



# **Problematic Substance Use in Ottawa**

## **Technical Report**

June 2016

REVISED pursuant to Motion 10/05, adopted by the Ottawa Board of Health on June 20, 2016

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## Acknowledgements

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Many individuals contributed to the successful production of this report. We would like to thank:

Warren Bedford, Parks, Recreation and Cultural Services, for point density maps

Anne Bouillon, Ottawa Public Health, for French content review

Muy Labrecque, Ottawa Public Health, for general formatting

### **Special thanks to the following external peer reviewers who contributed their technical expertise and review:**

Jayne Caldwell, Policy Analyst, Toronto Drug Strategy Secretariat, Toronto Public Health

Joseph Eibl, PhD, Research Fellow, Institute for Clinical Evaluative Science, Mental Health and Addictions Research Program. Northern Ontario School of Medicine

Paul Lavigne, Tamatha Trenholm, and Shelley Vanbuskirk, Housing Services Branch, City of Ottawa

Rod Olfert, Senior Integration Specialist, Champlain Local Health Integration Network

Andrew Stephen, Information Management Lead, Office of the Chief Coroner for Ontario

The student substance use data in this publication came from the Public Health Monitoring of Risk Factors in Ontario-OSDUHS Study conducted by 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. Problematic Substance Use in Ottawa: Technical Report. June 2016. Ottawa (ON): Ottawa Public Health; 2016.

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## Introduction

Problematic substance use is the harmful use of any substance including alcohol, tobacco, illicit drugs<sup>1</sup>, over-the-counter drugs and prescription drugs. Problematic substance use can impact individuals, families, and the community through associated mental illness and addiction; infectious diseases such as HIV and hepatitis C; chronic diseases such as cancer and cardiovascular disease; and injury due to violence, self-harm, suicide, and unintentional injuries.

Problematic alcohol use is more prevalent than the misuse of illicit drugs or prescription opioid pain relievers among Ottawa residents, and alcohol also causes a greater burden of illness and deaths than these drugs (Substance Misuse in Ottawa, 2013). However, misuse of some illicit 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.

In Ottawa, a range of programs and services are designed to meet individual needs along the spectrum of substance use. This includes prevention programs that prevent or intervene early in an individual's use, and treatment and harm reduction services that prevent injury, disease and death for people who use drugs. Increases in drug overdose deaths in other regions in Canada, and discussion in Ottawa about how to approach substance use, prompted us to explore the epidemiology of problematic use of illicit and opioid prescription drugs in Ottawa. A companion report (Enhanced Harm Reduction Services in Ottawa, June 2016) explores further the context and significance of the findings of this report.

This report focuses on the prevalence of use, and the associated morbidity and mortality from the problematic use of illicit drugs, excluding cannabis, and of opioid prescription drugs used for non-medical purposes. It provides evidence to inform a dialogue in our community about enhancing treatment and harm reduction services. The report describes 1) the prevalence of drug use; 2) drug-related morbidity (ER visits for unintentional overdoses and mental health conditions); 3) drug-related mortality (unintentional overdose deaths); 4) injection drug use; 5) the location of drug use, and 6) problematic substance use treatment and harm reduction and outcomes.

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<sup>1</sup> e.g., cocaine, crack, ecstasy, heroin, crystal methamphetamine

## Executive Summary

Misuse of some illicit drugs and prescription opioid pain relievers carries a high risk of death or hospitalization. An estimated 23,600 – 46,900 individuals in Ottawa use illicit drugs (excluding cannabis) or opioids taken for non-medical purposes.

Since 2009, both drug-related emergency room (ER) visits and unintentional opioid overdose deaths have increased in Ottawa. There were approximately 1,750 drug-related ER visits (2015) and 36 unintentional overdose deaths (2014) in Ottawa. Two-thirds of the unintentional overdose deaths were due to opioids such as fentanyl and oxycodone.

An estimated 1,200 – 5,600 people in Ottawa inject drugs. Among those who inject, 10% are infected with HIV, 70% are infected with hepatitis C, and 44% inject in public places. Seventy-four percent of people who inject drugs would use supervised injection services were they available.

Drug activity is concentrated in the downtown core. This is demonstrated through a number of measures: calls to mobile drug-related services (e.g., paramedic drug overdose and Needle & Syringe van service calls); the home residence of people visiting the ER with drug-related conditions or reporting injection drug use following diagnosis with a bloodborne infection; and the location of emergency shelters, in which 73% of those with stays longer than 30 days misuse drugs or alcohol.

Approximately 8,600 Ottawa residents received treatment for substance misuse during fiscal year 2014/15. The wait time for most services was short (the longest average wait time was 16 days); however, for some services, some individuals had very long wait times.

Demonstrable positive outcomes from treatment and harm reduction services in Ottawa include a 75% reduction in drug use by students enrolled in the School-based Substance Abuse Program, 60 lives saved since 2012 from the naloxone peer overdose prevention program, and 39% retention in first-time opioid replacement therapy.

# Summary of Findings

## Prevalence of drug use

- An estimated 23,600 – 46,900 individuals in Ottawa have used illicit drugs (excluding cannabis) or opioids taken for non-medical purposes in the past 12 months.
- Included in the above estimate of individuals who use illicit drugs are between 1,200 and 5,600 people in Ottawa estimated in 2008 to inject illicit drugs.
- There are approximately 71,000 opioid users in Ottawa, a portion of whom use opioids for non-medical purposes. The opioid prescribing rate in Ottawa increased between 2006-2010 and 2011-2013.

## Drug-related morbidity

- Drug-related emergency room (ER) visits are increasing.
  - The number of ER visits related to unintentional drug overdose increased in Ottawa by 77% from 2009 to 2015. In 2015, there were 205 such visits.
  - Over the same time, ER visits due to drug-related mental health conditions increased 38% to 1,550 such visits in 2015.
- More males than females present to the ER for drug-related issues, and young adults aged 20-24 have the highest rates.
  - During 2013-2015, 56% (n=333/592) of drug overdose ER visits were among males and 61% (n= 2,559/4,175) of drug-related mental health ER visits were among males.
  - There were an annual average of 75 drug-related ER visits among 15-19 year olds and 116 among 20-24 year olds.
- During 2011-2014, 11% of HIV infections and 48% of hepatitis C infections diagnosed in Ottawa were in people who inject drugs.
- Among people who inject drugs in Ottawa, the prevalence of HIV and hepatitis C is approximately 10% and 70%, respectively. The prevalence has been relatively stable since 2003.

## Drug-related mortality

- On average, 33 Ottawa residents died from unintentional drug overdose annually (2010-2014), representing 72% of the 46 total drug overdose deaths. Two-thirds (22 per year) were due to opioids.
- The number of overdoses due to *injection* drug use cannot be reliably estimated.<sup>2</sup>
- Since 2001, Ottawa has had a lower rate of death from unintentional drug overdose than the rest of Ontario.
- In Ontario, the rate of death due to drug overdose from any drug increased 124% during 2000 – 2014.

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<sup>2</sup> Personal communication. Andrew Stephen (Information Management Lead, Office of the Chief Coroner for Ontario) and Louise McNaughton-Filion (Regional Supervising Coroner for Ottawa Region). April 14, 2016.

- Unintentional opioid overdose deaths have increased in Ottawa. Unintentional overdose deaths due to opioids were 2.5 times higher during 2009 – 2014 (23 per year) compared to 2003-2008 (9 per year), while unintentional overdose deaths due to non-opioids have remained steady.
- An average of 2.3 times more men than women die of unintentional drug overdose (2010-2014).
- About 91% (20 per year) of unintentional opioid overdose deaths in Ottawa occurred among adults aged 20 to 59 (2010-2014).

### **Injection drug use patterns in 2013**

- 44% of people who use drugs by injection inject in public places.
- 59% of people who use drugs by injection inject daily.
- 74% reported that they would use supervised injection services (SIS).
- Most people who use drugs by injection also use non-injection drugs.

### **Location of individuals who use drugs and of drug use**

- In 2015, paramedic responses to drug overdoses were concentrated in the downtown core of Ottawa, but with some responses in most wards.
- The OPH SITE Needle & Syringe Program (NSP) mobile van visits wards where the need is greatest and has a phone number that clients can call to request a visit. Most requests came from neighbourhoods in the Rideau-Vanier ward. Between 2013-2015, Rideau-Vanier and Somerset wards also had the highest counts and rates of both drug overdose and drug-related mental health ER visits. Rideau-Vanier ward had a rate of drug overdose ER visits more than double (2.1 times) the next highest ward and a rate of drug-related mental health ER visits 1.6 times higher.
- Most people who inject drugs and have a diagnosed bloodborne infection live in the downtown core of Ottawa.
- In a 2014 study of people who inject drugs in Ottawa, many lived in an emergency shelter or other person's home.
- Among those using an emergency shelter for more than 30 days, approximately 3 in 4 reported drug or alcohol use affecting their health and daily functioning.

### **Problematic substance use treatment and harm reduction and outcomes**

- Approximately 8,600 Ottawa residents received treatment for substance misuse during fiscal year 2014/15. The wait time for most services was short; however, for some services, some individuals had very long wait times. The average wait time was longest (16 days) for initial assessment treatment planning.
- There are approximately 160 treatment and harm reduction program sites located throughout Ottawa and concentrated downtown.
- Demonstrable positive outcomes from treatment and harm reduction services in Ottawa include a 75% reduction in drug use by students enrolled in the School-based Substance Abuse Program, 60 lives saved since 2012 from the naloxone peer overdose prevention program, and 39% retention in first-time opioid replacement therapy. A total of 12 fatal overdoses and 35 HIV infections were prevented annually by Vancouver's InSite, the only supervised injection services in Canada.

## Prevalence of problematic substance use

As shown in Table 1, alcohol, tobacco and cannabis are the most frequently used drugs by adults. When surveyed, almost a third of adults exceeded the low risk alcohol drinking guidelines, 9% were current smokers, 13% had used cannabis more than once, and 2% had used prescription opioids for non-medical purposes in the past year. Among Ottawa students, 47% drank alcohol in the past year, 24% had used cannabis, 13% had used prescription opioids for non-medical purposes in the past year, and 9% were current smokers.

Based on the most recent information available, an estimated 23,600 - 46,900 people in Ottawa use illicit drugs (excluding cannabis) or opioids taken for non-medical purposes. To estimate the number of people in Ottawa who use illicit drugs (excluding cannabis) or opioids taken for non-medical purposes, we combined Ottawa survey estimates for the number of adults and youth who report using these drugs and the number of people that studies estimate use injection drugs (see Table 1 for details). The use of other illicit drugs and non-medical use of opioids is lower than that of alcohol, tobacco, and cannabis, but important given the higher potential for overdose and infectious diseases. Furthermore, approximately 71,085 people in Ottawa (2011-2013) have prescriptions for opioids (Ontario Drug Policy Research Network), putting them at risk of addiction and misuse if not properly managed.

The lower range of the estimate of people in Ottawa who use illicit drugs (excluding cannabis) or opioids taken for non-medical purposes is based on the highest number of adult and youth users for any single substance in Table 1, which is the total of people who use opioids for non-medical purposes (adults, 14,700; plus youth, 8,900). This is the most conservative estimate because it assumes that all people who use illicit drugs (excluding cannabis) or injection drugs are included among the people who use opioids for non-medical purposes.

The higher range is based on the highest possible estimate of the total number of users of illicit drugs and assumes that people who use illicit drugs, excluding cannabis (adults, 13,100; plus youth, 4,600); injection drugs (5,600); and opioids taken for non-medical purposes (adults, 14,700; plus youth, 8,900) are distinct and can be combined.

**Table 1: Estimate of the number of users of selected substances, Ottawa**

Substance	Indicator	Percent	Number	Source
Alcohol	Adult 19+ (exceeds low risk drinking guidelines in past 12 months)	32.2%	219,800	CCHS 2011-2012
Alcohol	Adult 19+ (binge drinks more than 1 per month in past 12 months)	22.9%	156,800	CCHS 2011-2012
Alcohol	Youth grades 7 to 12	47.2%	33,200	PMO-OSDUHS 2013
Tobacco	Adults 19+	9.0%	67,500	RRFSS 2014
Tobacco	Youth grades 7 to 12	9.1%	6,400	PMO-OSDUHS 2013
Cannabis	Adults 18+ (more than one use in past 12 months)	13.3%	95,300	CCHS 2011-2012
Cannabis	Youth grades 7-12 (at least once in past 12 months)	23.6%	16,600	PMO-OSDUHS 2013
Opioid prescriptions	65+	Not available	47,840	ODPRN, 2016
Opioid prescriptions	15-64	Not available	23,245	ODPRN, 2016
Illicit drugs (excluding cannabis)	Adults 18+ (use in past 12 months)	1.9%	13,100	CCHS 2011-2012
Illicit drugs (excluding cannabis)	Youth grades 9-12 (use in past 12 months)	9.1%	4,600	PMO-OSDUHS 2013
Opioids non-medical use	Adults 18+ (use in past 12 months)	2.0%	14,700	CAMH Monitor*, 2010-2013
Opioids non-medical use	Youth grades 7-12	12.6%	8,900	PMO-OSDUHS 2013
Injection illicit drug use	Adults and youth	Not available	1,200 to 5,600	TOSCA <sup>†</sup>
Injection illicit drug use	Youth (street-involved)	12%	Not available	Enhanced Street Youth Surveillance

Substance	Indicator	Percent	Number	Source
Lower range of the number of people who use illicit drugs (excluding cannabis) or opioids for non	Adult or youth use of non-medical use of opioids		14,700 + 8,900 = 23,600	
Upper range of the number of people who use illicit drugs (excluding cannabis) or opioids for non	Illicit drugs (excluding cannabis) for adults or youth plus adult or non-medical use of opioids plus upper limit of injection of illicit drugs		13,100 + 4,600 + 14,700 + 8,900 + 5,600 = 46,900	

#### Data sources:

Canadian Community Health Survey (CCHS), 2011/12. Ontario Share File. Statistics Canada.

PMO-OSDUHS (2013), Centre for Addiction and Mental Health (CAMH).

Rapid Risk Factor Surveillance System 2014 Extracted May 12, 2015.

Ontario Drug Policy Research Network (ODPRN), 2016.

CAMH Monitor, 2010-2013.

Toronto and Ottawa Supervised Consumption Assessment (TOSCA) study, 2012

Enhanced Street Youth Surveillance, 2009

#### Data notes:

CCHS 2011/12 was chosen as a data source for alcohol use because it is contemporaneous with the illicit drug use data.

\*The Ottawa estimate from the CAMH Monitor was calculated indirectly based on the percent for the Champlain LHIN.

†The range in the number of people who inject drugs in 2008 was derived in the TOSCA study using available estimates of HIV incidence in Ottawa (derived by the Ontario HIV Epidemiologic Monitoring Unit (OHEMU)), the number of HIV-positive individuals who inject drugs in the Champlain Local Health Integration Network (derived by OHEMU), and the prevalence of HIV among people who use drugs in Ottawa (derived by 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.

