The Impact of Prescription and Non-Prescription Drug Use in Middlesex-London

MIDDLESEX-LONDON HEALTH UNIT

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Executive Summary

The I-Track report on injection drug use in London, which was released in 2013, showed that people who use injection drugs in London were using a variety of opioids in excess of the Canadian national sample of people who use injection drugs. London was also found to have a much higher prevalence of hepatitis C in people who use injection drugs than the national sample (79.1% versus 68.0%).

This current report provides a more in-depth exploration of the extent and impact of drug use in Middlesex-London in order to guide the development of enhanced strategies to address this important public health issue. It presents information on five categories of drugs which include 1) opioids, 2) cannabinoids, 3) cocaine and other stimulants, 4) sedatives and hypnotics, and 5) hallucinogens and solvents. The current report provides information on a broad range of topics related to drug use including: self-reported illicit drug use from the Canadian Community Health Survey; calls to emergency medical services (EMS) and police incidents related to drug use; emergency department visits and inpatient hospitalizations related to drug use; and problem substances reported on admission to substance misuse and addictions programs. Finally, the report provides a focused analysis on prescription opioid use which contains the following information: opioid prescription rates obtained through the Ontario Drug Benefit Program, and deaths from acute drug toxicity involving prescription opioids obtained from the Office of the Chief Coroner of Ontario. Where available, information for Middlesex-London is compared to the province of Ontario as a whole.

The Canadian Community Health Survey found that 44.3% of participants in Middlesex-London reported drug use in their lifetime, which was higher than the provincial average of 39.8%, with cannabis being the most commonly used drug. In 2013, there were 602 calls to Emergency Medical Services related to drug overdoses, which is an average of 1.6 calls per day. Between 2008 and 2012, London Police Services reported an average of 730 police incidents per year related to drug possession and 230 incidents per year related to drug trafficking, distribution, and possession under the Controlled Drug and Substances Act.

From 2008 to 2012, visits to the emergency department in Middlesex-London were highest for those who reported opioid use compared to all other classes of drugs. Both emergency department visits and hospitalizations for opioid use were significantly higher in Middlesex-London than Ontario as a whole. In 2012, there were 99.8 opioid-related emergency department visits per 100,000 population in Middlesex-London, compared to 77.0 opioid-related emergency visits per 100,000 in Ontario. In that same year, there were 49.6 opioid-related hospitalizations per 100,000 population in Middlesex-London compared to 32.9 opioid-related hospitalizations per 100,000 population in Ontario as a whole. Rates of hospitalizations for opioids use have increased from 2008 to 2012 in both Middlesex-London and Ontario. Opioids were the drug class responsible for the longest average lengths of stay in hospital.

In 2013, admissions rates to substance misuse and addictions programs were higher in Middlesex-London than Ontario as a whole for people who reported prescription opioids, methamphetamines, and other stimulants as a problem substance on admission. From 2008 to 012, there was a marked increase in the rate of Middlesex-London residents reporting methamphetamines as a problem substance on admission to these programs. Among individuals admitted to substance misuse and addiction programs, injection drug use in the 12 months before admission was reported approximately twice as often for Middlesex-London than for Ontario as a whole.

Based on rates of individuals who received opioid prescriptions through the Ontario Drug Benefit (ODB) Program, it was determined that prescription rates for all prescription opioids combined and all ages combined had decreased between 2008 and 2012 in both Ontario and Middlesex-London but was significantly higher in Middlesex-London compared to Ontario for all these years. When broken down by age group, opioid prescription rates to ODB beneficiaries were higher in Middlesex-London compared to Ontario for those less than 65 years of age, but similar in the two jurisdictions for those 65 years of age and over. Looking at specific opioid drugs, oxycodone, hydromorphone, methadone and fentanyl prescription rates were higher in Middlesex-London compared to Ontario, whereas codeine, which was the most commonly prescribed opioid, was generally prescribed at a lower rate in Middlesex-London than Ontario as a whole.

Between 2008 and 2012, the number of deaths due to acute drug toxicity involving prescription opioids in Middlesex-London ranged from 13 to 41, corresponding to an average of 22.8 prescription opioid-related deaths per year. The death rate from prescription opioid-related acute drug toxicity was generally higher in Middlesex-London compared to Ontario as whole, and for 2013 the rates were significantly higher in Middlesex-London (8.8 per 100,000 Middlesex-London residents compared to 4.1 per 100,000 Ontario residents).

Combined with the results from the I-Track report, this current report outlines the significant impact of drug use, and opioid use in particularly, in Middlesex-London. It is anticipated that this report will form the basis for the development of an inclusive, collaborative community drug strategy to address this significant public health issue.

I. Introduction

Background

In 2012, the Middlesex-London Health Unit participated for the first time as a sentinel site in Phase 3 of the I-Track survey of people who use injection drugs. The I-Track survey was conducted by the Public Health Agency of Canada, and one of the main goals was to gain in-depth information about people who inject drugs, and their drug use behaviours. Local I-Track results were analysed and released in 2013[1]. That report showed that there were a number of areas in which London participants differed from the national sample that included all sentinel sites. Opioids were the most common drugs to be injected by London participants, and the prevalence of hepatitis C was higher in the London sample than the national sample (79.1% versus 68.0%). These and other findings suggested the need for further investigation of drug use in the Middlesex-London region.

Health Burden Associated with Drug Use

Countless studies have documented that drug use, also referred to as substance misuse, is responsible for considerable morbidity and mortality. Many substances, from prescription drugs, to legal/licit drugs (such as tobacco and alcohol) to illegal/illicit drugs (such as heroin, cocaine, crack, methamphetamine, and marijuana) have the potential for misuse. Several of the more common health problems associated with drug use include:

- Acute cardiac and neurological sequelae from poisoning (overdose) up to and including death;
- Increased risk of acquiring sexually transmitted infections (STIs) due to the inhibition-lowering effects of many drugs;
- For people who inject drugs, increased risk of acquiring infectious diseases such as hepatitis B and C, human immunodeficiency virus (HIV), skin infections, and infective endocarditis;
- Chronic mental health problems of addiction and dependence, and the health and social burden associated with these (National Institute on Drug Abuse [NIDA], 2014).

