

**SUBSTANCE ABUSE ISSUES AND PUBLIC POLICY IN CANADA:
IV. PREVALENCE OF USE AND ITS CONSEQUENCES**

**Chantal Collin
Political and Social Affairs Division**

11 April 2006

The Parliamentary Information and Research Service of the Library of Parliament works exclusively for Parliament, conducting research and providing information for Committees and Members of the Senate and the House of Commons. This service is extended without partisan bias in such forms as Reports, Background Papers and Issue Reviews. Analysts in the Service are also available for personal consultation in their respective fields of expertise.

**CE DOCUMENT EST AUSSI
PUBLIÉ EN FRANÇAIS**

TABLE OF CONTENTS

	Page
INTRODUCTION	1
CANNABIS	2
A. Nature, Use and Effects	2
B. Therapeutic Use of Marihuana.....	3
C. Prevalence of Cannabis Use.....	4
D. Driving Under the Influence of Cannabis	5
COCAINE AND CRACK	7
A. Nature, Use and Effects	7
B. Prevalence of Cocaine Use.....	7
C. Co-use of Cocaine and Heroin	8
HALLUCINOGENS.....	9
A. Nature, Use and Effects	9
B. Prevalence of Hallucinogen Use	9
HEROIN	10
A. Nature, Use and Effects	10
B. Therapeutic Use of Opioids.....	11
C. Prevalence of Heroin Use.....	11
D. Pilot Projects: Vancouver’s Supervised Injection Site and the North American Opiate Medication Initiative	12
INHALANTS.....	12
A. Nature, Use and Effects	12
B. Prevalence of Inhalant Use.....	13
C. Solvent Abuse Among Aboriginal Youth	13
METHAMPHETAMINES AND ECSTASY	14
A. Nature, Use and Effects	14
1. Methamphetamines	14
2. Ecstasy	15
B. Prevalence of Methamphetamine and Ecstasy Use.....	15
CONCLUSION.....	16



CANADA

LIBRARY OF PARLIAMENT
BIBLIOTHÈQUE DU PARLEMENT

SUBSTANCE ABUSE ISSUES AND PUBLIC POLICY IN CANADA: IV. PREVALENCE OF USE AND ITS CONSEQUENCES⁽¹⁾

INTRODUCTION

The impact of substance use and abuse on Canadian society in terms of health care, law enforcement, loss of productivity, research, prevention, well-being and safety of individuals and communities is increasingly significant. A recent study on the costs of substance abuse in Canada found that the total annual cost in 2002 reached \$39.8 billion. Tobacco accounted for 42.7% (\$17 billion) of that amount, followed by alcohol at 36.6% (\$14.6 billion) and illegal drugs at 20.7% (\$8.2 billion). The study's authors call attention to the fact that "behind this dollar figure is a dramatic toll measured in tens of thousands of deaths, hundreds of thousands of years of productive life lost, and millions of days spent in hospital."⁽²⁾ The study also reveals that deaths and illness resulting from the use of illicit substances have substantially increased in the last decade. In 2002, a total of 1,695 Canadians died as a result of using an illicit substance. The leading cause of death was a drug overdose (958 deaths) followed by drug-attributable suicide (295), and drug-attributable Hepatitis C (165) and HIV (87).⁽³⁾

This paper describes various licit⁽⁴⁾ and illicit psychoactive substances and related problems and consequences, and summarizes the most recent information on the prevalence of

-
- (1) This document is the fourth in a series entitled *Substance Abuse Issues and Public Policy in Canada* by the same author. The others are: *I. Canada's Federal Drug Strategy*, PRB 06-15E; *II. Parliamentary Action (1987-2005)*, PRB 06-05E; *III. What, When, Who and Why?*, PRB 06-11E; and *V. Alcohol and Related Harms*, PRB 06-20E, Parliamentary Information and Research Service, Library of Parliament, Ottawa, 2006.
 - (2) J. Rehm *et al.*, *The Costs of Substance Abuse in Canada 2002: Highlights*, Canadian Centre on Substance Abuse, March 2006, p. 10, http://www.ccsa.ca/CCSA/EN/Research/Research_Activities/TheCostsofSubstanceAbuseinCanada.htm.
 - (3) *Ibid.*, p. 7.
 - (4) This paper's discussion of inhalants deals only with the use of licit inhalants. The health and social consequences of alcohol abuse, its prevalence and public policy related to alcohol are important issues that will be discussed in the fifth document in this series on substance abuse issues and public policy in Canada.

use of psychoactive substances in Canada.⁽⁵⁾ Statistical data are drawn primarily from the 2004 Canadian Addiction Survey⁽⁶⁾ report published in March 2005, supplemented by other data collected through the 2004 Northwest Territories Addiction Survey,⁽⁷⁾ the Ontario Student Drug Use Survey,⁽⁸⁾ the National Population Health Survey (1998-1999), the National Longitudinal Survey of Children and Youth (1994-1995 to 2002-2003), the Health Behaviour in School-Aged Children Study (2001-2002), and the Canadian Community Health Survey (2003).

