



Substance Misuse in Ottawa

Technical Report

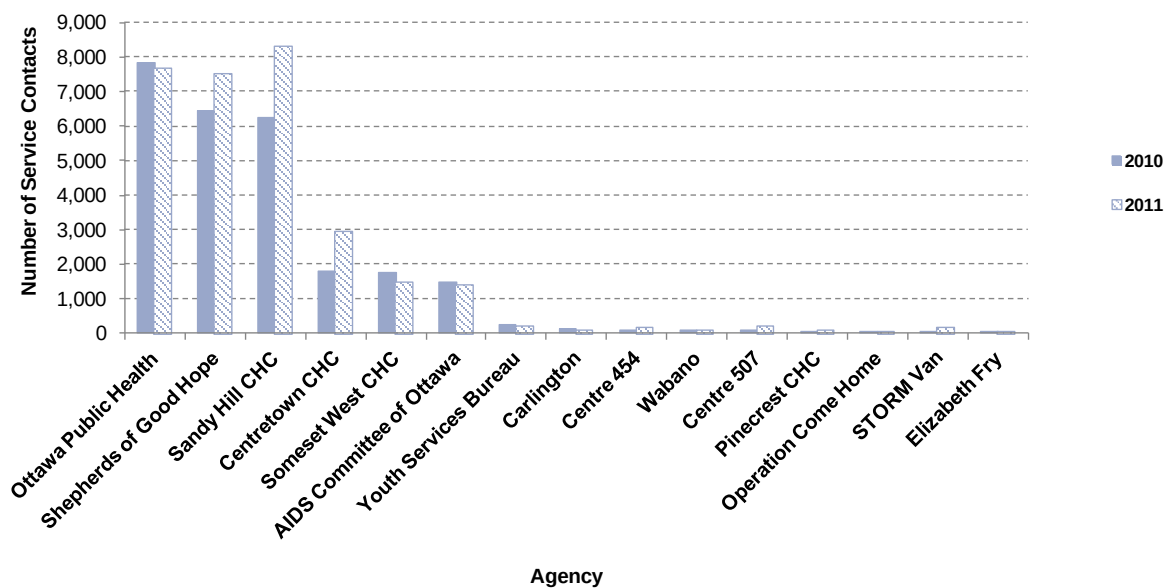
March 2013

Errata - Substance Misuse in Ottawa: Technical Report

An updated version of *Substance Misuse in Ottawa: Technical Report* is now available.

Please note that there was an error in *Substance Misuse in Ottawa: Technical Report*, Figure 13, on page 46. Data for years 2010 and 2011 were inadvertently reversed in the graph and have been corrected as follows:

Figure 13. Number of Needle and Syringe Program service contacts by agency, 2010 to 2011*



Data source: Needle and Syringe Program, Site Program, Ottawa Public Health, extracted October 11, 2012

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Acronyms

AAF	Alcohol Attributable Fraction
AAH	Alcohol Attributable Hospitalization
AAM	Alcohol Attributable Mortality
CAMH	Centre for Addiction and Mental Health
CCHS	Canadian Community Health Survey
CHC	Community Health Centre
CI	Confidence Interval
DAD	Discharge Abstract Database
DAH	Drug Attributable Hospitalization
DAM	Drug Attributable Mortality
DATIS	Drug and Alcohol Treatment Information System
EHSSS	Enhanced Hepatitis Strain Surveillance System
ESYS	Enhanced Street Youth Surveillance System
ER	Emergency Room
FY	Fiscal Year
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
iPHIS	Integrated Public Health Information System
LRADG	Low Risk Alcohol Drinking Guidelines
LSD	Lysergic acid diethylamide
MDMA	3,4-methylenedioxy- <i>N</i> -methlyamphetamine
MOHLTC	Ministry of Health and Long-Term Care
NESI	Needle Exchange / Safer Inhalation
NSP	Needle and Syringe Program
OPH	Ottawa Public Health
OPHS	Ontario Public Health Standards
OSDUHS	Ontario Student Drug Use and Health Survey
RR	Relative Risk
RRFSS	Rapid Risk Factor Surveillance System
SIP	Safer Inhalation Program
STI	Sexually Transmitted Infection

Acknowledgements

The City of Ottawa 2012 Substance Misuse Report was prepared by the Epidemiology Section, Ottawa Public Health under the direction and guidance of the Health Status Reporting Steering Committee and Dr. Isra Levy, Medical Officer of Health for the City of Ottawa.

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Many individuals contributed to the successful production of this report. For their enthusiasm, support and expertise, we would like to thank and acknowledge the following contributors:

Rick Dias, Andrew Hendriks, Pam Oickle & Aileen Reynolds, Clinical Programs Branch, Ottawa Public Health

Hilda Chow, Benjamin Leikin, Terry-Lynne Marko, Sherry Nigro, France Venne & Christina Walker, from the Health Promotion & Disease Prevention Branch, Ottawa Public Health

Cameron McDermaid, Carole Wakeman, Lindsay Whitmore & Marie-Claude Thibault, Integration, Quality & Standards Branch, Ottawa Public Health

Muy Labrecque, Strategic Support Branch, Ottawa Public Health

Members of the Health Status Steering Committee: Amira Ali, Gillian Connelly, Dr. Vera Etches, Michael Ferguson, Lucie Kean-Frank, Siobhan Kearns, Dan Lauzon, Dr. Rosamund Lewis & Esther Moghadam, Ottawa Public Health

The HIV and HCV Prevention Research Team, University of Ottawa; the Office of the Chief Coroner of Ontario; Ottawa Paramedic Service;

Ottawa Police Service; the Drug and Alcohol Treatment Information Service; Somerset West Community Health Centre

Brian Schnarch, Champlain Local Health Integration Network

Special thanks go to the following peer reviewers for their technical advice and review:

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The student substance use data in this publication came from the Public Health Monitoring of Risk Factors in Ontario-OSDUHS Study conducted by Dr. Edward Adlaf and Dr. Robert Mann at the Centre for Addiction and Mental Health. The report contents and interpretation are solely the responsibility of the authors and do not necessarily represent the official view of the Centre for Addiction and Mental Health.

Please use the following citation when referencing this document:

Ottawa Public Health. Substance Misuse in Ottawa: Technical Report. March 2013. Ottawa (ON): Ottawa Public Health; 2013.

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Executive Summary

Substance misuse is the harmful use of any substance including alcohol, illegal drugs, over-the-counter drugs and prescription drugs. Substance misuse can impact individuals, families and the community through associated mental illness, addiction, infectious diseases such as HIV and HCV, chronic disease including cancer and cardiovascular disease, self-harm, suicide and unintentional injuries.

Three aspects are important to consider when assessing the impact of substance misuse on individuals, families, and communities: 1) the prevalence of use; 2) dependency on use; and 3) the ability of the substance to cause death or injury.

Alcohol misuse is more prevalent than the misuse of illegal drugs or prescription opioid pain relievers among Ottawa residents, and alcohol also causes a greater burden of illness and deaths than these drugs. However, misuse of some illegal drugs and prescription opioid pain relievers carries a higher risk of death or hospitalization, resulting in significant health and social impacts despite the lower prevalence of misuse.

This report focuses on the prevalence of substance use and the attributed burden of mental health, addictions, injury and chronic disease in Ottawa. It is meant to inform an evidence-based dialogue in our community to foster effective health prevention, promotion and interventions related to substance misuse.

Summary of Findings

Alcohol

Canada's Low-Risk Alcohol Drinking Guidelines are made up of five guidelines, intended as a basis to inform Canadians how to moderate their alcohol consumption to minimize short and long-term health risks. In Ottawa:

- In 2011, 28% of adults (≥ 19 years) exceeded the recommended weekly consumption limits, putting them at risk of long-term alcohol-related health risks (Guideline 1). This proportion has been consistently higher than Ontario since 2003.
- Close to half of Ottawa adults (45%) drank five or more drinks one occasion (binge drinking) in the past year, putting them at risk of injury or harm (Guideline 2). This behaviour increased between 2001 (34%) and 2003 (39%) and has remained stable since then. This proportion has been consistently higher than Ontario since 2003.
- Heavy drinking (frequent binge drinking) increased from 15% in 2000/01 to 24% in 2011 among adults, consistently higher than Ontario since 2007/08. A concerning 73% of young adult males and 48% of young adult females reported heavy drinking. Heavy drinking leads to an increased risk of both short and long-term health risks.¹
- Over half (58%) of youth (grades 7 to 12) report consuming alcohol in the past year. Three out of ten high school students first drank alcohol before grade 9 (27%) and binge drank at least once per month (29%). Almost half (45%) of street youth binge drank in the past month.

- Each year, alcohol misuse results in at least 110 deaths (adults 15 to 69 years). Injuries were the leading cause of alcohol-related death at 35% (38 deaths). Digestive diseases, the majority of which are liver cirrhosis contributed to 31% (33 deaths), while cancer contributed to 19% (21 deaths), mental health conditions, including alcohol dependence, psychoses and depression, contributed 11% (12 deaths) and cardiovascular disease 4% (4 deaths).
- Each year, alcohol use results in at least 970 hospitalizations (adults aged 15 to 69 years). Mental health conditions along with injuries were the leading cause of alcohol-related hospitalization at 34% (327 hospitalizations) and 33% (323 hospitalizations), respectively. Digestive diseases, the majority of which are liver cirrhosis contributed to 17% (165 hospitalizations) of alcohol-related hospitalizations, while cancer contributed 9% (89 hospitalizations), and cardiovascular disease 7% (67 hospitalizations).
- Every year in Ottawa, approximately 63 infants are hospitalized for low birth weight attributed to maternal alcohol use during pregnancy.

Drugs

- After alcohol, cannabis is the most commonly misused substance among youth (24%) and adults (13%).
- Males, younger adults, non-immigrants, and street-involved people are more likely to misuse drugs.
- Each year, there are approximately 40 drug overdose deaths in Ottawa, due to unintentional poisonings or suicide. In addition, there are an estimated 8 infectious disease drug-attributable deaths.
- Prescription opioids, such as fentanyl, methadone, or oxycodone, were involved in about 45% of drug overdose deaths between 2009 and 2011.
- Each year, drug misuse results in at least 505 hospitalizations, 59% (297 hospitalizations) of which are due to injuries such as overdoses, 37% (185 hospitalizations) are due to mental health conditions and 4% (20 hospitalizations) are due to infectious diseases such as HIV.
- Misuse of prescription-type opioid pain relievers results in a higher burden of illness, injury and death than either cocaine or cannabis.
- While women are more likely to be hospitalized for drug overdose, men are more likely to die from drug overdose.
- 73% of people who use injection drugs are infected with HCV. 13% are infected with HIV.

Chapter 1 - Introduction

Purpose

Substance misuse is the harmful use of any substance including alcohol, illegal drugs, over-the-counter drugs and prescription drugs. Substance misuse can impact individuals, families and the community through associated mental illness, addiction, infectious diseases such as human immunodeficiency virus (HIV) and hepatitis C virus (HCV), chronic disease including cancer and cardiovascular disease, self-harm, suicide and unintentional injuries. The focus on misuse emphasizes the need to prevent these adverse health outcomes, prevent illegal use (e.g. prevent alcohol being served to minors and prevent illegal drug use), and delay the initiation of use of alcohol and other substances.²

This report is one of a series of health status reports published by Ottawa Public Health. These comprehensive reports are an important part of the public health mandate to report on population health status and provide the evidence necessary to identify trends and health issues of public health significance in Ottawa. Local evidence helps planning and decision making to enhance the health of the Ottawa population.

This report is an epidemiological overview of substance misuse (alcohol, street drugs, over-the-counter drugs or prescribed drugs) and attributed outcomes for the City of Ottawa and, where possible, discusses patterns over time and compared to the rest of Ontario. The data in this report support the Ontario Public Health Standards (OPHS) surveillance requirements to monitor the magnitude of these risk factors over time, and to identify emerging trends and priority populations. The OPHS goals related to substance misuse are:

- To reduce the frequency, severity, and impact of preventable injury and of substance misuse.
- To reduce the burden of preventable chronic diseases of public health importance.
- To enable individuals and families to achieve optimal preconception health, experience a healthy pregnancy, have the healthiest newborn(s) possible, and be prepared for parenthood.

Content

The following topics are included in this report:

- Alcohol use in youth and adults
- Drug use in youth and adults
- Health outcomes attributable to alcohol and/or drug use

Data Sources

Ottawa Public Health (OPH) maintains several internal databases to track local data related to substance misuse, accesses provincial databases and national survey data, collaborates with other organizations to generate primary research, and communicates with local researchers and agencies to obtain complimentary data. Surveillance data are shared with partners via various methods and used to inform OPH programming. The most current data files available were used for the preparation of this report.

Hospitalization data were derived from the Discharge Abstract Database (Canadian Institute of Health Information) and the Ontario Mental Health Reporting System, from fiscal years 2008/09 to 2010/11. Mortality data (2005 to 2009) are from the Vital Statistics database (Office of the Registrar General). Additional information on deaths investigated by coroners in Ontario was obtained from the Office of the Chief Coroner of Ontario (2000 to 2011).

Prevalence of substance use among Ottawa youth comes from two recent surveys, the Ontario Student Drug Use and Health Survey (OSDUHS) and Enhanced Street Youth Surveillance (ESYS). The OSDUHS from the Centre for Addiction and Mental Health (CAMH) surveys a random sample of Ontario students in grades 7 through 12, enrolled in the public and Catholic school systems. The survey has been repeated every two years since 1977, making it the longest ongoing school survey in Canada. A representative sample of Ottawa students completed the OSDUHS survey in 2009 (n=1,200) and 2011 (n=1,015). ESYS, conducted by OPH and the Public Health Agency of Canada, is a cross-sectional longitudinal study of street-involved youth aged 15 – 24 years. In Ottawa, an estimated 1,200 youth are street-involved. Data on demographics, behavioural risk factors, and perceived health status has been collected over 5 cycles in Ottawa during 1999 to 2009. In 2009, 200 street-involved youth enrolled in ESYS in a convenience sample recruited through partner agencies that provide services to at-risk youth.

Information on substance use among Ottawa adults was obtained from several sources. Prevalence of substance use among the general population comes from the Canadian Community Health Survey (CCHS) (2000/2001 to 2011) by Statistics Canada. Non-medical use of prescription-type opioid pain relievers was obtained from the *CAMH Monitor* survey. Data on drug use, risk behaviours and communicable disease among people who inject drugs was obtained from I-Track, conducted by the HIV and Hepatitis C Prevention Research Team at the University of Ottawa. I-Track data are based on surveys of people in Ottawa who inject drugs, conducted twice annually in 2011 and 2012, with approximately 100 people per survey cycle.

Estimates of the number of individuals who inject drugs in Ottawa were taken from the Toronto and Ottawa Supervised Consumption Assessment Study. The lower end of the range is based on the incidence of HIV and HCV, and the upper end is derived from HIV prevalence and the modeled proportion of HIV-positive individuals who inject drugs.

Information about the population accessing safer injection drug use services in Ottawa was obtained from OPH's Site Needle and Syringe program database (2011). OPH Site Needle and Syringe program statistics are collected and recorded in a database during all interactions with clients of the Site program (fixed office and mobile van).

Information about the distribution of safer inhalation equipment in Ottawa was provided by the Program Advisory Committee of Ottawa's Safer Inhalation Program, under the Somerset West Community Health Centre.

Information on communicable diseases (2000 to 2011) was obtained from the Integrated Public Health Information System (iPHIS) of Ontario's Ministry of Health and Long-Term Care (MOHLTC) and the Enhanced Hepatitis Strain Surveillance System (EHSSS) of the Public Health Agency of Canada.

Data on substance misuse treatment services during fiscal years (FY) 2007/08 to 2011/12 in Ontario were provided by the Drug and Alcohol Treatment Information System (DATIS). Included in these data are treatment services such as entry (the process by which someone obtains information about and/or enters the addiction treatment system), initial assessment/treatment planning, community and residential treatment services, and community and residential withdrawal management services. Open admissions include all services that were initiated in a given fiscal year or are ongoing and carried over from a previous fiscal year.

Data on alcohol and drug related charges for impaired driving and failure to provide a breath or blood sample (2010 to 2012) were obtained from Ottawa Police Service. Data on alcohol and drug related paramedic calls (2010 to 2011) were obtained from Ottawa Paramedic Service.

Data Limitations

The ultimate target for prevention efforts is to reduce deaths and disabilities from chronic disease (including mental illness and addiction) and injury. However, deaths make up a very small part of the overall impact that chronic diseases and injuries have on the population. For every death, there are many more hospitalizations, emergency department visits and injuries that are not accounted for, having been treated outside of the traditional health care system. (Figure 1)

Figure 1. The chronic disease and injury pyramid



The morbidity and mortality data captured in this report (paramedic calls, hospitalization and mortality) under-represent the true burden of substance misuse in Ottawa because many diseases and injuries go unreported. The morbidity and mortality data in this report should be considered separately. Persons who are admitted to hospital and die while in hospital are not removed from the hospitalization data. Thus, it would not be appropriate to add together hospitalization and death data as presented in this report.

Paramedic data in this report are based on the number of incidents, rather than the number of paramedic teams who document attending the scene. Paramedic data include anyone for whom Ottawa Paramedic Service completed an Ambulance Call report even if they are not residents of Ottawa, while hospitalizations represent injuries sustained by Ottawa residents anywhere in Ontario (i.e. the event may have occurred outside of the Ottawa area). Mortality data represent Ottawa residents who died regardless of location.

Because they are small convenience samples, I-Track, and ESYS surveys may not be representative of the entire population of people in the drug-using or street-involved demographic groups in Ottawa.

Data from all surveys (OSDUHS, ESYS, CCHS, and I-Track) and case management (iPHIS, EHSSS) are based on self-reports and are subject to recall bias and social desirability bias.

While statistics available through the OPH Site Needle and Syringe program database provide a general description of clients seen through OPH's Site program, they do not necessarily reflect the profile of clients seen at other safer drug use services in Ottawa, nor the drug using community as a whole.

Methods

Data were analyzed using IBM SPSS Statistics v19 Complex samples and Stata v12.

Point estimates are provided with 95% confidence intervals (CI) in smaller font and within brackets. The 95% CI includes the true value 95 times out of 100. E.g. If the point estimate for the percentage of youth using alcohol is 58% (44%, 70%), then the range from 44% to 70% will contain the true population value 95% of the time. The narrower the confidence interval is, the more precise the estimate. 95% CI were not used to test for statistically significant differences; for comparisons among groups with large denominators, chi-square tests ($p < 0.05$) were used first, followed by a Bonferroni correction ($p < 0.05$) to adjust for multiple comparisons. Findings that were statistically significant after adjustment are reported in the tables.

Findings that were significant prior to adjustment are presented in the table, but with the acknowledgement that they are important, but not statistically significant differences. Significance testing was done by year, by age, sex, location of residence or social determinants of health when the data allowed. For comparisons among small survey groups, a two-sample test of proportions was used.

The symbol * denotes that the estimate is unreliable due to high variability in responses, and should be interpreted with caution. This is based on a coefficient of variation between 16.6 and 33.3. Results with a coefficient of variation greater than 33.3 were suppressed due to unreliability. Small numbers (fewer than five cases) that would make it possible to identify any individual were suppressed to protect the confidentiality of all Ottawa residents.

Please see the Abbreviations section at the beginning of this document for a list of abbreviations. Note that an "Ontario" or "Ontario-less-Ottawa" estimate does not include Ottawa counts/responses in the

numerator or denominator. Any differences between Ottawa and Ontario should be interpreted as Ottawa being different from the average of individuals across Ontario excluding those individuals from the Ottawa area. No comparisons were made to other individual health unit regions across Ontario.



Chapter 2 – Alcohol Use in Youth

Alcohol misuse has a number of harmful short-term and long-term health effects, including physical impairment and liver damage. Alcohol can also affect behaviour and decision making, especially in young adults. Intoxication with alcohol can lead young people to engage in dangerous behaviours such as drunken driving, drug use, and risky sexual behaviour.^{1,3} These behaviours increase the risk of unintentional injuries, which are the leading cause of death among youth.⁴

Highlights

- Alcohol is the most commonly misused substance among youth; more than half (58%) of Ottawa students drank alcohol at least once during the past year and half of street-involved youth drank alcohol once or more per week during the past 3 months.
- About 22%* of Ottawa students and 45% of Ottawa street-involved youth reported binge drinking during the past month.
- Drinking, binge drinking and drunkenness were more common in older students.
- Nearly 10%* of drivers in grades 10 through 12 had driven within an hour of consuming two or more alcoholic drinks at least once in the past year.
- 62% of street youth reported having sex while drunk in 2009.

* Interpret with caution due to high sampling variability.

Alcohol is the most commonly misused substance among youth

The OSDUHS asked students whether they drank alcohol at least once during the 12 months before the survey. Alcohol use was defined as drinking more than just sips of alcohol, and included drinking on special occasions.

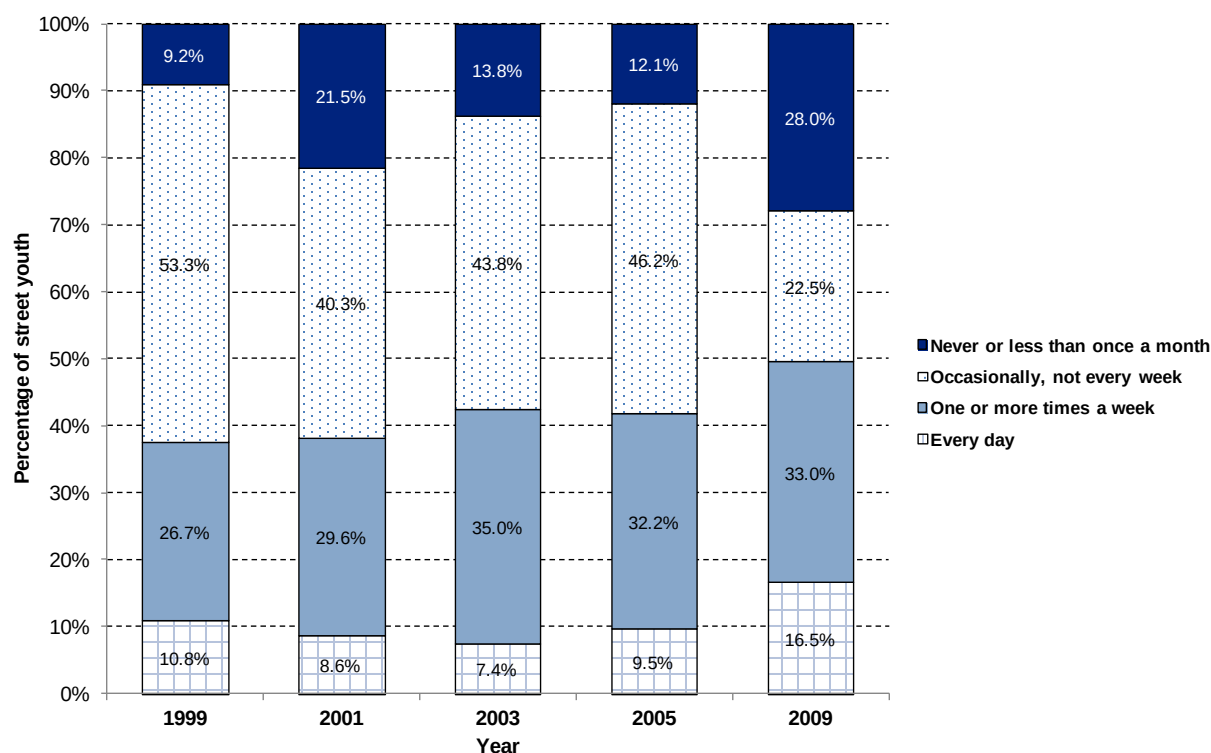
- In 2011, 57.7% (44.0%, 70.3%) of grade 7 to 12 students in Ottawa reported drinking alcohol at least once in the past year.
- Older students (grades 9 to 12) were more likely to report drinking alcohol than younger students (grades 7 to 8) (73.4% (65.9%, 79.8%) vs 18.8% (14.6%, 23.9%)). There was no difference between 2009 and 2011, between girls and boys, or between Ottawa and Ontario.
- Non-immigrant students were more likely than immigrants (59.6% (45.6%, 72.2%) vs. 46.3%* (31.6%, 61.6%)) and students who spoke only English at home were more likely than students who spoke a language other than English or French in the home (63.2% (49.0%, 75.5%) vs. 30.9%* (18.8%, 46.3%)) to report drinking alcohol in the past year.