Global Context

On a worldwide scale, one of the World Health Organization's (WHO) Global Burden of Disease projects has attempted to quantify the extent of the harms associated with illicit drug use and dependence in terms of Disability Adjusted Life Years (DALYs), which account for both morbidity (years lived with disability) and mortality (years of life lost) (Degenhardt, Whiteford & Hall, 2014; Degenhardt et al., 2013). It was identified that significant gaps in good quality data exist for many regions around the world, especially in quantifying drug-related mental health, injuries and violence sequelae. Nonetheless, the results showed that globally, drug use disorders accounted for over 20 million DALYs in 2010 (Degenhardt, Whiteford & Hall, 2014; Degenhardt et al. 2013).

Canadian Context

Within Canada, substance misuse has had a large impact on the health care system, the economy, and on affected individuals and families. A study by Rehm et al. (2007) estimated that in 2002, approximately 2% of all days spent in the hospital in Canada were due to illegal drug use. This translated into 2,110,102 treatment days across the country, including 31,508 psychiatric treatment days. In addition, the authors estimated that 0.76% of all deaths were attributable to illegal drugs, and that 2.42% of all deaths under 70 years of age were attributable to illegal drug use. This resulted in 62,110 person-years of life lost throughout Canada in 2002.

From the perspective of economic impact, Rehm et al. (2007) estimated that in general, illegal drugs contributed to 20.7% of all substance-related costs, translating to approximately $262 per capita. This estimate included both direct and indirect costs, such as law enforcement, prevention, research, fires, accidents, workplace losses, administrative costs, and productivity costs. The two major costs were health care and law enforcement, comprising 36% of overall costs. It is important to note, though, that these estimates did not include costs related to misuse of prescription drugs.

[1] To view the I-Track Report, refer to: https://www.healthunit.com/uploads/public-health-agency-of-canada-i-track-survey-phase-3.pdf

Local Picture

As previously mentioned, the I-Track survey of people who use injection drugs in London identified some important factors whereby the London sample differed from the overall national sample. It was found that compared to the national sample, London participants were more likely to inject opioid drugs such as morphine (75.5% versus 47.0%) and hydromorphone (75.5% versus 47.2%); by comparison, cocaine was the drug most commonly injected in the national sample (58.3% in London versus 64.3% nationally). Participants in London had a higher prevalence of hepatitis C than the national sample (79.1% versus 68.0%), and were also more likely to engage in high risk behaviours such as borrowing (19.6% versus 15.5%) and lending (26.6% versus 15.5%) used needles.

A series of publications by Gomes, Juurlink, et al. (2011) and Gomes, Juurlink et al. (2012) provided information about the geographical distribution of opioid prescriptions and prescription opioid-related deaths in Ontario between 2004 and 2006. Middlesex County, which included the City of London, was found to have a much higher annual opioid prescription rate per 1,000 eligible publicly funded drug program (OPDP) recipients, and a significantly higher annual opioid-related death rate, than the province and many other jurisdictions across the province (Gomes et al., 2012; Gomes et al., 2011). The annual average prescription rate for Ontario from 2004 to 2006 was approximately 5,500 prescriptions per 1,000 OPDP recipients aged 15 to 64 years, while for Middlesex County, it was 7,399 prescriptions per 1,000 (Gomes et al., 2012). As well, for Ontario, the annual age-sex-standardized opioid death rate from 2004 to 2006 was 4.3 deaths per 100,000 population, while for Middlesex County it was 7.2 per 100,000 (Gomes et al., 2012). It is important to note, though, that these findings were based on the number of prescriptions filled, and not the number of individual opioid prescription users. The physical and pharmacological characteristics of each opioid product influence the number of prescriptions filled, for example, some products require a daily prescription while others may be dispensed in larger volumes. To control for this fact, some analyses of this data source, including those found later in this report, focus on prescription opioid users, rather than opioid prescriptions.

II. Data Sources and Methods

In order to examine the issue of drug use in a community, a number of data sources can be used. This report examines drug use from the perspectives of community and health services utilization. When possible, drug classes based on International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD-10-CA) codes were used for comparing information across data sources. Five categories are presented in this report, and include 1) opioids, 2) cannabinoids, 3) cocaine and other stimulants, 4) sedatives and hypnotics, and 5) hallucinogens and solvents. These are described in more detail below, and Appendix A lists the ICD-10-CA diagnosis codes associated with each drug class.

Opioids are a type of painkiller that include illicit drugs, such as heroin and opium, but also include prescription drugs that can be misused (Canadian Centre on Substance Abuse [CCSA], 2013b). In this report, opioids include heroin, opium, and the prescription opioids codeine, oxycodone, hydromorphone, morphine, methadone, and fentanyl.

Cannabinoids are a type of psychoactive drug that produces relaxation and euphoria (CCSA, 2014). For the purposes of this report, cannabis/marijuana is the only drug included in this category, as it is the most commonly used of all cannabinoids.

Cocaine and other stimulants have been grouped into one category because they are all used to increase energy levels or alertness (CCSA, 2013a). Aside from cocaine, the other stimulants in this category include crack, ecstasy, methamphetamines and amphetamines.

Sedatives and hypnotics are a category of drugs that act as depressants. These include a variety of prescription drugs such as benzodiazepines and barbiturates (CCSA, 2013c).

Hallucinogens and solvents are a wide class of illicit drugs and chemicals that are used for their psychedelic effects. These drugs can include, but are not limited to, household items such as hairspray and other aerosols, glue, and paint (CCSA, 2006).

Self-Reported Illicit Drug Use

The Canadian Community Health Survey (CCHS) was used to assess self-reported drug use in the general population. The CCHS is an annual cross-sectional telephone survey conducted across the country by Statistics Canada. It provides information on a variety of topics, including health care utilization, determinants of health, and health status via a large sample (130,000 respondents across Canada) that is reliable at the public health unit level. However, given that the information is self-reported and respondents might be reluctant to report illegal activity such as illicit drug use, the CCHS likely underestimates the true prevalence of drug use in the population. Simple weighted frequencies and percentages from 2009 through 2012 were obtained through the Public Health Ontario Snapshots[2] to compare the percentage of people that have used each type of drug included in the survey, for Middlesex-London residents and Ontario as a whole.