CANNABIS

A. Nature, Use and Effects

Cannabis products include commonly known substances such as marihuana, hashish and hash oil. The main active ingredient in cannabis is Delta-9-tetrahydrocannabinol (THC). The THC content of cannabis products is difficult to ascertain and varies depending on whether it is grown in natural conditions or in greenhouses and hydroponically. Information

-
- (5) Information on licit and illicit psychoactive substances is readily available. For example, see Health Canada, *Straight Facts About Drugs and Drug Abuse*, 2000, http://www.hc-sc.gc.ca/ahc-asc/alt_formats/hecs-sesc/pdf/pubs/drugs-drogues/straight_facts-faits_mefaits/facts-faits_e.pdf. As well, the Canadian Centre on Substance Abuse is an excellent source of information on all licit and illicit substances that may lead to abuse, on all forms of addiction, and on public policy related to the complex problems associated with substance abuse and addiction.
- (6) The 2004 Canadian Addiction Survey was a national telephone survey of individuals 15 years and older living in Canada's ten provinces. The three northern territories were excluded. It should also be noted that this type of survey does not include data on hard-to-reach populations such as street-involved youth, Aboriginal people in remote and rural communities, people without a telephone, etc. Some of the hard-to-reach populations are among those who are at high risk of using and abusing licit and illicit substances. Prevalence rates must be analyzed in this context with an understanding that the actual rates may be much higher. For the survey's findings, see *Canadian Addiction Survey (CAS): A national survey of Canadians' use of alcohol and other drugs, Prevalence of Use and Related Harms – Detailed Report*, March 2005, <http://www.ccsa.ca/NR/rdonlyres/6806130B-C314-4C96-95CC-075D14CD83DE/0/ccsa0040282005.pdf>.
- (7) The Canadian Addiction Survey conducted in early 2004 did not include the Northwest Territories. In August 2004, Health Canada and the Government of the Northwest Territories reached an agreement to remedy this gap and carry out a survey in the territories. For the findings, see Northwest Territories Health and Social Services, *Northwest Territories Addiction Survey*, January 2006, http://www.hlthss.gov.nt.ca/content/Publications/Reports/addictions/2006/nwt_addiction_survey.pdf.
- (8) The Ontario Student Drug Use Survey is the longest ongoing school survey in Canada. Data from this survey will be used in this publication to identify trends in the prevalence of substance use among adolescents. See Edward M. Adlaf and Angela Paglia-Boak, *Drug Use Among Ontario Students: Detailed OSDUS Findings, 1977-2005*, Centre for Addiction and Mental Health, Toronto, 2005, <http://www.camh.net/Research/osdus.html#2005osdusdrugusereport>.

from “street” sample seizures collected between 2000 and 2002 revealed a range of 3-30% THC, with a mean percentage of approximately 10%.⁽⁹⁾ Cannabis is usually smoked or ingested and acts upon specific receptors of the brain to produce a short-term euphoric effect. High doses can cause perceptual distortion, disorganized thoughts and mild hallucinations. The potential long-term harmful effects and consequences of cannabis use on the physical, psychological and social well-being of consumers are often disputed and have yet to be fully demonstrated. However, smoking of cannabis has been associated with an increase risk of lung cancer, chronic bronchitis and other lung diseases.⁽¹⁰⁾

B. Therapeutic Use of Marihuana

Some researchers have been studying the potential therapeutic value of marihuana. There is some evidence that it may be used to manage pain, treat symptoms associated with specific diseases (e.g., stimulating appetite and reducing the AIDS wasting syndrome; lowering intraocular pressure linked to glaucoma; reducing the occurrence of epileptic seizures; and decreasing spasticity and tremor associated with multiple sclerosis) or that it may help alleviate the negative effects of some forms of treatment (e.g., relieving nausea and vomiting caused by chemotherapy and by AIDS therapies). In Canada, the possession and/or production of marihuana for medical purposes is permitted and controlled under the *Marihuana Medical Access Regulations*.⁽¹¹⁾ The regulations were established in 2001 in response to court decisions; they allow people with severe and debilitating illnesses to have access to marihuana. As of 7 April 2006, 1,399 persons in Canada were allowed to possess marihuana and 1,005 were allowed to cultivate/produce marihuana for medical purposes.⁽¹²⁾ Health Canada, in collaboration with the Canadian Institutes of Health Research, is currently funding studies on the safety and efficacy of marihuana when used for medical purposes.

(9) Health Canada, *Information for Health Care Professionals: Marihuana (marihuana, cannabis) dried plant for administration by ingestion or other means*, last modified 5 August 2005, http://www.hc-sc.gc.ca/dhp-mps/alt_formats/hecs-sesc/pdf/marihuana/how-comment/medpract/infoprof/marihuana_e.pdf.

(10) For more information on cannabis, see the exhaustive report prepared by the Senate Special Committee on Illegal Drugs, *Cannabis: Our Position for a Canadian Public Policy*, September 2002, http://www.parl.gc.ca/common/Committee_SenRep.asp?Language=E&Parl=37&Ses=1 &comm_id=85.

(11) Medical use of marihuana was also authorized in the Netherlands in September 2003.

(12) For more information on access to marihuana for medical purposes, see Health Canada’s Web site at http://www.hc-sc.gc.ca/dhp-mps/marihuana/index_e.html.

C. Prevalence of Cannabis Use

According to the *World Drug Report 2005*, cannabis is the most widely produced, trafficked and consumed illicit psychoactive substance worldwide. In Canada, the Canadian Addiction Survey (2004) revealed that 44.5% of respondents age 15 and up reported having tried cannabis in their lifetime. Results also show that “males are more likely to have used cannabis than females, with 50% having tried it, compared with 39% of females.”⁽¹³⁾ Rates of lifetime use reported by respondents aged 15 to 54 were above 50%, with the highest rate of nearly 70% found among younger people between the ages of 18 and 24. The survey also found that 14.1% of respondents indicated that they had used cannabis in the past year, with the highest rate of 47% reported among young people aged 18-19, followed closely by those between the ages of 20 and 24, with a 36.5% rate.⁽¹⁴⁾ Among this group of past-year users, 20.8% did not report using cannabis during the three months prior to the survey, while 24.9% reported using it once or twice, 16.0% reported using it monthly, 20.3% weekly, and 18.1% daily. About one-third of this group of past-year cannabis users also reported failing to control their use (34.1%) and having a strong desire to use (32.0%). Approximately one in six indicated that friends or relatives expressed concern about their cannabis use, 6.9% reported failed expectations, and another 4.9% reported experiencing health, social or legal problems due to their use.⁽¹⁵⁾