The ESYS asked street-involved youth how frequently they drank alcohol during the 3 months before the survey. (Figure 2)

- The proportion of Ottawa street youth who reported drinking frequently increased significantly between 1999 and 2009. In 2009, 49.5% (42.4%, 56.6%) reported drinking once or more per week compared with 37.5% (28.8%, 46.8%) in 1999.
- However, a significantly greater fraction of street youth reported never drinking or drinking less than once a month in 2009 (28.0% (21.9%, 34.8%)) compared with 1999 (9.2% (4.7%, 15.8%)).

* Interpret with caution due to high sampling variability.

Figure 2. Reported frequency of alcohol consumption in the 3 months prior to interview, Ottawa street youth, 1999 to 2009



Data source: Enhanced Street Youth Surveillance 1999 to 2009, extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Three out of ten students drink alcohol before grade 9

- Among Ottawa students in grades 9 to 12, 27.2% (21.7%, 33.5%) had used alcohol before grade 9. There is a trend towards a significantly higher proportion of boys than girls reporting first alcohol use before grade 9 (33.0% (24.7%, 42.6%) vs. 21.0% (18.4%, 23.8%)).
- There was no difference between 2009 and 2011 or between Ottawa and Ontario.
- Across Ontario, the age of first alcohol use appears to be increasing. In 2011, 13% of Ontario 7th-graders drank alcohol by grade 6; this compared to 31% in 2007, 42% in 2003, and 50% in 1981. Ottawa-specific data are not available.⁴

Almost one in three high school students binge drinks once a month

The OSDUHS asked students if they binge drank (defined as drinking 5 or more drinks on one occasion) during the 4 weeks prior to the survey. (Table 1 and Figure 3)

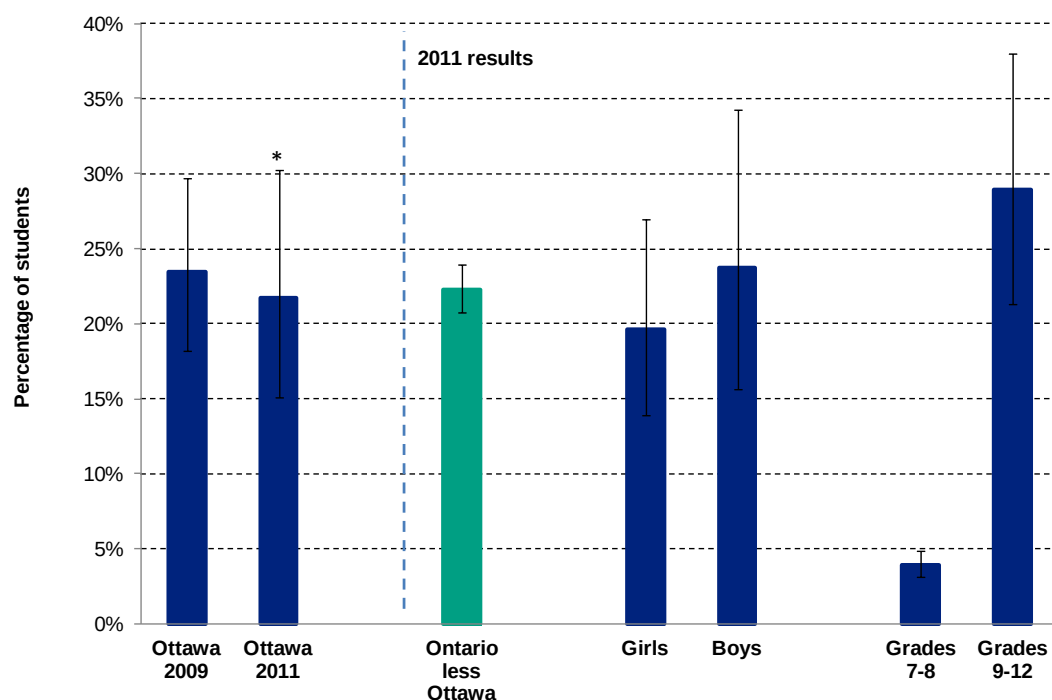
Table 1. Binge drinking among youth in grades 7 to 12 by selected social determinants of health, Ottawa, 2011

Subgroup	Findings
Ottawa	In 2011, 21.7%* (15.1%, 30.3%) of grade 7 to 12 students in Ottawa reported binge drinking at least once during the past 4 weeks. 6.8%* (4.1%, 11.2%) of Ottawa students reported binge drinking 2 to 3 times during the past 4 weeks, and 3.8%* (2.1%, 6.7%) reported doing so 4 or more times.
Age	A significantly higher proportion of grade 9 to 12 students reported binge drinking compared to grade 7 to 8 students (29.0% (21.3%, 38.0%) vs. 3.9% (3.1%, 4.8%)). Binge drinking peaked at 46.0% (35.9%, 56.4%) among grade 12 students.
Mother tongue language	Students who spoke a language other than English or French in the home were more likely than students who spoke only English at home (92.0% (82.0%, 96.7%) vs. 75.2% (66.2%, 82.5%)) to report <u>not</u> binge drinking.
Immigration status	Immigrant students were more likely than non-immigrant students to report <u>not</u> binge drinking (86.3% (73.6%, 93.4%) vs. 76.7% (68.2%, 83.6%)).

Data source: Public Health Monitoring of Risk Factors in Ontario-OSDUHS (2009 and 2011), Centre for Addiction and Mental Health.

Data note: Only social determinants of health that showed a significant difference between categories are displayed in the table. There was no difference in rates of binge drinking between 2009 and 2011, between girls and boys, or between Ottawa and Ontario. * Interpret with caution due to high sampling variability.

Figure 3. Percentage of Ottawa students in 2011 who binge drank in the past month compared to Ottawa in 2009, Ontario and by sex and grade



Data source: Public Health Monitoring of Risk Factors in Ontario-OSDUHS (2009 and 2011), Centre for Addiction and Mental Health. * Interpret with caution due to high sampling variability. Vertical bars represent 95% confidence intervals.

Street-involved youth binge drink more often than grade 7 to 12 students

The ESYS asked street-involved youth how often they binged on alcohol (defined as drinking to get smashed or drunk for a long period of time) during the 3 months prior to the survey.

(Table 2)

- 45.0% (38.0%, 52.2%) of Ottawa street youth report binge drinking once or more per month.

Table 2. Reported frequency of alcohol binging in the 3 months prior to interview, Ottawa street youth, 2009

Frequency	Percentage	95% CI
Never or less than once a month	55.0%	48.1% – 62.3%
One or more times a month	11.0%	6.7% – 15.7%
One or more times a week	24.5%	18.9% – 31.2%
Every day	9.0%	5.4% – 13.9%

Data source: Enhanced Street Youth Surveillance (2009), extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Youth engage in risky behaviour while drunk

Alcohol can impair behaviour and decision making. This impairment can prompt young adults using alcohol to engage in dangerous behaviours such as drunken driving and risky sexual behaviour.

- In 2011, 8.7%* (4.7%, 15.4%) of drivers in grades 10 through 12 reported they had driven within an hour of consuming two or more alcoholic drinks at least once during the past year. There was no difference between 2009 and 2011, between girls and boys, or between Ottawa and Ontario.
- In 2011, 25.2% (22.0%, 28.8%) of Ottawa students reported they had ridden in a vehicle with an intoxicated driver at least once during the previous 12 months.
- Girls were more likely than boys to report having been a passenger with an intoxicated driver (29.1% (25.7%, 32.8%) vs. 21.6% (16.7%, 27.4%)).
- There was no difference between 2009 and 2011, between Ottawa and Ontario, or between students in grades 7 to 8 and those in grades 9 to 12.
- 62% (55%, 69%) of street-involved youth reported having sex while drunk in 2009.

* Interpret with caution due to high sampling variability.

Chapter 3 – Alcohol Use in Adults

Highlights

The following chapter presents data showing the proportion of the population exceeding Canada's LRADG. Each guideline is presented separately as the results show socio-demographic differences that are important when targeting public health programs and messages. Figure 4 shows the prevalence of the Ottawa and Ontario population exceeding recommended consumption limits by guideline, where available.

- In 2011, 28% of Ottawa adults (≥19 years) exceeded the recommended weekly consumption limits, putting them at risk of long-term alcohol-related health risks (Guideline 1). This proportion was consistently higher than Ontario since 2003.
- Close to half of Ottawa adults (45%) drank five or more drinks on one occasion (binge drinking) in the past year, putting them at risk of injury or harm (Guideline 2). This behaviour increased between 2001 (34%) and 2003 (39%) and has remained stable since then. This proportion was consistently higher than Ontario since 2003.
- 9% of Ottawa adults reported binge drinking once per month, 7% reported binge drinking two to three times per month, and 9% reported binge drinking at least once per week.
- Heavy drinking (frequent binge drinking) increased from 15% in 2000/01 to 24% in 2011 among adults, consistently higher than Ontario since 2007/08. A concerning 73% of young adult males and 48% of young adult females reported heavy drinking.
- Adult males were consistently more likely to exceed the recommended weekly and occasional upper limits compared to females. Over half of males (57%) reported binge drinking in the past year compared to 34% of females.
- Binge drinking decreases with age: 59% of adults aged 19 to 44, 40% of adults aged 45 to 64, and 11% of seniors aged 65 years and older reported binge drinking at least once in the past year.
- Adults with a mother tongue other than English or French (12%*) were least likely to exceed recommended weekly limits compared to those with English (31%) or French mother tongue language (36%). Similarly, adults with a mother tongue other than English or French (29%*) were least likely to report binge drinking in the past year compared to those with English (49%) or French mother tongue language (56%) in 2011.
- Immigrants (13%*) were less likely to exceed weekly limits than non-immigrants (34%). Half of non-immigrants (53%) reported binge drinking in the past year compared to one in four immigrants (26%).

* Interpret with caution due to high sampling variability.

What is a safe level of drinking? Follow Canada's Low-Risk Alcohol Drinking Guidelines

Canada's Low-Risk Alcohol Drinking Guidelines (LRADG) are made up of five guidelines, intended as a basis to inform Canadians how to moderate their alcohol consumption to minimize short and long-term health risks from drinking alcohol.⁵

Guideline 1: Reduce long-term alcohol-related health risks

By drinking no more than:

- 10 drinks a week for women, with no more than 2 drinks a day most days
- 15 drinks a week for men, with no more than 3 drinks a day most days
- Plan non-drinking days every week to avoid developing a habit

Guideline 2: Reduce your risk of injury and harm

By drinking no more than:

- 3 drinks (for women) and 4 drinks (for men) on any single occasion

Guideline 3: When to abstain from drinking

Do not drink when:

- Driving a vehicle or using machinery and tools
- Taking medicine or other drugs that interact with alcohol
- Doing any kind of dangerous physical activity
- Living with mental or physical health problems
- Living with alcohol dependence
- Pregnant or planning to be pregnant
- Responsible for the safety of others
- Making important decisions

Guideline 4: Pregnant? Zero is safest

If you are pregnant, planning to become pregnant, or about to breastfeed, the safest choice is not to drink alcohol at all.

Guideline 5: Delay drinking

Teens should speak with their parents about drinking. If they choose to drink, they should:

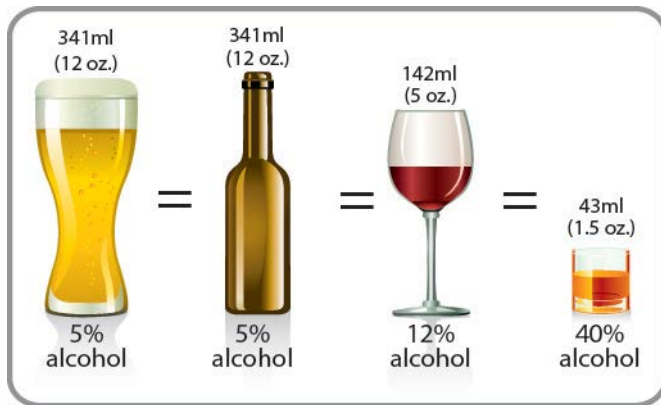
- Drink only under parental guidance
- Never drink more than 1 to 2 drinks at a time and never more than 1 to 2 times per week

Youth in their late teens to age 24 years should never exceed the daily and weekly limits outlined in Guideline 1.

Regular or sustained alcohol consumption above the recommended levels can lead to drinkers developing dependence and addiction to alcohol.⁵

Canada's LRADG are intended for all ages and there are not separate guidelines for older adults. Many risk factors common to this age group, such as medication use and living with health problems are addressed through the guidelines. The interactions of some of these common risk factors mean that this age group should be cautious about their alcohol use and adhere to the LRADG.⁶

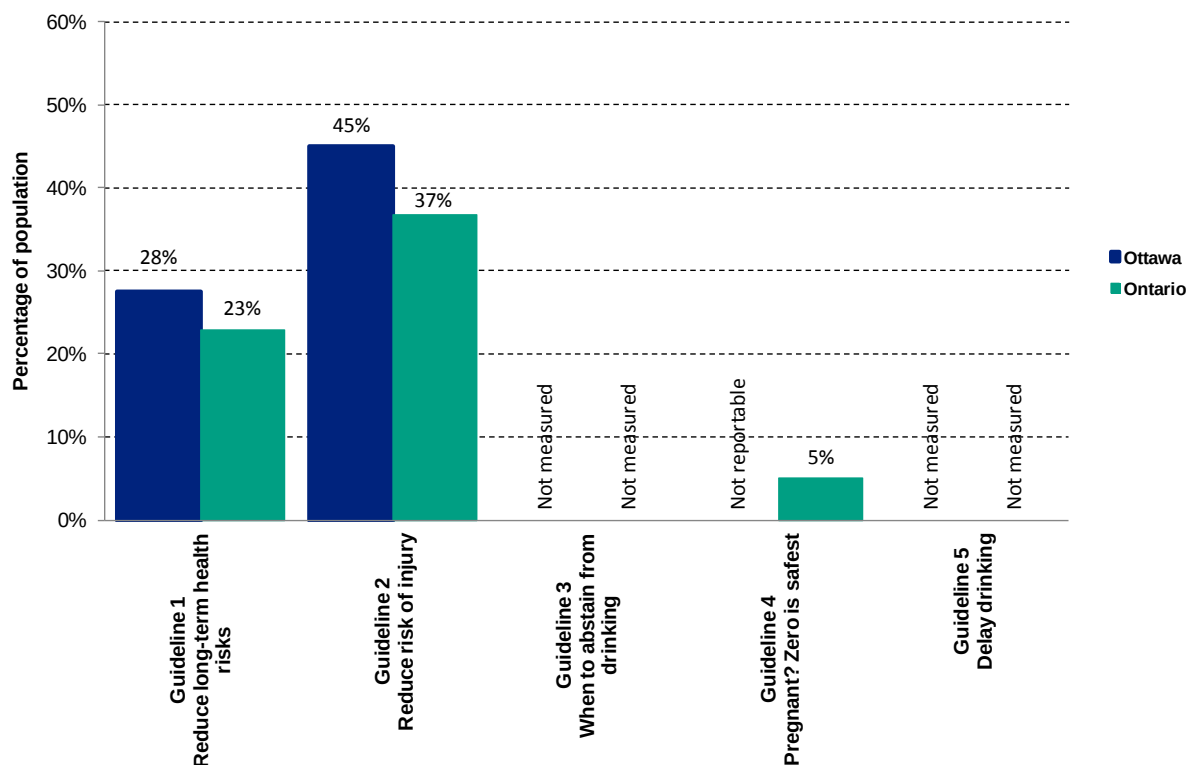
One standard drink



Alcohol sales remained stable in Ontario whereas they increased nationally

Per capita sales of alcohol in Ontario did not change between 2000 and 2011. Nationally, per capita sales of alcohol increased 5% during this time.⁷

Figure 4. Percentage of population exceeding Canada's Low-Risk Alcohol Drinking Guidelines by Guideline, Ottawa and Ontario



Data source: Guideline 1 and 2 (adults ≥ 19 years): Canadian Community Health Survey 2011. Ontario Share File. Statistics Canada. Guideline 4: Canadian Community Health Survey 2007/08. Statistics Canada.

Guideline 1: Reduce long-term alcohol related health risks

Guideline 1 addresses the increased long-term risk of diseases caused by the consumption of alcohol over time specifically for adults aged 19 years and older who are neither pregnant nor breastfeeding. It provides sex-specific daily and weekly limits for alcohol consumption and recommends at least two non-drinking days every week. The proportion of people who exceed Guideline 1 can be measured with data from the CCHS. (Table 3 and Figure 4)

Males, young adults, non-immigrants more likely to exceed recommended weekly consumption limits

Table 3. Exceeding Guideline 1 of Canada's Low Risk Alcohol Drinking Guidelines among adults (aged ≥19 years) by social determinants of health, Ottawa, 2000/01 to 2011

Subgroup	Findings
Ottawa	In 2011, 27.5% (22.8%, 32.2%) of adults aged 19 years and older exceeded the recommended weekly consumption limits of Guideline 1, putting them at risk of long-term alcohol-related health risks. This behaviour has remained at similar levels since 2003.
Ontario	Between 2003 and 2011, the proportion of adults in Ottawa exceeding the recommended weekly consumption limits was higher than the rest of Ontario (2011: 22.9% (21.7%, 24.1%)).
Sex	Between 2001 and 2011, adult males were consistently more likely to exceed the recommended weekly consumption limits compared to females (2011 Males: 36.7% (29.0%, 44.4%); Females: 18.5% (13.0%, 24.1%)).
Age	Young adults (45.0%* (29.3%, 60.6%)) were most likely to exceed the recommended weekly consumption limits compared to 27.4% (19.4%, 35.4%)) of adults 25 to 44 years, 22.9% (16.2%, 29.6%)) of adults 45 to 64 years, and 24.9% (17.4%, 32.4%)) of seniors aged 65 years and older.
Mother tongue language	Adults with a mother tongue other than English or French (12.3* (5.3%, 19.3%)) were least likely to exceed the recommended weekly consumption limits compared to those with English (31.3% (24.7%, 37.8%)) or French mother tongue language (36.2% (25.6%, 46.7%)) in 2011.
Immigration status	Immigrants (12.6%* (5.6%, 19.6%)) were less likely to exceed the recommended weekly consumption limits than non-immigrants (33.5% (27.8%, 39.1%)) in 2011.

Data source: Canadian Community Health Survey 2000 to 2011. Ontario Share File. Statistics Canada.

Data note: Only social determinants of health that showed a significant difference between categories are displayed in the table. There was no difference in proportion of adults exceeding Guideline 1 of Canada's LRADG by education, household income, or urban/rural residence in 2011.

*Interpret with caution due to high sampling variability.

Guideline 2: Reduce your risk of injury and harm

Guideline 2 addresses the sex-specific recommended upper levels of consumption for special occasions. It addresses the risk of short-term harm that can happen during or after drinking occasions. Consuming five or more drinks on one occasion for males and four or more for females is referred to as binge drinking and aligns with the recommended upper levels of consumption in Guideline 2.

