

# Clearing the Smoke on Cannabis Series

## Highlights

March 2010



*This document highlights findings from a series of reports that reviews the effects of cannabis use on various aspects of human functioning and development. Specifically, the reports address: Chronic Use and Cognitive Functioning and Mental Health; Maternal Cannabis Use During Pregnancy; Cannabis Use and Driving; and Respiratory Effects of Cannabis Smoking.*

### Cannabis—What is it?

- Cannabis is somewhat like tobacco—a greenish or brownish substance that’s made by drying the flowering, fruiting tops and leaves of the plant *Cannabis Sativa*.
- Cannabis is known by many names including: marijuana, weed, hash—and others.
- Cannabis is often smoked as a “joint” or by using a water pipe or “bong” (where the smoke is drawn through water before inhaling it to cool it and filter out small particles).

### Cannabis—Who’s using it?

*Cannabis is the most widely used illicit drug in Canada.*

- Almost half of all Canadians have used cannabis at least once in their life according to surveys in 2004 and 2008.
- In the 2008 survey, around 25% of those who used cannabis in the last year reported that they used it every day.
- Use of cannabis is generally higher in youth; for example, in a 2004 survey almost 80% of 18- and 19-year-old respondents reported ever using cannabis, with almost 50% of those using in the year leading up to the survey.
- Almost 5% of drivers in Canada admitted to driving after using cannabis, in a 2004 survey.

### Cannabis—What does chronic use mean?

*Researchers don’t have a single definition for chronic use, but in general, the term refers to weekly or more frequent use over months or years, posing a possible risk to a user’s health. Other terms that are often used interchangeably with chronic use include heavy use, frequent use, regular use, long-term use, abuse, and dependence.*

### Cannabis—What’s the issue?

- A growing body of research evidence suggests that using cannabis could negatively affect different aspects of people’s lives, including:
  - Mental and physical health;
  - Cognitive functioning (skills such as memory, attention span and *psychomotor speed*);
  - Ability to drive a motor vehicle; and
  - Health and development of children born to those who use cannabis.

### High on Cannabis—What does that mean?

- *People will use cannabis because it makes them feel happy, relaxed or very aware—or in some cases if people are ill, they use it to help increase their appetite or reduce their pain.*
- *Other symptoms of “being high” on cannabis include decreased attention span, increased heart rate, slowed reaction times, and a lack of a sense of time. These can last several hours. Sometimes less enjoyable symptoms—like nervousness or paranoia—can be experienced.*



## CANNABIS and COGNITIVE FUNCTIONING and MENTAL HEALTH

**Definition:** *Cognitive functioning* refers to skills such as memory, attention span and psychomotor speed—the amount of time it takes a person to process a signal, prepare a response and carry out that response.

**Definition:** *Psychosis* is a serious mental disorder in which people lose touch with reality so that they are unable to function normally in society. It is often characterized by delusions and hallucinations.

### Key Findings:

#### Cognitive Functioning

- Long-term cannabis use does not appear to produce significant, lasting cognitive impairments (problems with memory, attention, or other cognitive problems) in adults.
- Most of the negative effects that cannabis has on memory or learning disappear following several weeks of not using cannabis.  
BUT...
- Starting cannabis use early in adolescence—while the brain is still developing—may lead to more lasting problems.
- Although the cognitive deficits caused by cannabis use are likely reversible after a month of discontinued use in adults, the same may NOT be true for those who start using cannabis in early adolescence.
- Impairment is related to recent but not cumulative use.

#### Mental Health

- People who use cannabis—especially frequent users—are at increased risk for psychosis and psychotic symptoms.
- Those who are already prone to psychosis (i.e., they may have a family member who suffers from psychosis) are especially at increased risk for developing psychosis with cannabis use.

### Implications:

- Efforts to inform the public—such as educational campaigns—about the risks of long-term cannabis use may help Canadians make informed choices about using cannabis.
- Efforts to prevent, reduce or delay the use of cannabis—especially among youth who are particularly susceptible to the risks posed by cannabis—could result in decreased rates of mental health disorders, saving unnecessary suffering and costs to the health care system.

## CANNABIS and MATERNAL USE DURING PREGNANCY

**Definition:** *Maternal use* of cannabis refers to the use of cannabis during pregnancy.

### Key Findings:

- No link has been demonstrated to exist between heavy cannabis use during pregnancy and premature births, miscarriages or major physical abnormalities.
- Cannabis use during pregnancy has been shown, however, to affect the development and learning skills of children starting at about the age of 3 years, and these effects continue at least until the children's teenage years.
- Specifically, cannabis use during pregnancy has been shown to affect children's cognitive functioning, behaviour, substance use and mental health.

### Implications:

- A child who was exposed to cannabis as a fetus may experience problems with academic functioning. This might require additional educational supports to help protect against future learning problems.
- Efforts to prevent or reduce cannabis use during pregnancy could have significant benefits to future generations, potentially reducing rates of mental health problems and substance use.