## Drug-related morbidity

When assessing the impact of problematic substance use, it is important to consider the associated morbidity. One measure of morbidity is drug-related emergency room (ER) visits, due to overdose or to mental and behavioural conditions such as dependence or withdrawal. ER visits may underestimate the impact of problematic substance use, however, because an estimated four individuals engage in problematic substance use for every ER visit (U.S. Centers for Disease Control and Prevention, 2011)

This section of the report describes the burden of drug overdose ER visits and its distribution by age and sex. It also describes the burden of drug-related mental health and behavioural ER visits. The focus is on unintentional,<sup>3</sup> as opposed to intentional, drug overdoses, as they benefit from different harm reduction strategies. While not presented in this report, intentional overdoses are addressed within OPH's strategic direction to foster mental health 2015-2018 (Ottawa Public Health's Plan to Foster Mental Health in Our Community 2015-2018, June 2016).

The residential location of people who present to the ER for drug-related causes is presented later in the report, under Location of individuals who use drugs and of drug use.

### Emergency room visits due to drug overdose

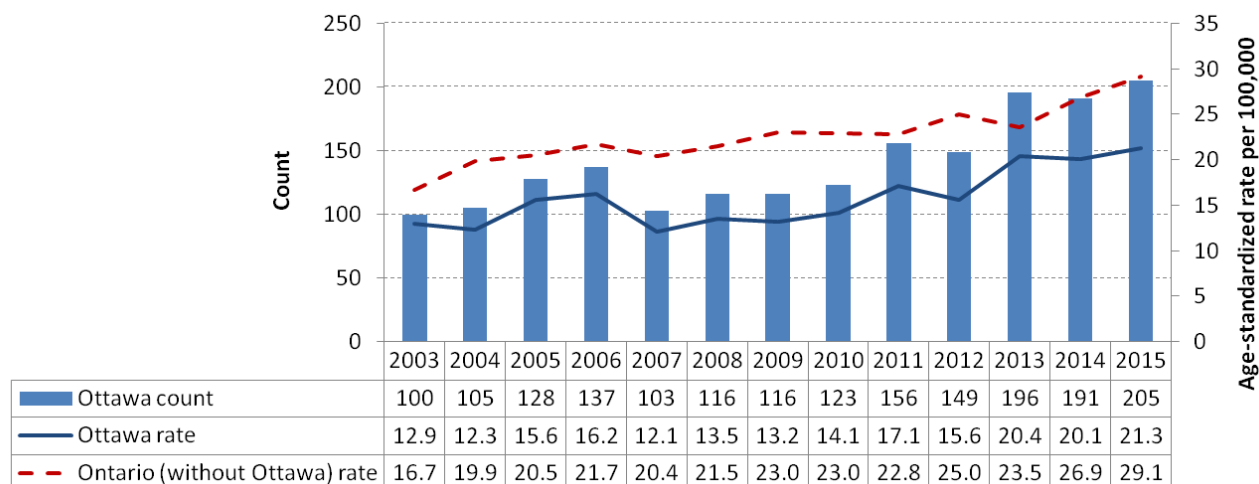
Emergency room visits due to unintentional drug overdose include unplanned visits to the emergency department in which the physician deems the diagnosis upon discharge from the emergency room to be poisoning due to narcotics or psychodysleptics, or psychostimulants with abuse potential. This includes drugs such as opium, heroin, other opioids (e.g. codeine, morphine, fentanyl, oxycodone), methadone, cocaine, LSD, amphetamines, ecstasy (MDMA). These data exclude drug overdoses due exclusively to alcohol, tobacco or cannabis. Although we cannot determine whether the ER visits were due to drug use via injection versus non-injection, the drugs most often involved (opioids, amphetamines and cocaine) can be taken by injection or non-injection.

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<sup>3</sup> Within this report, unintentional overdoses include those deemed accidental and those in which the intent is undetermined. Unintentional overdoses do not include those deemed to be intentional (i.e. self-harm).

The number of ER visits related to unintentional drug overdose increased in Ottawa by 77% from 2009 to 2015 (Figure 1). In 2015, there were 205 such visits. In the rest of Ontario, the rate has also been increasing and has been consistently higher than in Ottawa.

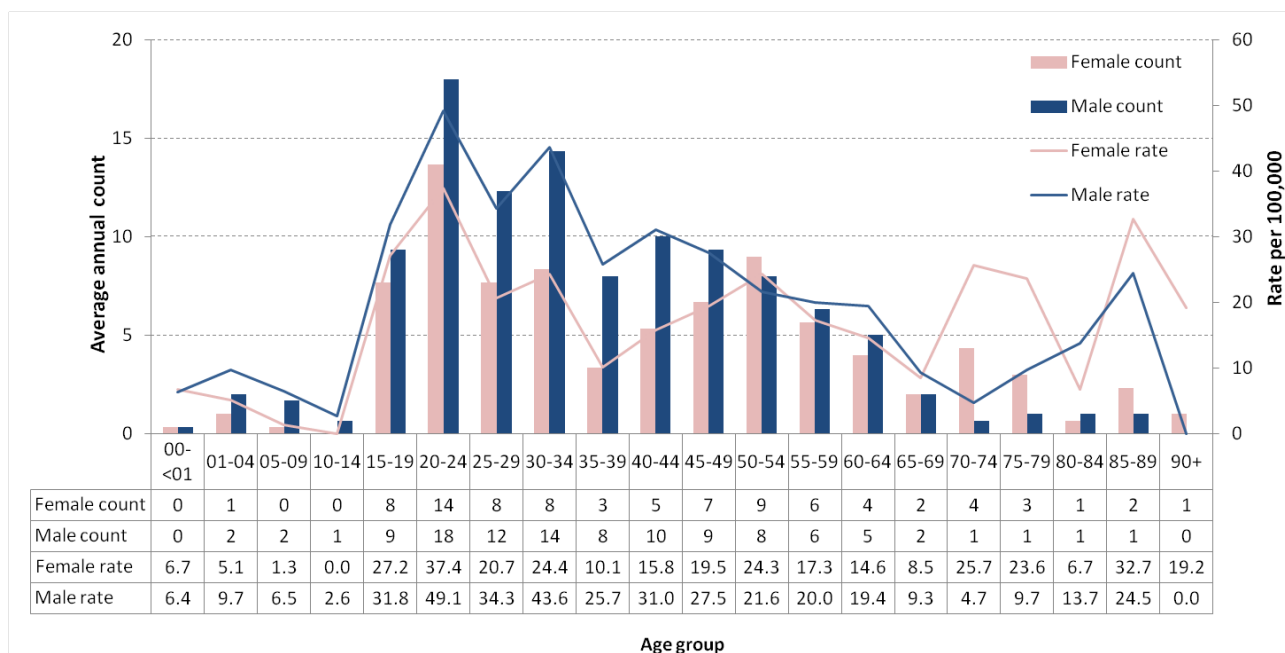
**Figure 1: Number and age-standardized rate of ER visits related to unintentional drug overdose by year, Ottawa and Ontario, 2003-2015**



**Data source:** Ambulatory Emergency External Cause 2003 to 2015 calendar years, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Extracted April 15, 2016. Poisonings due to narcotics or psychodysleptics, or psychostimulants with abuse potential ICD-10 codes X42, Y12, T40 – excluding T40.7, T43.6. Excludes intentional overdoses.

On average (2010-2014), there were 111 ER visits per year related to unintentional drug overdoses in males, and 86 among females (Figure 2). Youth aged 20-24 have much higher rates compared to their younger counterparts and males in this group represent the highest rate overall. This is also the age group with the highest rate among females. Males aged 30-34 have the second highest rate, followed by lower rates in older age groups until age 70 when rates begin to increase again. We hypothesize that most of the overdoses among older adults are due to incorrectly categorized medication errors or side effects rather than illicit use.

**Figure 2: Annual count and rate of unintentional drug overdose-related ER visits by age group and sex, Ottawa, 2013-2015 average**



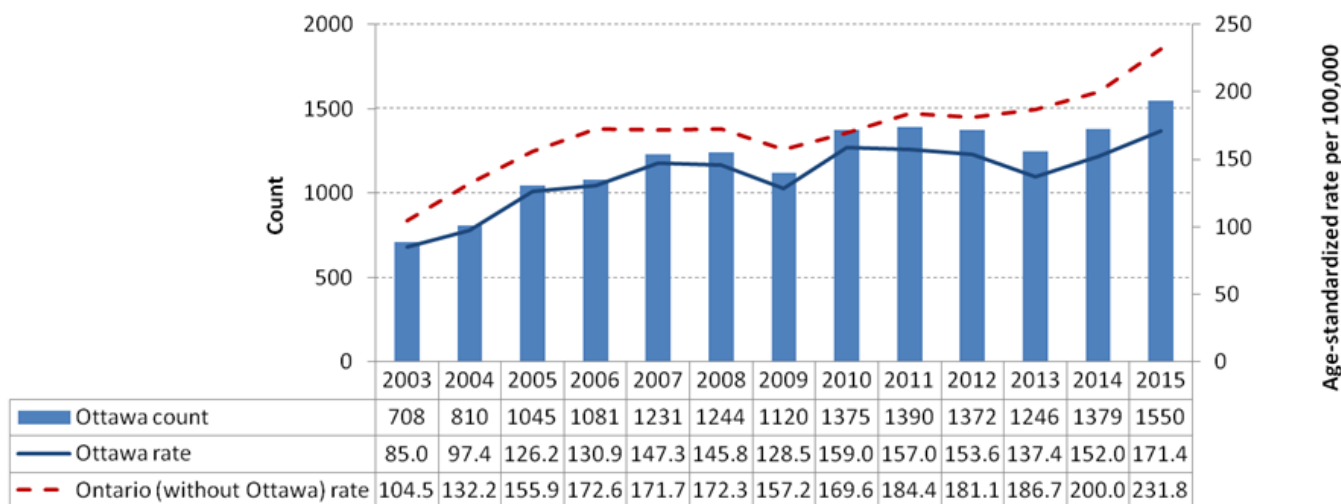
**Data source:** Ambulatory Emergency External Cause 2013 to 2015 calendar years, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Extracted April 15, 2016. Poisonings due to narcotics or psychodysleptics, or psychostimulants with abuse potential ICD-10 codes X42, Y12, T40 – excluding T40.7, T43.6. Excludes intentional overdoses.

### Emergency room visits due to drug-related mental and behavioural conditions

Emergency room visits due to drug-related mental and behavioural conditions include unplanned visits to the emergency department where the physician deems the diagnosis upon discharge from the emergency department to be a mental or behavioural disorder due to opioids, sedatives or hypnotics, cocaine, other stimulants, hallucinogens, solvents and other psychoactive substances. Possible diagnoses include harmful use, dependence (addiction), withdrawal and psychotic disorder. The data here exclude mental and behavioural conditions due exclusively to alcohol, tobacco, or cannabis.

The number of ER visits due to drug-related mental and behavioural conditions increased in Ottawa by 38% from 2009 to 2015 (Figure 3). In 2015, there were 1,550 such visits. In the rest of Ontario, the rate has also been increasing and has been consistently higher than in Ottawa.

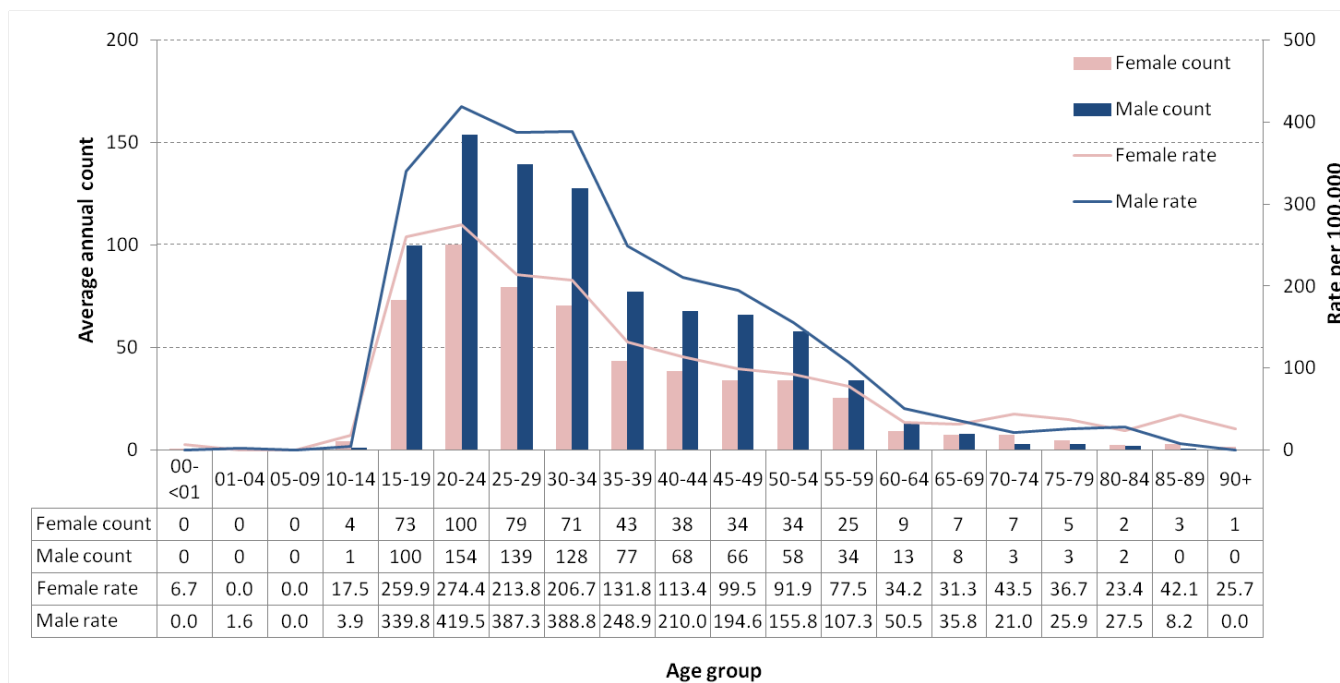
**Figure 3: Number and age-standardized rate of ER visits due to drug-related mental and behavioural conditions by year, Ottawa and Ontario, 2003-2015**



**Data source:** Ambulatory Emergency Visits 2003 to 2015 calendar years, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Extracted April 15, 2016. ICD-10 codes: F11, F13-16, F18-19. Excludes mental and behavioural conditions due exclusively to alcohol, tobacco, or cannabis.

On average (2010-2014), there are 853 ER visits per year due to drug-related mental and behavioural conditions in males, and 539 among females (Figure 4). Similar to the drug overdoses, males aged 20-24 have the highest ER rate overall.

**Figure 4: Annual count and rate of ER visits due to drug-related mental and behavioural conditions by age group and sex, Ottawa, 2013-2015 average**



**Data source:** Ambulatory Emergency Visits 2013 to 2015 calendar years, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Extracted April 15, 2016. ICD-10 codes: F11, F13-16, F18-19. Excludes mental and behavioural conditions due to alcohol, tobacco, or cannabis.

## Drug-related mortality

This section of the report describes the annual burden of unintentional<sup>4</sup> drug overdose deaths, and their distribution by age and sex. It also describes overdose deaths from opioids specifically.