Drug Use Related Emergency Medical Services (EMS) and Police Incidents

Local EMS and police departments provided data in order to assess the burden that drug use in Middlesex-London places on their work. Middlesex-London EMS provided data to assess the proportion of their calls that were attributed to drug use in 2013 and to determine the average number of calls per year pertaining to drug use. London Police Services provided information about incidents related to drug possession, trafficking, distribution, and production under the Controlled Drugs and Substances Act from 2008 to 2012. In addition, the number and types of drug seizures from 2009 to 2012 was obtained from London Police Services 2012 Annual Report. Similar information was not available from Strathroy-Caradoc Police Services or Middlesex Ontario Provincial Police (OPP).

[2] For more information, visit:
http://www.publichealthontario.ca/en/DataAndAnalytics/Snapshots/Pages/default.aspx

Drug Use Related Emergency Department Visits

A measure of drug use in the community includes emergency department visits for acute mental health, addiction problems, as well as overdoses, which are coded as poisonings in the ICD-10-CA system. The emergency department visit information included in this report is from the National Ambulatory Care Reporting System (NACRS), which is a dataset administered by the Canadian Institute for Health Information (CIHI). All Ontario hospitals submit emergency department visit information into NACRS. Public health access to this information is through intelliHEALTH, a Ministry of Health and Long-Term Care (MOHLTC) web-based reporting tool. Data was extracted from 2008 to 2012. Rates of emergency department visits were calculated based on the main diagnosis for each visit in the numerator, while population estimates were used for the denominator. The 95% confidence intervals were calculated using methods from Sullivan, McKenna, Waller, Williamson, and Lee (2010) to compare Middlesex-London and Ontario for each of the five years of data, and reported in parentheses (±value) with their corresponding rates in the text of the report, and shown as error bars above and below the point values in graphs. Appendix A provides a list of the ICD-10-CA codes used in this analysis.

Drug Use Related Inpatient Hospitalizations

Inpatient hospitalizations for acute mental health, addictions problems, and overdoses are also a measure of drug use in the community. Hospitalization data was obtained from the Discharge Abstract Database (DAD), which is another dataset administered by CIHI. All Ontario hospitals submit hospitalization data to the DAD, and up to 25 diagnosis codes may be recorded for each hospitalization. Similar to ED visits, hospitalization data was accessed through the MOHLTC intelliHEALTH reporting tool. Inpatient hospitalization rates were calculated based on ICD-10-CA diagnosis codes for the numerator and population estimates for the denominator. Again, 95% confidence intervals were calculated to compare rates for Middlesex-London and Ontario and reported in parentheses (±value) with their corresponding rates in the text of the report, and shown as error bars above and below the point values in graphs. In addition, information about the cumulative length of stay (LOS) for patients with each ICD-10-CA code of interest was extracted to determine the average LOS for each drug class. Because individual records were not available, it was not possible to test for statistically significance differences between Middlesex-London and Ontario for average LOS. Appendix A provides a list of the ICD-10-CA codes used in this analysis.

Substance Misuse and Addictions Programs

An additional way of examining burden of drug use in the community is by examining information about admissions to substance misuse and addictions programs. The source of data used in this report is the Drug and Alcohol Treatment Information System (DATIS), which provides information about the numbers of admissions and characteristics of individuals admitted to substance misuse and addictions programs in agencies in Middlesex-London and Ontario. There are approximately 80 different sites, representing 25 different organizations within Middlesex-London that submit data to the system. Some examples include Addictions Services Thames Valley, Westover Treatment Centre, St. Joseph's Hospital Withdrawal Management Centre, and Oneida Drug and Alcohol Counselling Centre. Across Ontario, about 160 different organizations submit data to DATIS. A few of these organizations include inpatient units in hospitals, so there may be some overlap between the hospitalization counts discussed earlier and DATIS data. Private institutions not funded by the government do not submit information to DATIS and are therefore not included in this analysis.

The most recent years of data (2008 to 2013) are provided and compared to Ontario as a whole. Significance testing was carried out by calculating the 95% confidence intervals for admission rates in each category of variables, for comparisons between Middlesex-London and Ontario (detailed tables not shown). Again, confidence intervals are reported in parentheses (±value) with their corresponding rates in the text of the report, and shown as error bars above and below the point values in graphs. Upon admission to a treatment centre, clients are asked to report any problem substances that are being used. Up to five problem substances may be recorded for each admission; in many cases, clients list more than one substance. However, some clients do not list any presenting problem substances. This may be due to the fact that they are in the pre-contemplation stage of behaviour change and do not perceive that any substances they may use as being problematic, but are accessing substance misuse and addiction services as a result of interactions with the justice and corrections systems, such as court-ordered attendance, or as a condition of parole. Other clients may report no presenting problem substances if there has been a waiting period to access community substance misuse and addictions programs and their problem substance use has been addressed through other channels. To record presenting problem substances, there are non-specific categories of "unknown", "undifferentiated" and "other psychoactive drugs". As a result, the presenting problem substance results by drug class presented in this report may be underestimated.

Prescription Opioid Use Rates

To examine opioid prescription patterns in Middlesex-London and Ontario, prescription information from the Ontario Drug Benefit (ODB) Program was requested via the Ontario Drug Policy Research Network (ODPRN) and the Institute for Clinical Evaluative Sciences (ICES). All Ontario seniors 65 years of age and over who have a valid health card are eligible for the ODB Program, as well as other groups of individuals who are under the age of 65 years, such as individuals who receive social assistance through the Ontario Works program or the Ontario Disability Support Program and individuals who are enrolled in a Home Care program. Data on the annual number, rates, and 95% confidence intervals for the annual rates of ODB eligible clients who used prescription opioids by the eligible populations covered under the ODB from 2008 to 2013 were included. The 95% confidence intervals were reported in parentheses (±value) with their corresponding rates in the text of the report, and shown as error bars above and below the point values in graphs.

The information was provided both by all types of opioids aggregated and by individual opioid products. The following opioid products were included in the analysis: codeine, fentanyl, hydromorphone, meperidine, methadone, morphine, oxycodone, and other opioids (includes buprenorphine, propoxyphene, sufentanil, pentazocine, butorphanol). However, antitussives (cough suppressants) that contain opioids were excluded from the analysis. This data was analyzed and included in this report to assess the potential for drug misuse throughout Middlesex-London.