Binge drinking is considered heavy drinking if it happens at least once per month.⁸ This section describes the adults who reported binge drinking (Table 4 and Figure 5) or heavy drinking (Figure 6, 7 and 8) in the past year according to data from the CCHS. Since the CCHS collects binge drinking as five or more drinks on a single occasion for both males and females, the proportion of females who binge drink and heavy drink is underestimated and likely higher than what is reported in this section.^{7,9}

Binge drinking more common among males, young adults, non-immigrants

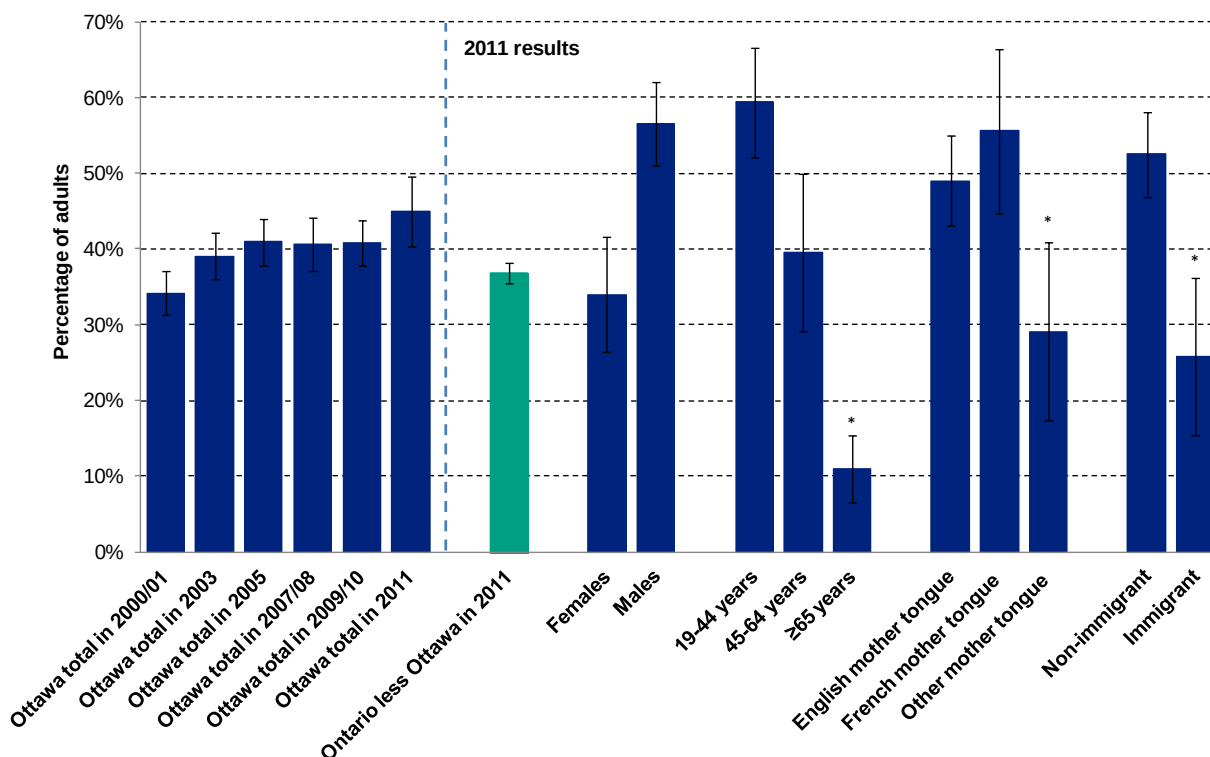
Table 4. Binge drinking during the past year among adults (aged ≥19 years) by social determinants of health, Ottawa, 2000/01 to 2011

Subgroup	Findings
Ottawa	The proportion of adults who drank five or more drinks on one occasion at least once in the past year increased between 2001 (34.2% (31.3%, 37.1%)) and 2003 (39.1% (36.0%, 42.2%)) and has remained stable since then. In 2011, 45.0% (40.3%, 49.6%) of adults drank five or more drinks on one occasion at least once in the past year.
Ontario	Between 2003 and 2011, more Ottawa adults reported at least one binge drinking episode in the past year compared to Ontario adults. In 2011, 36.8% (35.5%, 38.1%) of Ontario adults reported at least one binge drinking episode in the past year.
Sex	Males (56.5% (51.0%, 62.0%)) were more likely than females (34.0% (26.4%, 41.6%)) to report binge drinking at least once in the past year (2011).
Age	Binge drinking decreases with age: 59.4% (52.2%, 66.7%) of adults aged 19 to 44, 39.6% (29.2%, 50.0%) of adults aged 45 to 64, and 11.0% (6.6%, 15.5%) of seniors aged 65 years and older reported binge drinking at least once in the past year (2011).
Education	Although differences exist in 2011 in the proportion of adults binge drinking in the past year by education level, no consistent pattern emerges in the data between 2000/01 and 2011.
Household Income	Adults in the highest income category (44.9% (40.4%, 49.5%)) were more likely to report binge drinking in the past year compared to those in the lowest income category (22.3% (10.9%, 33.6%)) in 2009/2010 and previous years. In 2011, the sample size was smaller and no differences by household income category were observed.
Mother tongue language	Adults with a mother tongue other than English or French (29.1%* (17.3%, 40.9%)) were least likely to report binge drinking in the past year compared to those with English (49.0% (43.0%, 54.9%)) or French mother tongue language (55.6% (44.7%, 66.5%)) in 2011 as well as previous years.
Immigration status	Immigrants (25.8% (15.4%, 36.1%)) were less likely to report binge drinking in the past year compared to non-immigrants (52.5% (46.9%, 58.1%)) in 2011 as well as previous years.

Data source: Canadian Community Health Survey 2000 to 2011. Ontario Share File. Statistics Canada.

Data note: Only social determinants of health that showed a significant difference between categories are displayed in the table. There was no difference in proportion of adults reporting binge drinking by household income and urban/rural residence in 2011. *Interpret with caution due to high sampling variability.

Figure 5. Percentage of adults (> 19 years) who drank 5 or more drinks on one occasion at least once in the past year by year, vs. Ontario, and by social determinants of health, Ottawa, 2011



Data source: Canadian Community Health Survey 2000 to 2011. Ontario Share File. Statistics Canada.

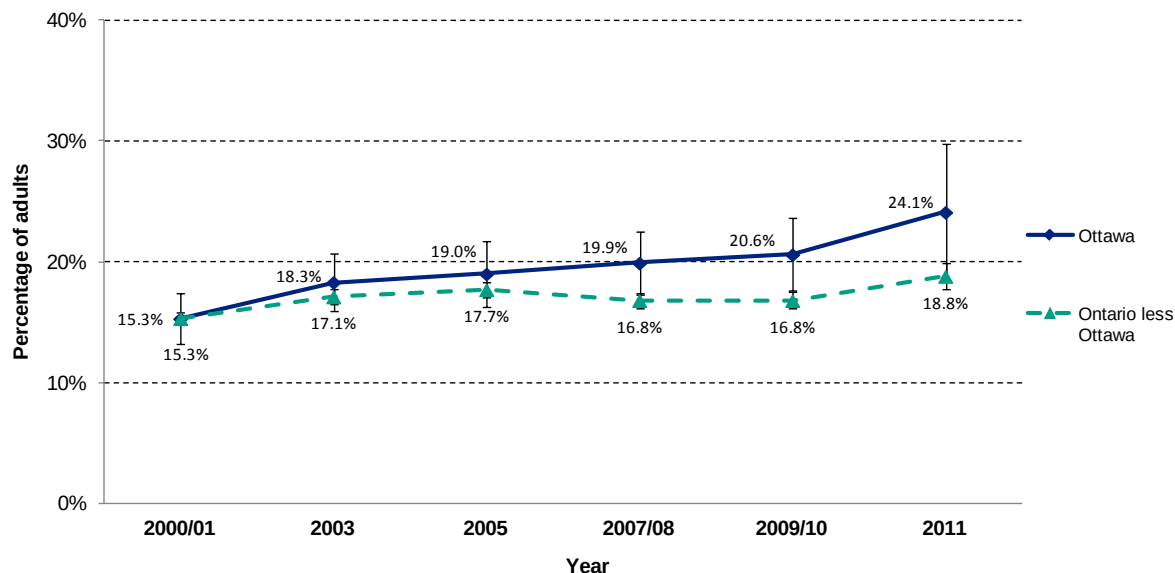
*Interpret with caution due to high sampling variability; Vertical bars represent 95% confidence intervals. Only significant comparisons are shown.

Heavy drinking has increased over the last 10 years in Ottawa and is highest among young adult males

The proportion of Ottawa adults reporting frequent binge drinking episodes of once or more per month, known as heavy drinking, increased from 15.3% (13.2%, 17.4%) in 2000/01 to 24.1% (19.5%, 28.7%) in 2011. (Figure 6) Since 2007/08, the prevalence of heavy drinking in Ottawa has been higher than the rest of Ontario.

In 2011, 8.7% (4.1%, 13.1%) of Ottawa adults reported binge drinking once per month, 6.8% (4.5%, 9.1%) reported binge drinking two to three times per month, and 8.7% (5.1%, 12.2%) reported binge drinking at least once per week.

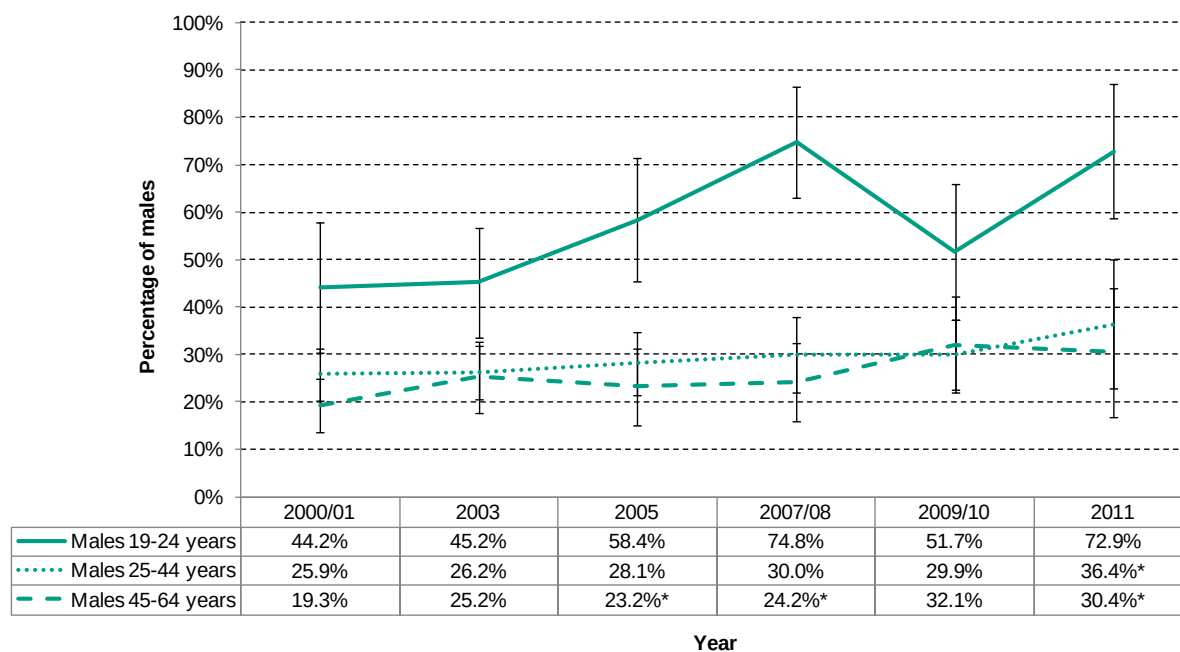
Figure 6. Percentage of adults (≥19 years) who binge drank once or more in the past month, Ottawa 2000/01 to 2011



Data source: Canadian Community Health Survey 2000-2011. Ontario Share File. Statistics Canada.
Vertical bars represent 95% confidence intervals.

Heavy episodic drinking has been highest among young adult males (19 to 24 years), followed by young adult females. A concerning 73.0% (58.7%, 87.2%) of young adult males and 47.5%* (20.1%, 74.8%) of young adult females reported heavy drinking in 2011. (Figure 7 and 8)

Figure 7. Percentage of heavy drinker males by age, Ottawa 2000 to 2011

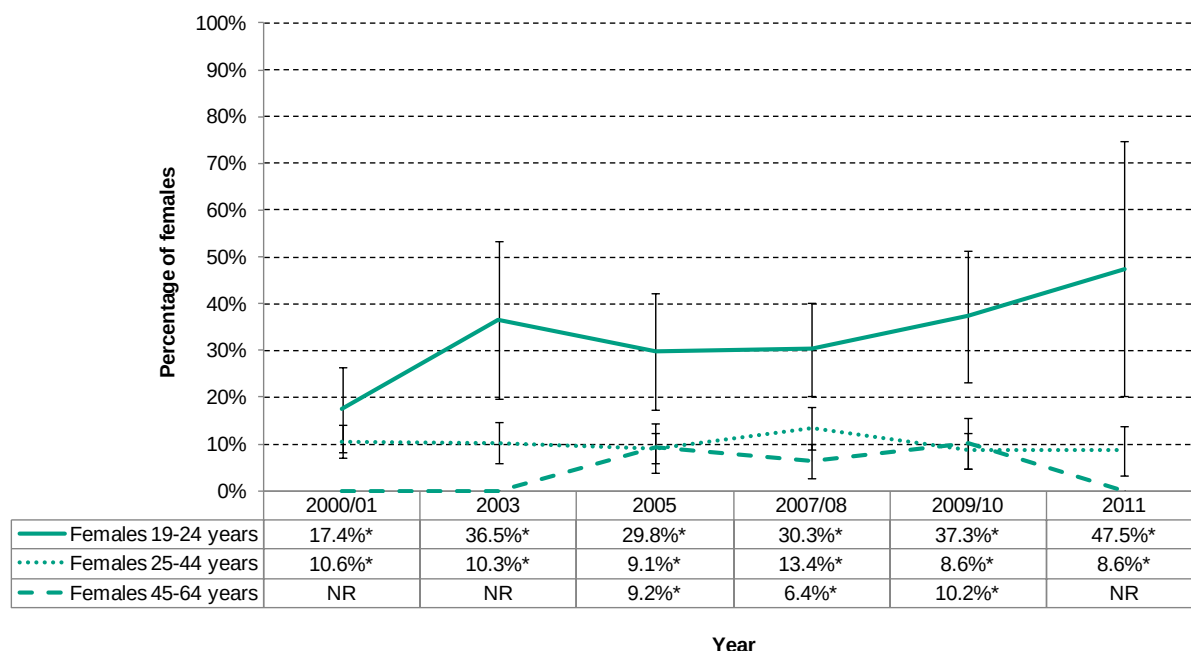


Data source: Canadian Community Health Survey 2000 to 2011. Ontario Share File. Statistics Canada.

*Interpret with caution due to high sampling variability. Vertical bars represent 95% confidence intervals.

* Interpret with caution due to high sampling variability

Figure 8. Percentage of heavy drinker females by age, Ottawa 2000 to 2011



Data source: Canadian Community Health Survey 2000 to 2011. Ontario Share File. Statistics Canada.

*Interpret with caution due to high sampling variability. Vertical bars represent 95% confidence intervals.

NR = Data are not reportable.

Public health accountability for alcohol use

The proportion of adults who exceed Guideline 1 or Guideline 2 is a performance indicator that OPH reports to the Ministry of Health and Long-Term Care as part of the *Public Health Accountability Agreements*.

Table 5. Exceeding Canada's Low Risk Alcohol Drinking Guidelines among adults (aged ≥19 years) by social determinants of health, Ottawa, 2000/01 to 2011

Subgroups	Findings
Ottawa	In 2011, 35.1% (30.3%, 39.9%) of adults aged 19 years and older exceeded the recommended weekly consumption limits or binge drank at least once per month, exceeding Canada's Low-Risk Alcohol Drinking Guidelines (CLRADG). Between 2000/2001 and 2007/2008, this proportion increased from 28.6% (25.8%, 31.4%) to 35.4% (32.2%, 38.7%); and remained at similar levels in 2011.
Ontario	The proportion of adults in Ottawa exceeding Canada's LRADG was significantly higher compared to adults across the rest of the Ontario between 2003 and 2011.

Data source: Canadian Community Health Survey 2000 to 2011. Ontario Share File. Statistics Canada.

Guideline 3: When to abstain from drinking

Guideline 3 recommends not drinking under situations where alcohol might impair or affect decision making, coordination or alertness, where consumption is contra-indicated, or situations that demand judgement, physical skill, balance and endurance.⁵ Data on alcohol consumption and such situations or activities, except for driving, are not collected for Ottawa.

Ottawa Police Service laid nearly 700 charges for impaired driving in 2012

Impaired driving, or driving under the influence of alcohol or drugs, is a crime. Drinking alcohol or taking drugs before driving can impair judgement and reduce a person's ability to concentrate and to react while driving. The Ottawa Police Service laid 775 charges for alcohol and drug impaired driving in 2010, 658 charges in 2011, and 689 charges in 2012.¹⁰⁻¹²

Charges were most frequently laid on Saturday and Sunday, followed by Friday and were most frequently laid during the night (midnight to before 6:00am), followed by the evening (6:00pm to before midnight).

Guideline 4: Pregnant? Zero is safest

During pregnancy or when planning to become pregnant, it is safest not to consume alcohol at all.

Five percent of women drink alcohol in pregnancy

- About five per cent of women in Ontario reported consuming alcohol during their most recent pregnancy when asked in 2007/2008. This has decreased significantly since 2003.¹³ Comparable statistics for Ottawa are too unreliable to report.

Guideline 5: Delay drinking

Healthy physical and mental development of children and adolescents can be harmed by alcohol and consumption should be delayed until late teenage years.

Chapter 2 – Describes alcohol consumption behaviours of Ottawa youth.

Chapter 4 –Drug Use in Youth

Use of cannabis or other illegal drugs such as solvents, hallucinogens, salvia, cocaine, and ecstasy impairs decision making skills and judgement, which can lead to various negative outcomes. Non-medical use of over-the-counter (OTC) and prescription drugs (particularly opioid-based drugs such as OxyContin, Codeine and Tylenol #3) has been gaining popularity among youth in the last decade. One possible explanation for this shift is that young people perceive these medications to be less harmful than “street” drugs given that they are legal and also have therapeutic purposes.⁴ However, use of illegal and prescription drugs can lead to dependence and are associated with various harms such as withdrawal symptoms, depression, overdose and even death.¹⁴

Highlights

- Students are more likely to use cannabis, prescription drugs and OTC drugs rather than other illegal drugs such as hallucinogens, cocaine, or ecstasy.
- Cannabis was used at least once in the past year by one quarter of Ottawa’s youth.
- Past year cannabis use among Ottawa students shows large increases with each grade, from 4% in grades 7 to 8 to 41% in grade 12.
- 15% of youth drivers reported driving within an hour of using cannabis.
- 92% of street-involved youth used non-injection drugs, including cannabis, and 11% used injection drugs during the past year.
- 60% of HCV-infected street-involved youth who use non-injection drugs and 50% who used injection drugs shared drug equipment in the past 3 months.

Cannabis is the most commonly used drug among youth

Cannabis smoke contains more tar and more of some cancer-causing chemicals than tobacco smoke. Cannabis causes difficulty in concentration, making it hard for youth to learn new things and to remember what they already know. Regular and long-term use of cannabis affects motivation.¹⁵ Additionally, early cannabis use increases the risk of psychosis-related problems and schizophrenia; young brains are more susceptible to the effects of cannabis because they are still developing.¹⁶

The OSDUHS asked students about their use of cannabis (also known as marijuana, “weed”, “grass”, “pot”, hashish, “hash”, hash oil) in the 12 months before the survey. (Table 6 and Figure 9)

Table 6. Cannabis use among youth in grades 7 to 12 by selected social determinants of health, Ottawa, 2011

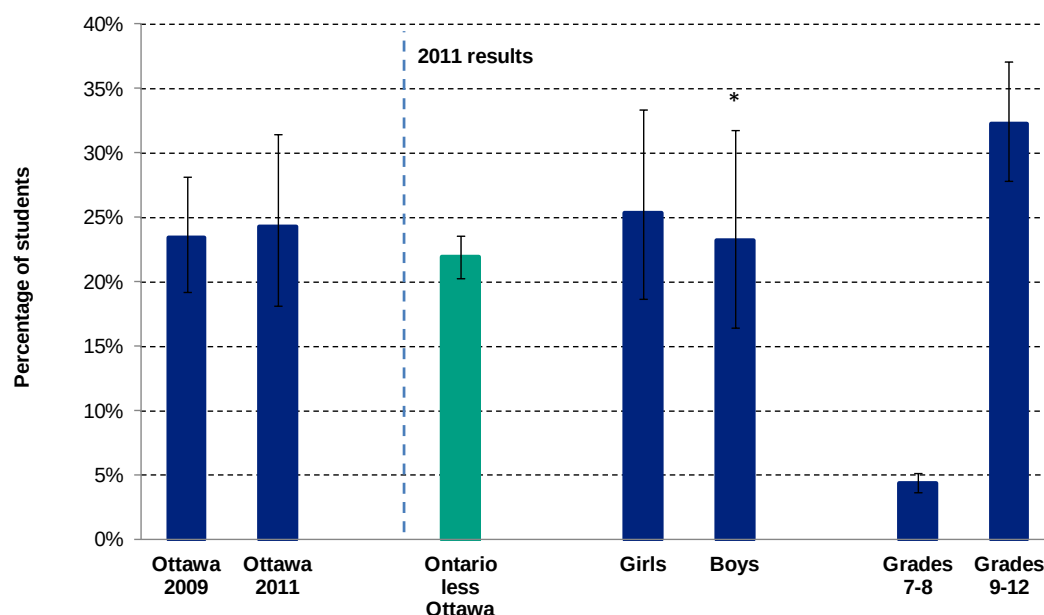
Subgroup	Findings
Ottawa	In 2011, 24.2% (18.2%, 31.5%) of grade 7 to 12 students in Ottawa reported cannabis use at least once during the past year. (Figure 9) During the 4 weeks before the survey, 15.3% (11.5%, 20.2%) of Ottawa students reported using cannabis at least once and 4.4%* (2.6%, 7.6%) of students had used cannabis in the past week.
Age	A significantly higher proportion of grade 9 to 12 students reported cannabis use compared to grade 7 to 8 students (32.3% (27.8%, 37.1%) vs. 4.3% (3.7%, 5.1%)). (Figure 9) Cannabis use among students in grades 7 to 12 peaks at 41.1% (29.9%, 53.3%) among grade 12 students. In 2011, grade 9 to 12 students (32.3% (27.8%, 37.1%)) were more likely to report cannabis use than in 2009 (22.1% (17.9%, 27.0%)). - About 3.1%* (1.7%, 5.6%) of Ottawa students used cannabis for the first time in grade 7. - In Ontario, the average age for to first use cannabis was 14 years old.
Mother tongue language	Students who spoke only English at home were more likely than students who spoke a language other than English or French in the home (27.6% (20.5%, 35.9%) vs. 11.5% (7.0%, 18.2%)) to report cannabis use.

Data source: Public Health Monitoring of Risk Factors in Ontario-OSDUHS (2009 and 2011), Centre for Addiction and Mental Health.

Data note: Only social determinants of health that showed a significant difference between categories are displayed in the table. There was no difference in rates of cannabis use between girls and boys or between Ottawa and Ontario.

*Interpret with caution due to high sampling variability.

Figure 9. Ottawa students in 2011 who reported using cannabis in the past year compared to 2009, Ontario and by sex and grade



Data source: Public Health Monitoring of Risk Factors in Ontario-OSDUHS (2009 and 2011), Centre for Addiction and Mental Health.

* Interpret with caution due to high sampling variability. Vertical bars represent 95% confidence intervals.

Drug use can lead to risky behaviour

- In 2011, 14.5%* (8.6%, 23.5%) of drivers in grades 10 through 12 drove within an hour of using cannabis at least once during the past year.
- Overall, 12.1% (8.4%, 17.1%) of Ottawa students had, at least once during the past year, been a passenger with a driver who had been using drugs.
- 63.2% (55.5%, 70.4%) of street youth reported having sex while under the influence of alcohol or drugs.

Non-medical use of prescription opioid pain relievers decreased from 2009 to 2011

OxyContin is a brand name for a highly addictive prescription painkiller containing the opioid oxycodone. It can deliver an initial rush of euphoria, much like heroin.^{4,17} Effective March 1, 2012, OxyContin was replaced in Canada by OxyNeo, an alternative slow release formulation of the opioid oxycodone. This new formulation is intended to be more tamper resistant and so more difficult to crush and abuse.¹⁸

- Overall, 2.2%* (1.2%, 3.9%) of Ottawa students reported using OxyContin non-medically at least once in the 12 months before the survey. The sample is too small to report by subgroups.