The overall rate of past-year cannabis use reported in 2004 is higher than the rate indicated in the 2002 Canadian Community Health Survey, which reported that 12.2% of Canadians surveyed had used cannabis at least once in the previous year. Among these users, 47% indicated that they had used cannabis less than once a month, 10% reported weekly use and another 10% reported daily use.⁽¹⁶⁾

Reports of past-year cannabis use in the Northwest Territories in 2004 were higher than in the provinces. The Northwest Territories Addiction Survey (the NWT survey) revealed that 20.7% of respondents reported having used cannabis in the twelve months prior to the survey. As in the rest of Canada, youth between the ages of 15 and 24 were much more

(13) David Patton and Jennifer Bodnarchuk, *Cannabis Use in Canada*, Presentation at Issues of Substance, Canadian Centre on Substance Abuse National Conference 2005, <http://www.issuesofsubstance.ca/NR/rdonlyres/77D2303C-92C2-46D9-8CC5-A0C995BEF37A/0/BriefPaperPOC2DavidPatton.pdf>.

(14) *Ibid.*

(15) *Canadian Addiction Survey (CAS): A national survey of Canadians' use of alcohol and other drugs, Prevalence of Use and Related Harms – Detailed Report*, March 2005, p. 49, <http://www.ccsa.ca/NR/rdonlyres/6806130B-C314-4C96-95CC-075D14CD83DE/0/ccsa0040282005.pdf>.

(16) Michael Tjepkema, “Use of Cannabis and Other Illicit Drugs,” *Health Reports*, Vol. 15, No. 4, Statistics Canada, Cat. No. 82-003, July 2004, pp. 43-47.

likely to report past-year cannabis use (46.3%). When asked about the frequency of use in the past three months, 20% indicated that they used cannabis daily or almost daily, 19.1% weekly, 19.9% monthly, and 26.9% less than once a month.⁽¹⁷⁾

The use of cannabis is also prevalent among adolescents. According to the 2005 Ontario Student Drug Use Survey, 26.5% of students in grades 7 to 12 reported using cannabis in the past year and 15% indicated that they had used cannabis six or more times during that year. The prevalence of use increases with age, with 23% of grade 9 students indicating past-year cannabis use and 46.2% of those in grade 12.⁽¹⁸⁾

It is also noteworthy that surveys reveal higher percentages of young Canadians reporting cannabis use than tobacco use.⁽¹⁹⁾ Evidence, mostly anecdotal, seems to indicate that some young people believe that marijuana is a safer recreational drug than tobacco. While more research is needed, some studies on the health effects of smoking cannabis clearly show that regular use of marijuana is associated with an increased risk of developing lung diseases.

D. Driving Under the Influence of Cannabis

Finally, it should be noted that the effect of cannabis use on driving is a growing concern in Canada, stimulated in part by the now regulated use of marijuana for medical purposes and by recently proposed legislative changes that would decriminalize the possession and cultivation of small amounts of cannabis. Concern over cannabis use and driving is also founded on recent survey data indicating that cannabis use and driving is increasingly prevalent particularly among young people, and that cannabis users' perception of impairment risks tends to be low. For example, the 2005 Ontario Student Drug Use Survey revealed that one in five students in grades 10 to 12 who held a driver's licence reported that they had driven a vehicle within one hour of cannabis use.⁽²⁰⁾ Another 2005 study on a small sample of university students who had driven a car after cannabis use indicated that 37.8% had done so 13 or more times in the past twelve months and that 64.5% had driven within an hour of using cannabis. The vast

(17) Northwest Territories Health and Social Services (2006), p. 15.

(18) Adlaf and Paglia-Boak (2005), pp. 73-78.

(19) For the most recent data, see Health Canada, *Canadian Tobacco Use Monitoring Survey (CTUMS) 2005*, http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/ctums-esutc/2005/wave-phase-1_summary-sommaire_e.html.

(20) Adlaf and Paglia-Boak (2005), p. 195.

majority “(95.1%) believed that cannabis generally at least produced some impairment for driving; however less than three out of five (57.8%) believed that they themselves were affected by any impairment and the majority of these believed that they had ways to compensate for at least some of these effects.”⁽²¹⁾

Little is known about the impact of cannabis use on road safety in Canada. However, some “epidemiological studies show that drugs other than alcohol are not uncommon among drivers involved in serious road crashes.”⁽²²⁾ It has also been determined that the use of cannabis in combination with alcohol entails potentially larger risks than the use of either drug alone.⁽²³⁾ In a study on the contribution of alcohol and other drugs to fatal accidents in Quebec between 1999 and 2001, it was shown that among fatally injured drivers of vehicles, 52.8% had alcohol and/or drugs in their blood or urine (22.6% alcohol alone; 12.4% alcohol and drugs; 17.8% drugs alone). Among this sample, cannabis was found in 19.5% of cases, followed by benzodiazepines (8.5%) and cocaine (6.8%).⁽²⁴⁾ To date, evidence linking driving while under the influence of cannabis and a higher risk of being involved in an accident is limited.⁽²⁵⁾ Further research is needed in order to determine the nature and magnitude of this problem in Canada.