The Office of the Chief Coroner for Ontario reviews all evidence concerning a death, including witness statements, location and circumstances, post-mortem toxicology, and other factors, to determine the cause and manner of death. Overdose deaths are typically recorded as accidental, suicide (intentional) or undetermined. Drug overdose deaths are those caused directly by acute drug toxicity or a combination of acute drug and alcohol toxicity. Drugs frequently noted as causing deaths include opioids (e.g. morphine or fentanyl), stimulants (e.g. cocaine), sedatives, antipsychotics, antidepressants, and acetaminophen. However, the method of drug use is not systematically captured in Coroners' reports and is not always possible to determine during the course of an investigation; therefore, the number of overdoses due to *injection* drug use cannot be reliably estimated.<sup>5</sup>

The deaths presented in this report, obtained from the Coroner, are restricted to those due to acute drug toxicity (overdose) and do not include deaths that are partially attributable to drug use, such as those due to wound infections, infectious diseases, traffic collisions, and homicides.

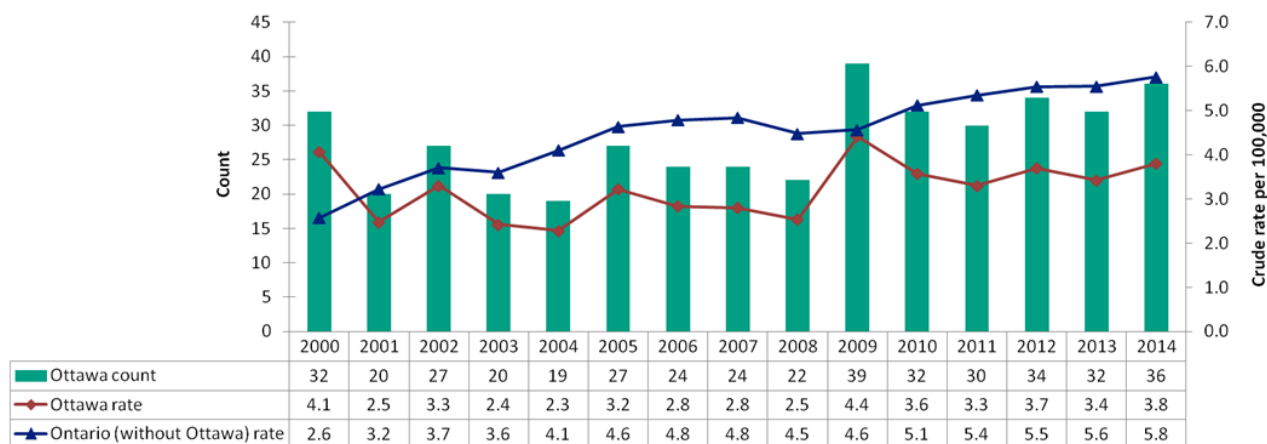
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<sup>4</sup> Within this report, unintentional overdose deaths include those deemed accidental and those in which the intent is undetermined. Between 2010-2014, 89% of unintentional drug overdose deaths were accidental and 11% were undetermined. Unintentional overdose deaths do not include those deemed to be suicide (i.e. intentional).

<sup>5</sup> Personal communication. Andrew Stephen (Information Management Lead, Office of the Chief Coroner for Ontario) and Louise McNaughton-Filion (Regional Supervising Coroner for Ottawa Region). April 14, 2016

On average, 33 Ottawa residents die from unintentional drug overdose annually (2010-2014), representing 72% of the 46 total drug overdose deaths. In 2014, there were 36 unintentional drug overdose deaths (Figure 5). Since 2001, Ottawa has had a lower rate of death from unintentional drug overdose than Ontario. Across the rest of Ontario the rate of death due to unintentional drug overdose increased by 124% from 2000 to 2014. In Ottawa the rate has been higher since 2009 (39 deaths), where the average between the years 2003-2008 was 23 compared to 34 between the years 2009-2014. Preliminary 2015 numbers will be available in fall 2016.

**Figure 5: Mortality rate and number of deaths due to unintentional drug overdose, Ottawa and Ontario, 2000-2014**

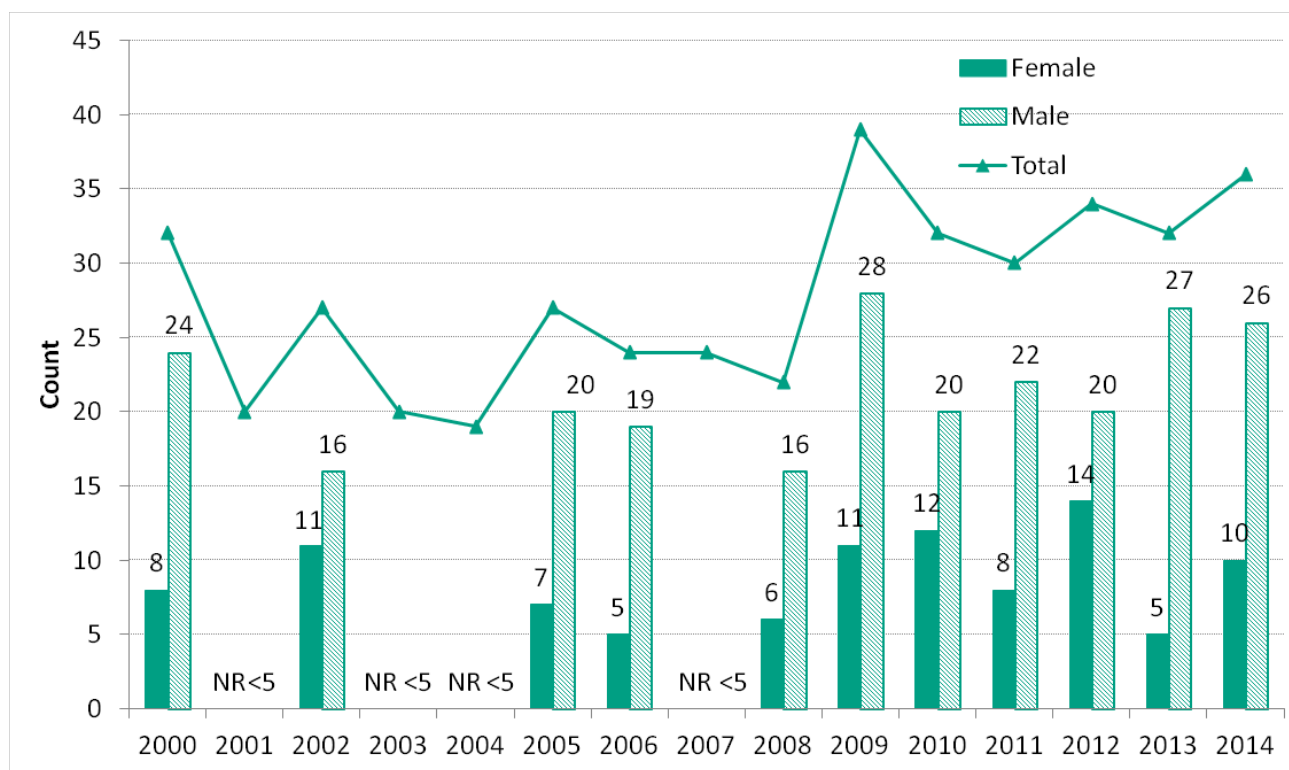


**Data source:** Office of the Chief Coroner for Ontario, data extracted June 7, 2016.

**Data note:** Drug data includes toxicity due to drugs, and drugs and alcohol together. Includes accidental deaths and deaths of undetermined intent.

An average of 23 men and 10 women died of unintentional drug overdose every year (2010-2014). This represents 2.3 times more men than women (Figure 6).

**Figure 6: Number of deaths due to unintentional drug overdose by sex, Ottawa, 2000-2014**



**Data source:** Office of the Chief Coroner for Ontario, extracted June 7, 2016.

**Data note:** Drug data includes toxicity due to drugs, and drugs and alcohol together. Includes accidental deaths and deaths of undetermined intent. NR - not reportable due to risk of identification. "<5" means that the count is under the value of 5 and is undisclosed as a result.

On average, 67% of unintentional drug overdose deaths are due to opioid toxicity, representing 22 of the 33 annual drug overdose deaths (2010-2014 average) (Table 2). Prior to 2009, there were fewer opioid overdose deaths and they were responsible for a smaller proportion of drug overdose deaths. Since 2009, fentanyl and oxycodone have been involved in the largest proportion of overdoses, and in 2013 and 2014 we saw morphine involvement increase to 10 and 5 overdose deaths, respectively. In 2014, hydromorphone was involved in 6 overdose deaths.

**Table 2: Unintentional drug overdose deaths by drug, Ottawa, 2005 to 2014**

Year	Morphine	Fentanyl	Oxy-codone	Hydro-morphone	Methadone	Total Opioid	Total Drug	% Opioid
2005	<5	0	0	<5	<5	7	27	26%
2006	<5	0	<5	<5	<5	7	24	29%
2007	<5	0	<5	<5	<5	9	24	38%
2008	<5	<5	6	<5	<5	13	22	59%
2009	5	6	8	6	<5	26	39	67%
2010	<5	9	9	<5	<5	21	32	66%
2011	<5	7	7	0	6	20	30	67%
2012	<5	7	<5	<5	<5	20	34	59%
2013	10	<5	<5	<5	5	25	32	78%
2014	5	9	6	6	<5	24	36	67%
5 year average (2010-2014)						22	33	67%

**Data source:** Office of the Chief Coroner for Ontario, extracted June 7, 2016.

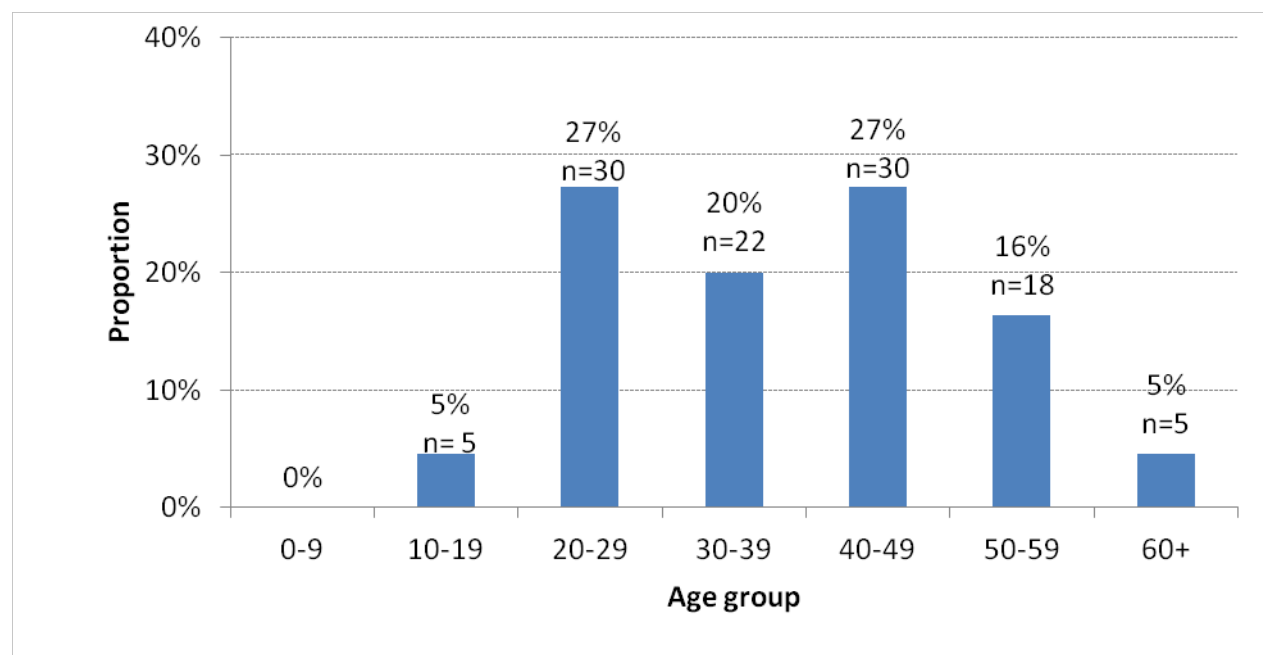
**Data notes:**

"<5" means that the count is under the value of 5 and is undisclosed as a result. Drug categories are not mutually exclusive and rows do not add up. Codeine and heroin are included in the totals but not listed separately due to consistently small numbers.

Drug data includes toxicity due to drugs, and drugs and alcohol together. Includes accidental deaths and deaths of undetermined intent.

The majority (91%) of unintentional opioid overdose deaths in Ottawa occur among adults aged 20-59 years (Figure 7). Between 2010 and 2014, 27% of the 110 unintentional opioid overdose deaths were 20-29, 20% were 30-39, 27% were 40-49, and 16% were 50-59 years old.

**Figure 7: Proportion of unintentional opioid overdose deaths by age range, Ottawa, 2010-2014**

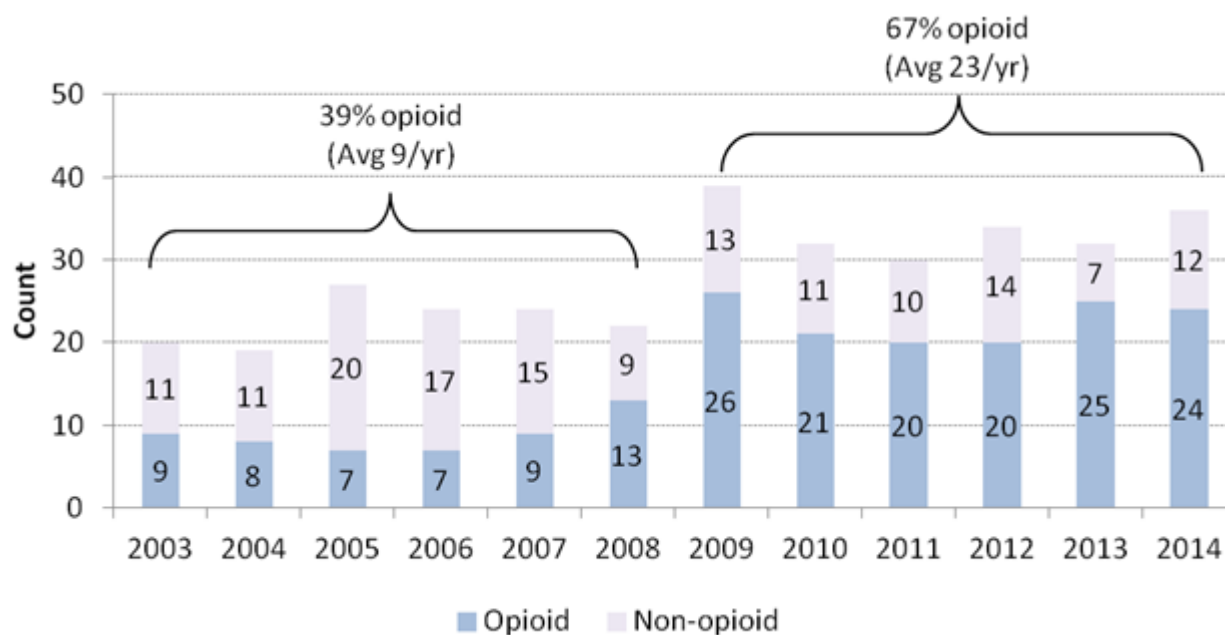


**Data source:** Office of the Chief Coroner for Ontario, extracted June 7, 2016.

**Data note:** Drug data includes toxicity due to drugs, and drugs and alcohol together. Includes accidental deaths and deaths of undetermined intent. Numbers represent total deaths over the five year period.