In the OSDUHS, students were asked about non-medical use of at least one of the following opioid pain relievers during the past year: OxyContin, Tylenol #3, codeine, Percocet, Percodan, and Demerol.

- Ottawa students in 2011 were less likely to report non-medical use of prescription opioids than students in 2009 (13.0% (11.7%, 14.5%) vs. 17.9% (15.1%, 21.2%)). A similar decrease was seen provincially.
- A significantly lower proportion of grade 7 to 8 students (10.2% (8.6%, 12.2%)) reported using at least one of the opioid pain relievers non-medically in the past year than grade 9 to 12 students (14.2% (12.4%, 16.2%)).
- There is no significant difference in use between girls and boys.
- Students who reported using a prescription opioid non-medically in the past year were more likely than those who did not report such use to also report at least one visit to a mental health professional (34.5%* (22.2%, 49.3%) vs. 15.5% (11.4%, 20.8%)).
- Among Ottawa students who used opioid pain relievers non-medically in the past year, 70.1% (49.1%, 85.1%) reported they got these drugs from a parent, sibling, or someone else they live with.

* Interpret with caution due to high sampling variability.

Use of illegal drugs other than cannabis is prevalent among a small proportion of youth

In order to understand how prevalent the use of other drugs is among students, we describe those students who said they had used at least one of the following 13 illegal drugs asked about in the 2011 OSDUHS survey: inhalants, LSD, mushrooms or mescaline, cocaine, crack, methamphetamine (including crystal meth), heroin, ecstasy, jimson weed, salvia divinorum, doda, BZP pills, and mephedrone. Cannabis and prescription drugs are excluded because they are discussed separately.

- About 13.4% (10.2%, 17.5%) of Ottawa grade 7 to 12 students had used an illegal drug other than cannabis at least once in the past year.
- There were no differences in use of illegal drugs other than cannabis between boys and girls or between grades 7 to 8 and grades 9 to 12.

Street-involved youth frequently use many types of injection and non-injection drugs

Street-involved youth were asked about injection and non-injection drug use prior to being surveyed in 2009. (Table 7)

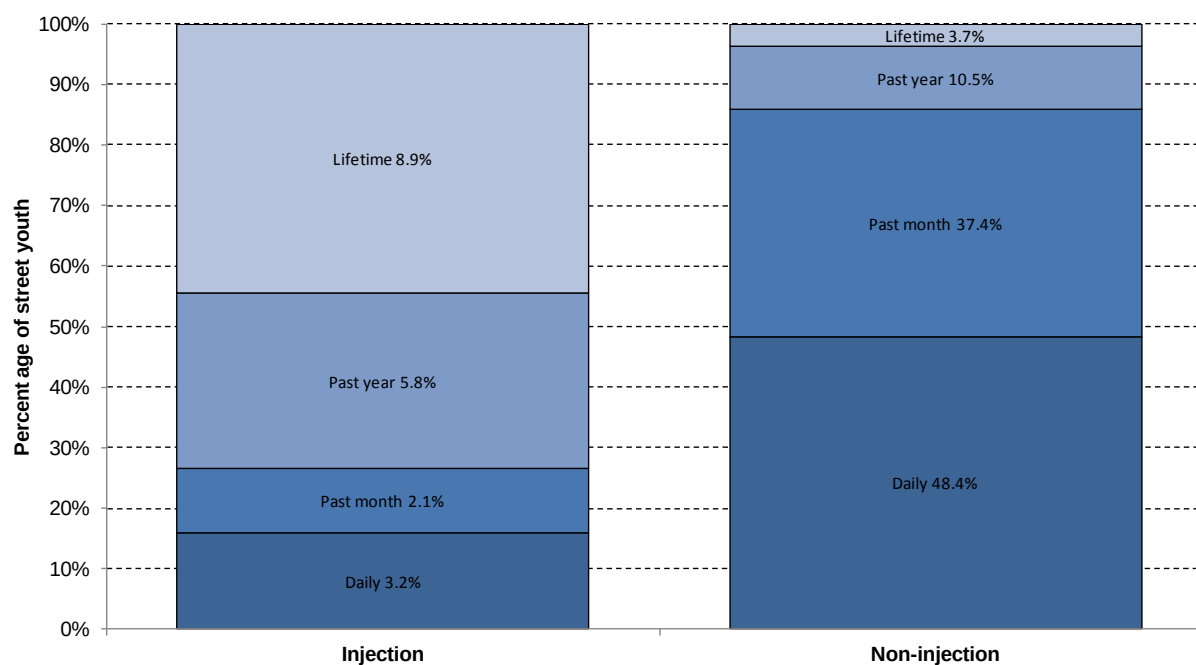
Table 7. Street-involved youth who reported using injection or non-injection drugs, Ottawa, 2009

Indicator	Injection Drug Use	Non-injection Drug Use
Lifetime use	The proportion reporting ever using was stable and averaged 19.8% (range, 13.8%, 25.1%) during 1999 – 2009.	The proportion reporting ever using was stable and averaged 95.0% (range, 91.0%, 97.6%) during 1999 – 2009.
Frequency		
Past year	During the 12 months prior to the survey, 10.5% (6.6%, 15.6%) reported injecting drugs.	During the 12 months prior to the survey, non-injection drugs were used by 91.5% (86.7%, 95.0%) (including cannabis) and 74.0% (67.3%, 79.9%) (excluding cannabis).
Past month	During the month prior to the survey, 5.0% (2.4%, 9.0%) reported injecting drugs.	During the month prior to the survey, 81.5% (75.4%, 86.6%) reported using non-injection drugs including cannabis.
Daily	During the month prior to the survey, 3.0% (1.1%, 6.4%) reported using injection drugs daily.	During the month prior to the survey, 46.0% (38.9%, 53.2%) reported using non-injection drugs, including cannabis, daily.
Used by 20% or more	During the 12 months prior to the survey in 2009, injection drugs used include morphine and other opioids (including fentanyl) and heroin. (Table 8)	During the 12 months prior to the survey in 2009, non-injection drugs used include, in descending order of popularity, cannabis, MDMA, hallucinogens, cocaine, amphetamines, prescription painkillers, and prescription sedatives. (Table 9)
Used most frequently	During the 3 months prior to the survey in during 1999 – 2009, morphine and other opioids, cocaine and heroin were the most often used injection drugs. (Table 10)	During the 3 months prior to the survey during 1999 – 2009, cannabis was the most often used non-injection drug. MDMA and cocaine were also consistently used over this time period. (Table 11)
Sharing of drug equipment	50.0% (6.8%, 93.2%) of youth who used injection drugs shared drug equipment in the 3 months prior to the survey in 2009.	60% (14.7%, 94.7%) of youth who used non-injection shared drug equipment in the 3 months prior to the survey in 2009.
School registration	School registration among <19 year-olds in 2009 was not different for street-involved youth who used drugs <i>versus</i> youth who did not use drugs.	
Self-rated health	The proportion of street-involved youth who rated their physical or mental health as fair or poor in 2009 was not different for youth who used drugs vs. youth who did not use drugs.	

Data source: Enhanced Street Youth Surveillance (1999-2009), extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Data note: Street-involved youth were asked about consumption of specific injection drugs (cocaine, coke, crack; heroin; speedball; LSD or other hallucinogens including PCP; alcohol; morphine or other opioids; Ritalin and Talwin; Diaudid (dilly); amphetamines/speed; steroids; methamphetamine (crystal meth); methadone; drugs available without a prescription (Tylenol, Advil, Gravol, DXM)) and non-injection drugs (marijuana/cannabis (joint, pot, weed, hash); amphetamines (speed); methamphetamine (crystal meth); MDMA (ecstasy, E, X); hallucinogens (LSD, PCP, acid, magic mushrooms, mesc., salvia); DACS (links, codeine, pseudoephedrine); heroin (smack, junk); cocaine (coke, blow, snow, crack); steroid (testosterone, growth hormones, Dianabol, juice, roids); sniffed glue, gasoline or other products; prescription stimulants (Ritaline, Adderall, Concerta, Dexedrine) to get high; prescription painkillers (Talwin, Oxycontin, Percocet, Tylenol 3, Demerol) to get high; prescription sedatives or tranquilizers (Valium, Ativan, Xanax) to get high; drugs available without a prescription).

Figure 10. Reported frequency of non-injection and injection drug use among Ottawa street-involved youth who have used in the 12 months prior to survey, 2009



Data source: Enhanced Street Youth Surveillance, extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Data note: Each column shows the frequency of drug use among the 19.0% or 95.0% of street-involved youth who had ever used injection or non-injection drugs, respectively.

Table 8. Injection drugs used by 20% or more in the 12 months prior to interview, Ottawa street youth, 2009

Drug	Percent Reporting	95% CI
Morphine or other opioids (fentanyl)*	86.7% (13.3%)	59.5% – 98.3% (1.7% – 40.5%)
Cocaine, coke, crack	53.0%	26.6% – 78.7%
Heroin	53.0%	26.6% – 78.7%
Dilaudid	53.0%	26.6% – 78.7%
Speedball	20.0%	4.3% – 48.1%

Data source: Enhanced Street Youth Surveillance, extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

*The percent indicated for morphine includes the percent reporting fentanyl.

Table 9. Non-injection drugs used by 20% or more in the 12 months prior to interview, Ottawa street youth, 2009

Drug	Percent Reporting	95% CI
Cannabis	89.0%	83.8% – 93.0%
MDMA	53.0%	45.8% – 60.0%
Hallucinogens	44.5%	37.5% – 51.7%
Cocaine	39.5%	32.7% – 46.6%
Amphetamines	37.0%	30.3% – 44.1%
Prescription painkillers	30.0%	23.7% – 36.9%
Prescription sedatives	23.0%	17.4% – 29.5%

Data source: Enhanced Street Youth Surveillance 2009, extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Table 10. Top 3 injection drugs used most frequently in the 3 months prior to interview, among users of injection drugs, by survey cycle, Ottawa street youth, 1999 to 2009

Rank Order	1999 (n=3)		2001 (n=6)		2003 (n=22)		2005 (n=27)		2009 (n=15)	
	Drug	Percent Reporting	Drug	Percent Reporting	Drug	Percent Reporting	Drug	Percent Reporting	Drug	Percent Reporting
1	Heroin	66.7% (9.4%, 99.2%)	Heroin	50.0% (11.8%, 88.2%)	Morphine or other opioids	68.2% (45.1%, 86.1%)	Morphine or other opioids	37.0 (19.4%, 57.6%)	Morphine or other opioids	66.7% (38.4%, 88.2%)
2	N/A*		Cocaine [†]	33.3% (4.3%, 77.7%)	Heroin	9.1% (1.1%, 29.2%)	Cocaine (Crack) [‡]	33.3% (16.5%, 54.0%) (14.8%) (4.2%, 33.7%)	Heroin	20.0% (4.3%, 48.1%)
3			Morphine or other opioids	16.7% (0.4%, 64.1%)	N/A ¹		Crystal meth	14.8% (4.2%, 33.7%)	Cocaine [†]	13.3% (1.7%, 40.5%)

Data source: Enhanced Street Youth Surveillance (1999 to 2009), extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Data notes:

Street-involved youth were asked about consumption of specific injection drugs (cocaine, coke, crack; heroin; speedball; LSD or other hallucinogens including PCP; alcohol; morphine or other opioids; Ritalin and Talwin; Diaudid (dilly); amphetamines/speed; steroids; methamphetamine (crystal meth); methadone; drugs available without a prescription (Tylenol, Advil, Graval, DXM)).

Youth were allowed to select more than one drug as their most frequently used drug, and some youth did not select any drug. For this reason, column totals may not add to 100%.

*No other drug reported used most frequently

[†]No further discrimination of cocaine (coke, blow, snow, or crack) is available

[‡]For 2005 only, use of crack was captured

Table 11. Top 4 non-injection drugs used most frequently in the 3 months prior to interview, among users of non-injection drugs, by survey cycle, Ottawa street youth, 1999 to 2009

Rank Order	1999 (n=88)		2001 (n=159)		2003 (n=187)		2005 (n=181)		2009 (n=180)	
	Drug	Percent Reporting	Drug	Percent Reporting	Drug	Percent Reporting	Drug	Percent Reporting	Drug	Percent Reporting
1	Cannabis	93.2% (85.7%, 97.5%)	Cannabis	95.0% (90.3%, 97.8%)	Cannabis	92.0% (87.1, 95.4)	Cannabis	85.1% (79.0%, 89.9%)	Cannabis	80.0% (73.4%, 85.6%)
2	LSD	8.0% (3.3%, 15.7%)	MDMA	3.8% (1.4%, 8.0%)	Cocaine (Crack)*	10.7% (6.7, 16.0) (4.3%) (1.9%, 8.3%)	MDMA	29.8% (23.3%, 37.1%)	MDMA	6.1% (3.1%, 10.7%)
3	Cocaine (Crack)*	1.1% (0.03%, 6.2%) (0%)	Cocaine (Crack)*	3.8% (1.4%, 8.0%) (2.5%) (0.7%, 6.3%)	PCP	8.6 (5.0%, 13.5%)	Cocaine (Crack)*	24.9% (18.7%, 31.8%) (9.9%) (6.0%, 15.3%)	Cocaine [†]	6.1% (3.1%, 10.7%)
4	MDMA	1.1 (0.03%, 6.2%)	Mushrooms, PCP, LSD, mescaline	1.3% (0.2%, 4.5%)	MDMA	7.0% (3.8%, 11.6%)	PCP	6.1% (3.1%, 10.6%)	Amphetamines	2.2% (0.6%, 5.6%)

Data source: Enhanced Street Youth Surveillance (1999 to 2009), extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Data notes:

Street-involved youth were asked about consumption of specific non-injection drugs (marijuana/cannabis (joint, pot, weed, hash); amphetamines (speed); methamphetamine (crystal meth); MDMA (ecstasy, E, X); hallucinogens (LSD, PCP, acid, magic mushrooms, mesc., salvia); DACS (links, codeine, pseudoephedrine); heroin (smack, junk); cocaine (coke, blow, snow, crack); steroid (testosterone, growth hormones, Dianabol, juice, roids); sniffed glue, gasoline or other products; prescription stimulants (Ritaline, Adderall, Concerta, Dexedrine) to get high; prescription painkillers (Talwin, Oxycontin, Percocet, Tylenol 3, Demerol) to get high; prescription sedatives or tranquilizers (Valium, Ativan, Xanax) to get high; drugs available without a prescription).

Youth were allowed to select more than one drug as their most frequently used drug. For this reason, column totals may not add to 100%.

* The percent indicated for cocaine includes the percent reporting crack as most frequently used non-injection drug

[†] In 2009, cocaine use was not discriminated and includes coke, blow, snow and crack

Chapter 5 –Drug Use in Adults

Using cannabis or other illegal drugs such as solvents, cocaine and ecstasy, as well as the non medical use of over-the-counter (OTC) and prescription drugs, affects decision making skills and impairs judgement leading to various negative consequences.

People who use injection drugs are seen as a population that is hard to reach with conventional public health strategies.¹⁹ A number of complex barriers such as treatment-related costs, transportation, stigma and discrimination, make this population less likely to seek out healthcare.^{20,21} In addition, limited knowledge of available services, long wait times, and limited hours of service make it difficult for people to access health care²⁰, resulting with an over-reliance on acute and emergency care²³, and the tendency for this population to have unmet healthcare needs.^{22,24}

Crack use is associated with unique and serious health and social problems. Users of crack tend to be extremely marginalized within drug-using networks and the broader society. They often experience extreme poverty, homelessness, lack of access to income and other resources, and barriers to health care services.²⁵

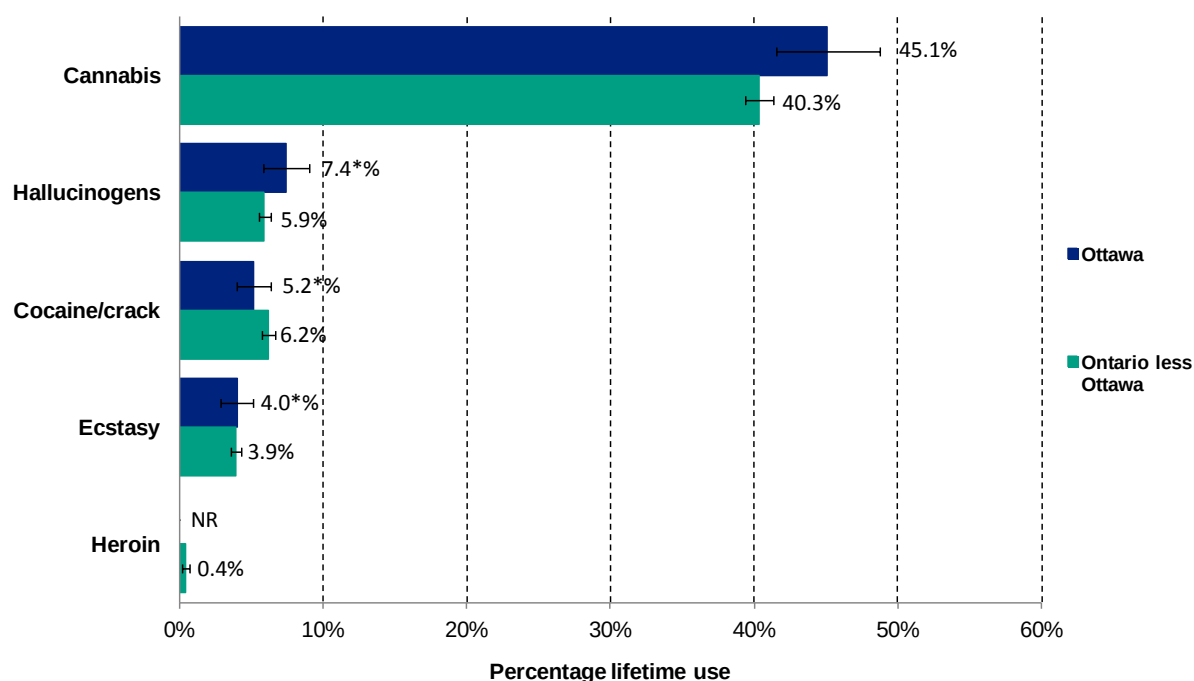
Highlights

- Cannabis is the illegal drug most commonly used during the lifetime in Ottawa (45%) and it has been used by a significantly higher proportion of Ottawa residents as compared to residents overall in the rest of Ontario (40%).
- Lifetime use of other drugs in Ottawa is low, with reported use of 7% for hallucinogens, 5% cocaine or crack, 4% for ecstasy and 3% for speed. Other than cannabis use, lifetime drug use is not significantly different in Ottawa as compared to Ontario.
- About 13% of Ottawa adults had used cannabis in the past year, of whom almost a quarter used it once a week or more.
- Cannabis use is more common among males, English speakers, non-immigrants and youth.
- Prescription-type opioid pain relievers are misused more than most illegal drugs.
- Between 1,200 and 5,600 people in Ottawa inject drugs.
- 16% of men and 10% of women who inject drugs injected in the past 6 months with a needle or syringe that had been previously used.
- Needle and Syringe Programs in Ottawa, which distribute sterile injection and non-injection equipment, had over 30,000 service contacts in 2011.
- OPH Site Needle and Syringe Program, Shepherds of Good Hope, and Sandy Hill Community Health Centre were responsible for the greatest volume of service contacts in 2011.
- Of the approximately 8,000 OPH service contacts in 2011, approximately one-third were provided by the Site van.
- The Safer Inhalation Program in Ottawa, which distributes non-injection drug equipment, had over 13,000 service contacts in 2012.

Almost half of adults have tried cannabis in their lifetime

- Cannabis is the illegal drug most commonly used during the lifetime in Ottawa (45.1% (41.5%, 48.8%)) and it has been used by a significantly higher proportion of Ottawa residents as compared to residents overall in the rest of Ontario (40.3% (39.3%, 41.3%)). (Figure 11)
- Lifetime use of other drugs in Ottawa is low, with reported use of 7.4% (5.8%, 9.0%) for hallucinogens, 5.2% (4.0%, 6.4%) cocaine or crack, 4.0% (2.9%, 5.1%) for ecstasy and 2.6% (1.8%, 3.5%) for speed. Other than cannabis use, lifetime drug use is not significantly different in Ottawa as compared to Ontario. (Figure 11)
- Males are significantly more likely to have used any of cannabis, hallucinogens, or cocaine/crack in their lifetime than females.

Figure 11. Adults (aged ≥18 years) who reported using various drugs at least once in lifetime, Ottawa, 2009/2010



Data

source: Canadian Community Health Survey 2009/2010. Ontario Share File. Statistics Canada.

* Interpret with caution due to high sampling variability.

Horizontal bars represent 95% confidence intervals.