-
- (21) Benedikt Fischer *et al.*, “Toking and driving: Characteristics of Canadian university students who drive after cannabis use – an exploratory pilot study” in *Drugs: Education, Prevention and Policy*, Vol. 13, No. 2, April 2006, p. 182.
- (22) Douglas J. Bierness, *The Risks Associated with Drugs in Traffic*, presentation at Issues of Substance, Canadian Centre on Substance Abuse National Conference 2005, <http://www.issuesofsubstance.ca/NR/rdonlyres/A158D117-F276-4952-8397-CFB1C919DB98/0/BriefPaperEN5DouglasBierness.pdf>.
- (23) J. G. Ramaekers *et al.*, “Dose related risk of motor vehicle crashes after cannabis use,” *Drug and Alcohol Dependence*, Vol. 73, 2004, pp. 109-119.
- (24) This study relied on a case-control analysis whereby the presence of a drug and/or alcohol in fatally injured drivers was compared to that of a control group of drivers who provided samples at the roadside. Roadside results showed that alcohol and/or drugs were present in 16.2% of participants. This study has limitations and its results are preliminary. For more information, see C. Dussault *et al.*, “The Contribution of Alcohol and Other Drugs Among Fatally Injured Drivers in Quebec: Some Preliminary Results,” *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety*, Montréal, 4-9 August 2002.
- (25) For example, see Robert E. Mann *et al.*, *Impacts of cannabis on driving: An analysis of current evidence with an emphasis on Canadian data*, prepared for Road Safety and Motor Vehicle Regulation, Transport Canada, May 2003, <http://www.tc.gc.ca/roadsafety/tp/tp14179/menu.htm>; Canada Safety Council, *Drivers on Pot – Issues and Options*, 24 July 2003, <http://www.safety-council.org/info/traffic/impaired/pot.html>; and Douglas J. Bierness, “Drugs and Driving,” *Substance Abuse in Canada: Current Challenges and Choices*, Canadian Centre on Substance Abuse, pp. 17-21, <http://www.ccsa.ca/NR/rdonlyres/745669D3-A757-478F-83F1-DD2864 AD6FAA/0/ccsa0040322005.pdf>.

COCAINE AND CRACK

A. Nature, Use and Effects

Cocaine and crack (a freebase form of cocaine)⁽²⁶⁾ are powerful, short-acting stimulants of the central nervous system. Cocaine can be sniffed, smoked or injected. Crack can be injected or smoked. Cocaine's short-term effects include: a feeling of euphoria, increased alertness and energy, rapid heartbeat and breathing, increased blood pressure and body temperature, decreased appetite, diminished sleep, and sometimes bizarre, erratic or violent behaviour. The higher the dose of cocaine ingested, the more severe the effects. At high doses, cocaine may cause hallucinations, paranoid thoughts, convulsions and seizures, stroke, cerebral haemorrhage, and heart failure. Long-term effects vary depending on the mode of intake, and may include: respiratory problems, infectious diseases, abscesses, paranoid psychosis, depression, and death from respiratory failure. Chronic high-dose users are likely to develop a tolerance to the drug and a strong psychological dependence. Cocaine comes second only to heroin in terms of creating dependence and causing death.

B. Prevalence of Cocaine Use

According to the *World Drug Report 2005*, approximately 14 million people worldwide use cocaine. In Canada, the Canadian Addiction Survey (2004) revealed that 10.6% of respondents aged 15 and up reported having used cocaine in their lifetime, a significant increase from 3.8% in 1994. As was the case for cannabis, males are much more likely than females to report lifetime use of cocaine (14.1% vs. 7.3%). Past-year use was reported by 1.9% of those surveyed.⁽²⁷⁾ In 2002, according to the Canadian Community Health Survey, 1.3% of Canadians aged 15 or older reported having used cocaine or crack at least once in the past year. Males were again much more likely to report past-year use than females (1.9% vs. 0.7%).⁽²⁸⁾

(26) Crack is produced by boiling a mixture of cocaine dissolved in a solution of baking soda and water until the water evaporates. The solution makes a crackling sound when heated, thus the name crack-cocaine. The solid substance is removed and allowed to dry. It is then broken into rocks weighing typically less than half a gram.

(27) *Canadian Addiction Survey (CAS)* (2005), p. 57.

(28) Tjepkema (2004), pp. 45-48.

In the Northwest Territories, according to the 2004 NWT survey, 11.6% of respondents aged 15 and older had used cocaine or crack in their lifetime (males 15.7% and females 7.2%). It is estimated that 1.8% of NWT residents would have used cocaine in the past year, but this estimate should be used with caution due to high sampling variability.⁽²⁹⁾

The use of cocaine among students in grades 7 to 12 remained relatively steady between 2001 and 2005, and continues to raise concern as to the early age at which some Canadian children start using such drugs. According to the 2005 Ontario Student Drug Use Survey, the past-year use of cocaine among students was 4.4%, down slightly from the 2004 level of 4.8% (with the exception of use among grade 12 and western Canadian students, which increased) and the same as in 2001. There was no significant difference in cocaine use between boys and girls (4.5% vs. 4.3%). Past-year cocaine use increased with age, with less than 1% of grade 7 students reporting use, 3.8% of grade 9, and 7.2% of grade 11 students. Among all those reporting past-year use of cocaine, 25% indicated that they used cocaine 10 or more times.⁽³⁰⁾

C. Co-use of Cocaine and Heroin

Finally, it is important to note that the co-use of heroin and cocaine is also prevalent in Canada. A recent study, based on a survey of some 750 intravenous drug users, found that 50% of those who inject heroin on a regular basis also inject cocaine or smoke crack cocaine.⁽³¹⁾ A study of injection drug users in Montréal also revealed a highly prevalent co-use of heroin and cocaine, even though cocaine was these users' preferred illicit drug. About 70% of heroin injection users in that study reported also injecting cocaine.⁽³²⁾

(29) Northwest Territories Health and Social Services (2006), p. 19.