It should be noted that "this report includes data provided by the ODPRN and ICES, both of which are supported by the Ontario Ministry of Health and Long-Term Care (MOHLTC). The opinions, results and conclusions in this report are those of the authors. No endorsement by the ODPRN, ICES, or Ontario MOHLTC is intended or should be inferred", (ODPRN–ICES, 2014).

Deaths Due to Acute Drug Toxicity Involving Prescription Opioids

Information about deaths due to acute drug toxicity involving prescription opioids was requested from the Office of the Chief Coroner of Ontario, to supplement the opioid prescription use rate information. Data from 2008 to 2012 were provided, and potentially included a number of prescription opioids, including codeine, fentanyl, hydromorphone, meperidine, methadone, morphine, and oxycodone. Due to low numbers of deaths, it was not possible to break down prescription opioids by specific products. Information about deaths involving other classes of drugs, (such as stimulants, or sedatives and hypnotics) was not available.

Data from 2008 to 2012 are provided for Middlesex-London and Ontario. Rates of deaths due to acute drug toxicity involving prescription opioids were calculated using the annual number of opioid-related deaths in the numerator and population estimates in the denominator. The 95% confidence intervals were calculated to compare rates for Middlesex-London and Ontario, and reported in parentheses (±value) with their corresponding rates in the text of the report, and shown as error bars above and below the point values in graphs.

III. Self-Reported Illicit Drug Use

Highlights

- Middlesex-London has a significantly higher proportion of individuals who have ever used an illicit drug (44.3%), compared to Ontario (39.8%).
- Cannabis was the only substance where Middlesex-London had a significantly higher proportion of individuals reporting use (43.8%), compared to Ontario (39.4%). This result may be partially due to the perceived acceptability of reporting ever having used this drug and a reluctance to report the use of other drugs.
- These indicators include anyone who has ever reported trying one of these drugs in their lifetime, and do not necessarily reflect current or recent drug use rates.

Self-Reported Illicit Drug Use

Table 3.1 highlights lifetime, self-reported drug use among Middlesex-London and Ontario residents. In Middlesex-London, almost half of all individuals 12 years of age and over reported ever having tried using an illicit drug (44.3% ± 2.6%). This was significantly higher than the percentage of individuals in Ontario who reported having tried an illicit drug (39.8% ± 0.6%).

Cannabis was the only substance that a significantly higher percentage of Middlesex-London residents reported ever having used (43.8% ± 2.6%), compared to Ontario (39.4% ± 0.7%). It is important to note that this finding may be due to the perceived acceptability of admitting to ever having used this particular drug, as well as the reluctance to report the use of other illicit drugs. In addition, it is also important to recognize that these categories are not an exhaustive list, but rather, are a subset of drugs that are monitored through the Canadian Community Health Survey (CCHS). For example, heroin was the only opioid reported, but opioids include a variety of other prescription drugs, including codeine, morphine, fentanyl, hydromorphone, methadone, and oxycodone. For other drug classes, such as sedatives and hypnotics, the CCHS includes no questions.

It should be noted that the CCHS does not attempt to measure the impact of illicit drug use on our health care system and other services. Other data sources are presented in subsequent chapters will provide a more inclusive list of drugs and analyze which of these are having the greatest impact on current services and resources.

Table 3.1: Self-reported proportion of the population who have ever used illicit drugs, by drug type, Middlesex-London and Ontario, 2009 to 2012 (combined)

Drug use indicator, overall	ML % (95% CI)	ON % (95% CI)
Self-reported proportion of the population who ever used an illicit drug*	44.3 (41.7-46.9)	39.8 (39.2-40.5)
Drug use indicators, by drug class		
Opioids		
Self-reported proportion of the population who have ever used heroin	0.6 (0.2-1.0) ▼	0.5 (0.5-0.6)
Cannabis		
Self-reported proportion of the population who had ever used cannabis*	43.8 (41.2-46.4)	39.4 (38.7-40.0)
Cocaine and other stimulants		
Self-reported proportion of the population who have ever used cocaine or crack	7.6 (6.0-9.1)	6.1 (5.8-6.4)
Self-reported proportion of the population who have ever used MDMA (ecstasy)	4.4 (3.3-5.5)	4.0 (3.8-4.2)
Self-reported proportion of the population who have even used amphetamine (speed)	2.4 (1.6-3.3) ▼	2.3 (2.1-2.5)
Sedative and hypnotics		
No questions asked		
Hallucinogens and solvents		
Self-reported proportion of the population who have ever used hallucinogens, PCP or LSD	6.9 (5.5-8.4)	6.0 (5.7-6.2)
Self-reported proportion of the population who have ever sniffed or huffed glue, gasoline, acetone, or other solvents	§	0.6 (0.6-0.7)
Other		
Self-reported proportion of the population who have ever used steroids	§	0.5 (0.4-0.6)

Source: Canadian Community Health Survey (CCHS), Public Health Ontario Snapshots, 2014. Accessed December 18, 2013.

▼Interpret with caution, as data has high levels of variability

§ Results cannot be released due to high levels of variability

* Significant difference between Middlesex-London and Ontario

IV. Drug Use Related Emergency Medical Services (EMS) and Police Incidents

Highlights

- In 2013, 602 calls were placed to Middlesex-London EMS related to drug overdoses.
- Between 2008 and 2012, London Police Services responded to an average of 730 police incidents per year related to drug possession and 230 incidents per year related to drug trafficking, distribution, and possession.
- From 2009 to 2012, there was an increase in the amount of powder cocaine, methamphetamines, ecstasy, and prescription pills seized by London Police Services, with some variability from year to year.

"My turning point… was when I ended up in jail.
The day I got arrested, I remember smiling in the back of the cop car,
and the police officer actually commented looking in the rear-view mirror,
'You look pretty happy for someone that got arrested', and
I said that I didn't get arrested…
I wasn't arrested; I got rescued. That's how I felt."
- Richard's Story (www.its-possible.ca).

EMS Calls

Figure 4.1 illustrates that in 2013, 1.6% of all EMS calls were related to drug overdoses. There were 602 overdose-related calls to EMS throughout the year, which translates into an average of 1.6 calls per day. These calls related to overdose from all types of drugs, including those related to illicit or licit drugs, prescription or non-prescription medication, and intentional or unintentional overdoses. During the summer months of July, August, and September, the proportion of all EMS calls related to drug overdoses was higher than the annual average of 1.6%, with the proportion of drug overdose calls reaching or surpassing 2.0% of all EMS calls in July and September.