Past year cannabis use is more common among males, English speakers, non-immigrants and youth

Table 12. Adults (aged ≥18 years) who reported using cannabis at least once in the past year by social determinants of health, Ottawa, 2009/2010

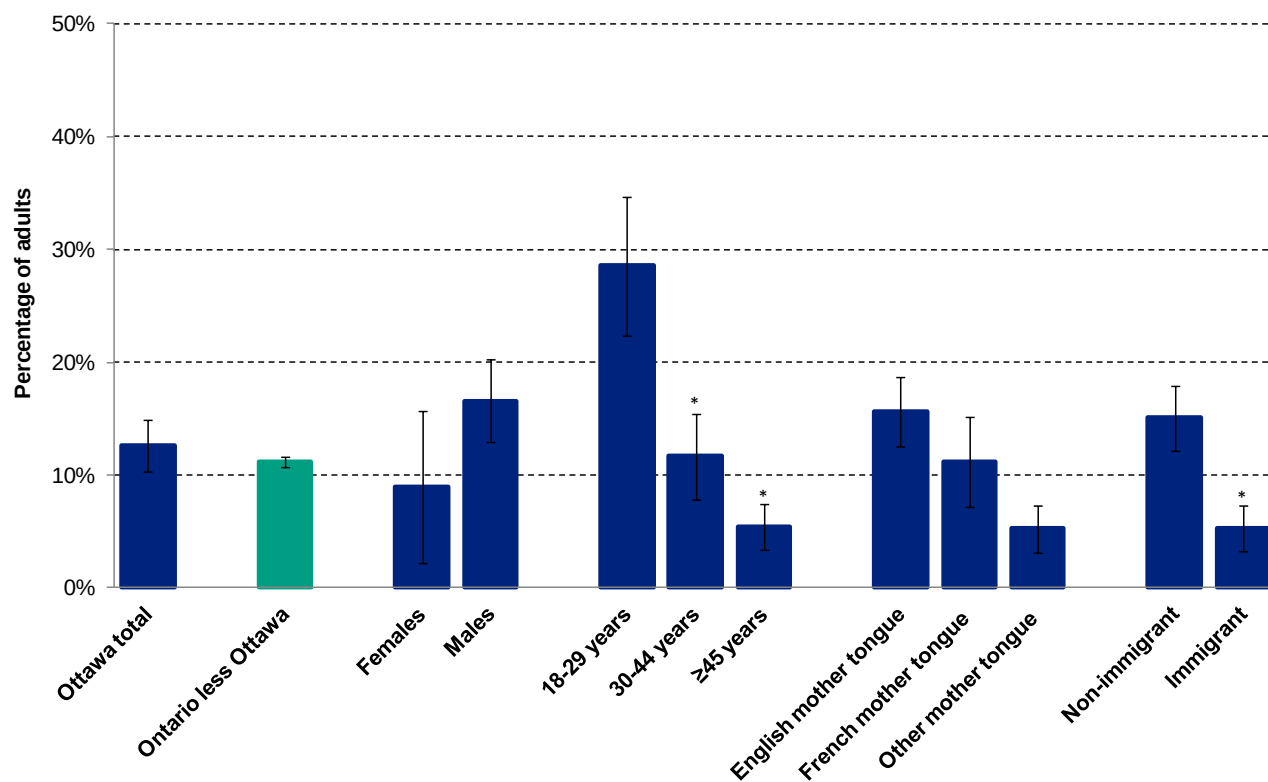
Subgroup	Findings
Ottawa	In 2009/2010, 12.7% (10.4%, 15.0%) of adults aged 18 years and older used cannabis at least once in the past year.
Ontario	The proportion of adults in Ottawa who used cannabis in the past year was not significantly different compared to adults across Ontario.
Sex	Males (16.6% (12.9%, 21.1%)) were more likely to use cannabis compared to females (8.9% (6.7%, 11.8%)).
Age	Adults aged 18 to 29 years (29.6% (63.4%, 76.6%)) were more likely to use cannabis compared to either those aged 30 to 44 years (11.7%* (7.9%, 17.0%)) or those aged 45 years and older (5.4%* (3.4%, 7.4%)).
Mother tongue language	There was some indication that adults with a mother tongue other than English or French (5.3%* (3.2%, 7.4%)) were less likely to use cannabis compared to those with English (15.6% (12.5%, 18.7%)) mother tongue language.
Immigration status	Immigrants (16.9% (11.7%, 22.0%)) were less likely to use cannabis than non-immigrants (38.5% (34.3%, 42.7%)).

Data source: Canadian Community Health Survey 2009/2010. Ontario Share File. Statistics Canada.

Data note: Only social determinants of health that showed a significant difference between categories are displayed in the table. There was no difference in proportion of adults using cannabis in the past year by household income, education, or urban rural residence in 2009/2010.

*Interpret with caution due to high sampling variability.

Figure 12. Percentage of adults (≥ 18 years) who used cannabis at least once in the past year by social determinants of health, Ottawa, 2009/10



Data source: Canadian Community Health Survey 2009/2010. Ontario Share File. Statistics Canada.

*Interpret with caution due to high sampling variability. Vertical bars represent 95% confidence intervals. Only significant comparisons are shown.

- Among Ottawa adults who had used cannabis at least once in the past year, more than half used cannabis less than once a month (55.9%, (45.8%, 65.6%)), 20.2%* (13.4%, 29.3%) used it 1 to 3 times a month and 23.9% (17.1%, 32.3%) used it once a week or more.

Prescription-type opioid pain relievers are misused more than most illegal drugs

In 2010, a survey of adults in Ontario estimated that 7.7% (6.3%, 9.2%) used a prescription-type opioid pain reliever for non-medical purposes at least once in the past year.²⁶ This is higher than the adults who reported that they had used cocaine in the past year (<1%). Although lower than the reported use of cannabis among adults in Ottawa, the risk of overdose and dependence are higher for opioids. The estimate for the East region, which includes Ottawa, was too unreliable to report.

* Interpret with caution due to high sampling variability

Between 1,200 and 5,600 people in Ottawa inject drugs illicitly

- In Ottawa, between 1,200 and 5,600 people were estimated to inject drugs in 2008.^{27 1}
- Based on the above estimate, Ottawa has the second highest proportion of injection drug use in the population in Ontario, behind Toronto.²⁸

Most people who use injection drugs also use non-injection drugs^{29,2}

- Cocaine was reported as the drug most often injected by approximately one-quarter (26.4% (18.2%, 36.1%)) of injection drug users.
- The 5 most frequently reported drugs injected without a prescription include morphine (59.8% (49.6%, 69.4%)), cocaine (52.0% (41.8%, 62.0%)), heroin (51.0% (40.9%, 61.0%)), dilaudid (51.0% (40.9%, 61.0%)), and oxycodone (40.2% (30.6%, 50.4%)).
- 16.0% (8.8%, 25.9%) of men and 9.5% (1.2%, 30.4%) of women who inject drugs injected in the past 6 months with a previously-used needle or syringe.

The majority of people who smoke crack share smoking equipment

- Non-injection crack use is common among persons who inject drugs (70.6% (60.7%, 79.2%)).
- After crack, the 4 most frequently reported drugs used without injecting and without a prescription include cannabis (69.6% (59.7%, 78.3%)), alcohol (56.9% (46.7%, 66.6%)), cocaine (37.3% (27.9%, 47.4%)), and oxycodone (23.5% (15.7%, 33.0%)).
- Many users of injection drugs who use crack share smoking equipment. 60.2% (50.1%, 69.7%) passed on a used smoking device to someone else to use in the past 6 months.

There is increasing demand services in Ottawa

Needle and Syringe Program (NSP) services are offered through OPH's Site Needle and Syringe (office and mobile van) and through 15 partner agencies across the city. While OPH provides needle and syringe services through their fixed and mobile sites and through 15 partner agencies across the city, 12 of these agencies also provide safer drug use services for people who inhale drugs (smoke crack). Distribution of safer inhalation materials is coordinated through Somerset West Community Health Centre.

The growing number of service contacts and needles and syringes distributed illustrates an increasing demand for needle and syringe services in Ottawa. Because individuals' use of services is not tracked across all partner agencies, it cannot be determined whether this is due to an increase in the number of clients or in the services accessed by previously existing clients.

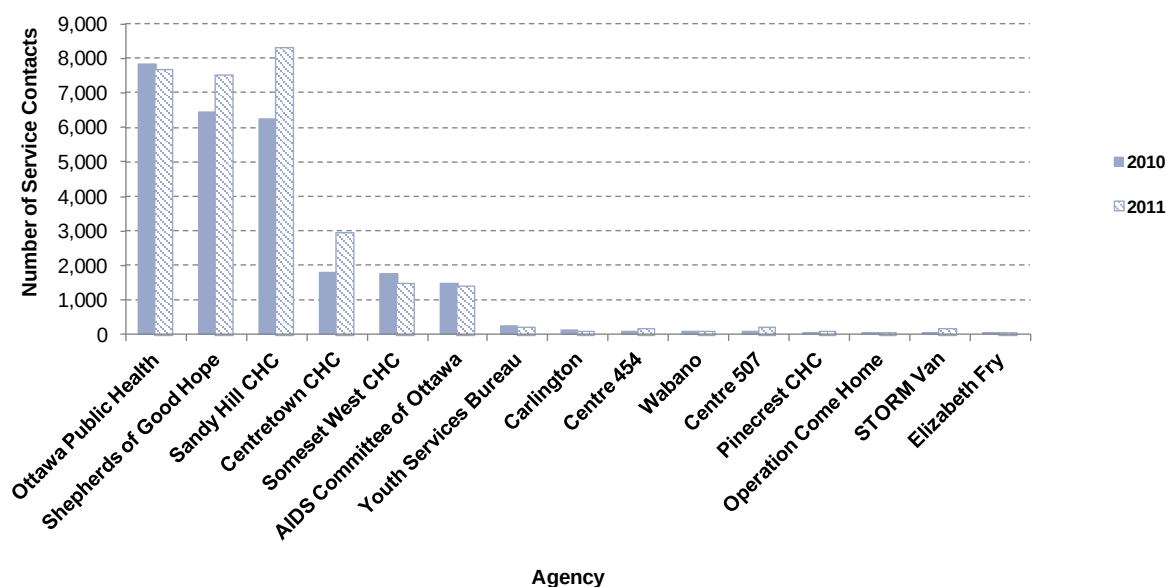
- The total number of times that individuals who use drugs accessed any of the NSP partner services in Ottawa (service contacts) increased 15.5% from 26,315 in 2010 to 30,393 in 2011.

¹ This range was derived by the authors of the citation referenced using available estimates of HIV incidence in Ottawa (Ontario HIV Epidemiologic Monitoring Unit), the number of HIV-positive individuals who inject drugs in the Champlain LHIN (OHEMU), and the prevalence of HIV among people who use drugs in Ottawa (I-Track). The lower estimate is the population size required to yield the modeled HIV incidence, considering various factors affecting the rate of transmission. The upper estimate is derived using the modeled number of HIV-positive individuals who inject drugs and the measured prevalence of HIV among users of injection drugs.

² These calculations are based on data provided in the citation referenced.

- The total number of needles and syringes distributed in Ottawa increased 16.2% from 554,576 in 2010 to 644,554 in 2011. OPH Site Needle and Syringe Program, Shepherds of Good Hope, and Sandy Hill Community Health Centre were the agencies responsible for the greatest volume of service contacts in 2011. (Figure 13)
- The total number of needles and syringes retrieved in 2010 was 746,764; while 837, 931 were retrieved in 2011.

Figure 13: Number of Needle and Syringe Program service contacts by agency, 2010 to 2011*



Data source: Needle and Syringe Program, Site Program, Ottawa Public Health, extracted October 11, 2012

*Updated from Substance Misuse in Ottawa: Technical Report posted on March 11, 2013

The OPH Site van reaches many people who inject drugs throughout the City

A mobile unit delivering needle syringe services and clinical nursing care to clients throughout the city is intended to reduce barriers to accessing services.

- Of the approximately 8,000 OPH service contacts in 2011, approximately one-third were provided by the Site van.

Table 13. Demographics of Ottawa Public Health Site Program clientele, 2011

Subgroup	Comparison of Site office and Site van
Sex	In contrast with males, females are served more often by the Site van than the Site office. 39.3% of Site van service contacts were with females, compared to 15.8% of Site office contacts.
Age	The average age of clients who accessed OPH Site office was 39, while the average age of clients who accessed the Site van was 36. This cannot be evaluated from a statistical perspective, but Site staff note that van clients appear to be younger.
Location	The Site van responds to client requests in all regions of the city; however, the majority of service encounters tend to be in the downtown areas (Rideau-Vanier, Byward Market, and Centretown/Somerset).

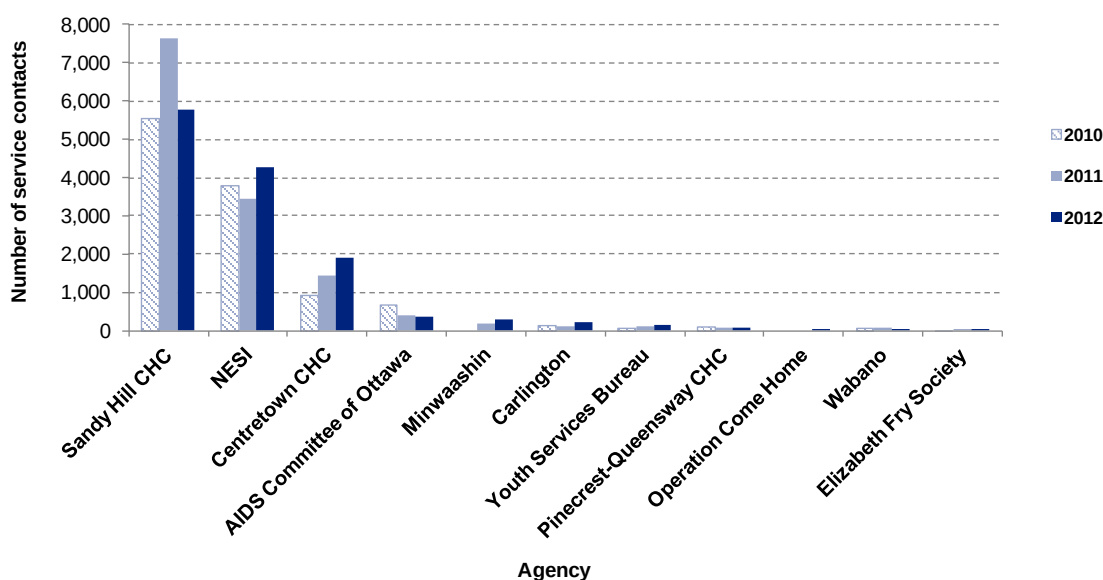
Data source: Needle and Syringe Program, Site Program, Ottawa Public Health, extracted October 11, 2012

There is a demand for safer inhalation equipment in Ottawa

Ottawa's Safer Inhalation Program (SIP) provides services to reduce the harms associated with smoking crack or other substances. These services, administered through a mobile van and through a number of fixed sites, include harm reduction education and the provision of safer inhalation equipment such as pipe stems, screens, and protective mouthpieces. Ottawa Public Health currently is not a SIP provider.

- The total number of times that individuals who use drugs accessed any of the SIP partner services in Ottawa (service contacts) increased 16.5% from 11,227 in 2010 to 13,078 in 2012.
- Sandy Hill, Needle Exchange / Safer Inhalation (NESI, run out of Somerset West Community Health Centre), and Centretown Community Health Centres were the agencies responsible for the greatest volume of service contacts in 2010, 2011, and 2012. (Figure 14)
- During 2008 – 2012, 71.7% of SIP clients were male.
- More clients were in the 40-54 year-old age group than in other age groups.
- Female clients were younger, on average, than male clients.
- Of the approximately 3,800 contacts that NESI provided annually during 2010 - 2012, an average of 81.6% were serviced by the NESI mobile van.

Figure 14. Number of Safer Inhalation Program service contacts by agency, 2010 to 2012



Data source: Ottawa's Safer Inhalation Program by the Numbers, Program Advisory Committee of Ottawa's SIP 2012 report

Chapter 6 – Health outcomes of substance misuse

Three aspects are important to consider when assessing the impact of substance use on individuals, families, and communities: 1) the prevalence of substance use; 2) the ability of the substance to cause dependence; and 3) the ability of the substance to cause death or injury.³⁰ The widespread use of alcohol among Ottawa residents leads to a substantial burden of chronic disease, mental illness, and injuries. Although most drugs other than alcohol and cannabis are used by a small proportion of the population, the higher risk of dependence and potential for death or injury from these drugs leads to a large burden of chronic disease, mental illness and injuries.

Highlights

- Youth have the highest rate of paramedic responses for alcohol and drug use, and female youth accounted for a higher number and rate of drug-related paramedic responses compared to males.
- One in five high school students has been intoxicated at school.
- There are at least 970 acute hospitalizations each year in Ottawa attributable to alcohol consumption for adults aged 15 to 69 years. Mental health conditions such as alcohol psychoses, alcohol dependence, depression, and alcohol abuse were the leading type of alcohol-related hospitalization (327 hospitalizations) along with injuries (323 hospitalizations). Digestive diseases, the majority of which are liver cirrhosis contributed 165 hospitalizations of alcohol-related hospitalizations, while cancer contributed 89 hospitalizations, and cardiovascular disease 67 hospitalizations.
- Every year in Ottawa, approximately 63 infants are hospitalized for low birth weight attributed to maternal alcohol use during pregnancy.
- Each year, drug misuse results in at least 505 hospitalizations: 297 hospitalizations are due to injuries such as overdoses, 185 hospitalizations are due to mental health conditions and 20 hospitalizations are due to infectious diseases such as HIV.
- There are approximately 110 deaths each year among Ottawa adults aged 15 to 69 years that are attributable to alcohol consumption. Injuries were the leading cause of alcohol-related deaths (38 deaths). Digestive diseases, the majority of which are liver cirrhosis, contributed 33 deaths, while cancer contributed 21 deaths, mental health conditions, including alcohol dependence, psychoses and depression, contributed 12 deaths and cardiovascular disease 4 deaths.
- There are at least 40 drug overdose deaths every year in Ottawa due to unintentional poisonings or suicide. In addition, there are an estimated 8 infectious disease drug-attributable deaths.
- While women are more likely to be hospitalized for drug overdose, men are more likely to die from drug overdose.
- Three in ten HIV cases had sex under the influence of drugs or alcohol.
- Three-quarters of acute HCV cases and use inhalation or injection drugs (2007-2011).
- 73% of people who use injection drugs are infected with HCV. 13% are infected with HIV.

Paramedics respond to 3,500 substance use-related calls a year

In each of 2010 and 2011, there were over 2,000 alcohol-related incidents in Ottawa to which Paramedics responded. In 2010 there were over 1,000 drug-related incidents in Ottawa that Paramedics responded to and in 2011 this increased to over 1,300 drug-related incidents. (Table 14)

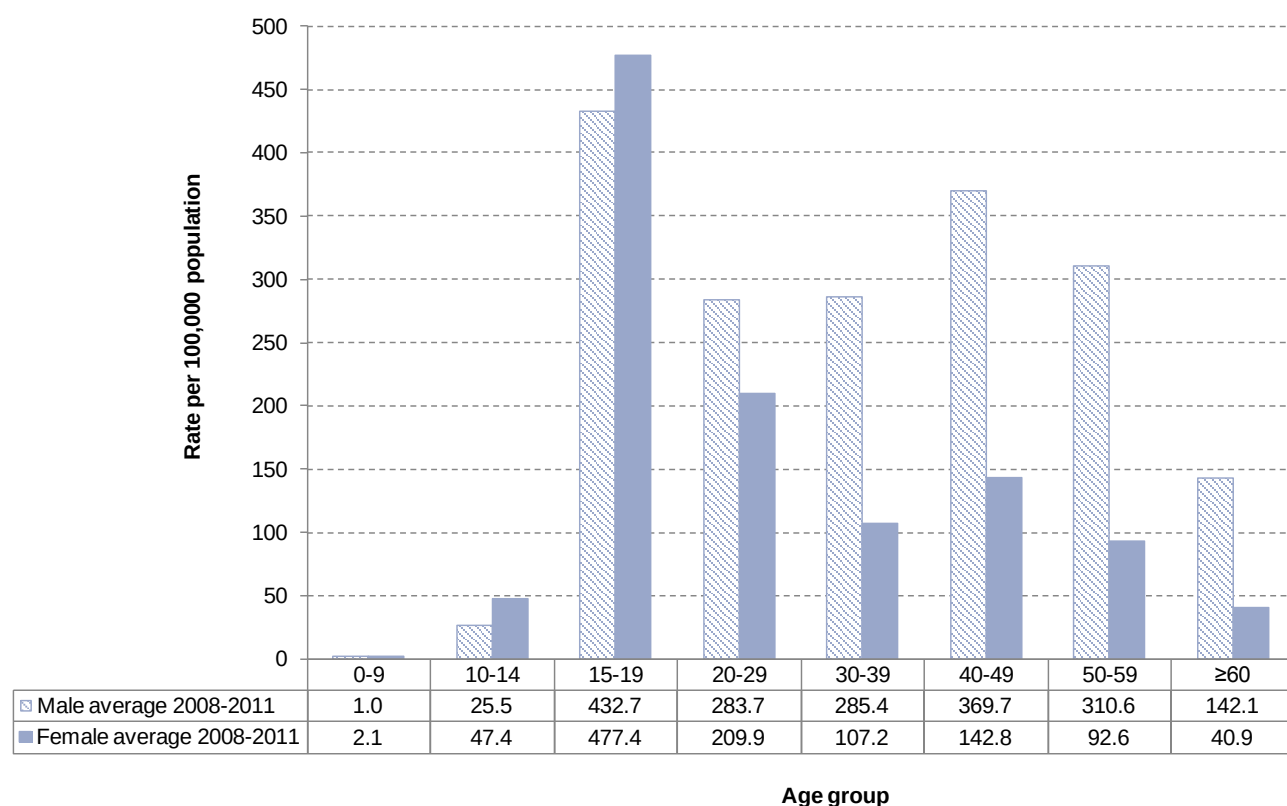
Table 14. Number and rate of paramedic responses related to alcohol or drugs, Ottawa 2010 to 2011

Year	Total incidents related to alcohol (Rate per 100,000 population)	Total incidents related to drug use (Rate per 100,000 population)
2010	2,049 (228.5)	1,071 (199.6)
2011	2,198 (241.1)	1,307 (143.6)

Data source: Ottawa Paramedic Service, extracted September 25, 2012.

Males accounted for a higher number and rate of alcohol-related paramedic responses compared to females, especially among those aged 30 and older. Youth aged 15 to 19 years represented the highest rate of alcohol-related paramedic responses – this age group had the highest rates for both males and females. (Figure 15)

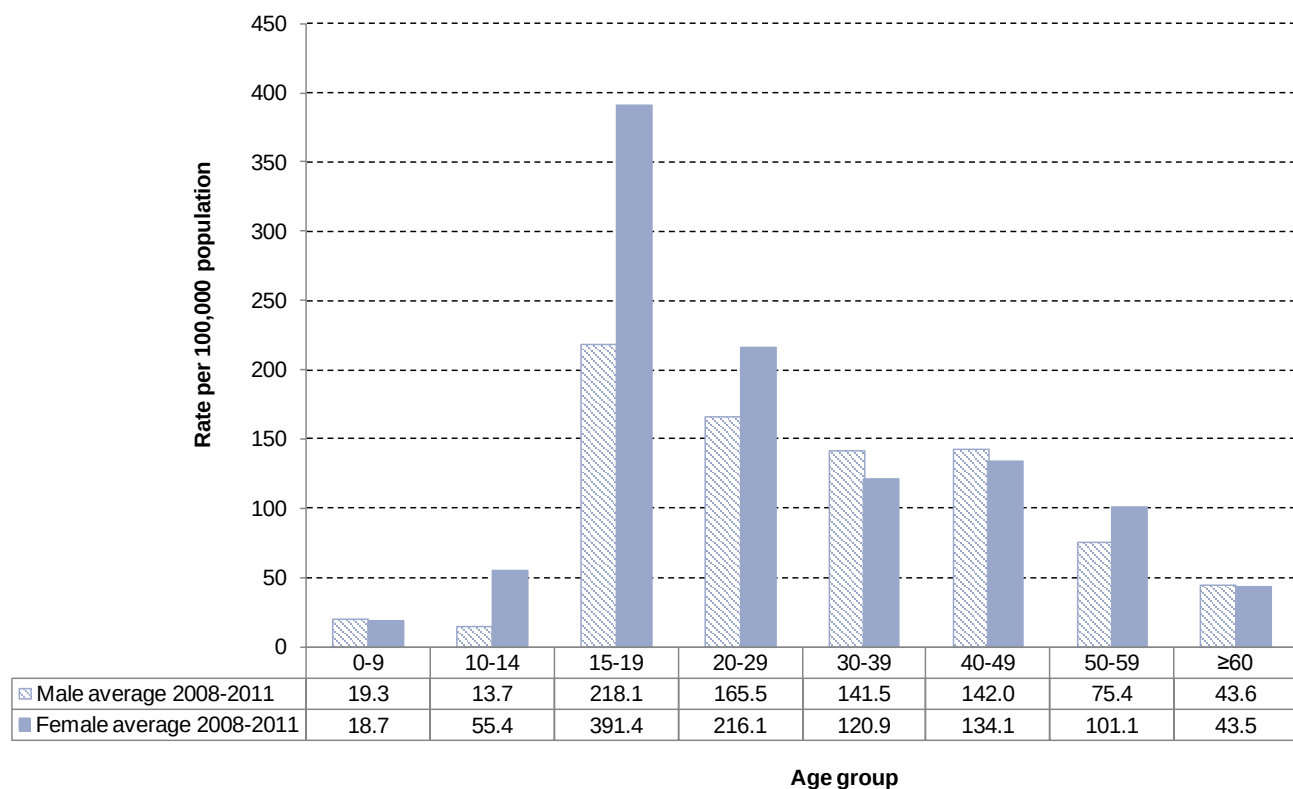
Figure 15. Paramedic response rates related to alcohol by age and sex of client, Ottawa 2008 to 2011 average



Data source: Ottawa Paramedic Service, extracted September 25, 2012.