(30) Adlaf and Paglia-Boak (2005), pp. 122-123.

(31) Francesco Leri *et al.*, "Patterns of opioid and cocaine co-use in Canada: a descriptive study," *Experimental and Clinical Psychopharmacology*, in press.

(32) Francesco Leri *et al.*, "Heroin and cocaine co-use in a group of injection drug users in Montréal," *Journal of Psychiatry & Neuroscience*, Vol. 29, No. 1, January 2004, pp. 40-47, http://epe.lac-bac.gc.ca/100/201/300/jrn_psychiatry_neuroscience-ef/2004/jpn_29-1/pdf/pg40.pdf.

HALLUCINOGENS

A. Nature, Use and Effects

Hallucinogens include such drugs as LSD, PCP, ketamine, mescaline and “magic mushrooms” (psilocybin). This group of substances, sometimes referred to as “psychedelic drugs,” cause hallucinations, distort reality, and affect the senses. Hallucinogens can be smoked, ingested or sniffed, depending on the substance. People who use hallucinogens report alterations in thought and mood, mind-expanding and out-of-body experiences, and enhanced communication skills and sociability. Depending on the hallucinogen used, short-term effects include, among others, a distorted perception of time, motion, colours and self (dissociation) with a consequential risk of injuries. The use of hallucinogens may also cause anxiety, depression, disorientation, paranoia and sometimes bizarre and violent behaviour. Psychotic-like episodes may occur days, weeks, or even months after the person has taken the drug. Nausea and vomiting, profuse sweating, a rapid heart rate, respiratory depression, and convulsions are other physical effects of hallucinogens. Their use may lead to a psychological dependence, but symptoms of physical dependence have not been observed.

B. Prevalence of Hallucinogen Use

Very little is known about the prevalence of use of hallucinogens worldwide. In Canada, with the exception of cannabis, hallucinogens were the drugs that respondents to the Canadian Addiction Survey (2004) most commonly reported using in their lifetime (11.4%). The prevalence of lifetime use of these substances has increased substantially since 1994, when it was 5.2%. Men were, once again, more likely than women to report lifetime use of hallucinogens (16% vs. 7.1%). Use was also particularly prevalent among adults between the ages of 20 and 34 (19.2% of the 20-24 age group and 17.8% of the 25-34 age group). Past-year hallucinogen use, however, was much lower, with only 0.7% of those surveyed reporting such use.⁽³³⁾ Lifetime use in the Northwest Territories was as prevalent as in Canadian provinces, with 11.7% of respondents in the NWT survey reporting such use in 2004.⁽³⁴⁾

(33) *Canadian Addiction Survey (CAS)* (2005), pp. 61-62.

(34) Northwest Territories Health and Social Services (2006), p. 17. No data are available on past-year hallucinogen use in the Northwest Territories.

The use of hallucinogens LSD and PCP also significantly decreased among Ontario students, as indicated in the 2003 and 2005 Ontario Student Drug Use Surveys. Among students in grades 7 to 12, past-year LSD use was at 1.7% in 2005, down from 2.9% in 2003. Similarly, rates for PCP use declined from 2.2% to 1.1% from 2003 to 2005, and for other hallucinogens from 10% to 6.7%.

HEROIN

A. Nature, Use and Effects

Heroin is an illegal opioid, part of a family of drugs classified as central nervous system depressants that are used medically as analgesics or painkillers. This group of drugs includes natural substances such as opium, morphine and codeine, as well as other semi-synthetic (e.g., Dilaudid, OxyContin)⁽³⁵⁾ and synthetic drugs (e.g., Demerol, Methadone). Heroin (diamorphine) is a semi-synthetic opioid derived from morphine. All opioids are regulated by the *Controlled Drugs and Substances Act* (Schedule 1). Heroin, also known on the street as junk, smack, horse or H, is a fine white or brown powder⁽³⁶⁾ that users usually inject intravenously. However, this drug can also be taken orally, sniffed, smoked by inhaling the vapours produced when heated from below (referred to by users as chasing the dragon), or injected under the skin (known as skin popping). Heroin is a highly addictive drug that rapidly causes dependence and tolerance. Users of opioids seek various effects from these drugs such as reduction of tension and anxiety, relief from pain, a sense of detachment from emotional and/or physical distress, and a feeling of euphoria. Short-term effects of opioids include, among others: nausea and vomiting, drowsiness, apathy, slowed and slurred speech, lack of concentration, and euphoria. At higher doses, users experience similar albeit increased effects and may also experience a contraction of the pupils, depressed breathing and blood pressure, and in some cases a rapid and irregular heart rate. Chronic users face serious health, social and economic problems including heart, liver and lung diseases, infectious diseases, mental health disorders, homelessness, unemployment, poverty and criminality. Injection drug users are also particularly

(35) The misuse and abuse of street-diverted OxyContin is prevalent in Atlantic Canada. A 2004 task force established by the Government of Newfoundland and Labrador investigated the phenomenon in that province; its final report is available on-line at <http://www.health.gov.nl.ca/health/publications/oxyfinal/OxyContinFinalReport.pdf>. The City of Greater Sudbury also recently set up a task force to examine the problem in its region; see <http://www.police.sudbury.on.ca/publications/OxyContin.pdf>. The abuse of OxyContin and its serious consequences in terms of morbidity and mortality are a growing concern in Canada.