Since 2009, there has been a higher number and proportion of opioids causing death among all unintentional overdose deaths. Two-thirds (67%,  $n=136/203$ ) of unintentional drug overdose deaths during 2009-2014 were due to opioids, compared to 39% ( $n=53/136$ ) between 2003-2008. The average number of unintentional opioid overdose deaths between the years 2003-2008 was 9 per year compared to 23 per year between the years 2009-2014 (Figure 8).

**Figure 8: Unintentional drug overdose deaths, by opioid vs. non-opioid by year, Ottawa, 2003-2014**



**Data source:** Office of the Chief Coroner for Ontario, extracted April 14, 2016.

**Data notes:**

Avg = average

Drug data includes toxicity due to drugs, and drugs and alcohol together.

## Injection drug use

A number of local research initiatives focussing on people who inject drugs allow us to describe this behaviour in more detail, which is warranted because of the availability of harm reduction strategies that are specific to people who inject drugs. These research initiatives include I-Track (2014), conducted by the HIV & Hepatitis C Prevention Research Team at the University of Ottawa, and the Ottawa Harm Reduction Needs Assessment conducted in 2012/13 by the Healthy Sexuality and Risk Reduction Unit of Ottawa Public Health. This section of the report describes the pattern of drug use, type of drug, and the prevalence of bloodborne infections among people who use drugs by injection. Where people who inject drugs live and where they inject are presented later in the report, under Location of individuals who use drugs and of drug use.

Table 3 highlights the pattern of drug use among injection drug users. Table 4 shows the frequency of use of drugs by method of use. Because individuals may use more than one drug, totals by method exceed 100%.

**Table 3: Injection drug use behaviour**

Indicator	Proportion
Frequency of use <sup>1</sup>	59% of people who inject drugs inject daily, including 42% who injected several times daily.
Injection equipment <sup>2</sup>	13.9% of people who inject drugs reported using a previously-used needle/syringe.
Public injecting <sup>1</sup>	25% of people who inject drugs usually or always inject in public places and 19% report sometimes injecting in a public place.
Intention to use a supervised injection facility <sup>3</sup>	Among people who inject and smoke drugs, 74% reported that they would use a supervised injection facility.

**Data sources:**

1. Findings of the Ottawa Harm Reduction Needs Assessment Report, Ottawa Public Health, 2014;
2. I-Track, August 2014, Snapshot Issue 8, HIV & HCV Prevention Research Team, University of Ottawa
3. TOSCA, 2012

**Data note:** Survey respondents may be more likely than other people who inject drugs to avail themselves of treatment and harm reduction services.

**Table 4: Method of drug use by most frequently reported drugs among people who inject drugs, 2014**

Method of use	Prevalence of Use
Injection	Powder cocaine (57%) Dilaudid not prescribed to the person injecting (52%) Morphine not prescribed to the person injecting (48%) Hydromorphone not prescribed to the person injecting (47%) Heroin (44%) Crack cocaine (39%)
Non-injection	Crack cocaine (80%) Cannabis (71%) Alcohol (65%) Powder cocaine (43%) Amphetamines (21%) Heroin (21%)

**Data source:** I-Track, August 2014, Snapshot Issue 8, HIV & HCV Prevention Research Team, University of Ottawa.

During 2011-2014, 11% of HIV infections and 48% of hepatitis C infections diagnosed in Ottawa were in people who report using injection drugs.<sup>6</sup> The largest fraction of these cases for HIV are in males 30-44 years of age (38%) and for hepatitis C are in males 45-59 years of age (28%). The residential location of people infected with a bloodborne infection who report injection drug use is presented later in the report, under Location of individuals who use drugs and of drug use.

<sup>6</sup> Injection drug use may be under-reported.

Among all people who inject drugs in Ottawa, the prevalence of HIV and hepatitis C has been relatively stable since 2003 at approximately 10% and 70%, respectively (Table 5). Among Ottawa Harm Reduction Needs Assessment participants who inject drugs and had been tested for HIV or hepatitis C, 17% and 82% reported having a positive HIV or hepatitis C result, respectively. These findings are not different from those of I-Track.

**Table 5: Measured prevalence of HIV and hepatitis C in people who inject drugs, Ottawa 2003 – 2015**

Year	Prevalence of HIV	Prevalence of hepatitis C	Co-infection of HIV and hepatitis C
2003	16.8%	72.3%	15.4%
2004	10.2%	59.2%	8.5%
2005	11.2%	52.0%	9.4%
2006	9.5%	60.5%	7.9%
2007	N/A	N/A	N/A
2008	11.9%	62.9%	11.9%
2009	10.5%	64.8%	9.5%
2010	9.2%	69.7%	8.4%
2011	12.6%	72.6%	11.6%
2012	10.1%	71.6%	N/A
2013	14.0%	71.0%	N/A
2014	12.5%	70.8%	N/A
2015	11.4%	68.3%	N/A

**Data source:** I-Track, HIV & HCV Prevention Research Team, University of Ottawa. N/A = not available

In comparison to other large urban areas, the prevalence of HIV in people who inject drugs in Ottawa is lower than in Montreal but higher than in Toronto (Table 6). The prevalence of hepatitis C in Ottawa is the same as in Montreal and higher than in Toronto. The higher prevalence of hepatitis C may be due to its being more transmissible than HIV.

**Table 6: Measured prevalence of HIV and hepatitis C in people who inject drugs, Montreal, Ottawa and Toronto, 2011**

City	HIV prevalence	Hepatitis C prevalence
Montreal	25.7% (21.9%, 29.9%)	70.7% (66.4%, 74.7%)
Ottawa	12.6% (8.3%, 17.9%)	72.6% (65.8%, 78.6%)
Toronto	6.0% (3.4%, 9.7%)	61.1% (54.6%, 67.2%)

**Data sources:**

Montreal: Université Laval, axe Santé des populations et pratiques optimales en santé and Centre de recherche du CHU de Québec and Direction de Santé Publique de l'Agence de la santé et des services sociaux de Montréal.

Ottawa: I-Track, HIV & HCV Prevention Research Team, University of Ottawa

Toronto: Dr. Peggy Millson, Dalla Lana School of Public Health, personal communication, June 2, 2016.

**Data notes:**

Hepatitis C infection was assessed using antibody detection only; thus, this measurement represents either past (cured or not) or current infections.

95% confidence intervals are shown.

## Location of individuals who use drugs and of drug use

Place is a particularly important aspect of the epidemiology of problematic drug use because of the need to provide services where there is a need. Services would be needed where drugs are used and/or where people who use drugs reside.

Where drugs are used is most reliably described by the utilization of mobile services, such as the paramedics and the Needle & Syringe Program van. Where individuals who use drugs live is another indicator of the location of drug use, and this is described by the home residence of individuals who have drug-related ER visits and individuals who report injection drug use following diagnosis of a bloodborne infection. Some of these individuals are not stably housed, and some of those not stably housed use emergency shelters. For these reasons, the location of shelters and information about substance use among people who use shelters is described.

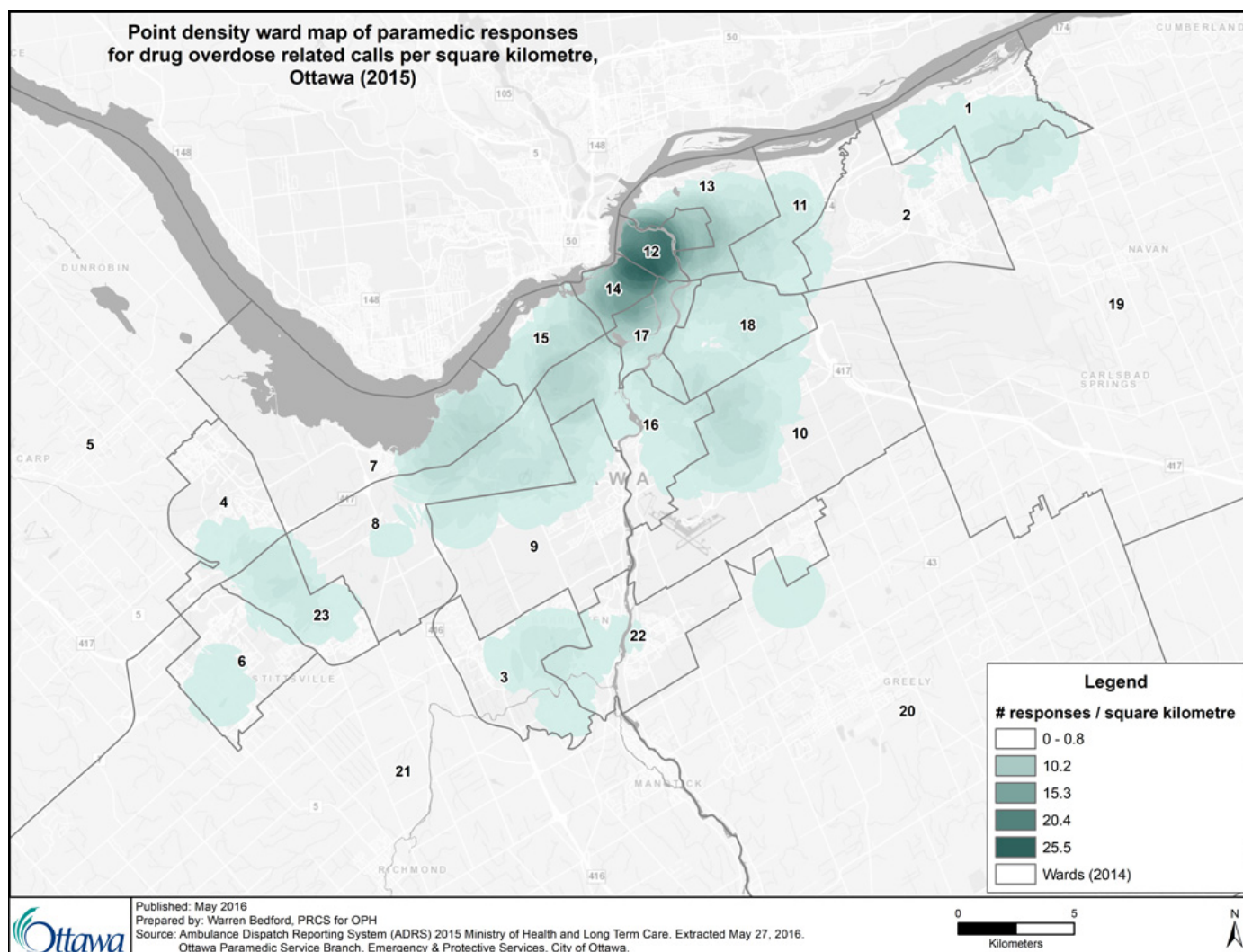
In this section of the report, the place, or location, of drug use and of individuals who use drugs is described by city ward. For most data sources, the same data are presented in both map and chart form. The 23 wards of Ottawa and the number of people living in each ward are listed in Appendix 2.

### Paramedic responses to drug overdose in Ottawa

Paramedic responses to drug overdose include incidents in which the assessment of the patient by an Ottawa Paramedic Service paramedic is classified as overdose. These responses include overdoses due to any drug (illicit, prescription, over the counter) and exclude most responses assessed as self harm. Location is based on where the patient is assessed, which may or may not be the same as the patient's place of residence. Not all patients assessed by a paramedic are transferred to an emergency department and a paramedic's assessment may not align with the discharge diagnosis of an emergency department physician.

Paramedic responses are concentrated in the downtown core of Ottawa, but with some responses in most wards (Figure 9). Darker shading indicates a higher number of overdose-related incidents per square kilometre. The highest density of responses for 2015 was 25.5 responses per square kilometre.

**Figure 9: Point density ward map of paramedic responses for drug overdose-related calls per square kilometre, Ottawa, 2015**



**Data source:** Ambulance Dispatch Reporting System (ADRS) 2015 Ministry of Health and Long Term Care. Extracted May 27, 2016. Ottawa Paramedic Service Branch, Emergency & Protective Services, City of Ottawa.

**Data notes:**

Refer to Appendix 2 for ward names that correspond to the ward numbers.

Does not distinguish between type of drug involved. Excludes calls that were coded as attempted suicide but may still include some intentional overdoses.

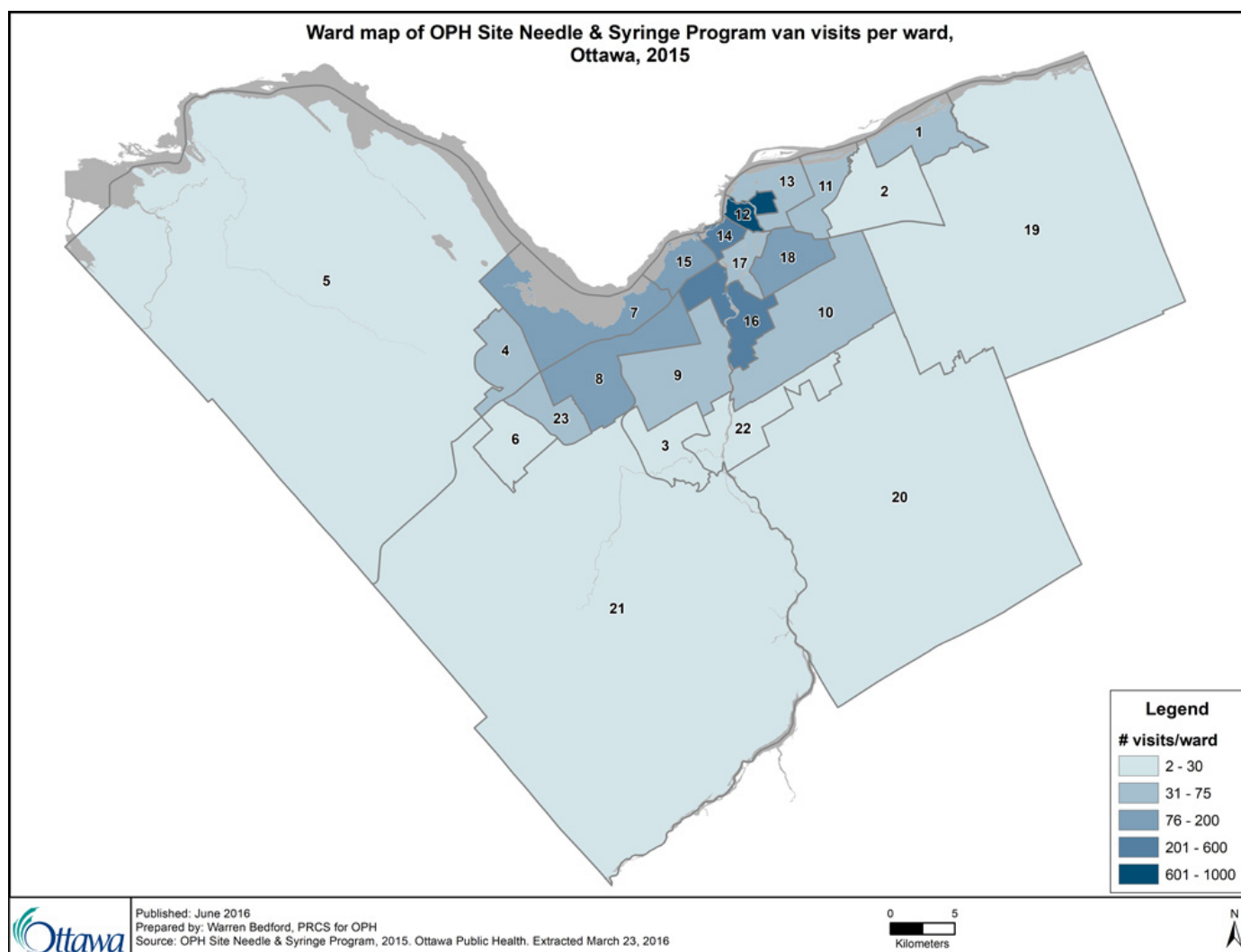
The map does not take into account the population per square kilometre, so the higher density in the downtown core may be due to higher population density in that area.

