol intoxication than boys of the same ages. Females may be more susceptible to the harmful effects of alcohol than boys, including liver and cardiovascular injury.²³ Similar surveillance data on hospital admissions are not available for Canada, but national binge drinking rates are a major concern. The acute implications of alcohol intoxication in adolescents, aside from decreased level of consciousness, are not well described in the literature. This knowledge gap is an area that can be addressed with surveillance of acute presentations of alcohol intoxication in Canada.

How can health care providers assess risk for severe alcohol use in adolescents?

Paediatricians and health care providers who care for adolescents can help identify substance use by youth.²⁴ The American Academy of Pediatrics recommends that paediatricians conduct routine annual substance use screening of all adolescents.²⁵ The Alcohol Use Disorders Identification Test (AUDIT) developed by the World Health Organization and the CRAFFT are two quick and validated screening tools for determining substance use disorders in adolescents.⁵ CRAFFT represents a mnemonic acronym of first letters of key words in the six screening questions (Car, Relax, Alone, Forget, Friends, Trouble). CRAFFT is an easy-to-use behavioural health screening tool that can be administered in the primary care setting in verbal or written format. Reliability of the tool is high, especially when questions are prefaced with the phrase “in the past year”. It has recently been integrated into an algorithm and toolkit to improve paediatrician confidence in responding to screening results in the United States. CRAFFT is a six-question screen (each “yes” answer = 1), with a score of 2 or higher being considered optimal for identifying risky use, with sensitivity and specificity of the tool exceeding 0.80.²⁶ It is arguably the most widely used screening instrument for adolescent substance use in North America.

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Quiz

- 1. What percentage of Canadian adolescents report at least one episode of binge drinking in the last month?**
 - a. 10-29%
 - b. 19-30%
 - c. 30-54%
 - d. 5-15%
- 2. Adolescents who initiate drinking at an earlier age are at increased risk for all of following, except:**
 - a. Becoming addicted to alcohol
 - b. Being more vulnerable to the toxic effects of alcohol
 - c. Experimenting with other drugs
 - d. Becoming more involved in sports
- 3. Binge drinking for an adolescent girl is defined as:**
 - a. 2 or more drinks on one occasion
 - b. 3 or more drinks on one occasion
 - c. 4 or more drinks on one occasion
 - d. 5 or more drinks on one occasion
- 4. What gender differences have been noted in previous studies about alcohol use in adolescents?**
 - a. Boys are more likely to drive after drinking
 - b. Girls are more likely to drive after drinking
 - c. Girls are more likely to attempt suicide after drinking
 - d. Boys are more likely to suffer cardiovascular injury related to drinking
- 5. The most widely used screening tool for adolescent substance abuse in North America is:**
 - a. AUDIT (Alcohol Use Disorders Identification Test)
 - b. CAGE (Cutdown, Angry, Guilty, Eye-opener)
 - c. CRAFFT (Car, Relax, Alone, Forget, Friends, Trouble)
 - d. HEADS (Home, Education, Activities, Drugs/Diet, Suicide/Sex)
- 6. The CRAFFT questionnaire consists of:**
 - a. 8 screening questions
 - b. 6 screening questions
 - c. 5 screening questions
 - d. 7 screening questions

Answers: 1-b, 2-d, 3-b, 4-a, 5-c, 6-b