(36) Pure heroin is a white powder with a bitter taste. However, heroin sold on the street varies in colour from white to dark brown because of additives and impurities.

at risk of contracting hepatitis or HIV/AIDS through shared non-sterile needles and syringes.⁽³⁷⁾ Depending on the quantity of the drug ingested, and on its purity and content, the consumption of heroin and other opioids can result in death.

B. Therapeutic Use of Opioids

Opioids play an important part in the treatment of severe pain and diarrhoea, as well as in the treatment of drug addiction and dependence (opioid substitution therapy). For example, methadone has been used for many years to treat opioid addicts. Codeine is also used to suppress cough. Medical use should not be confused with recreational use and abuse. The control and monitoring of opioids by governments is a delicate balancing act between ensuring medical access and preventing misuse and abuse while prohibiting recreational use.

C. Prevalence of Heroin Use

According to the *2005 World Drug Report*, 10.6 million people worldwide (0.3% of the adult population) abuse heroin. Yet, “over 60% of drug related treatment demand in Europe and Asia is related to the abuse of opiates.”⁽³⁸⁾ In Canada, according to the Canadian Addiction Survey (2004), the lifetime use of heroin is 0.9% (1.3% males and 0.5% females). In terms of lifetime use, the rate for heroin has remained below 1% since 1994 (0.5%). Geographically, there is no difference among provinces, with the notable exception of British Columbia where the rate of lifetime heroin use is at 1.8%.⁽³⁹⁾ Lifetime use of heroin in the Northwest Territories is similar to the prevalence noted in other Canadian provinces, with 1.2% of those surveyed reporting such use in 2004.⁽⁴⁰⁾ Prevalence of heroin use among Ontario

(37) New HIV infections among injection drug users have been declining slightly since 1999 but they are still high. Of the estimated 56,000 Canadians living with HIV (including AIDS) in 2002, 11,000 (20%) were injection drug users and another 2,200 (4%) were men having sex with men who were also injection drug users. The HIV prevalence rate among Aboriginal young adults is noteworthy: 39% of those 24 years and younger were infected with HIV according to the Vancouver Injection Drug User Study (VIDUS), 2003. See Public Health Agency of Canada, *HIV/AIDS EPI Updates*, May 2005, http://www.phac-aspc.gc.ca/publicat/epiu-aeipi/epi-05/pdf/epi_05_e.pdf.

(38) United Nations, Office on Drugs and Crime, *2005 World Drug Report*, Vol. 1, Ch. 1, p. 56.

(39) *Canadian Addiction Survey (CAS)* (2005), pp. 61 and 73. No data are available on past-year heroin use.

(40) Northwest Territories Health and Social Services (2006), p. 17. This prevalence rate should be interpreted with caution due to high sampling variability.

students (grades 7 to 12), according to the 2005 Ontario Student Drug Use Survey, is as high as that of adults, with 0.9% of students reporting past-year use.⁽⁴¹⁾

D. Pilot Projects: Vancouver's Supervised Injection Site and the North American Opiate Medication Initiative

To address the multitude of problems facing injection drug users in their daily lives, the first legal medically supervised injection site in North America, a scientific research pilot project, was opened in Vancouver in 2003.⁽⁴²⁾ The drug-law exemption provided to the site will be reviewed in September 2006 and will include an evaluation of the role the site may have played in harm reduction. Two Canadian cities (Vancouver and Montréal) are also taking part in the North American Opiate Medication Initiative (NAOMI), which runs carefully controlled clinical trials to assess whether the prescription of pharmaceutical-grade heroin to chronic injection drug users who have been resistant to other treatment options will be more effective than methadone and will improve their quality of life.⁽⁴³⁾ Preliminary results are expected at the end of 2006. In Canada, as in many other countries, methadone is available under prescription to assist in the treatment of opioid addiction.

INHALANTS

A. Nature, Use and Effects

Inhalant use and abuse, also known as solvent use, volatile substance use, sniffing, huffing and bagging, is associated with significant morbidity and mortality including damage to the central nervous system, lung damage, hearing loss, aspiration and sudden sniffing death syndrome. Commonly abused products are model glue, gasoline, contact cement, paints, butane fuel, cooking sprays, etc. Chronic users tend to be unemployed and poor, to abuse other substances, to have dysfunctional families, to fail in school and to get involved in delinquent activities.

(41) Adlaf and Paglia-Boak (2005), p. 133.

(42) Information on Insite, the supervised injection site, is available on the Vancouver Coastal Health's Web site at <http://www.vch.ca/sis/>.

(43) The NAOMI clinical trials in Canada are funded by the Canadian Institutes of Health Research; see "Community Advisory Boards Play Key Role in NAOMI Heroin Addiction Study," *Ethics Live!* @CIHR, No. 4, Fall 2005, <http://www.cihr-irsc.gc.ca/e/29084.html>. Questions and answers on the NAOMI project are available on the project's Web site at http://www.naomistudy.ca/pdfs/naomi_faq.pdf.