Similarly, youth aged 15 to 19 years had the highest rate of drug-related paramedic responses; however, females had higher rates than males in almost every age group, especially among youth. (Figure 16)

Figure 16. Paramedic response rates related to drug use by age and sex of client, Ottawa, 2008 to 2011 average



Data source: Ottawa Paramedic Service, extracted September 25, 2012.

Hospitalizations Attributable to Substance Misuse

Alcohol has been attributed to an increased risk of more than 60 causes of illness and death, including several types of cancer, hypertension, cirrhosis of the liver, pancreatitis, mental health conditions and injuries.³¹ Drug use has been attributed to an increased risk of infectious diseases, mental health conditions, and injuries that require hospitalization.³¹ Substance-attributable hospitalization is a measure that describes serious illness attributed to alcohol or drugs. We will describe alcohol-attributable hospitalization (AAH) and drug-attributable hospitalization (DAH) separately.

Alcohol consumption is considered a detrimental factor for all injuries included and some injuries were wholly (100%) attributable to alcohol (e.g., alcohol poisoning). Some neuropsychiatric (referred to as mental health) and chronic conditions such as alcoholic psychosis, alcohol dependence and alcoholic gastritis are 100% attributable to alcohol. For most chronic conditions, however, alcohol is a contributory factor and we used measures of the fraction of cases attributable to alcohol to estimate the full impact of alcohol on the health of people in Ottawa.³² For example, 15% of hypertension hospitalizations are due to alcohol consumption. On the other hand, low levels of alcohol consumption have been shown to have a beneficial effect for ischaemic heart disease and stroke. Low levels of alcohol consumption have also been found to be beneficial for other conditions such as diabetes (men only) and cholelithiasis (i.e., gall-bladder disease).^{1,33,34}

Drug use has been attributed to an increased risk of infectious diseases, mental health conditions, and injuries.³¹ Most of the conditions related to drug use are 100% attributable to the use of illegal drugs and non-medical use of prescription drugs, such as drug psychoses, drug dependence, drug poisoning or overdose, and others such as HIV or HCV are partially attributable to drug use. For example, 56% of HCV hospitalizations are due to drug misuse. Drugs considered in the analyses include: cocaine, cannabis, methadone, heroin, opium, other opioids, other synthetic narcotics, other stimulants (including caffeine and amphetamine), hallucinogens, inhalants/solvents/phencyclidine, multiple drug use, and other narcotics and hallucinogens not elsewhere classified.

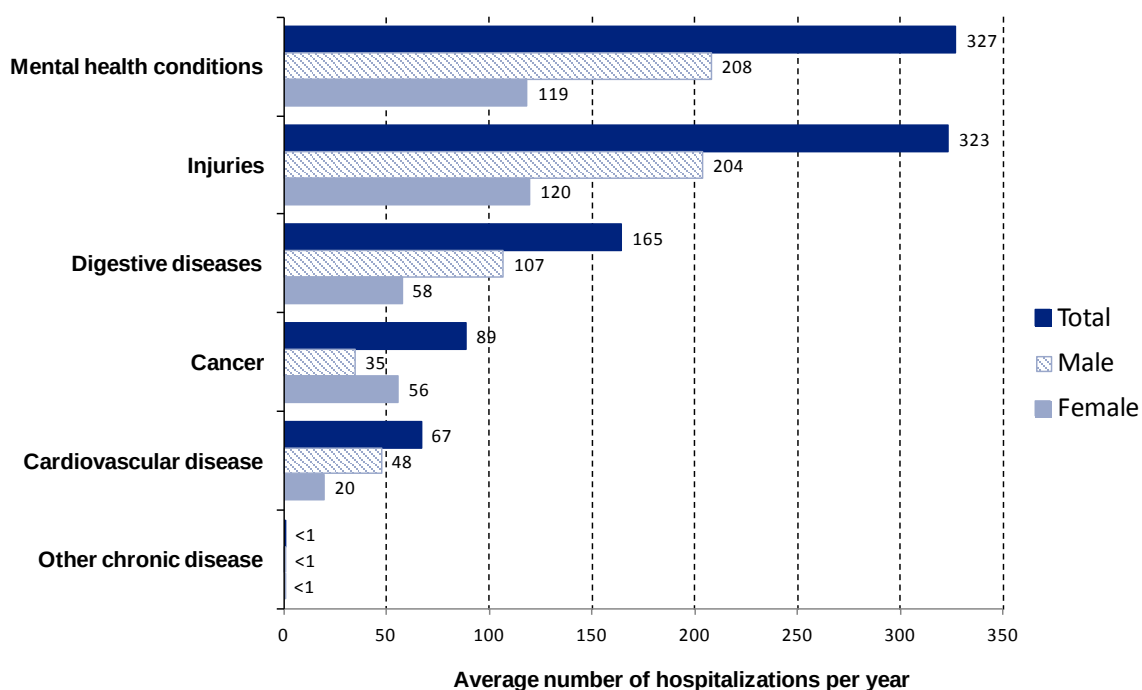
The AAH and DAH numbers presented here are only a portion of the far-reaching effects of alcohol and drugs in Ottawa. The effects are derived in part from self-reported alcohol and drug consumption, which underestimates consumption. In addition, seniors could not be included in the analysis for alcohol. As a result, the estimate of morbidity and mortality is likely higher.^{35,36}

We based the International Classification of Disease (ICD-10) codes that we used on the work of Patra and colleagues, 2007. For partially attributable conditions, we used the attributable fractions from Rehm and colleagues, 2006. For more information on the methodology used, please contact Amira Ali at amira.ali@ottawa.ca.

Approximately 970 Ottawa residents are hospitalized because of alcohol each year

- There are at least 970 acute hospitalizations each year in Ottawa attributable to alcohol consumption for adults aged 15 to 69 years (2008 to 2010).
- Mental health conditions such as alcohol psychoses, alcohol dependence, depression, and alcohol abuse were the leading type of alcohol-related hospitalization at 34% (327 hospitalizations) along with injuries at 33% (323 hospitalizations). Digestive diseases, the majority of which are liver cirrhosis contributed to 17% (165 hospitalizations) of alcohol-related hospitalizations, while cancer contributed 9% (89 hospitalizations), and cardiovascular disease to 7% (67 hospitalizations). (Figure 17)
- The rate of all hospitalizations that are wholly attributable to alcohol consumption, such as alcoholic liver disease, alcoholic psychoses, dependence and abuse, and alcohol poisoning, did not change in Ottawa between 2003 and 2010.
- Every year in Ottawa, approximately 63 infants are hospitalized for low birth weight attributed to maternal alcohol use during pregnancy.

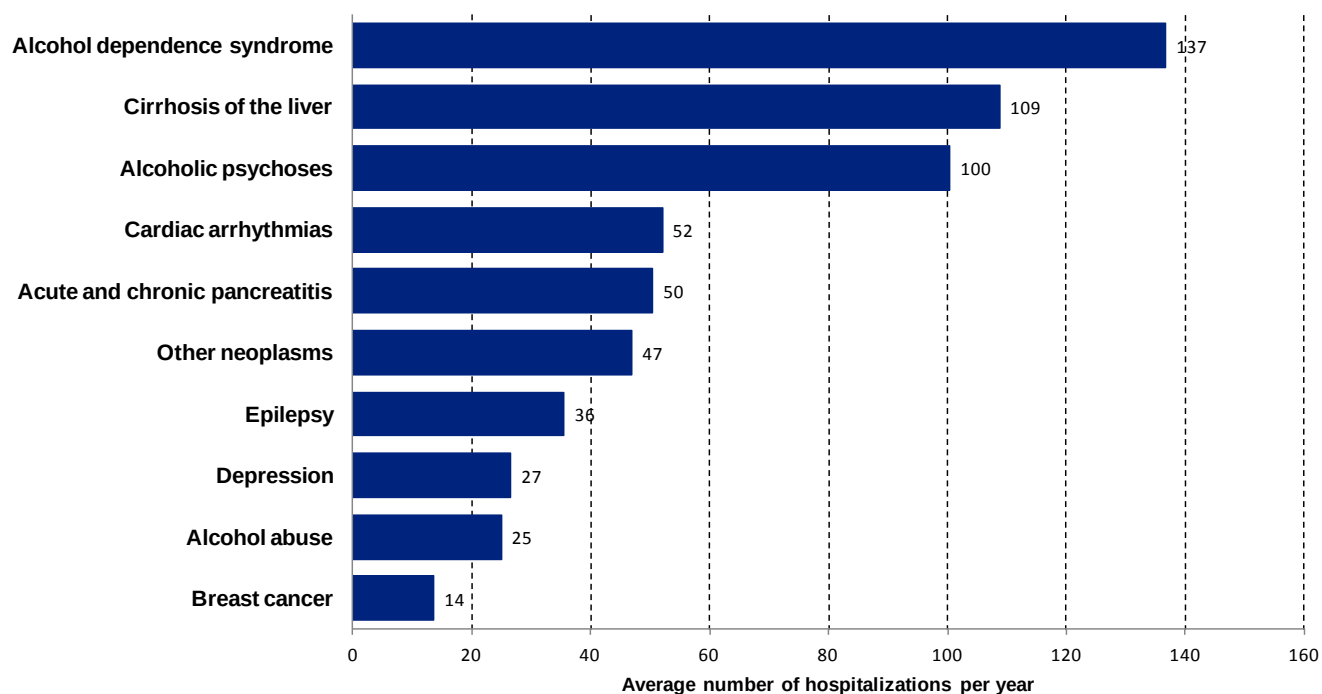
Figure 17. Annual number of hospitalizations attributed to alcohol consumption, Ottawa by sex (age 15 to 69 years), 2008 to 2010 average



Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008 to 2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 25, 2013. Canadian Community Health Survey (2007/08, 2009/10). Ontario Share File. Statistics Canada.

The leading chronic disease and mental health hospitalizations due to alcohol include alcohol dependence syndrome, cirrhosis of the liver, alcoholic psychoses, cardiac arrhythmias and pancreatitis. Other leading causes of alcohol-attributable hospitalization include epilepsy, depression and alcohol abuse. (Figure 18)

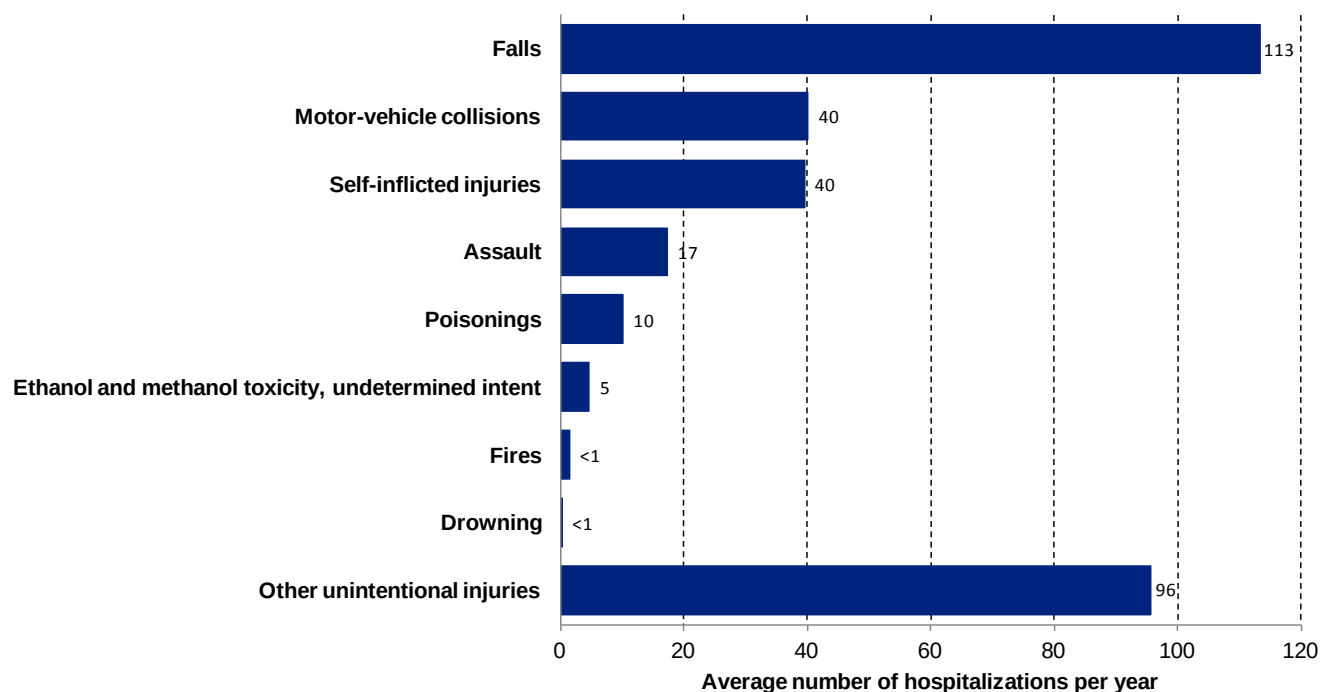
Figure 18. Leading chronic disease and mental health hospitalizations attributed to alcohol consumption, Ottawa (age 15 to 69 years), 2008 to 2010 annual average



Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 25, 2013. Canadian Community Health Survey (2007/08, 2009/10). Ontario Share File. Statistics Canada.

There are an estimated 323 injury-related hospitalizations each year attributable to alcohol among adults aged 15 to 69 years. Most alcohol-attributable injury hospitalizations include falls, followed by motor vehicle traffic collisions and self-inflicted injuries. (Figure 19)

Figure 19. Leading injury hospitalizations attributed to alcohol consumption, Ottawa (Age 15 to 69 years), 2008 to 2010 annual average

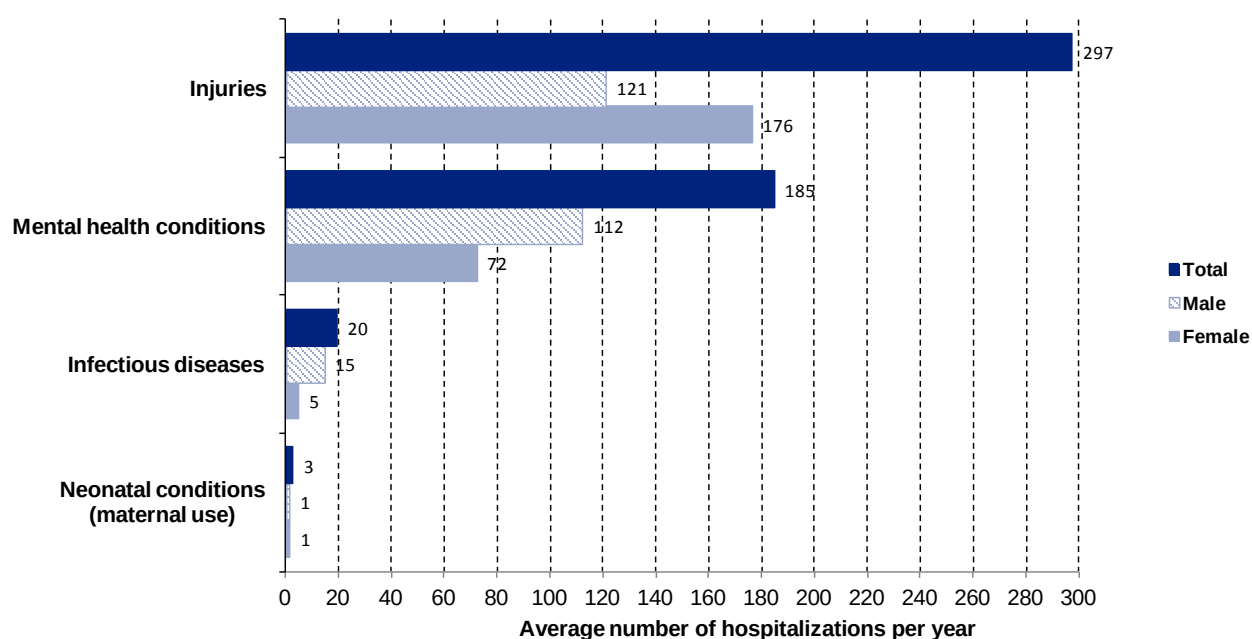


Data source: Ontario Hospitalization Data 2008-2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Canadian Community Health Survey (2007/08, 2009/10). Ontario Share File. Statistics Canada.

Approximately 505 Ottawa residents are hospitalized because of drug use each year

- There are at least 505 acute hospitalizations each year in Ottawa attributable to drug use (2008 to 2010).
- Injuries, the majority of which are adverse effects of therapeutic opioid use and poisonings (ie. overdoses), were the leading type of drug-related hospitalization at 59% (297 hospitalizations).
- Women are more likely to be hospitalized for injuries such as drug overdose than men.
- Mental health conditions such as drug psychoses, drug dependence and alcohol abuse contributed 37% (185 hospitalizations).
- Infectious diseases such as HIV, HCV, and HBV contributed 4% (20 hospitalizations) and neonatal conditions such as low birth weight contributed less than 1% (3 hospitalizations). (Figure 20a)

Figure 20a. Annual number of hospitalizations attributed to drug use, Ottawa by sex (all ages), 2008 to 2010 average

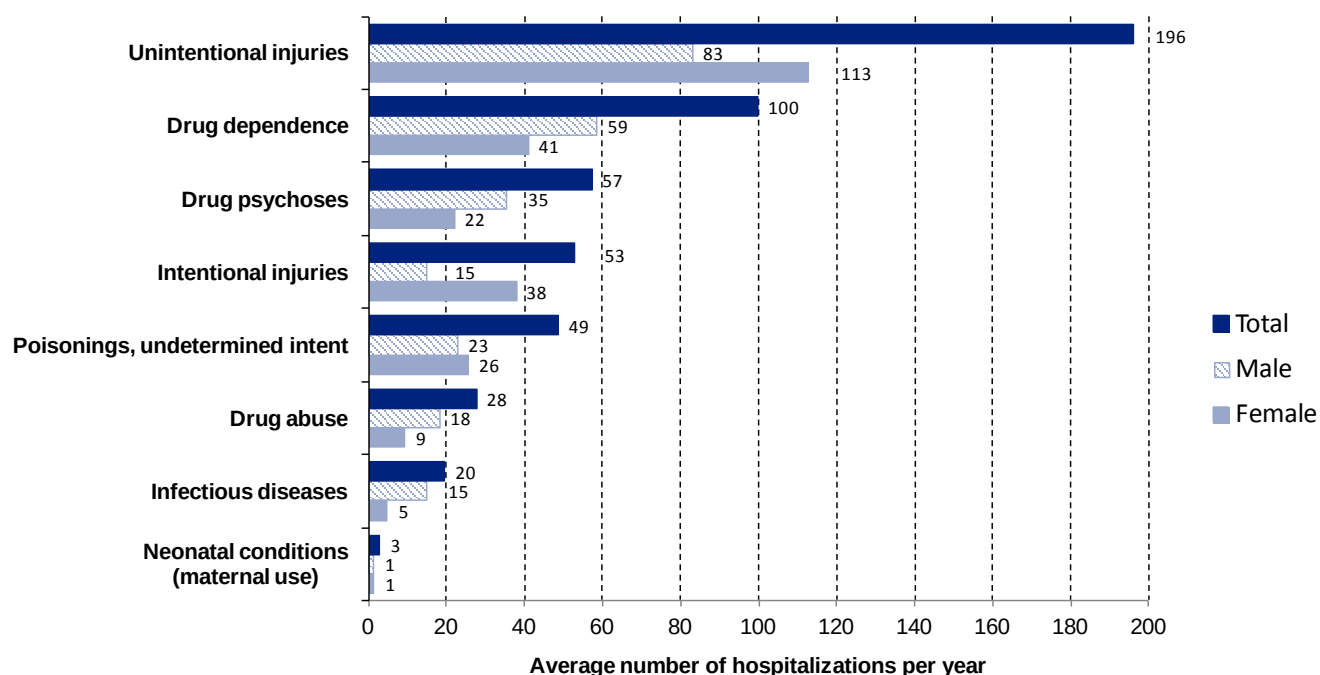


Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 4, 2013.

Data note: Injuries include poisonings due to drug misuse (i.e. overdoses), adverse effects of therapeutic opioid use, and traffic collisions. Mental health conditions include drug psychoses, drug dependence and drug abuse. Infectious diseases include HIV, hepatitis C and B, and infective endocarditis. Neonatal conditions include low birth weight, short gestation, and maternal opiate use.