## CANNABIS and DRIVING

**Definition:** *Drug-impaired driving* refers to driving any motor vehicle (and that includes boats, snowmobiles and all-terrain vehicles) while impaired by any type of drug or a combination of drugs and alcohol.

### Key Findings:

- Based on surveys of the Canadian population, it appears that the number of people driving after using cannabis is on the rise.
- Younger people are more likely to drive after using cannabis—and it's as common if not more frequent than drinking and driving in this age group.
- Males are more likely than females to drive after using cannabis.
- Evidence of cannabis use is common in seriously and fatally injured drivers.

### Effects of Cannabis on Driving Performance

*Cannabis can compromise a driver's reaction time and visual ability. While experienced drivers may be able to compensate for some of these effects, decreased attention and impaired decision making can increase the likelihood of a crash.*

### Detecting Drivers Impaired by Cannabis

*Unlike alcohol, cannabis cannot be detected by a breath test. But the Drug Evaluation and Classification (DEC) program is used to help law enforcement recognize and evaluate behaviours and other psychological indicators that are common with cannabis and six other drugs. This information, together with a urine, oral fluid and/or blood test, can provide enough evidence for drug-impaired driving charges to be laid.*

### Implications:

- Increased use of cannabis in Canada may contribute to increasing rates of cannabis-impaired driving. Efforts to prevent, reduce or delay cannabis use—especially in youth—will help to prevent or decrease rates of cannabis-impaired driving in Canada.
- Many people are not aware that cannabis use impairs their ability to drive or that cannabis use can be detected in drivers and that those caught will be charged just as if they were impaired by alcohol. Greater efforts are needed to ensure that drivers understand the risks of driving after using cannabis.
- To be successful, any approach to reduce cannabis-impaired driving—and cannabis use in general—requires a combination of research, prevention, enforcement and rehabilitation.

## Cannabis and RESPIRATORY EFFECTS

**Definition:** *The term respiratory effects refers to symptoms or ailments such as chronic obstructive pulmonary disease (COPD—a group of lung diseases without a cure, including emphysema and chronic bronchitis), lung cancer, and infections of the lower respiratory tract such as pneumonia.*

### Key Findings:

- Cannabis smoke contains a mixture of poisons that are similar to tobacco smoke, and THC—the active ingredient in cannabis—may make the lungs and airways more susceptible to respiratory problems.
- Research suggests smoking cannabis may be even more harmful to a person's airways and lungs than smoking tobacco, since cannabis smoking often involves unfiltered smoke, larger puffs, deeper inhalation and longer breath-holding. This means the negative respiratory effects may occur earlier with cannabis smoking.
- Regular users of cannabis commonly report coughing on most days, wheezing, shortness of breath after exercise, chest tightness at night, sounds in their chest, early morning phlegm and mucus, and bronchitis.
- Cannabis smoke contains many of the same carcinogens (cancer-causing chemicals) as tobacco smoke—making a link between smoking cannabis and lung cancer a possibility worthy of further research.

### Implications:

- Clear messages about the risks to the lungs and airways and the potential suffering and costs to the health care system need to be communicated so that Canadians can make informed decisions about their use of cannabis.
- For those who choose to use cannabis, ways of inhaling the drug without smoking it may help to reduce—although not eliminate—the harms to the respiratory system (vaporizing the drug to release the active ingredients instead of burning it).

*The respiratory system is the airways, lungs and muscles that you use to breathe.*

## WHAT ROLE CAN YOU PLAY in Preventing and/or Reducing the Negative Effects of Cannabis?

Whether you are a researcher, research funding agency, decision maker, health care professional, health promoter, teacher, law enforcement professional, parent, or a person who uses cannabis, you have a role to play.

- Know the effects of cannabis use on human functioning and development—and help to make sure others have this knowledge too.
- Support efforts—whether they be in research, prevention, enforcement or rehabilitation—to prevent, reduce or delay cannabis use or the harms associated with cannabis use.

*Cannabis is a controlled substance under the Controlled Drugs and Substances Act—meaning that the acts of growing, possessing, distributing and/or selling cannabis are illegal.*

### About the *Clearing the Smoke on Cannabis* Series

This series reviews the effects of cannabis use on various aspects of human functioning and development. Each report was prepared by an expert researcher in the field and peer reviewed. The production of the series was made possible through a financial contribution from Health Canada's Drug Strategy Community Initiatives Fund. The views expressed within the reports of the series do not necessarily represent the views of Health Canada.

### References

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### About the Canadian Centre on Substance Abuse (CCSA)

The Canadian Centre on Substance Abuse has a legislated mandate to provide national leadership and evidence-informed analysis and advice to mobilize collaborative efforts to reduce alcohol- and other drug-related harms.



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