## OPH Site Needle and Syringe Program service encounters

As part of the Site Needle & Syringe Program (NSP), OPH and two community partners employ mobile vans to respond to client phone calls requesting the delivery of harm reduction services. In 2015 NSP mobile vans responded to 3,695 calls.

The most-visited neighbourhoods in 2015 were in Rideau-Vanier: approximately one-third (n=924) of calls to the OPH NSP van were from neighbourhoods in Rideau-Vanier (Figures 10 and 11). River, Somerset, and Britannia wards were also frequently visited by the NSP, and every ward had at least one visit.

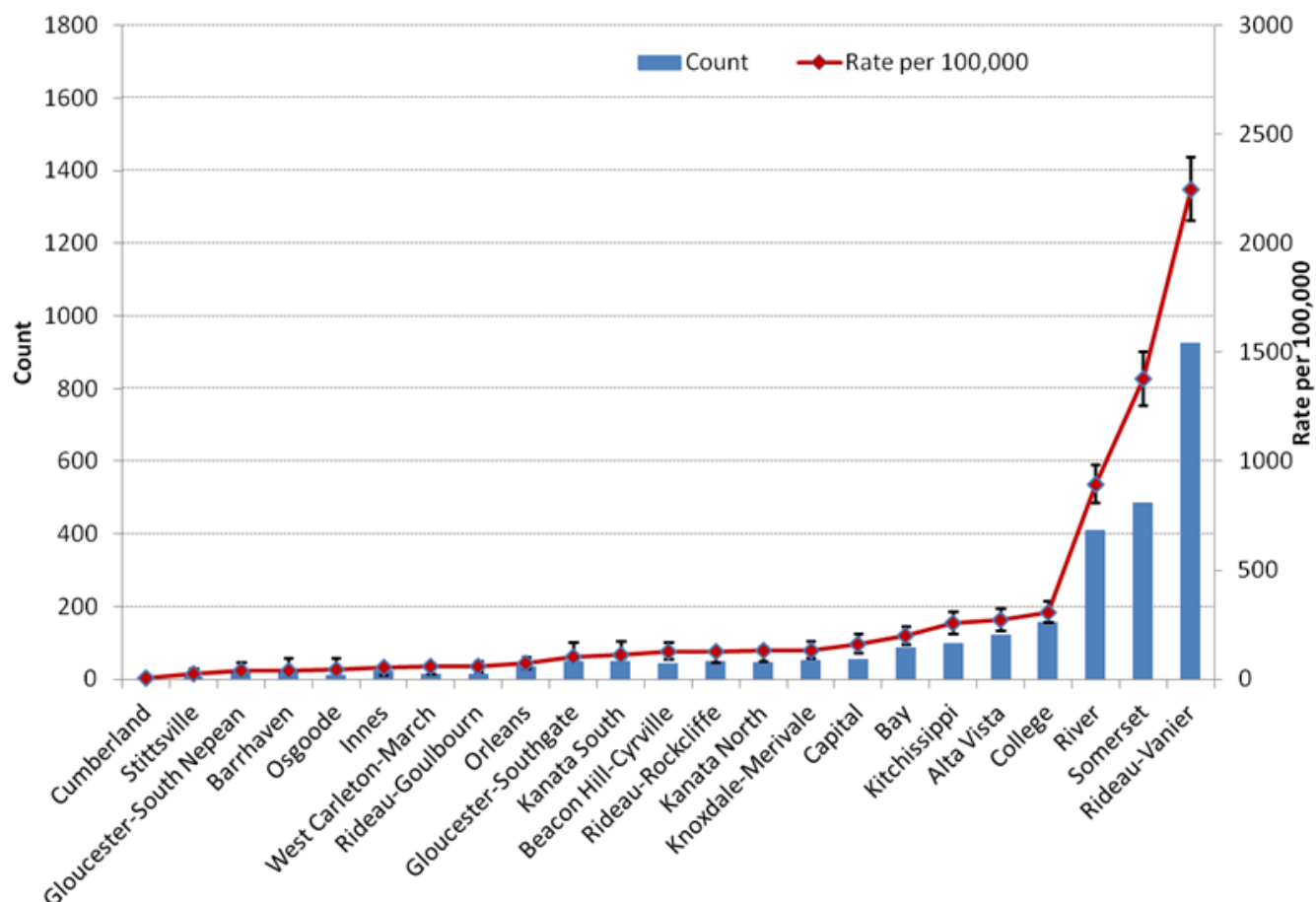
**Figure 10: Ward map of OPH Site Needle & Syringe Program van visits per ward, Ottawa, 2015**



**Data source:** OPH Site Needle & Syringe Program, 2015. Ottawa Public Health. Extracted March 23, 2016.

**Data note:** Refer to Appendix 2 for ward names that correspond to the ward numbers.

**Figure 11: Number and rate of OPH Site Needle & Syringe Program van visits per ward, Ottawa, 2015**



**Data source:** OPH Site Needle & Syringe Program, 2015. Ottawa Public Health. Extracted March 23, 2016.

**Data notes:**

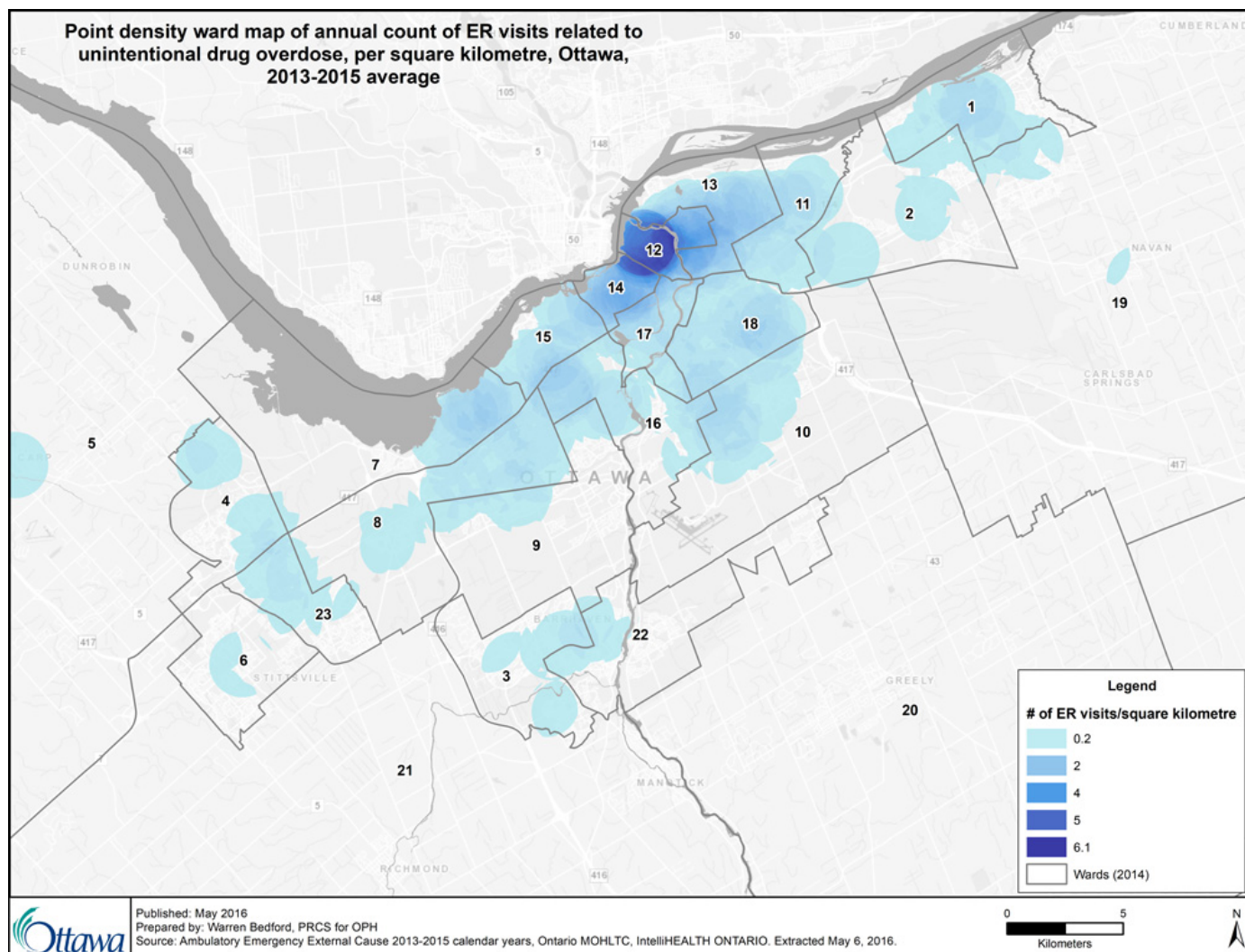
Rates are per 100,000 population.

Rates are calculated based on ward population, whereas calls are coded based on the location of event. Because callers may not live in the ward from which they call for services, the rates presented here may not accurately reflect ward-specific activity.

## Emergency room visits due to drug overdose

Although there are some residents with drug overdose ER visits in almost every ward of the city, they are strongly concentrated in the Rideau-Vanier ward (Figure 12). Darker shading indicates a higher number of overdose ER visits per square kilometre.

**Figure 12: Point density ward map of annual count of ER visits related to unintentional drug overdose, per square kilometre, Ottawa, 2013-2015 average**



**Data source:** Ambulatory Emergency External Cause 2013-2015 calendar years, Ontario MOHLTC, IntelliHEALTH ONTARIO. Extracted May 6, 2016. Poisonings due to narcotics or psychodysleptics, or psychostimulants with abuse potential: ICD-10 X42 or Y12 or T40 (excluding T40.7), T43.6. Excludes intentional overdoses.

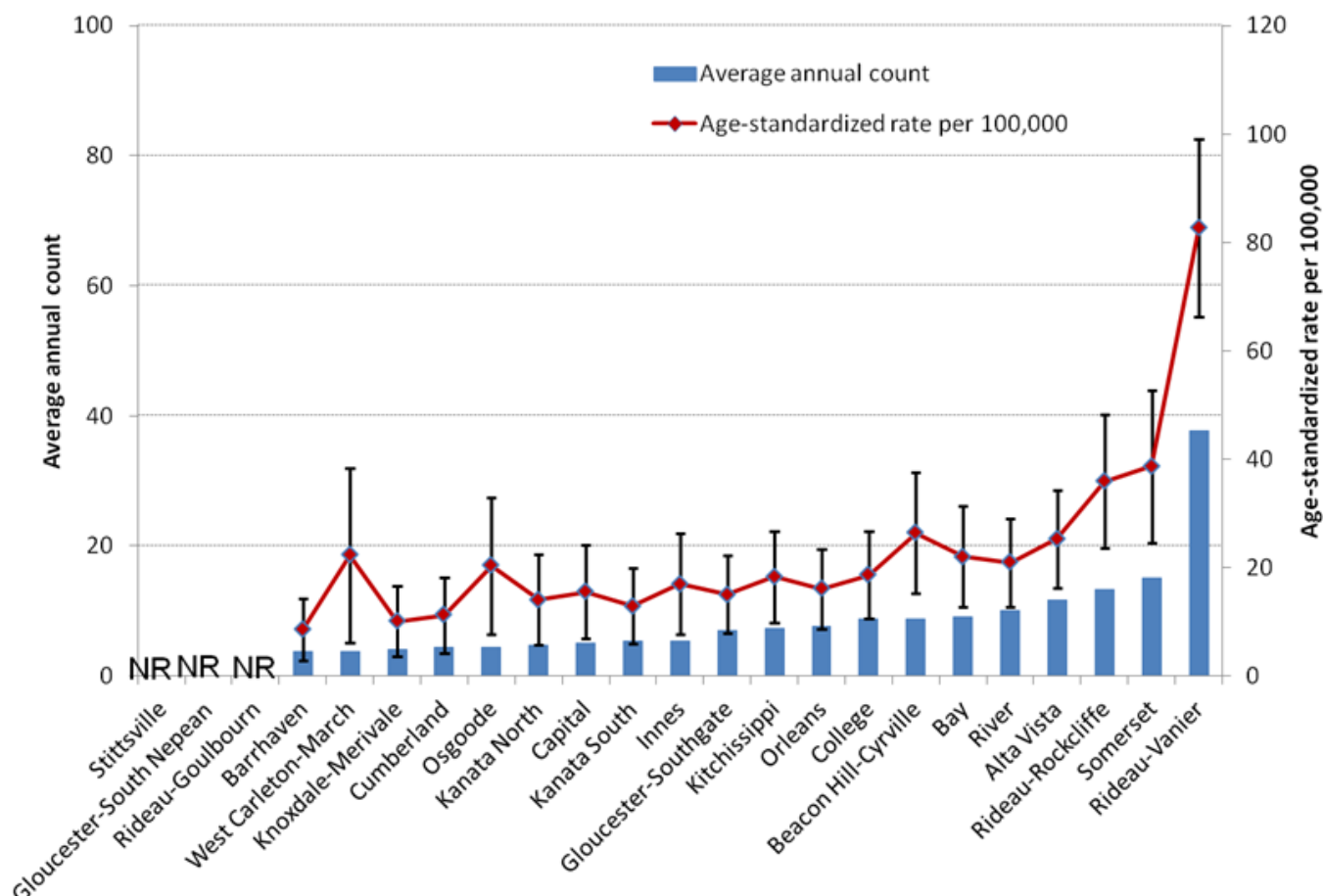
**Data notes:**

Refer to Appendix 2 for ward names that correspond to the ward numbers.

Point density was calculated based on aggregates by residential postal code of patient.

Between 2013-2015, Rideau-Vanier and Somerset wards had the highest counts and rates of drug overdoses ER visits (Figure 13). Rideau-Vanier had a rate of drug overdose ER visits 2.1 times higher than the next highest ward.

**Figure 13: Average annual count of ER visits related to unintentional drug overdose by ward, Ottawa, 2013-2015.**



**Data source:** Ambulatory Emergency External Cause 2013-2015 calendar years, Ontario MOHLTC, IntelliHEALTH ONTARIO. Extracted May 6, 2016. Poisonings due to narcotics or psychodysleptics, or psychostimulants with abuse potential: ICD-10 X42 or Y12 or T40 (excluding T40.7), T43.6. Excludes intentional overdoses.

**Data notes:**

Visits are aggregated to ward based on residential postal code.