Unintentional injuries such as adverse effects of therapeutic opioid use and overdoses are the most common type of hospitalization due to drugs, followed by drug dependence and drug psychoses. (Figure 20b)

Figure 20b. Type of hospitalizations attributed to drug use, Ottawa by sex (all ages), 2008 to 2010 annual average

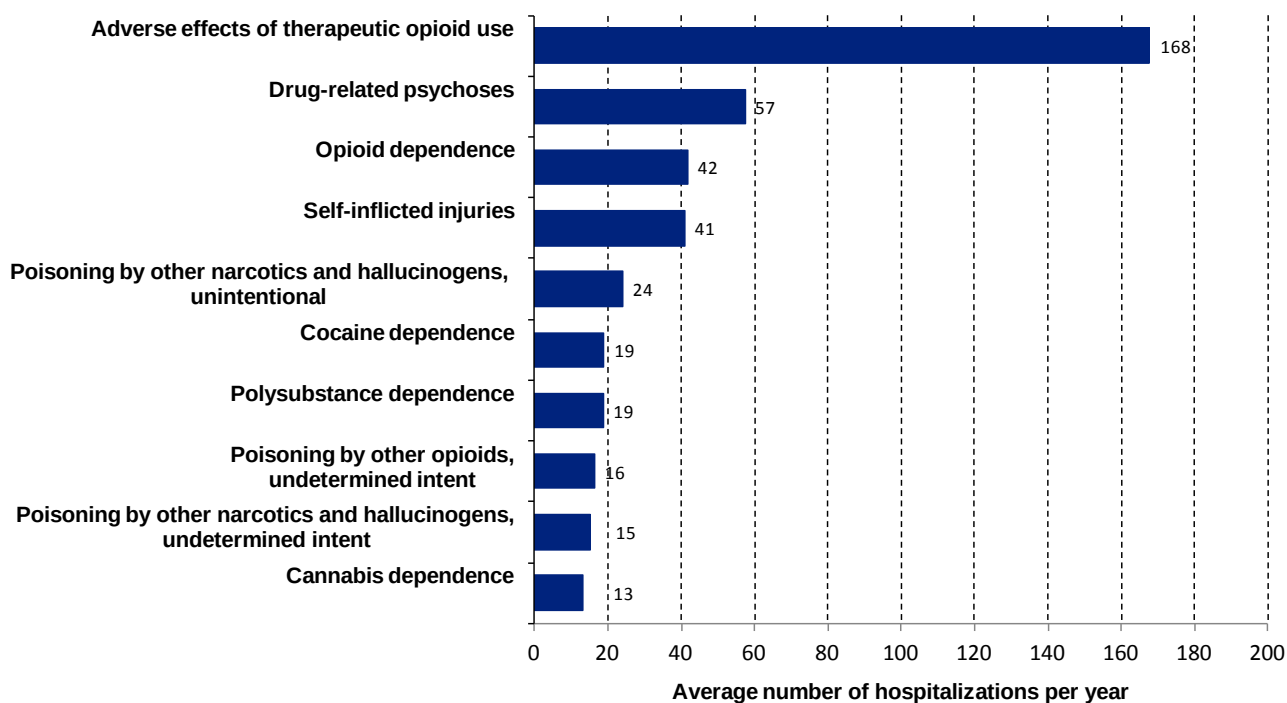


Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 4, 2013.

Data note: Unintentional injuries include adverse effects of therapeutic opioid use, unintentional poisoning due to drug misuse (i.e. overdose) and traffic collisions. Intentional injuries include self-inflicted injuries (e.g. overdose) and assault. Infectious diseases include HIV, hepatitis C and B, and infective endocarditis. Neonatal conditions include low birth weight, short gestation, and maternal opiate use.

The leading drug-attributable hospitalizations include adverse effects of therapeutic opioid use, drug-related psychoses, opioid dependence, self-inflicted injuries (e.g. overdoses), and unintentional poisoning by other narcotics and hallucinogens. Other leading causes include cocaine dependence, polysubstance dependence, poisonings by opioids, narcotics and hallucinogens, and cannabis dependence. (Figure 21)

Figure 21. Top 10 specific causes of hospitalization attributed to drug use, Ottawa, 2008 to 2010 annual average



Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 4, 2013.

Data note: "Poisoning by other opioids" excludes methadone, opium and heroin. Drug-related psychoses could not be broken down by drug.

Rates of hospitalization for drug-attributable mental health conditions and poisoning have remained fairly stable from 2003 to 2010. (Figure 22)

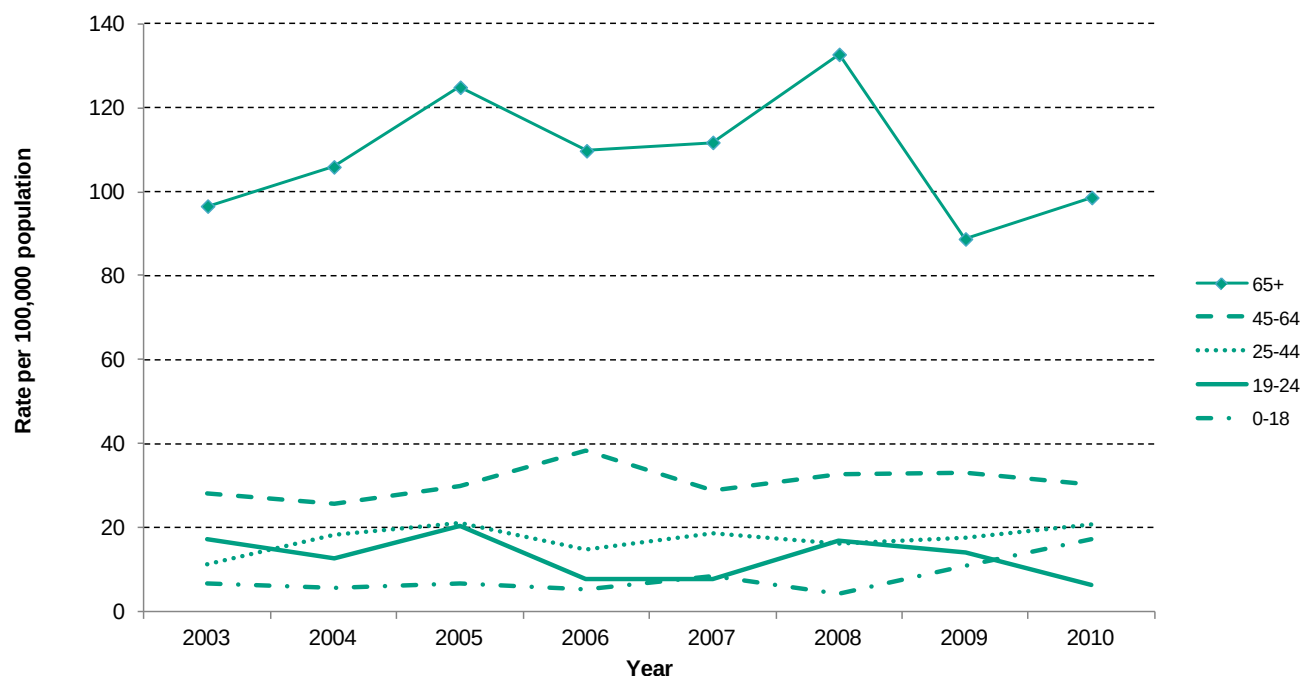
Figure 22. 100% drug-attributable mental health and poisoning age-standardized hospitalization rate, Ottawa, 2003 to 2010



Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 4, 2013.

In Ottawa, people aged 65 years and over have the highest rate of hospitalization for drug poisoning compared to other age groups. The majority of these are from opioids causing adverse effects in therapeutic use. (Figure 23)

Figure 23. Drug poisoning hospitalization rate by age group, Ottawa, 2003 to 2010



Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 4, 2013.

Rates of hospitalization in people 19 to 44 years for drug-attributable mental health conditions such as dependence, abuse and psychoses increased from 2003 to 2005 and have since declined to rates similar to 2003. (Figure 24)

Figure 24. 100% drug-attributable mental health hospitalization rate by age group, Ottawa, 2003 to 2010



Data source: Ontario Hospitalization Data 2008 to 2010, IntelliHEALTH extracted May 30, 2012, Health Planning Branch, Ontario MOHLTC. Adult Mental Health 2008-2010, Ontario Mental Health Reporting System, IntelliHEALTH extracted January 4, 2013.

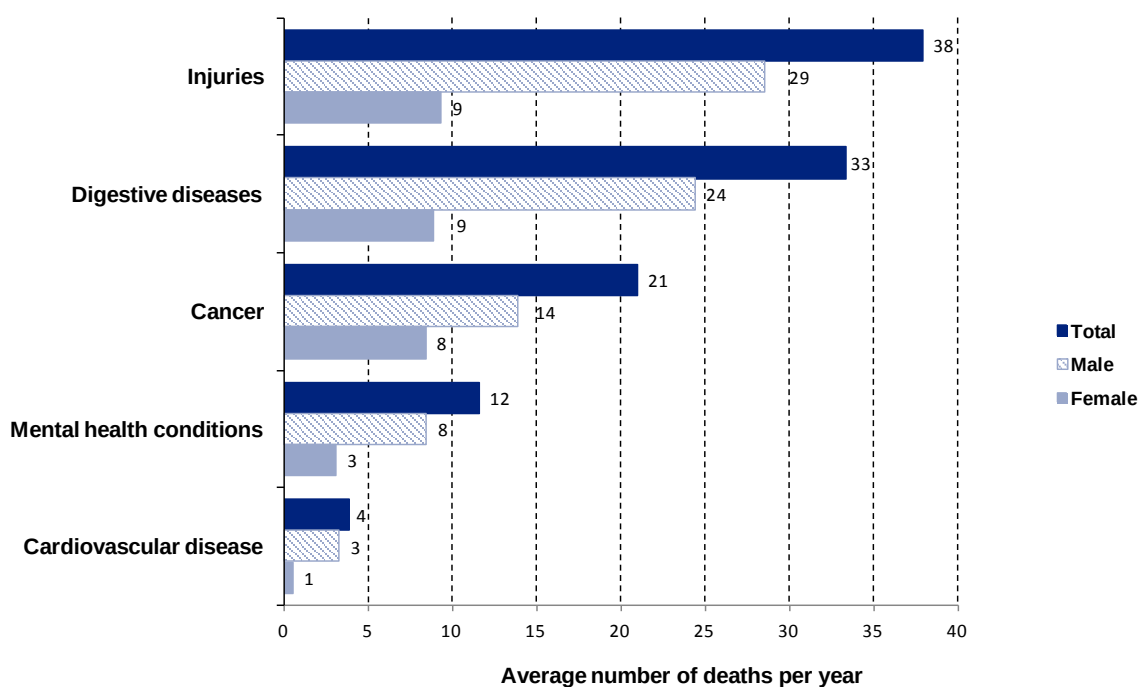
Death Attributable to Substance Misuse

Similar to the AAH and the DAH, alcohol-attributable mortality (AAM) and drug-attributable mortality (DAM) are measures that describe how many deaths (rather than hospitalizations) occur in a population that can be attributed to substance misuse.

An estimated 110 Ottawa residents die because of alcohol consumption every year

- There are approximately 110 deaths each year among Ottawa adults aged 15 to 69 years that are attributable to alcohol consumption. Injuries were the leading cause of alcohol-related deaths at 35% (38 deaths). Digestive diseases, the majority of which are liver cirrhosis contributed to 31% (33 deaths) of alcohol-related deaths; while cancer contributed one-fifth (21 deaths), mental health conditions, including alcohol dependence, psychoses and depression, contributed 11% (12 deaths) and cardiovascular disease 4% (4 deaths) (2005-2009). (Figure 25)
- 1.5% of deaths among Ottawa residents aged 15 to 69 years are attributable to alcohol consumption (2005-2009).

Figure 25. Annual number of deaths attributed to alcohol consumption, Ottawa by sex (age 15 to 69 years), 2005 to 2009 average

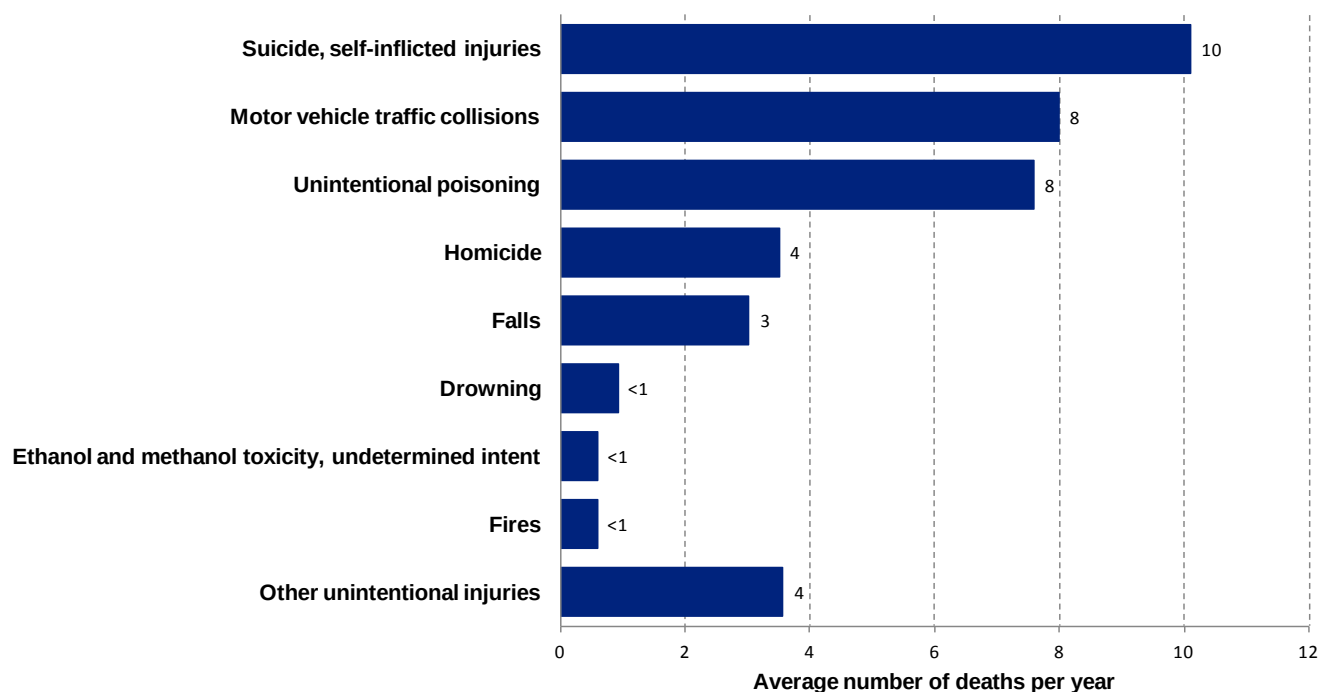


Data source: Ontario Mortality Data 2005 to 2009, IntelliHEALTH extracted Sept 5, 2012, Health Planning Branch, Ontario MOHLTC. Canadian Community Health Survey (2005, 2007/08, 2009). Ontario Share File. Statistics Canada.

Note: Digestive diseases include liver cirrhosis, alcoholic gastritis. Mental health conditions include alcohol dependence, alcoholic psychoses, alcohol abuse and depression.

Of the approximately 38 injury alcohol-related deaths each year among adults 15 to 69 years, the top three types of injury were suicide or self-inflicted harm, motor-vehicle collisions, and unintentional poisonings. (Figure 26)

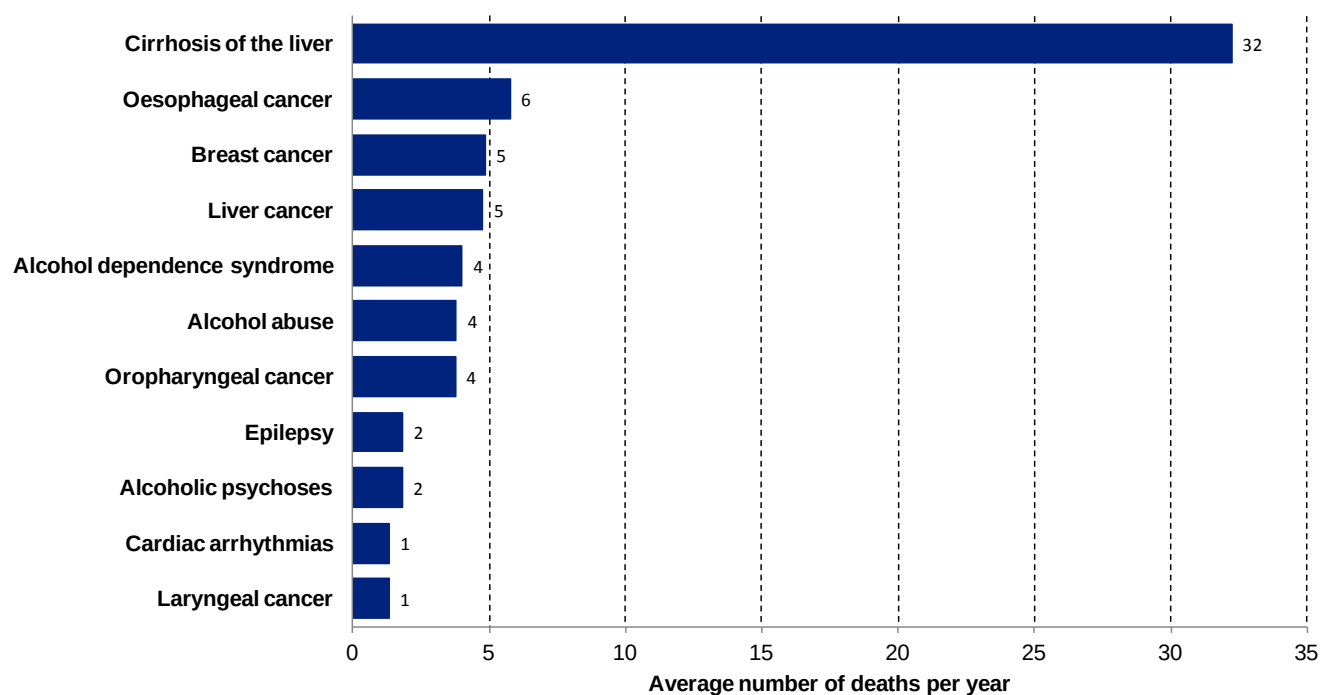
Figure 26. Leading injury deaths attributable to alcohol, Ottawa (age 15 to 69 years), 2005 to 2009 annual average



Data source: Ontario Mortality Data 2005 to 2009, IntelliHEALTH extracted Sept 5, 2012, Health Planning Branch, Ontario MOHLTC.

For chronic and mental health alcohol-related deaths, the leading cause was liver cirrhosis, contributing to approximately 32 deaths per year among adults aged 15 to 69 years. (Figure 27)

Figure 27. Leading chronic and mental health deaths attributable to alcohol, Ottawa (age 15 to 69 years), 2005 to 2009 annual average



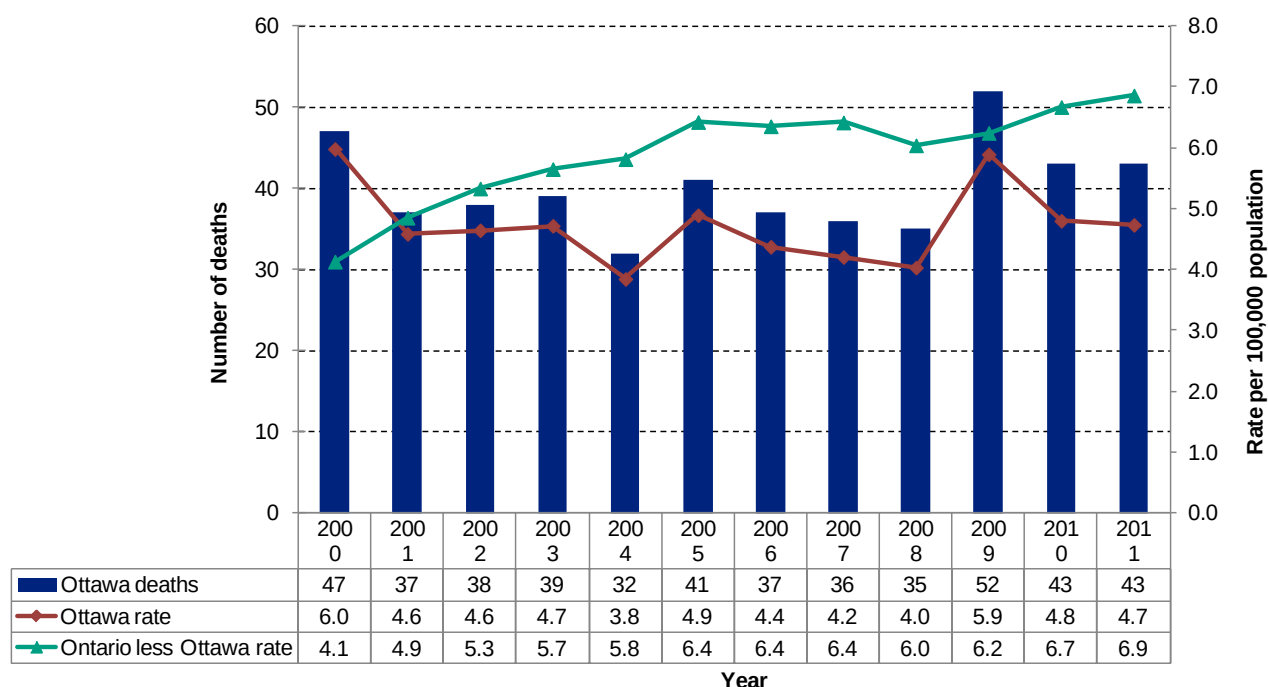
Data source: Ontario Mortality Data 2005 to 2009, IntelliHEALTH extracted Sept 5, 2012, Health Planning Branch, Ontario MOHLTC. Canadian Community Health Survey (2005, 2007/08, 2009). Ontario Share File. Statistics Canada.

Drugs are involved in an average of 48 deaths every year in Ottawa

Of the average 48 deaths reported every year, 35 are attributable to acute toxicity (i.e. overdose) from drugs alone and 5 are attributable to acute toxicity from a combination of drug and alcohol, for a total of 40 drug-related overdose deaths annually. In addition, on average, 8 infectious disease deaths are attributed to drugs annually (2005-2009).³

Since 2002, Ottawa has had a lower rate of death from drug overdose than Ontario. While in Ontario the rate of death due to drug overdose increased by 66% from 2000 to 2011, in Ottawa the rate was fairly stable except for a transient increase in 2009. (Figure 28)

Figure 28. Deaths per 100,000 and number of deaths due to acute drug toxicity by year, Ottawa and Ontario, 2000 to 2011



Data source: Office of the Chief Coroner, extracted [December 12, 2012]. Population data obtained from IntelliHEALTH Ontario, retrieved by Ottawa Public Health 2012/08/09.

Data note: Counts include deaths due to acute drug overdose, including mixed/combined drug overdose, and deaths where both drugs and alcohol are detected.

³ Based on 2005-2009 data from the Office of the Registrar General and drug-attributable fractions from Rehm et al. 2006.

Between 2009 and 2011, there was an average of seven deaths every year involving oxycodone, seven more involving fentanyl, and 5 or less involving methadone. (Table 15) Together, these three opioids were involved in approximately 45% of drug overdoses.