B. Prevalence of Inhalant Use

National prevalence data on inhalant use are limited. According to the Canadian Addiction Survey (2004), just 1.3% of those surveyed reported sniffing glue or solvents in their lifetime. However, inhalant use is mostly associated with youth. The 2004 survey revealed that 67% of those reporting solvent use indicated that they first used solvents between the ages of 12 and 16; 13% first used them before the age of 12; and 19% first used them when they were 17 or older.⁽⁴⁴⁾ In the Northwest Territories, according to the 2004 NWT survey, 2.7% of respondents indicated having used inhalants in their lifetime.⁽⁴⁵⁾ As well, the Ontario Student Drug Use Survey (2005) indicated that the proportion of Canadian adolescents who reported using inhalants in the year prior to the survey ranged from 2.3% to 5.3%, depending on whether they used glue or other solvents.⁽⁴⁶⁾ The use of inhalants has been observed more frequently among Aboriginal youth. There is some evidence that inhalant abuse is epidemic in some remote communities and practically non-existent in others.⁽⁴⁷⁾

C. Solvent Abuse Among Aboriginal Youth

Studies in Canada, but mostly in the United States, show that solvent abuse is a major problem among young Aboriginal people. Prevalence rates as high as 60% have been reported in some studies. The most recent survey of all reserves in Canada dates back to the 1993 First Nations and Inuit Community Youth Solvent Abuse Survey. Nonetheless, various local and regional studies, data from treatment centres and law enforcement agencies, as well as morbidity and mortality studies, all suggest that the problem among Aboriginal youth in Canada, particularly those living in certain rural and remote areas, is just as prevalent as in the United States. For example, in 2003, a report from the Pauingassi First Nation in Manitoba revealed that 50% of young people under the age of 18 living on the reserve abused solvents.

(44) Colleen Anne Dell, *What the Data Tells Us About Youth Volatile Solvent Abuse (VSA) in Canada*, PowerPoint Presentation for the conference “Inhalant Abuse Among Children and Adolescents: Consultation on Building an International Research Agenda,” Rockville, Maryland, 7 November 2005. See also the papers presented at an international conference on solvent abuse hosted by Canada, the United States and Mexico in Washington, November 2005. Links to speakers’ presentations are available on the National Institute on Drug Abuse Web site at:

http://international.drugabuse.gov/meetings/inhalant_presentations.html.

(45) Northwest Territories Health and Social Services (2006), p. 17. This prevalence rate should be interpreted with caution due to very high sampling variability. Data on the past-year use of inhalants are not available.

(46) Adlaf and Paglia-Boak (2005), p. 91.

(47) Indian and Inuit Health Committee, Canadian Paediatric Society, “Inhalant Abuse,” *Paediatrics & Child Health*, Vol. 3, No. 2, 1998, reaffirmed January 2005, <http://www.cps.ca/english/statements/II/ii97-01.htm>.

This major health problem is under study by the Youth Solvent Abuse Committee⁽⁴⁸⁾ in partnership with Health Canada, the Canadian Centre on Substance Abuse and the National Native Addiction Partnership Foundation. As of 2004, eight culturally based treatment centres had been established to deal with solvent abuse among Aboriginal youth.

METHAMPHETAMINES AND ECSTASY

A. Nature, Use and Effects

1. Methamphetamines

Methamphetamine (MA) is an amphetamine-type stimulant that, like cocaine, stimulates the central nervous system. Commonly known as speed, crank, chalk, “crystal meth,” ice, and other street names, these synthetic substances can be found in various forms and are taken orally, smoked, sniffed or injected. Crystal or ice are the most potent form of MA. The effects of amphetamine-type stimulants (ATS) are similar to cocaine but may last up to 24 hours as MA is metabolized much more slowly. Effects include, among others, an intense feeling of euphoria and increased alertness, energy, breathing, heart rate and body temperature, accompanied by decreased appetite, dilated pupils and insomnia. At larger doses, these substances can cause euphoria, hallucinations, irritability, delirium, paranoia, nerve damage, seizures, very high fever, coma, irregular heartbeat, heart failure and death. There is some evidence that MA use may result in long-lasting brain damage. MA users are also prone to bizarre, erratic, violent behaviour and they are more likely to engage in risky sexual behaviour. Chronic heavy users can develop tolerance and dependence. The unauthorized production, distribution and possession of methamphetamines are prohibited under the *Controlled Drugs and Substances Act*.⁽⁴⁹⁾

(48) The mission of the Youth Solvent Abuse Committee is “to create a First Nations and Inuit health recovery network of solvent treatments centres for Native young people, their families and communities.” The Committee has been very active and some of its centres are recognized internationally for their leading-edge treatment and prevention. More information is available on its Web site at <http://www.members.shaw.ca/ysac/>. See also Colleen Anne Dell, Debra E. Dell and Carol Hopkins, “Resiliency and Holistic Inhalant Abuse Treatment,” *Journal of Aboriginal Health*, Vol. 2, No. 1, March 2005, pp. 4-12, http://www.naho.ca/english/documents/JournalVol2No1ENG3abuse_treatment.pdf.

(49) In August 2005, the maximum penalty for production and distribution of methamphetamine was increased from 10 years to life in prison. Access to highest maximum penalties was effected by moving methamphetamine to Schedule 1 of the *Controlled Drugs and Substances Act*. More information on this issue can be found on Health Canada’s Web site at http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2005/2005_88_e.html.

2. Ecstasy

Ecstasy (MDMA) is closely related to amphetamine-type stimulants in its chemical structure. However, its effect is somewhat different as it causes intense emotional subjective experiences.⁽⁵⁰⁾ “Acute adverse effects include restlessness, ataxia, tremor, myoclonus, diarrhea, and the most severe side effect, hyperthermia. MDMA use has been associated with sudden death and cardiovascular collapse, with the most common cause of death being hyperthermia.”⁽⁵¹⁾ Ecstasy is often ingested, sometimes snorted but rarely injected.