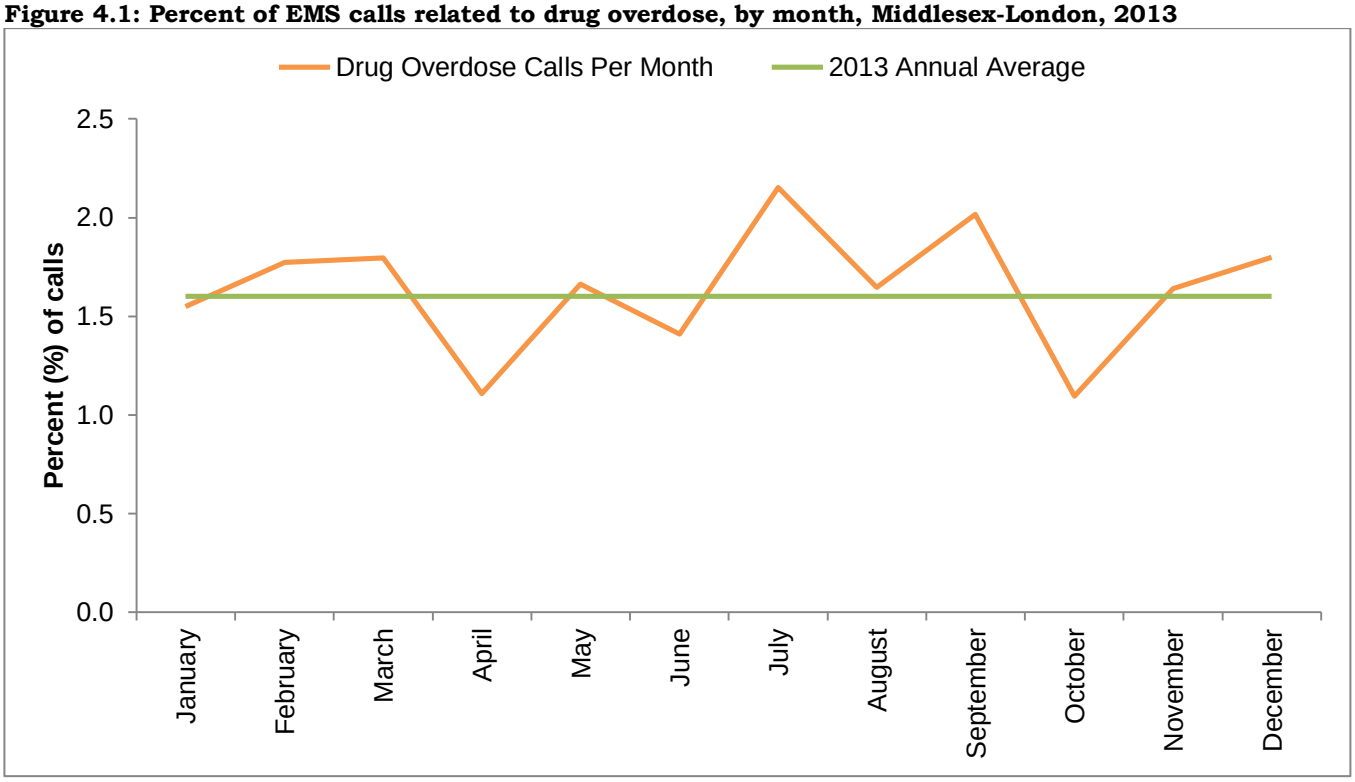
Drug Offense Incidents

The federal legislation under which police services follow up drug offences is the Controlled Drug and Substances Act (CDSA). In place since 1996, the CDSA outlines drug possession, trafficking, production and distribution offences and their maximum penalties. In March 2012, amendments were made to the Act to include minimum sentences for certain drug classes such as opioids, cannabis, and cocaine.

Figure 4.2 shows that between 2008 and 2012, the majority of CDSA-related incidents investigated by London Police Services were related to possession of controlled drugs and substances, as opposed to trafficking, distribution, or production. On average, from 2008 to 2012, 730 incidents per year were related to drug possession, while 230 incidents per year were related to trafficking, distribution, and possession. In 2013, a total of 985 drug-related incidents were investigated by London Police Services. This included all substances under the CDSA; however, the most frequent illicit drug incidents were related to prescription and non-prescription pills, cannabis, cocaine, methamphetamines, and ecstasy (Joan Atchison, London Police Services, personal communication, April 16, 2014). Using incidents is a way to begin to quantify the impact of drug use on police services throughout the year; however, this does not provide a complete picture. The occurrence of one criminal event can involve more than one individual, yet it would be counted as one incident. As a result, the number of people involved in the incidents may be higher than reflected by the data that reports on incidents.