Table 15. Drug overdose deaths involving fentanyl, oxycodone or methadone, Ottawa 2000 to 2011

Year	Fentanyl	Oxycodone	Methadone
2002 to 2007	N/A	0	0
2007	N/A	<5	<5
2008	N/A	5	<5
2009	6	7	<5
2010	10	8	<5
2011	6	5	5

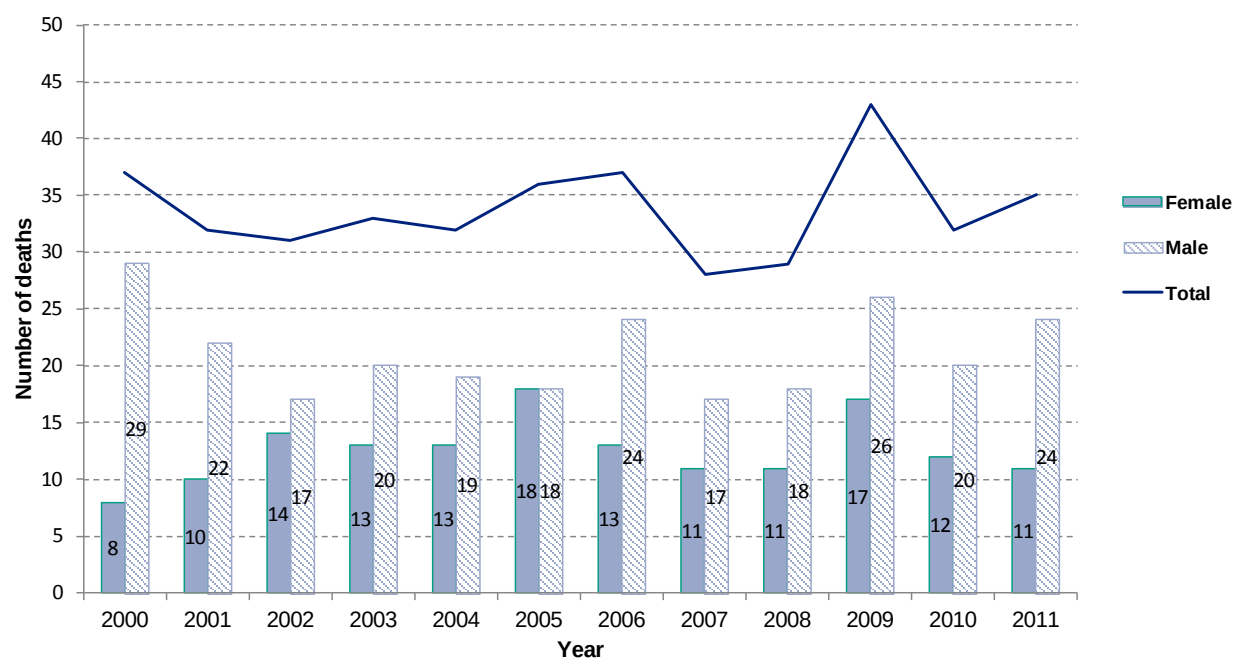
Data source: Office of the Chief Coroner, extracted [December 12, 2012].

Data note: Data on fentanyl involved prior to 2009 is unavailable at the time of publication of this report.

N/A: Not applicable.

In almost every year between 2000 and 2011, more men than women died of drug overdose in Ottawa. (Figure 29) Between 2009 and 2011, two-thirds (64%) of drug overdose deaths occurred among men. This burden in men may be partially attributable to the higher proportion of men than women who misuse drugs.

Figure 29. Deaths due to acute drug toxicity by sex and year, Ottawa, 2000 to 2011

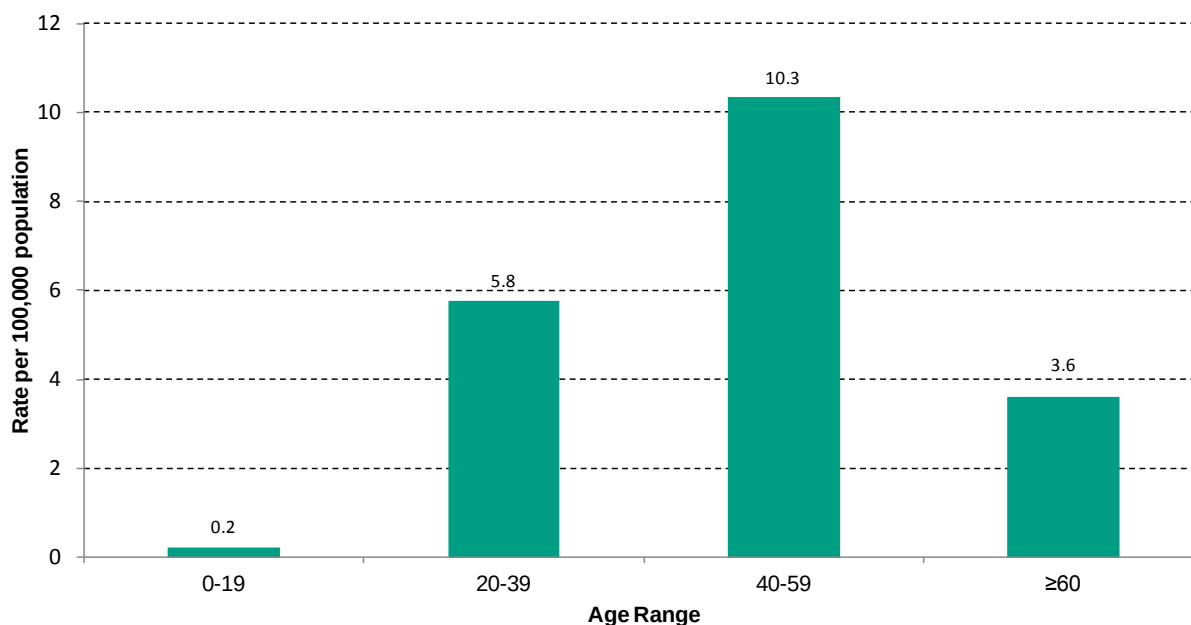


Data source: Office of the Chief Coroner, extracted [December 12, 2012].

Data note: Deaths where both drugs and alcohol are detected are excluded because some data by sex were too sparse to release.

In 2011, the drug overdose death rate was highest among 40-59 year olds in Ontario. (Figure 30) This age group has had the highest drug overdose death rate since 2002, the earliest year for which data are available. Between 2010 and 2011, the drug overdose death rate in 40-59 year olds increased 15% from 9.0 per 100,000 to 10.3 per 100,000, the largest increase among any age group.

Figure 30. Acute drug toxicity deaths per 100,000 by age, Ontario, 2011



Data source: Office of the Chief Coroner, extracted December 12, 2012.

Data note: Excludes deaths where both drugs and alcohol are detected because some data by age group were too sparse to release.

Other health and social outcomes are associated with substance use

Drug use interferes with daily living for at least 6,000 Ottawa residents

For approximately 6,000^{*4} (3003, 9133) adults living in Ottawa, illegal drug use (mainly cannabis) interferes with any one of the following: their home responsibilities, close relationships, social life, school attendance, or their work at a job.

Dependency on drugs is evident among some youth users

In the 2011 ODSUHS, 12.3%^{*} (7.8%, 18.8%) of Ottawa students reported symptoms of a drug use problem, as measured by reporting two or more of the six items on the CRAFFT screener.³⁷ Older students (grades 9 to 12) are more at risk for a drug use problem than grade 7 to 8 students (15.4%^{*}, (9.5%, 24.0%) vs. 4% (3.0%, 5.9%)).

Based on the cannabis Severity of Dependence Scale,³⁸ 3.4%^{*} (2.1%, 5.5%) of Ottawa students in grades 7 through 12 may have a cannabis dependence problem. Among past year cannabis users only, 14.7%^{*} (9.6%, 21.8%) reported symptoms of a cannabis dependence problem.

It is not possible to report on other subgroups because the estimates are unreliable. The CRAFFT questions and the Severity of Dependence questions were only asked of half the students surveyed. The Ottawa estimates are no different from the Ontario estimates.

Many residents seek treatment for substance misuse

- A total of 7,268 (8.0/1,000) Ottawa residents were treated for substance misuse in FY 2011/12. This number is down from 7,704 (9.0/1,000) in FY 2007/08. Many clients are male and young. (Table 16)
- There were substantial wait times during FY 2011/12 for initial assessment and treatment planning for females (median, 16.0 days (range 0, 340)) and for residential treatment services for males (median 10.5 days (range 0, 75)) and for females (median 7.0 days (range 0, 83)).⁵

Table 16. Characteristics of clients seeking substance misuse treatment, Ottawa, FY 2007/08 to FY 2011/2012

Subgroup	Findings
Sex	Overall, 61.7% of clients were male.
Age	The fraction of clients 16-24 years of age increased from 21.5% in FY 2007/08 to 24.8% in FY 2011/12.
Injection drug use	A total of 621 FY 2011/12 clients used injection drugs in the past year, a decline from 773 in FY 2007/08.
Opioid replacement therapy	In FY 2011/12, 2.6% of clients received opioid replacement therapy, including methadone.

Data source: Drug and Alcohol Treatment Information System (DATIS) Central Database, provided January 25, 2013.

Data note: Open admissions include all new and carryover from previous fiscal years. Admissions include many substance misuse services, including but not limited to initial assessment/treatment planning and community- and residential-based treatment services.

^{*} Interpret with caution due to high sampling variability.

⁴ (CCHS, 2009/2010)

⁵ Wait times were calculated based on data from 28 of the 75 agencies that provided substance abuse treatment to Ottawa residents. Therefore, the wait times reported here may not be representative.

A very small proportion of students seek alcohol and other drug treatment

In 2011, 0.9% (0.6%, 1.3%) of Ontario students reported that they had received substance misuse treatment during the 12 months before the survey. The estimate for Ottawa students is unreliable and cannot be reported.

One in five Ottawa youth engages in hazardous or harmful drinking

Hazardous or harmful drinking puts young people at risk for current or future physical and social problems. The OSDUHS assessed the extent of hazardous or harmful drinking among students using the Alcohol Use Disorders Identification Test (AUDIT), a screening questionnaire developed by the World Health Organization to measure heavy drinking and alcohol-related problems.³⁹

In 2011, 19.6% (15.0%, 25.1%) of Ottawa students reported drinking at levels that AUDIT identified as hazardous or harmful. Among students in grades 9 to 12, 24.6% (19.0%, 31.2%) reported drinking at a hazardous or harmful level. The estimate for students in grades 7 to 8 is unreliable and cannot be reported. There was no difference between 2009 and 2011, between girls and boys, or between Ottawa and Ontario.

About 19.0%* (13.5%, 26.0%) of Ottawa secondary students reported being injured or injuring someone as a result of their drinking in the 12 months before the survey.

One in five high school students has been intoxicated at school

About 19.4%* (13.0%, 27.9%) of Ottawa high school students reported that they had been intoxicated (drunk or high) at school at least once during the past year. There was no difference between 2009 and 2011, between girls and boys, or between Ottawa and Ontario.

Infection with a communicable disease is a risk for people who misuse substances

People who inject drugs, smoke crack, or consume alcohol are at risk of contracting a blood-borne or sexually-transmitted infection such as HIV, hepatitis B and hepatitis C. People who use injection drugs are at risk of through the sharing of needles and other injecting equipment.⁴⁰ Transmission while smoking crack is facilitated by oral sores, cuts or burns on the lips and mouth of users and sharing of smoking implements.⁴¹⁻⁴³ Impairment of judgement from consuming drugs or alcohol is associated with high-risk sexual behaviour, which puts one at risk for a sexually-transmitted infection.^{3,44,45}

* Interpret with caution due to high sampling variability.

Table 17. Sex under the influence of drugs or alcohol among persons diagnosed with chlamydia or HIV, Ottawa 2007 to 2011 average

Indicator	Persons diagnosed with Chlamydia	Persons diagnosed with HIV
Overall percent among cases	11.6% (10.9%, 12.3%) had sex under the influence of drugs or alcohol.	30.1% (25.2%, 35.3%) had sex under the influence of drugs or alcohol.
Sex	Males are about twice as likely as females to report having sex under the influence of drugs or alcohol.	
Age	15-24 year-olds are more likely to have sex under the influence of drugs or alcohol than other age groups.	
Street-involved youth, 2009	86.7% (59.5%, 98.3%) reported having sex under the influence of alcohol or drugs	33.3% (0.8%, 90.6%) reported having sex under the influence of alcohol or drugs

Data sources: Integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, February 8, 2013. Enhanced Street Youth Surveillance 2009, extracted by Public Health Agency of Canada and Ottawa Public Health May 9, 2012.

Data note: Risk factor information is available for 8,307 (80.5%) of the 10,322 cases of chlamydia and 336 (90.1%) of the 373 diagnosed cases of HIV reported to Ottawa Public Health during 2007 to 2011.

Blood-borne infections are prevalent among people who inject drugs

Table 18. Prevalence of HIV and HCV among injection drug users, Ottawa 2011

Infection	Prevalence
HIV	12.6%
HCV	72.6%

Data source: HIV & Hepatitis C Prevention Research Team, University of Ottawa⁴⁶

- HIV prevalence in the I-Track sites of Halifax, Kingston, Regina, Sudbury, Toronto, and Thunder Bay combined during 2010-2011 was 5.6% (4.3 – 7.2%).⁴⁷

Table 19. Summary of injection and non-injection drug use among HIV and HCV cases, Ottawa 2007 to 2011

Indicator	HIV	HCV
Cases reporting injection or non-injection drug use	58 (17.3% (13.4%, 21.7%)) of 336 HIV cases with known risk factors (Figure 31) There is indication of a decline in the proportion of cases using drugs; however, this trend is not statistically significant.	89 (78.8% (70.1%, 85.9%)) of 113 acute HCV cases used in 6 months prior to diagnosis (Figure 32) (EHSSS). The proportion using drugs fluctuated but is similar in 2007 and 2011.
Sharing of drug equipment among cases who report using injection or non-injection drugs	Declined from 93.8% (69.8%, 99.8%) to 44.4% (13.7%, 78.8%) in 2011 (Figure 33)	Remained steady at an average of 89.7% (81.9%, 94.9%)

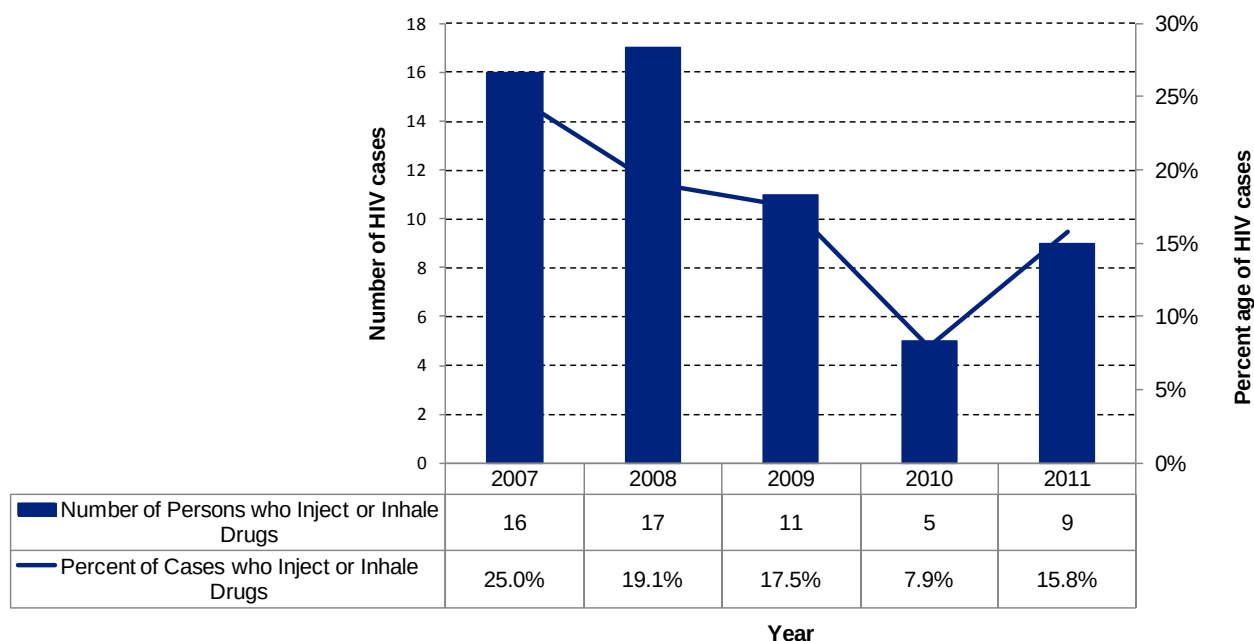
Data sources: HIV: integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, February 8, 2013 HCV: Enhanced Hepatitis Strain Surveillance System (EHSSS), extracted by Public Health Agency of Canada May 9, 2012.

Data note: Risk factor information is available for 336 (90.1%) of the 373 diagnosed cases of HIV during 2007 – 2011.

- During the years 2005 to 2009 a higher fraction of HIV cases reported injection or non-injection drug use in Ottawa 17.1% (13.4%, 21.7%) than in the rest of Ontario (8.6% (7.9%, 9.5%)).⁶

⁶ Ottawa: integrated Public Health Surveillance System, extracted by Ottawa Public Health, February 8, 2013. Ontario: iPHIS, 2007 to 2010 data extracted January 5, 2012, 2011 data extracted July 23, 2012 by Ministry of Health and Long-Term Care (MOHLTC).

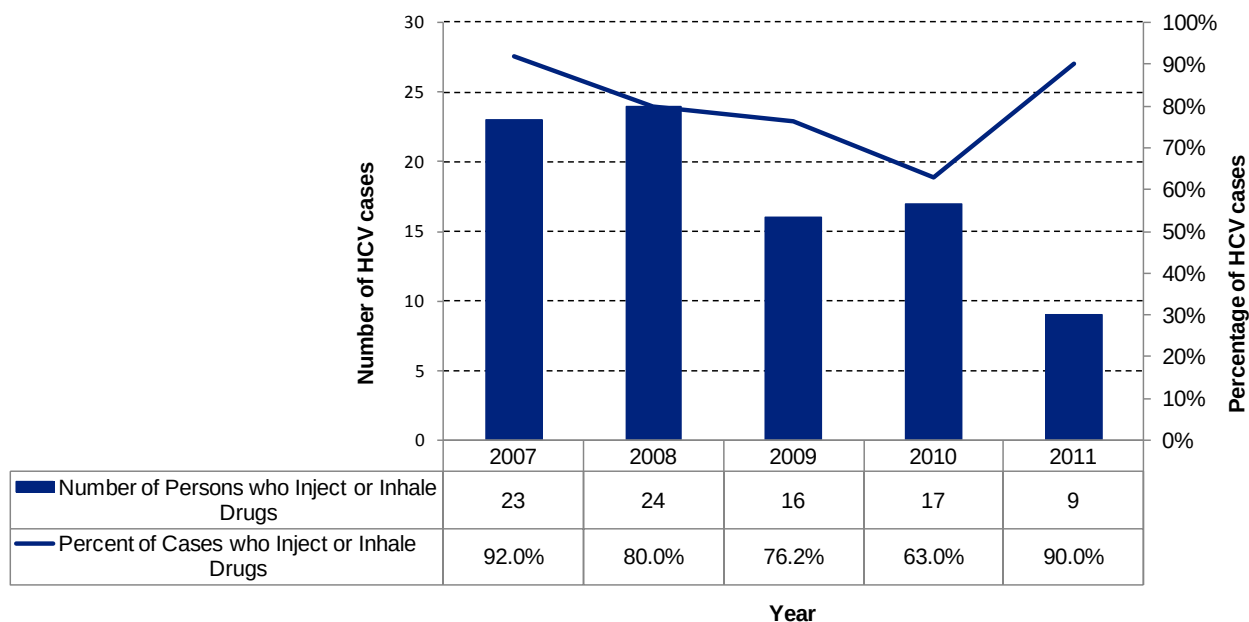
Figure 31. Number and percent of reported HIV cases who injected or inhaled drugs (excluding cannabis), Ottawa 2007 to 2011 (n=336)



Data source: Integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, February 8, 2013.

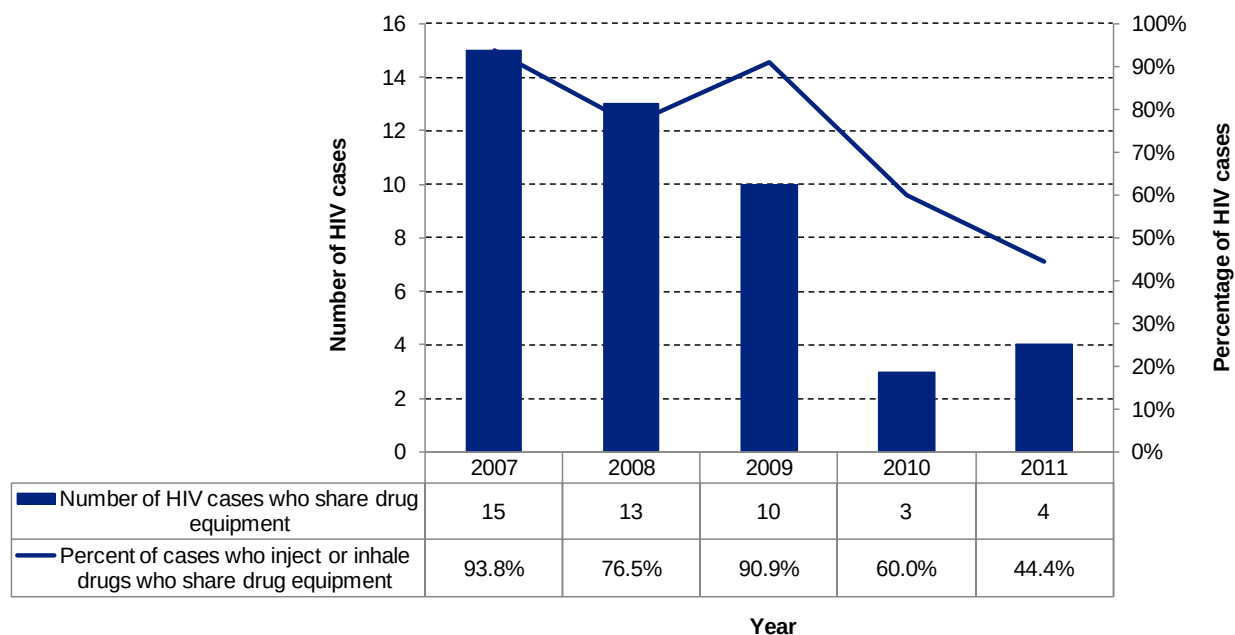
Data note: Risk factor information is available for 336 (90.1%) of the 373 diagnosed cases of HIV during 2007 to 2011.

Figure 32. Number and percent of acute HCV cases who injected or inhaled drugs (excluding cannabis) in the 6 months prior to diagnosis, Ottawa 2007 to 2011 (n=113)



Data source: Enhanced Hepatitis Strain Surveillance System (EHSSS), extracted by Public Health Agency of Canada May 9, 2012

Figure 33. Number and percent of reported HIV cases who inject or inhale drugs (excluding cannabis) who share drug-using equipment, Ottawa 2007 to 2011



Data source: integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, February 8, 2013

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