B. Prevalence of Methamphetamine and Ecstasy Use

According to the *2005 World Drug Report*, an estimated 26 million people (0.6% of the population aged between 15 and 64) use amphetamine-type stimulants and 7.9 million people used ecstasy worldwide in 2003. In Canada, the Canadian Addiction Survey (2004) found that 6.4% of respondents reported having used speed in their lifetime (8.7% males vs. 4.1% females), and 4.1% reported the use of ecstasy (5.2% males vs. 3% females). Past-year use was less prevalent, with 0.8% of those surveyed reporting the use of speed and 1.1% the use of ecstasy.⁽⁵²⁾ In the Northwest Territories, only 3% of respondents to the 2004 NWT survey indicated having used speed or ecstasy in their lifetime.⁽⁵³⁾ Among Ontario students in grades 7 to 12, reports of past-year use show similar results. In 2005, 2.2% of students reported having used methamphetamine at least once in the twelve months preceding the Ontario Student Drug Use Survey.⁽⁵⁴⁾

(50) In the literature, ecstasy is sometimes grouped with hallucinogens because of its propensity to affect perception, emotions and mental processes.

(51) Samantha R. Gross *et al.*, “Ecstasy and Drug Consumption Patterns: A Canadian Rave Population Study,” *Canadian Journal of Psychiatry*, Vol. 47, August 2002, <http://www.cpa-apc.org/Publications/Archives/CJP/2002/August/originalResearchEcstasy1.asp>.

(52) *Canadian Addiction Survey (CAS)* (2005), pp. 61-62.

(53) Northwest Territories Health and Social Services (2006), p. 17. This prevalence rate should be interpreted with caution due to high sampling variability. Data on the past-year use of these substances are not available.

(54) Adlaf and Paglia-Boak (2005), p. 114.

Anecdotal evidence from treatment centres suggests, however, that the use of methamphetamine is much more prevalent than reported in the surveys.⁽⁵⁵⁾ Studies have also shown that the use of methamphetamine is particularly prevalent among street-involved youth and gay men.⁽⁵⁶⁾ According to a recent report of the Western Canadian Summit on Methamphetamine, a “survey of a convenience sample of street youth (14-30) conducted in Vancouver in 2000 revealed that 71% had tried ATS and 57% had used them more than 10 times.” As well, the “Sex Now survey conducted in 2004 reported that 25.4% of gay men in BC have used MA.”⁽⁵⁷⁾ Finally, media reports on the abuse of “crystal meth” have also raised public awareness and concern about this particular form of methamphetamine. A group of stakeholders in Edmonton and across Alberta have studied the issue and reported that young people between the ages of 15 and 25 are the primary users of “crystal meth” in that region, cutting across socio-economic and geographic lines.⁽⁵⁸⁾

CONCLUSION

According to the Canadian Addiction Survey (2004), the prevalence of psychoactive substance use in Canada has increased in the last decade. Men are more likely than women to report lifetime use of psychoactive substances. Cannabis is the most commonly used substance. Its use is most prevalent among young adults (18-24 years), who are more likely to report cannabis than tobacco use. Excluding cannabis, the most commonly used substances during a lifetime are hallucinogens, followed by cocaine, methamphetamine, and ecstasy. However, few reported using the latter substances in the past year. Although the rates of lifetime use of inhalants and heroin reported in the Canadian Addiction Survey are relatively low (1% or

(55) Western Canadian Summit on Methamphetamine, Bringing Together Practitioners, Policy Makers and Researchers, Consensus Panel Report, Vancouver Coastal Health, April 2005, p. 11, http://www.sfu.ca/dialogue/Meth_Booklet_2005_Final.pdf. This document contains a wealth of information on all issues associated with methamphetamine.

(56) For example, see Arn J. Schilder *et al.*, “Crystal Methamphetamine and Ecstasy Differ in Relation to Unsafe Sex Among Young Gay Men,” *Canadian Journal of Public Health*, Vol. 96, No. 5, September/October 2005, pp. 340-343.

(57) Western Canadian Summit on Methamphetamine (2005), p. 10.

(58) Ann Goldblatt, *A Community Stakeholder View of Crystal Meth in Edmonton: Trends, Strategies, Challenges and Needs*, prepared for the Social Development Working Group of the Safer Cities Advisory Committee, Edmonton, February 2004, <http://www.edmonton.ca/CityGov/CommServices/SaferCitiesReportOnCrystalMethFebruary04.pdf>.

less), the impacts of abusing these substances on users and their communities are devastating. Solvent abuse, associated with significant rates of morbidity and mortality, is a major problem among young Aboriginal people. Heroin use and abuse, and the co-use of cocaine with opioids, have significant health, social and economic consequences. Heroin abuse is particularly prevalent in British Columbia, where a supervised injection site has been established as a pilot project. The abuse of methamphetamines, particularly crystal meth, is also prevalent in certain Canadian communities and is associated with severe consequences.

The use of psychoactive substances among students in Ontario has been monitored for almost three decades. Overall, results indicate that the use of licit and illicit psychoactive substances has decreased in the last five years. Ontario is the only province where an ongoing school drug use survey is conducted.

The Canadian Addiction Survey, the Northwest Territories Addiction Survey, and the Ontario Student Drug Use Survey have provided researchers, policy advisers, health care providers, addiction service providers, and others with valuable information on the prevalence of substance use and its related harms. Nonetheless, significant information gaps remain, particularly with regard to high-risk populations, the increasing use and abuse of substances such as methamphetamines, and the rise in multiple drug use and co-occurring addiction and mental health disorder issues. Effective solutions to the harms associated with the use and abuse of psychoactive substances require a better understanding of addiction; consequently, many advocates believe that Canada needs to continue supporting research in this field.