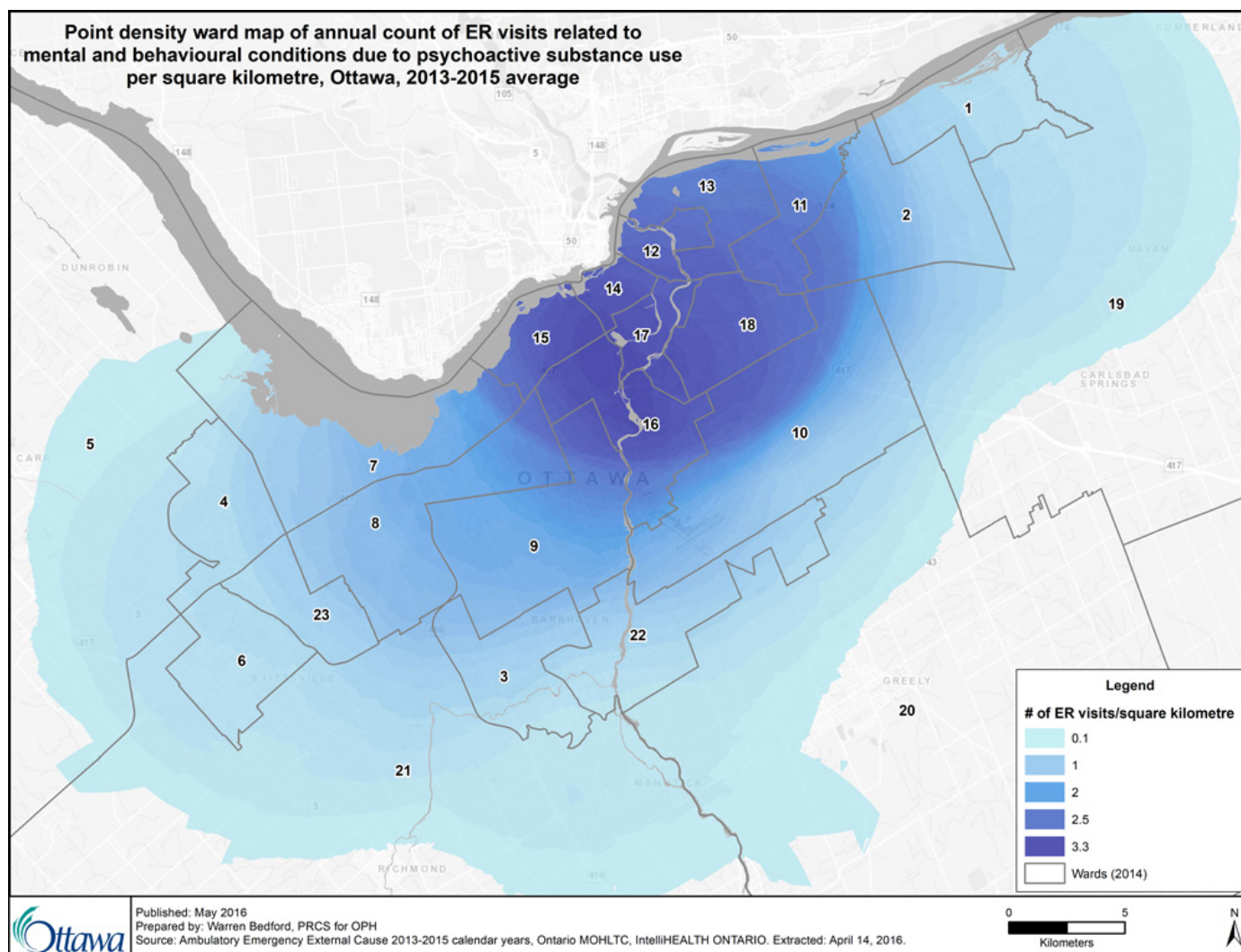
NR – not reportable: Areas with three-year counts less than 10 are suppressed.

95% confidence intervals are shown for rate estimates.

## Emergency room visits due to drug-related mental and behavioural conditions

Although people from all over Ottawa present to the ER for drug-related mental and behavioural conditions, the highest density of visits per square kilometre comes from the core wards of the city (wards 11 through 18) (Figure 14). Darker shading indicates a higher number of residents with drug-related mental health ER visits per square kilometre.

**Figure 14: Point density ward map of annual count of ER visits related to mental and behavioural conditions due to psychoactive substance use per square kilometre, Ottawa, 2013-2015 average**



**Data source:** Ambulatory Emergency External Cause 2013-2015 calendar years, Ontario MOHLTC, IntelliHEALTH ONTARIO. Extracted April 14, 2016. ICD-10 codes: F11, F13-16, F18-19. Excludes mental and behavioural conditions due exclusively to alcohol, tobacco, or cannabis.

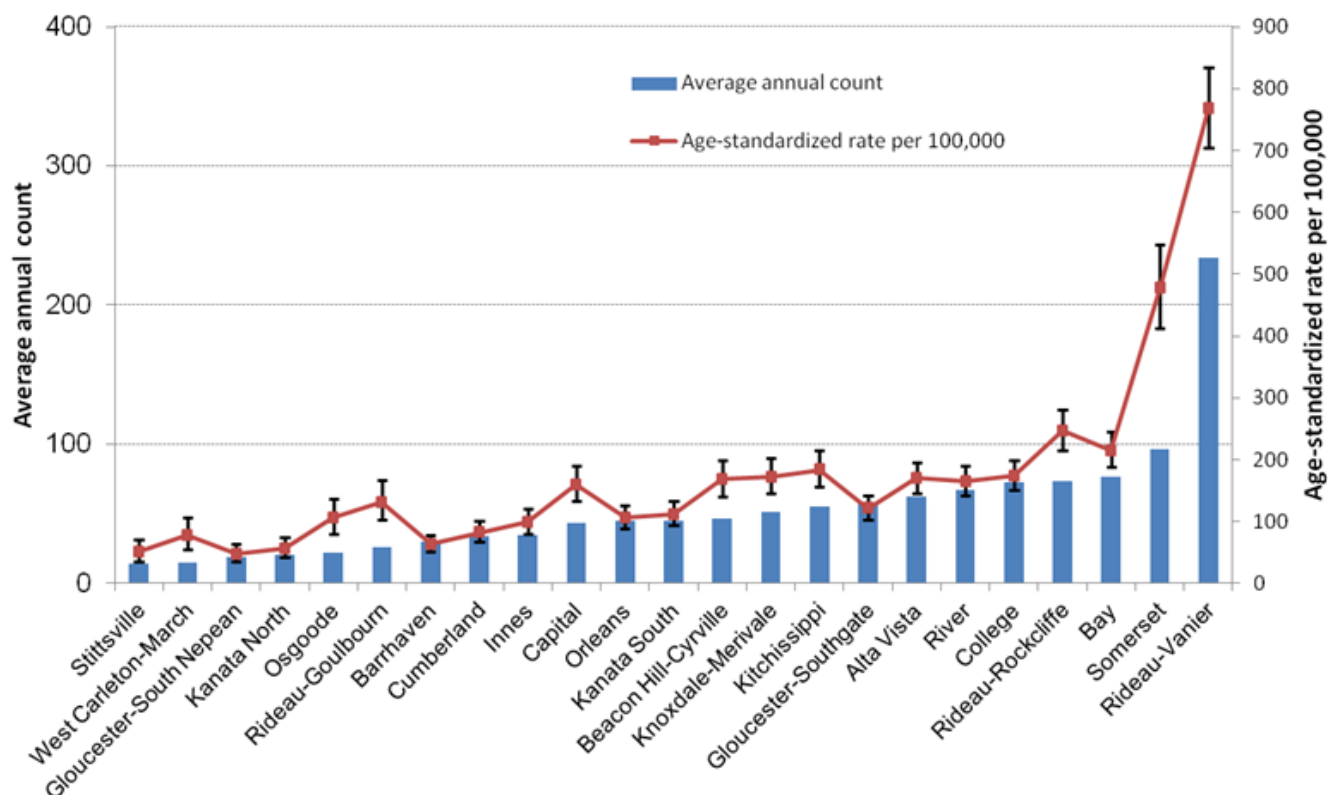
**Data notes:**

Refer to Appendix 2 for ward names that correspond to the ward numbers.

Point density was calculated based on aggregates by residential postal code of patient.

Between 2013-2015, Rideau-Vanier and Somerset had the highest counts and rates of drug overdose ER visits (Figure 15). Rideau Vanier had a rate of drug-related mental health ER visits 1.6 times higher than the next highest ward (Somerset), and Somerset had a rate 1.9 times higher than the third highest ward (Rideau-Rockcliffe), based on the rate.

**Figure 15: Annual count and age-standardized rate of ER visits related to mental and behavioural conditions due to psychoactive substance use by ward, Ottawa, 2013-2015 average.**



**Data source:** Ambulatory Emergency External Cause 2013-2015 calendar years, Ontario MOHLTC, IntelliHEALTH ONTARIO. Extracted April 14, 2016. ICD-10 codes: F11, F13-16, F18-19. Excludes mental and behavioural conditions due to alcohol, tobacco, or cannabis.

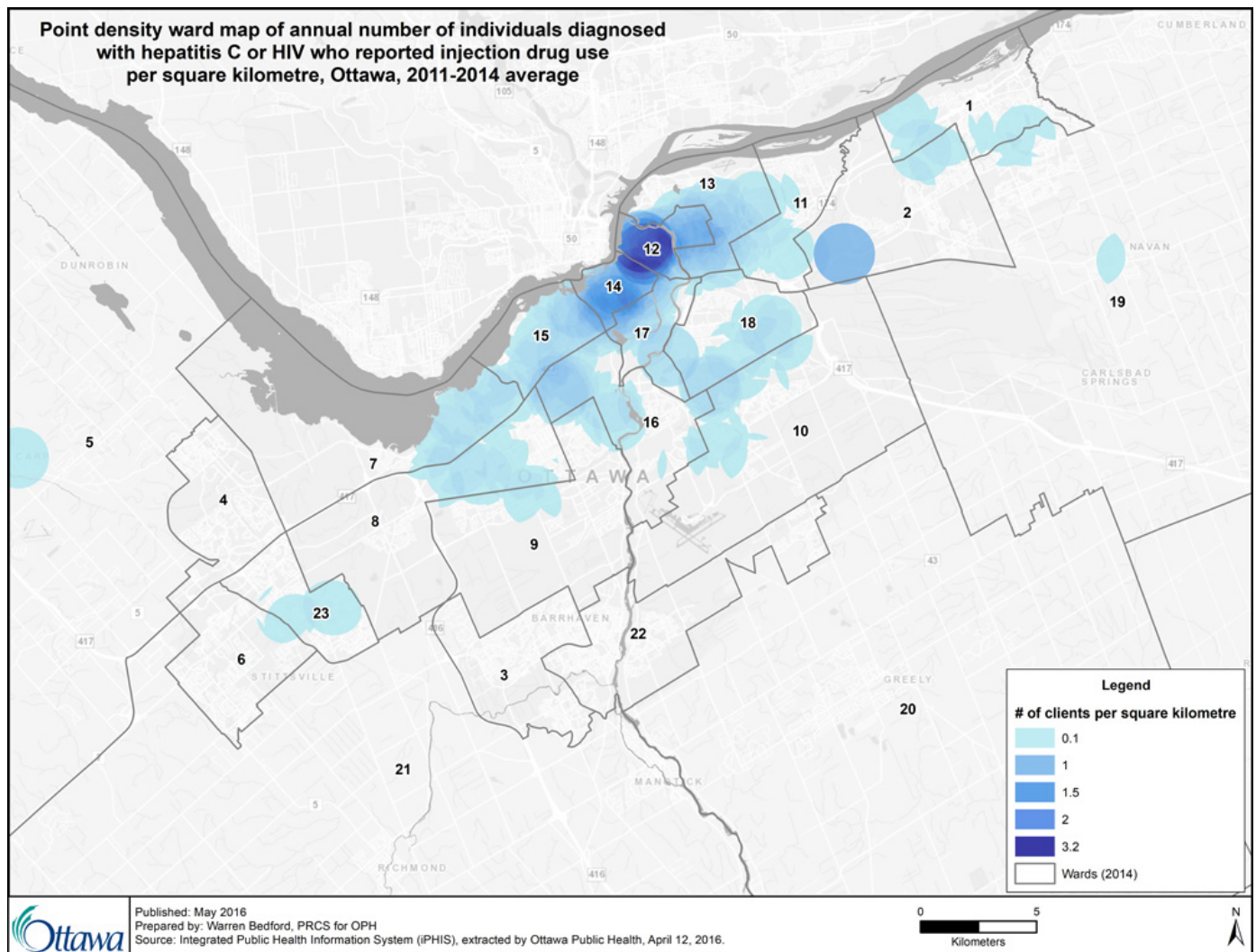
**Data notes:**

Visits are aggregated to ward based on residential postal code.  
95% confidence intervals are shown for rate estimates.

## Injection drug use among people with bloodborne infections

Most individuals who report injection drug use following diagnosis of a bloodborne infection live in the downtown core of Ottawa, but other wards also house these individuals (Figures 16 and 17).

**Figure 16: Point density ward map of annual number of individuals diagnosed with hepatitis C or HIV who reported injection drug use per square kilometre, Ottawa, 2011-2014 average**



**Data source:** Integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, April 12, 2016.

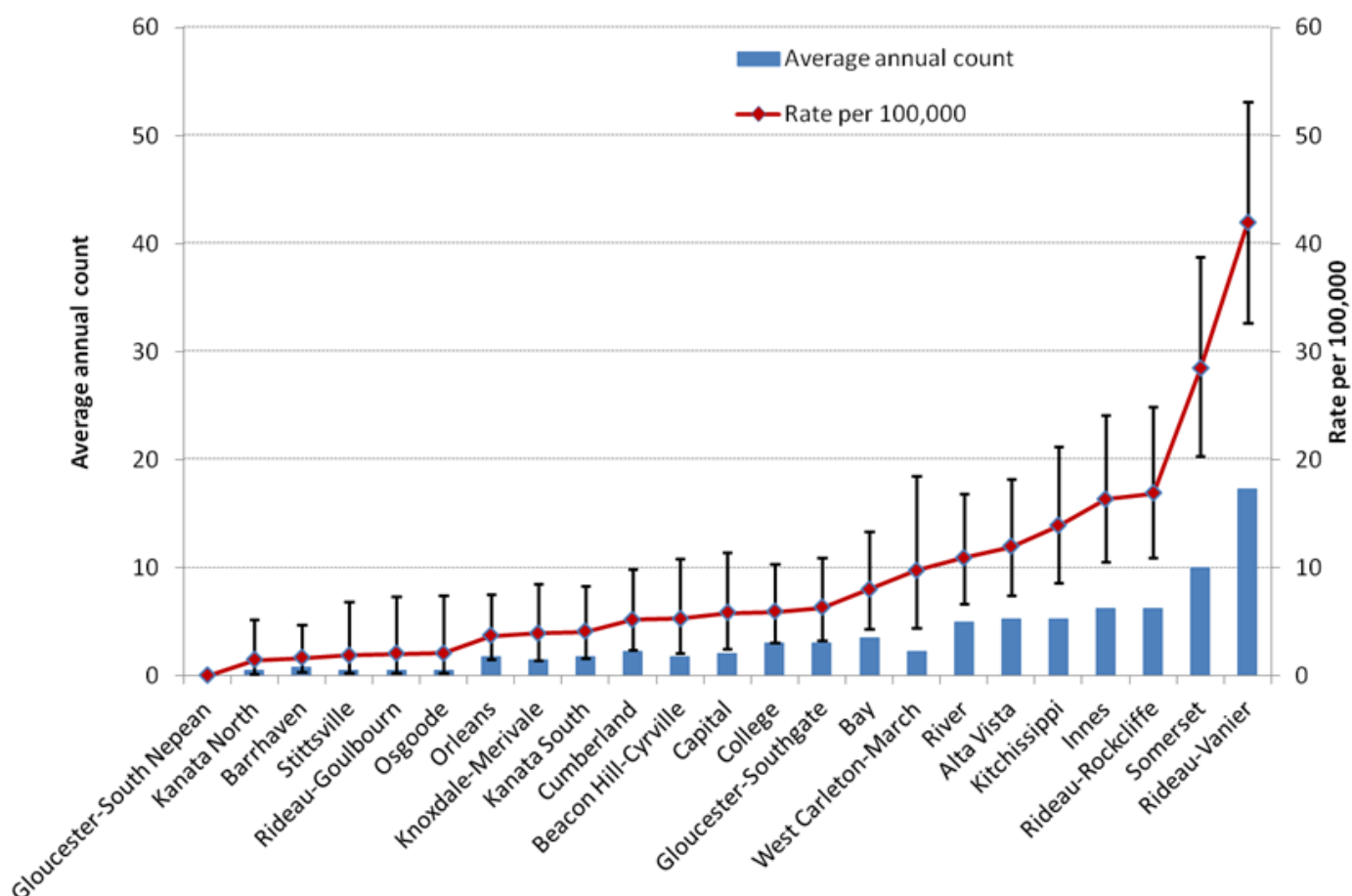
**Data notes:**

Refer to Appendix 2 for ward names that correspond to the ward numbers.