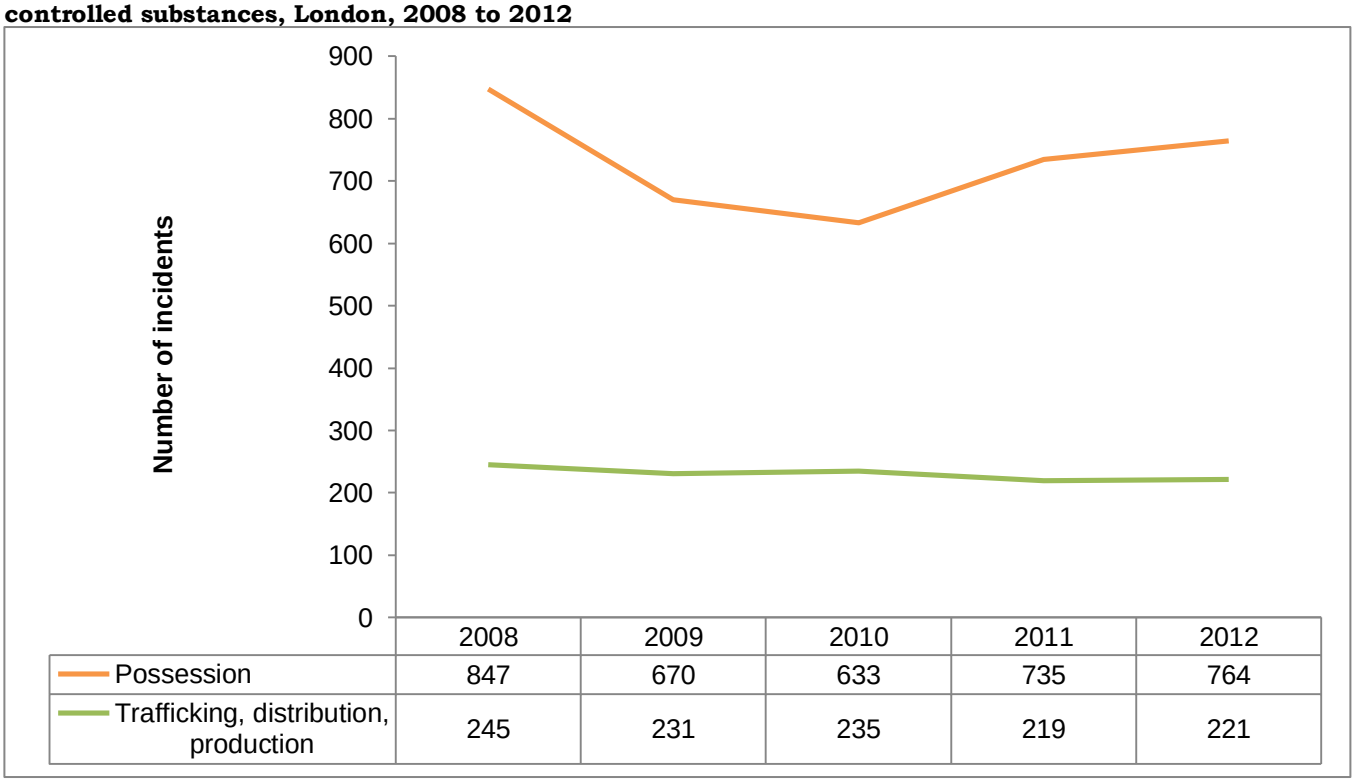
In addition to incident investigations, London Police Services are also responsible for seizure of drugs and controlled substances. Table 4.1 shows that between 2009 and 2012, there was a general increase in seizures for stimulants like methamphetamines, ecstasy, and cocaine, as well as prescription pills, and a decrease in cannabis and crack seizures, with some year to year variability. The greatest increase was for methamphetamines, which went from three grams seized in 2009 to 1,121 grams seized in 2012. The number of prescription pills seized increased by 27.4%, from 1,180 pills in 2009 to 1,503 pills in 2012.

Figure 4.1: Percent of EMS calls related to drug overdose, by month, Middlesex-London, 2013



Source: Jay Loosley, Superintendent of Education, Middlesex-London EMS, personal communication, March 7, 2014

Figure 4.2: Annual number of police incidents for possession, trafficking, distribution, and production of controlled substances, London, 2008 to 2012



	2008	2009	2010	2011	2012
Possession	847	670	633	735	764
Trafficking, distribution, production	245	231	235	219	221

Source: Joan Atchison, Planner-Analyst, London Police Services, personal communication, February 10, 2014.

Table 4.1: Annual amounts of drugs seized by London Police Services, London, 2009 to 2012

Drugs	2009	2010	2011	2012
Cannabis				
Marijuana	1,192,554 grams	95,678 grams	47,285 grams	31,407 grams
Marijuana plants	15,231	14,221	4,202	4,670
Marijuana grows	42	26	16	16
Cocaine and other stimulants				
Crack	528 grams	885 grams	355 grams	457 grams
Powder Cocaine	2,645 grams	2,528 grams	957 grams	3,831 grams
Methamphetamines	3 grams	125 grams	479 grams	1,121 grams
Ecstasy	688 pills	275 pills	846 pills	1,380 pills
Prescription				
Pills	1,180 pills	2,242 pills	1,749 pills	1,503 pills

Source: London Police Service, 2012 Annual Business Plan Progress Report 3 Year Concluding Report, ND.

V. Drug Use Related Emergency Department Visits

Highlights

- Between 2008 and 2012, opioid-related emergency department visit rates were highest among all drug classes in Middlesex-London. In 2012, there were 99.8 opioid-related emergency department visits per 100,000 population, compared to less than 40.0 visits per 100,000 population related to all other drug classes.
- Opioid-related emergency department visit rates in Middlesex-London were significantly higher than the rates for Ontario between 2008 and 2012. Similarly, the visit rates associated with sedative and hypnotic drugs in Middlesex-London were significantly higher than the Ontario rates between 2008 and 2011.
- Between 2008 and 2012, there were no significant differences between emergency department visit rates in Middlesex-London and Ontario for the other drug classes (cannabinoids, cocaine and other stimulants, and hallucinogens and solvents).

"I guess at a young age, I knew I was an addict,
but I didn't really understand anything about it.
I just knew that I partied harder or more than anyone else.
It was go high or go home."
- Elaine's Story (www.its-possible.ca).

The frequency and rates of emergency department visits related to drug use, such as acute intoxication, dependence, or overdose, provides an estimate of the extent of drug use in the community. Data provided in this section are likely conservative because the main diagnosis coded for a given emergency department visit may not always reflect the contribution of drug use to the visit. For example, the main diagnosis for someone who fell and broke their arm because they were under the influence of a specific drug might only reflect the primary medical reason for the visit, a broken arm, and the connection with drug use may not be recorded.

Opioid-Related Emergency Department Visits

Prescription opioids such as codeine, morphine, and hydromorphone are some of the opioids included in this analysis, as well as the opioid agonist methadone, since it is used in the treatment of opioid addiction and may be misused. Illicit opioids such as heroin and opium are also included.

Between 2008 and 2012, there was an average of 472 opioid-related emergency department visits each year among Middlesex-London residents. Table 5.1 shows that the number of opioid-related emergency department visits far outnumbered those for other drug classes; the annual number of opioid-related emergency department visits ranged between 375 and 521, depending on the year.