Point density was calculated based on aggregates by residential postal code of patient.

Address information was unavailable for 12% of HIV and hepatitis C cases diagnosed during 2011-2014.

**Figure 17: Average annual number of individuals diagnosed with hepatitis C or HIV who reported injection drug use by ward, Ottawa, 2011-2014**



**Data source:** Integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, April 12, 2016.

**Data notes:**

Visits are aggregated to ward based on residential postal code.

Address information was unavailable for 12% of HIV and hepatitis C cases diagnosed during 2011-2014

## Homelessness among people who use drugs

Many individuals who use drugs are unstably housed (Table 7). Individuals who use drugs who are unstably housed are more likely to use a supervised injection facility than those who are stably housed (TOSCA, 2012).

**Table 7: Percent of individuals who use drugs who are unstably housed**

Source	Population	Proportion
1	People with drug-related ER visits, 2013-2015	6.3% have no postal code recorded
2	People who report injection drug use following diagnosis of a bloodborne infection, 2011-2014	15% are underhoused or homeless
3	People who inject drugs (I-Track), 2015	41.5% do not live in their own home or apartment

**Data sources:**

1. Ambulatory Emergency External Cause 2013-2015 calendar years, Ontario MOHLTC, IntelliHEALTH ONTARIO. Extracted April 14, 2016.
2. Integrated Public Health Information System (iPHIS), extracted by Ottawa Public Health, April 12, 2016. IntelliHEALTH ONTARIO. Extracted April 14, 2016.
3. Dr. Lynne Leonard, personal communication, April 18, 2016. Note: I-Track survey respondents may be more likely than other people who inject drugs to avail themselves of treatment and harm reduction services.

Individuals who are not stably housed use emergency shelters located primarily in Rideau-Vanier, Somerset and Rideau-Rockcliffe wards. In Ottawa, there are seven shelters for individuals only and four that shelter families. The total number of beds available in shelters for individuals only is shown in Table 8.

**Table 8: Location and capacity of emergency shelters housing individuals only, Ottawa, 2016**

Ward	Number of shelters	Total number of beds
Rideau-Vanier	4	569
Somerset	2	67
Rideau-Rockcliffe	1	8

**Data source:** Paul Lavigne, Housing Services Branch, City of Ottawa, personal communication, April 8, 2016.

## **Problematic substance use among the unstably housed**

Problematic substance use among homeless individuals is high, according to a cross-sectional study carried out by the Mental Health Commission of Canada (National At Home/Chez Soi Final Report, 2014). Among individuals enrolled in the study during 2009 – 2013, 67% reported substance-related problems.

Data from the use in Ottawa of the Service Prioritization Decision Assistance Tool (SPDAT), an assessment tool used in the emergency shelter system to prioritize housing services for homeless clients based on their acuity, indicates that during July 2014 – April 2016, the drug or alcohol use of 73.3% of shelter clients with a stay of over 30 days<sup>7</sup> impacted daily functioning and health (Shelley Vanbuskirk, Housing Services Branch, City of Ottawa, personal communication, May 10, 2016).

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<sup>7</sup> The total number of clients with a stay of over 30 days is not available. During 2015, 3,887 single men and women used an adult shelter and 448 were chronically homeless (have spent more than 180 cumulative nights in a shelter).

## Problematic Substance Use Treatment and Harm Reduction and Outcomes

Treatment services exist to help people who misuse substances to use less or less harmfully. These services include prevention programs, drug counselling, detoxification, and harm reduction programs.

### Services provided

A number of services are offered by different Ministry of Health and Long-Term Care-funded and privately funded agencies, including addiction centres, community health centres, mental health centres, and Needle and Syringe Programs (Table 9). These services are concentrated downtown (Figure 18).

Approximately 8,600<sup>8</sup> Ottawa residents received treatment for substance misuse, including 800 admissions into residential programs (Rod Olfert, Champlain LHIN, personal communication, May 20, 2016), and approximately 1,000 people on opioids substitution therapy (Dr. Joseph Eibl, personal communication, May 19, 2016). The wait time for many services was short; however, wait times are tracked for fewer than half of the agencies that provide services (Table 9). For some services, some individuals had very long wait times (Claudio Rocca, DATIS, personal communication, April 14, 2016). The Champlain LHIN recognizes that the demand for services outweighs capacity (Rod Olfert, personal communication, May 20, 2016).

**Table 9: Program capacity and wait times, Ottawa**

Data Source	Service Type	Number of Programs	Number of Clients Served	Average Wait Time* (Days)	Minimum Wait Time* (Days)	Maximum Wait Time* (Days)
1	School-based Substance Abuse Program (counselling)	57 high schools	Students: 1,300 Parents: 530	Students: 0 Parents: N/A (60 on wait list)	Students: 0 Parents: N/A	Students: 0 Parents: N/A
2	Initial assessment treatment planning	N/A	1045	16.6	0	332
	Case management	1	213	2.3	0	57
	Centralized / coordination access	1	N/A	N/A	N/A	N/A
	Community day / evening treatment	4	11	0	0	0
	Community medical / psychiatric treatment	2	101	0	0	0
	Community treatment	31	1135	8.3	0	285

<sup>8</sup> In 2014/15 fiscal year, a total of 8,602 individuals were served by an Ottawa agency that is funded by the LHIN to provide substance misuse treatment. (Note that some of the services provided by these agencies may be unrelated to substance misuse treatment.) Not included in this total are NSP clients.

Data Source	Service Type	Number of Programs	Number of Clients Served	Average Wait Time* (Days)	Minimum Wait Time* (Days)	Maximum Wait Time* (Days)
	Residential medical / psychiatric treatment	1	98	0.0	0	0
	Residential supportive treatment	8	102	10.6	0	270
	Residential treatment	15	216	10.3	0	156
	Residential withdrawal management	2	941	0	0	0
	Support within housing	3	1	0	0	0
3	Provision of equipment for safer injection (Needle & Syringe Program)	21	20,000 encounters <sup>9</sup>	0	0	0
	Peer overdose prevention program (POPP)	1	200	N/A	N/A	N/A
4	Opioid substitution therapy	15+	~1,000 <sup>†</sup>	Same or next day	N/A	N/A

#### Data sources:

1. Substance Abuse and Youth in School Coalition – For the year 2014/15; Ottawa School-based Substance Abuse Program Evaluation Report, October 2015.
2. Number of programs – For the year 2014/15; Rod Olfert, Champlain LHIN, personal communication, May 20, 2016. Number of clients and wait times – For the year 2012/13; Claudio Rocca, DATIS, personal communication, April 14, 2016
3. Site encounters – 2015 calendar year; Healthy Sexuality and Risk Reduction Unit (HSRRU), Ottawa Public Health 2015.
4. Opioid substitution therapy number of clients – Dr. Joseph Eibl, personal communication, May 19, 2016. Opioid substitution average wait time – Steve Dorkin, OAARS, personal communication, April 7, 2016.

#### Data notes:

N/A - not provided or not applicable

Services described are those situated in Ottawa and funded completely or in part by the Ministry of Health and Long Term Care.

\* Wait times shown here are only for the programs for which wait times are available. Data on wait times is available for only 57% of problematic substance use treatment programs.

The total number of clients cannot be calculated as the sum of all clients because an individual may have accessed more than one type of service.

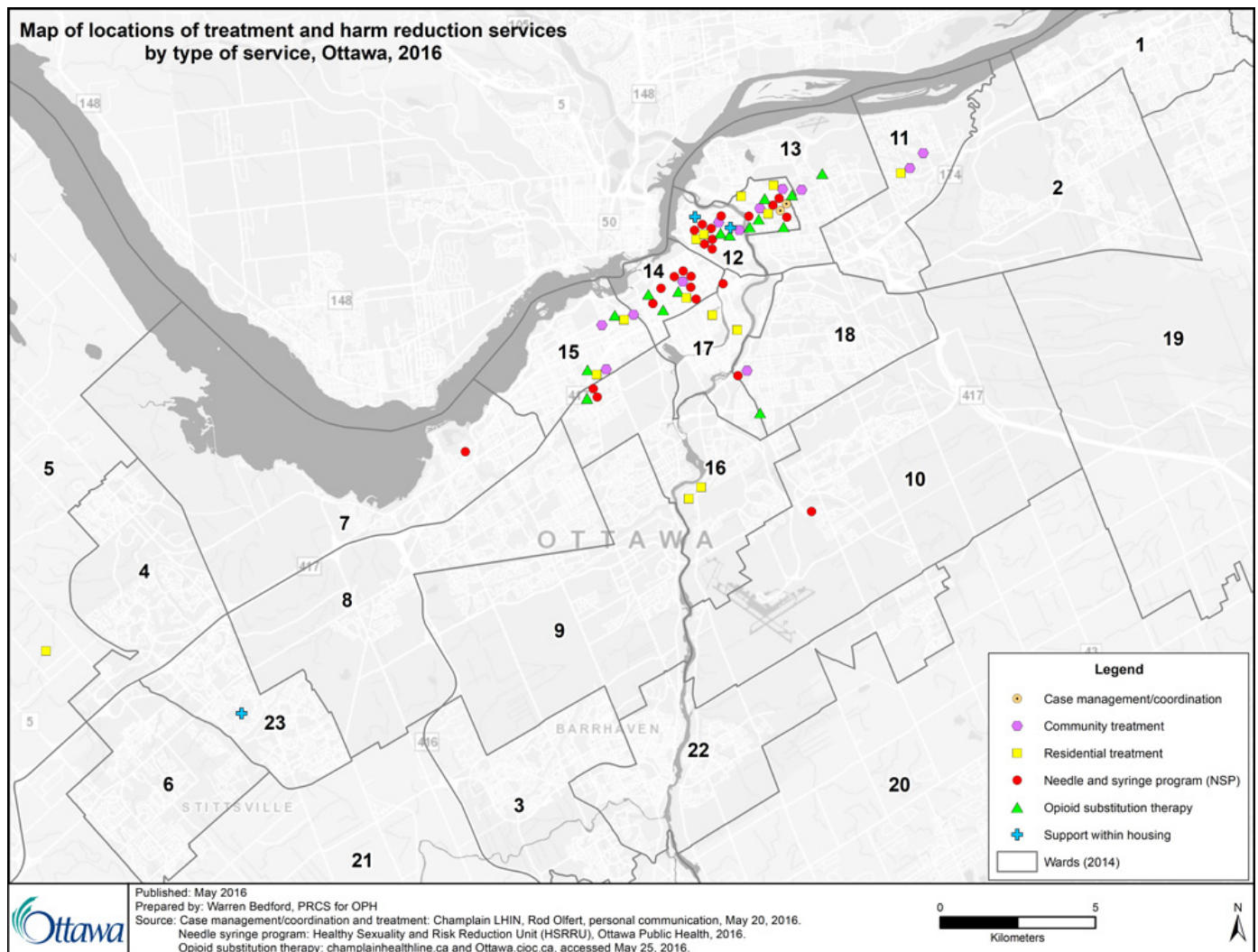
The total capacity and average "length of stay" for a given service is not available.

Needle & Syringe Program encounters do not enumerate clients as there may be multiple encounters per client.

<sup>†</sup>Opioid substitution therapy – Derived by Ottawa Public Health using the Ontario Drug Benefit estimate (excluding telemedicine patients) for the Champlain LHIN region and the proportion of the Champlain LHIN region 2011 population that Ottawa comprises. This assumes that the rate of opioid substitution therapy is the same in Ottawa as in the rest of the LHIN. Some double counting is possible.

<sup>9</sup> Because Needle & Syringe Program encounters are anonymous, an unknown number of individuals accessed these services.

**Figure 18: Map of locations of treatment and harm reduction services by type of service, Ottawa, 2016**



**Data sources:**

Case management/coordination and treatment: Champlain LHIN, Rod Olfert, personal communication, May 20, 2016.

Needle syringe program: Healthy Sexuality and Risk Reduction Unit (HSRRU), Ottawa Public Health, 2016.

Opioid substitution therapy: champlainhealthline.ca and Ottawa.cioc.ca, accessed May 25, 2016.

**Data notes:**

Refer to Appendix 2 for ward names that correspond to the ward numbers.

The two agencies administering the School-based Substance Abuse Program, rather than the 57 high schools, are mapped.

Of the 21 NSPs, the 25 fixed office sites are mapped. One NSP has no fixed office site.

## Treatment and harm reduction outcomes

Treatment success is subjective and often individually defined. Success might be described in terms of lives saved, retention in treatment, stopping or decreasing use of drugs. In addition, treatment outcomes are dependent upon their patient population, which is partly determined by their admission criteria. For example, some programs are able to accept more complex clients with multiple health issues and some programs require drug and/or alcohol abstinence prior to admission, while others do not.

The Champlain LHIN, which is responsible for the planning, coordination and funding for various health services including addictions and mental health agencies, currently has no standardized measures of success (Rod Olfert, Champlain LHIN personal communication, May 13, 2016) for community and residential programs. However, outcomes can be enumerated for a number of the treatment services provided by OPH (Table 10).