Figure 5.1 illustrates that between 2008 and 2012, opioid-related emergency department visit rates were highest among all drug classes in Middlesex-London. As well, compared to Ontario, Middlesex-London had significantly higher rates of opioid-related emergency department visits for all years between 2008 and 2012. The rate of opioid-related emergency department visits in Middlesex-London increased each year between 2008 and 2010, ranging from a low of 83.6 (±8.5) visits per 100,000 population in 2008 to a high of 114.2 (±9.8) visits per 100,000 population in 2010, after which the rate decreased to 99.8 (±9.1) visits per 100,000 population in 2012. In Ontario, the rates ranged from a low of 55.6 (±1.3) visits per 100,000 population in 2008 to a high of 77.7 (±1.5) visits per 100,000 population in 2011.

Cannabinoid-Related Emergency Department Visits

Table 5.1 shows that emergency department visits related to cannabinoids were relatively low in Middlesex-London, ranking fourth out of the five drug classes in terms of their relative frequency. The number of cannabinoid-related emergency department visits ranged from 77 to 132 between 2008 and 2012, corresponding to an average of 100 cannabinoid-related emergency department visits each year among Middlesex-London residents.

Figure 5.1 shows that in terms of cannabinoid-related emergency department visit rates, there were no significant differences between Middlesex-London and Ontario between 2008 and 2012. However, there appeared to be a general increasing trend for cannabinoid-related emergency department visit rates both locally and provincially. In Middlesex-London, there were 17.2 (±3.8) cannabinoid-related visits per 100,000 population in 2008, which rose to 28.5 (±4.9) visits per 100,000 population in 2012, while in Ontario, there were 18.6 (±0.7) cannabinoid-related visits per 100,000 population in 2009, which increased to 31.9 (±1.0) visits per 100,000 population in 2012.

Cocaine and Stimulant-Related Emergency Department Visits

For emergency department visits related to cocaine and other stimulants, there was an average of 181 visits per year between 2008 and 2012 in Middlesex-London. As shown in Table 5.1, the number of stimulant-related emergency department visits for Middlesex-London residents was highest in 2008, when there were 245 visits. After declining to a low of 142 stimulant-related emergency department visits in 2009, the number increased to 178 visits in 2012.

Figure 5.1 illustrates that between 2008 and 2012 there were no significant differences between Middlesex-London and Ontario for rates of stimulant-related emergency department visits, with the exception of 2011, when the Middlesex-London rate (40.9 (±5.8) ED visits per 100,000 population) was significantly higher than the Ontario rate (33.2 (±1.0) ED visits per 100,000 population). In Middlesex-London, stimulant-related emergency department visit rates ranged from a low of 31.4 (±5.2) visits per 100,000 population to a high of to 54.6 (±6.8) visits per 100,000 population, with rates fluctuating between 2008 and 2012. Ontario emergency department visit rates for stimulants varied between 30.9 (±1.0) visits per 100,000 population and 46.4 (±1.2) visits per 100,000 population, with a general increasing trend in the provincial rates since 2009.

Sedative and Hypnotic-Related Emergency Department Visits

On average, there were 198 emergency department visits per year between 2008 and 2012 related to sedative and hypnotic drugs (including benzodiazepines and barbiturates) in Middlesex-London. Table 5.1 shows that from 2009 to 2012, sedative and hypnotic-related emergency department visits were the second most frequently reported drug class in Middlesex-London, with 182 visits in 2012.

Figure 5.1 shows that the sedative and hypnotic-related emergency department visit rates in Middlesex-London were significantly higher compared to Ontario rates for all years except 2012. The Middlesex-London emergency department visit rate ranged from a low of 39.2 (±5.7) visits per 100,000 population to a high of 47.8 (±6.4) visits per 100,000 population, with a general decrease over time. The Ontario rate of emergency department visits for sedative and hypnotic drugs was stable to slightly increasing over time, ranging from a low of 32.5 (±1.0) visits per 100,000 population in 2008 to a high of 35.4 (±1.0) visits per 100,000 population in 2012.

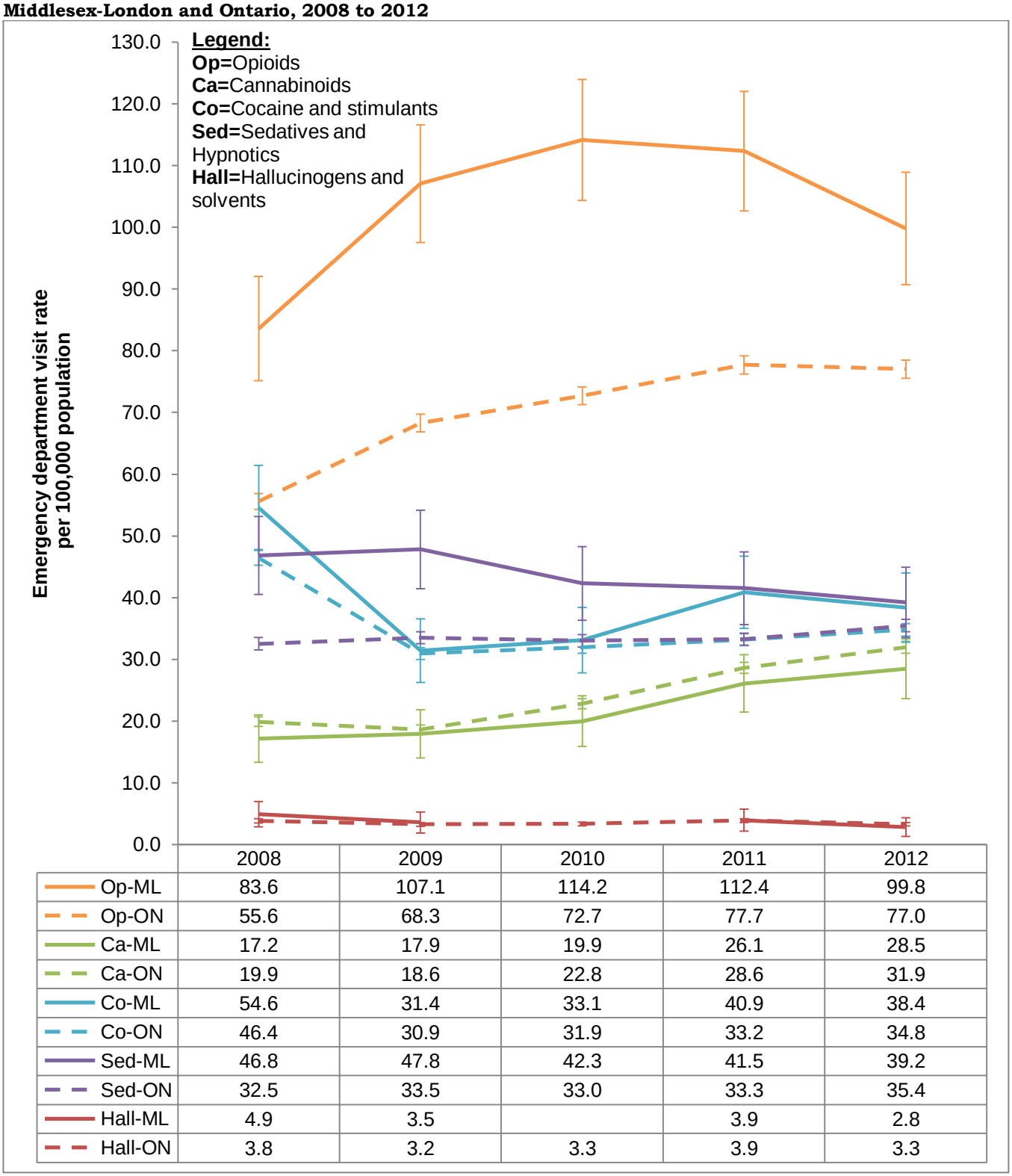
Hallucinogen and Solvent-Related Emergency Department Visits