**Table 10: Outcomes of selected problematic substance use treatment and harm reduction services**

Service Type	Outcome	Source (location)
School-based Substance Abuse Program (counselling)*	75% reduced or stopped using one or more drugs during the school year	Substance Abuse and Youth in School Coalition, 2015. (Ottawa)
	Students showed improvements in health and wellbeing	
	95% completed the school year	
Needle Syringe Programs (NSP)	Decreased needle sharing, reduced spread of HIV without increasing injection drug use	Wodak & Cooney, 2006. (International)
	763,000 needles distributed, 2015	HSRRU, Ottawa Public Health 2015. (Ottawa)
	Of 6,464 OPH encounters in 2015, 60% resulted in a brief intervention. Some encounters resulted in referrals to other treatment services. <sup>†</sup>	
Peer Overdose Prevention Program (POPP)	Since launch in 2012, more than 60 overdoses have been reversed due to a peer administering naloxone.	
Opioid substitution therapy	39.3% retention at 1 year for first time methadone maintenance therapy	Eibl et al, 2015. (Southern Ontario Urban regions (including Ottawa))

Service Type	Outcome	Source (location)
Supervised Injection Services (SIS)	12 overdoses prevented per year	Milloy et al. (Vancouver)
	Fatal overdoses in a 500 m radius decreased by 35% during 2001 - 2005	Marshall et al, 2011. (Vancouver)
	Publicly discarded needles decreased by 50%	National Centre in HIV Epidemiology and Clinical Research 2007, (Sydney)
	30% increase in use of detox services	Wood et al., 2007. (Vancouver)
	80% less public injecting	Van der Poel et al., 2003. (Rotterdam)
	71% less public injecting	Petrar et al., 2006. (Vancouver)
	70% less likely to share needles	Petrar et al., 2006. (Vancouver)
	HIV and hepatitis C prevalence did not increase as it had in area outside SIS target area	MSIC Evaluation Committee, 2003. (Sydney)
	Prevents 35 new cases of HIV each year	Andresen and Boyd, 2010. (Vancouver)
	41% made changes in injecting practices	MSIC Evaluation Committee, 2003. (Sydney)
	56% of clients disposed of needles more safely	Petrar et al., 2006. (Vancouver)
	No significant increase in drug-related crimes in the surrounding neighbourhoods of the SIS; decrease in vehicle break-ins and vehicle thefts	Wood et al., 2006. Boyd et al., 2008. (Vancouver)

**Data notes:**

\*School-based outcomes are for a sample (n=115 – 452) of students.

†Referrals are not systematically tracked.

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## Appendix 1 – Acronyms and Glossary

### Acronyms

CAMH	Centre for Addiction and Mental Health
CCHS	Canadian Community Health Survey
CHC	Community Health Centre
CI	Confidence Interval
DATIS	Drug and Alcohol Treatment Information System
ESYS	Enhanced Street Youth Surveillance System
ER	Emergency Room
FY	Fiscal Year
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
HSRRU	Healthy Sexuality and Risk Reduction Unit, OPH
iPHIS	Integrated Public Health Information System
LHIN	Local Health Integration Network
LSD	Lysergic acid diethylamide
MDMA	3,4-methylenedioxy- <i>N</i> -methylamphetamine
MOHLTC	Ministry of Health and Long-Term Care
NSP	Needle and Syringe Program
OAARS	Ottawa Addictions and Access Referral Services
OPH	Ottawa Public Health
PMO-OSDUHS	Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey
RRFSS	Rapid Risk Factor Surveillance System

## Glossary of Terms

Term	Description
Age-standardized rate	An age-standardized rate is formed by weighting age-specific rates according to the age distribution of the population to which they are to be generalized. The age-standardized rate is not the actual rate (crude rate) in the population but a derived rate that is used for comparison with another population that might have a different age distribution.
Confidence interval	The interval within which the true value of a variable such as a mean, proportion or rate is contained. This is calculated to a 95 per cent probability in this report.
Crude rate	A crude rate is the number of events occurring in a specified population per year. This rate reflects the actual rate in the population under study, but it should not be used for making comparisons between different populations when the age, race and sex distributions of the populations are different. In this report, rates are crude rates unless specified as age-standardized rates.
Emergency room (ER) rate	The number of emergency room visits in a given year divided by the number of people within that population.
Illicit drugs	Drugs for which the use is illegal.
Intentional overdose	An non-accidental overdose, i.e. a suicide attempt
International Classification of Diseases (ICD)	The ICD is the international standard diagnostic classification system for all general epidemiological and many health management purposes. It is used to classify diseases and other types of health problems. The current version is ICD-10, which was endorsed by the World Health Organization (WHO) in 1990 and came into use by the WHO member states in 1994. In Canada, there is a modification of the international system known as ICD 10-CA.
Morbidity	Morbidity refers to any departure from health or well-being, but it often refers to the state of illness, disease or injury in a population.
Mortality rate	Mortality rate is the total number of deaths in a population divided by the total population in a given time period. The mortality rate can be specific for diseases, events, age groups, sex, etc.
Narcotics and psychodysleptics	Narcotics and psychodysleptics (hallucinogens) are drugs such as cocaine, codeine, heroin, LSD, cannabis or mescaline.
Non-medical purposes	Taking a drug or medication without a doctor's instructions to do so or without a prescription.
Opioids	Opioids are a class of powerful drugs that are primarily prescribed to treat severe pain. Opioids includes prescription medications, such as fentanyl , oxycodone, morphine and codeine as well as illicit drugs, such as heroin. Opioids carry a risk of addiction because of their powerful effects.
Problematic substance use	Problematic substance use is the harmful use of any substance including alcohol, tobacco, illicit drugs, over-the-counter drugs and prescription drugs.

Term	Description
Prevalence	Prevalence is the number of events (e.g. instances of a given disease or other condition) in a given population at a designated time. Prevalence refers to all existing cases, while incidence refers only to new cases.
Psychostimulants	Psychostimulants are drugs such as amphetamines that temporarily increase mental or physical functions or both.
Unintentional overdose	An overdose that was not intentional (i.e. accidental). For the purposes of this report, unintentional overdoses include overdoses of undetermined intent.
Undetermined overdose	An overdose where the intent cannot be determined

## Appendix 2 – Wards

**Table 11: Population by ward, Ottawa**

Ward number	Ward name	2011 Population
1	Orleans	47670
2	Innes	38310
3	Barrhaven	46475
4	Kanata North	34470
5	West Carleton-March	23055
6	Stittsville	26455
7	Bay	43935
8	College	50795
9	Knoxdale-Merivale	38380
10	Gloucester-Southgate	47860
11	Beacon Hill-Cyrville	33155
12	Rideau-Vanier	41105
13	Rideau-Rockcliffe	37075
14	Somerset	35110
15	Kitchissippi	37920
16	River	45795
17	Capital	34490
18	Alta Vista	44050
19	Cumberland	43375
20	Osgoode	24445
21	Rideau-Goulbourn	24530
22	Gloucester-South Nepean	41620
23	Kanata South	43315

## Appendix 3 – Data tables

**Table 12: Number and age-standardized rate of ER visits related to unintentional drug overdose by year, Ottawa and Ontario, 2003-2015**

Year	Ottawa count	Ottawa rate (per 100,000)	Ontario without Ottawa rate (per 100,000)
2003	100	12.9	16.7
2004	105	12.3	19.9
2005	128	15.6	20.5
2006	137	16.2	21.7
2007	103	12.1	20.4
2008	116	13.5	21.5
2009	116	13	23
2010	123	14.1	23
2011	156	17.1	22.8
2012	149	15.6	25
2013	196	20.4	23.5
2014	191	20.1	26.9
2015	205	21.3	29.1

**Table 13: Annual count and rate of unintentional drug overdose-related ER visits by age group and sex, Ottawa, 2013-2015 average**

Age group	Female count	Male count	Female rate (per 100,000)	Male rate (per 100,000)
Less than 1 year	0	0	6.7	6.4
1 to 4	1	2	5.1	9.7
5 to 9	0	2	1.3	6.5
10 to 14	0	1	0	2.6
15 to 19	8	9	27.2	31.8
20 to 24	14	18	37.4	49.1
25 to 29	8	12	20.7	34.3
30 to 34	8	14	24.4	43.6
35 to 39	3	8	10.1	25.7
40 to 44	5	10	15.8	31
45 to 49	7	9	19.5	27.5
50 to 54	9	8	24.3	21.6
55 to 59	6	6	17.3	20
60 to 64	4	5	14.6	19.4
65 to 69	2	2	8.5	9.3
70 to 74	4	1	25.7	4.7
75 to 79	3	1	23.6	9.7
80 to 84	1	1	6.7	13.7
85 to 89	2	1	32.7	24.5
90 and over	1	0	19.2	0

**Table 14: Number and age-standardized rate of ER visits due to drug-related mental and behavioural conditions by year, Ottawa and Ontario, 2003-2015**

Year	Ottawa count	Ottawa rate (per 100,000)	Ontario without Ottawa rate (per 100,000)
2003	708	85	104.5
2004	810	97.4	132.2
2005	1045	126.2	155.9
2006	1081	130.9	172.6
2007	1231	147.3	171.7
2008	1244	145.8	172.3
2009	1120	128.5	157.2
2010	1375	159	169.6
2011	1390	157	184.4
2012	1372	153.6	181.1
2013	1246	137.4	186.7
2014	1379	152	200
2015	1550	171.4	231.8

**Table 15: Annual count and rate of ER visits due to drug-related mental and behavioural conditions by age group and sex, Ottawa, 2013-2015 average**

Age group	Female count	Male count	Female rate (per 100,000)	Male rate (per 100,000)
Less than 1 year	0	0	6.7	0.0
1 to 4	0	0	0.0	1.6
5 to 9	0	0	0.0	0.0
10 to 14	4	1	17.5	3.9
15 to 19	73	100	259.9	339.8
20 to 24	100	154	274.4	419.5
25 to 29	79	139	213.8	387.3
30 to 34	71	128	206.7	388.8
35 to 39	43	77	131.8	248.9
40 to 44	38	68	113.4	210.0
45 to 49	34	66	99.5	194.6
50 to 54	34	58	91.9	155.8
55 to 59	25	34	77.5	107.3
60 to 64	9	13	34.2	50.5
65 to 69	7	8	31.3	35.8
70 to 74	7	3	43.5	21.0
75 to 79	5	3	36.7	25.9
80 to 84	2	2	23.4	27.5
85 to 89	3	0	42.1	8.2
90 and over	1	0	25.7	0.0

**Table 16 : Mortality rate and number of deaths due to unintentional drug overdose, Ottawa and Ontario, 2000-2014**

Year	Ottawa count	Ottawa rate (per 100,000)	Ontario without Ottawa rate (per 100,000)
2000	32	4.1	2.6
2001	20	2.5	3.2
2002	27	3.3	3.7
2003	20	2.4	3.6
2004	19	2.3	4.1
2005	27	3.2	4.6
2006	24	2.8	4.8
2007	24	2.8	4.8
2008	22	2.5	4.5
2009	39	4.4	4.6
2010	32	3.6	5.1
2011	30	3.3	5.4
2012	34	3.7	5.5
2013	32	3.4	5.6
2014	36	3.8	5.8

**Table 17: Number of deaths due to unintentional drug overdose by sex, Ottawa, 2000-2014. NR: Not reportable due to risk of identification.**

Year	Male	Female	Total
2000	24	8	32
2001	NR	NR	20
2002	16	11	27
2003	NR	NR	20
2004	NR	NR	19
2005	20	7	27
2006	19	5	24
2007	NR	NR	24
2008	16	6	22
2009	28	11	39
2010	20	12	32
2011	22	8	30
2012	20	14	34
2013	27	5	32
2014	26	10	36

**Table 18: Proportion of unintentional opioid overdose deaths by age range, Ottawa, 2010-2014**

Age group	Count	Percent
0 to 9	0	0
10 to 19	5	5
20 to 29	30	27
30 to 39	22	20
40 to 49	30	27
50 to 59	18	16
60 and over	5	5

**Table 19: Unintentional drug overdose deaths, by opioid vs. non-opioid by year, Ottawa, 2003-2014**

Year	Opioid	Non-opioid
2003	9	11
2004	8	11
2005	7	20
2006	7	17
2007	9	15
2008	13	9
2009	26	13
2010	21	11
2011	20	10
2012	20	14
2013	25	7
2014	24	12

**Table 20: Number and rate of OPH Site Needle & Syringe Program van visits per ward, Ottawa, 2015**

Ward	Count	Rate (per 100,000)
Cumberland	2	4.6
Stittsville	6	22.7
Gloucester-South Nepean	16	38.4
Barrhaven	18	38.7
Osgoode	11	45.0
Innes	21	54.8
West Carleton-March	13	56.4
Rideau-Goulbourn	14	57.1
Orleans	35	73.4
Gloucester-Southgate	49	102.4
Kanata South	49	113.1
Beacon Hill-Cyrville	42	126.7
Rideau-Rockcliffe	47	126.8
Kanata North	45	130.5
Knoxdale-Merivale	51	132.9
Capital	55	159.5
Bay	87	198.0
Kitchissippi	97	255.8
Alta Vista	120	272.4
College	156	307.1
River	409	893.1
Somerset	484	1378.5
Rideau-Vanier	924	2247.9

**Table 21: Average annual count of ER visits related to unintentional drug overdose by ward, Ottawa, 2013-2015. NR: areas with three-year counts less than 10 are suppressed.**

Ward	Count	Age-standardized rate per 100,000
Stittsville	NR	NR
Gloucester-South Nepean	NR	NR
Rideau-Goulbourn	NR	NR
Barrhaven	4	8.5
West Carleton-March	4	22.3
Knoxdale-Merivale	4	10.1
Cumberland	4	11.2
Osgoode	4	20.3
Kanata North	5	14.1
Capital	5	15.5
Kanata South	5	12.9
Innes	5	16.9
Gloucester-Southgate	7	15.0
Kitchissippi	7	18.3
Orleans	8	16.0
College	9	18.6
Beacon Hill-Cyrville	9	26.4
Bay	9	22.0
River	10	20.9
Alta Vista	12	25.3
Rideau-Rockcliffe	13	35.8
Somerset	15	38.7
Rideau-Vanier	38	82.6

**Table 22: Annual count and age-standardized rate of ER visits related to mental and behavioural conditions due to psychoactive substance use by ward, Ottawa, 2013-2015 average.**

Ward	Average annual count	Age-standardized rate (per 100,000)
Stittsville	14	51.4
West Carleton-March	15	77.5
Gloucester-South Nepean	19	48.4
Kanata North	20	57.2
Osgoode	22	106.1
Rideau-Goulbourn	26	132.0
Barrhaven	30	63.7
Cumberland	34	82.2
Innes	35	99.5
Capital	43	160.4
Orleans	45	106.8
Kanata South	45	112.3
Beacon Hill-Cyrville	47	168.2
Knoxdale-Merivale	51	172.0
Kitchissippi	55	183.8
Gloucester-Southgate	58	121.5
Alta Vista	63	170.1
River	67	164.6
College	73	173.9
Rideau-Rockcliffe	74	246.4
Bay	77	215.4
Somerset	96	477.6
Rideau-Vanier	234	768.2

**Table 23: Average annual number of individuals diagnosed with hepatitis C or HIV who reported injection drug use by ward, Ottawa, 2011-2014**

Ward	Average annual count	Crude rate per 100,000
Gloucester-South Nepean	0.0	0
Kanata North	0.5	1.5
Barrhaven	0.8	1.6
Stittsville	0.5	1.9
Rideau-Goulbourn	0.5	2.0
Osgoode	0.5	2.0
Orleans	1.8	3.7
Knoxdale-Merivale	1.5	3.9
Kanata South	1.8	4.0
Cumberland	2.3	5.2
Beacon Hill-Cyrville	1.8	5.3
Capital	2.0	5.8
College	3.0	5.9
Gloucester-Southgate	3.0	6.3
Bay	3.5	8.0
West Carleton-March	2.3	9.8
River	5.0	10.9
Alta Vista	5.3	11.9
Kitchissippi	5.3	13.8
Innes	6.3	16.3
Rideau-Rockcliffe	6.3	16.9
Somerset	10.0	28.5
Rideau-Vanier	17.3	42.0