The final class of drugs examined was hallucinogens and solvents. These were much less commonly associated with emergency department visits in Middlesex-London and across the province. However, for solvents, use may be underreported because there is not an ICD-10-CA code specifically for "huffing"/inhaling recreationally.

From 2008 to 2012, there was an annual average of 15 emergency department visits related to hallucinogens and solvents in Middlesex-London. Table 5.1 shows that in terms of frequency, emergency department visits related to hallucinogens and solvents ranked fifth among all drug classes, with 13 visits in Middlesex-London in 2012.

Figure 5.1 shows that there were no significant differences between the local and provincial rates for emergency department visits related to hallucinogens and solvents. In Middlesex-London, the emergency department visit rate for hallucinogens and solvents ranged from a low of 2.8 (±3.3) visits per 100,000 population to a high of 4.9 (±3.8) visits per 100,000 population, with a decreasing trend from 2008 to 2012. Middlesex-London data from 2010 could not be shown due to there being five or fewer visits for that year. For Ontario, the rate of emergency department visits was relatively stable, from a low of 3.2 (±0.3) visits per 100,000 population in 2009 to a high of 3.9 (±0.3) visits per 100,000 population in 2011.

Figure 5.1: Rates of drug-related emergency department visits per 100,000 population, by drug class, Middlesex-London and Ontario, 2008 to 2012



	2008	2009	2010	2011	2012
Op-ML	83.6	107.1	114.2	112.4	99.8
Op-ON	55.6	68.3	72.7	77.7	77.0
Ca-ML	17.2	17.9	19.9	26.1	28.5
Ca-ON	19.9	18.6	22.8	28.6	31.9
Co-ML	54.6	31.4	33.1	40.9	38.4
Co-ON	46.4	30.9	31.9	33.2	34.8
Sed-ML	46.8	47.8	42.3	41.5	39.2
Sed-ON	32.5	33.5	33.0	33.3	35.4
Hall-ML	4.9	3.5		3.9	2.8
Hall-ON	3.8	3.2	3.3	3.9	3.3

Sources: Emergency Department Visits – National Ambulatory Care Reporting System (NACRS), Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted March 20, 2014; Population Estimates – Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted December 16, 2013.

Table 5.1: Number of drug-related emergency department visits and annual ranking by frequency, by drug class, Middlesex-London and Ontario, 2008 to 2012

Year	2008	2009	2010	2011	2012
Opioids					
ML	375	484	521	517	463
ON	7185	8928	9617	10389	10403
Annual Rank (ML / ON)	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Cannabis					
ML	77	81	91	120	132
ON	2570	2431	3015	3822	4312
Annual Rank (ML / ON)	4 / 4	4 / 4	4 / 4	4 / 4	4 / 4
Cocaine and Other Stimulants					
ML	245	142	151	188	178
ON	6007	4043	4222	4434	4697
Annual Rank (ML / ON)	2 / 2	3 / 3	3 / 3	3 / 3	3 / 3
Sedatives and Hypnotics					
ML	210	216	193	191	182
ON	4206	4378	4363	4448	4786
Annual Rank (ML / ON)	3 / 3	2 / 2	2 / 2	2 / 2	2 / 2
Hallucinogens and Solvents					
ML	22	16	-	18	13
ON	496	423	440	516	441
Annual Rank (ML / ON)	5 / 5	5 / 5	- / 5	5 / 5	5 / 5

Sources: Emergency Department Visits – National Ambulatory Care Reporting System (NACRS), Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted March 20, 2014.

- Number cannot be reported due to cells counts less than 5

VI. Drug Use Related Inpatient Hospitalizations

Highlights

- In Middlesex-London, opioid-related inpatient hospitalizations had a significantly higher impact compared to other classes of drugs. In 2012, there were 49.6 opioid-related hospitalizations per 100,000 population compared to fewer than 20 hospitalizations per 100,000 population related to other drug classes.
- Opioid related hospitalization rates in Middlesex-London were significantly higher compared to Ontario rates. In 2021, the Middlesex-London opioid-related hospitalization rate of 49.6 hospitalizations per 100,000 population was 1.5 times greater than the Ontario rate of 32.9 hospitalizations per 100,000 population.
- There were no significant differences between Middlesex-London and Ontario hospitalization rates for the other drug classes for which there were sufficient numbers of hospitalizations to report (cannabinoids, cocaine and other stimulants, sedatives and hypnotics).
- In Middlesex-London, hospitalizations related to opioids had the longest average length of stay in hospital compared to other drug classes. In 2012, the average length of stay associated with opioid-related hospitalization was 7.5 days, compared to 6.2 days or less for all other drug classes.

"I did believe that I was really the only one affected [by my addiction]
and I was so stuck in my own self-centredness that I thought
no one really noticed or really cared."
- Tabitha's Story (www.its-possible.ca).

The frequency of inpatient hospitalizations related to the effects of drug use, such intoxication, dependence and overdose, provide additional information to assess the impact of drug use in the community. It should be noted that similar to emergency department data, the information provided in this analysis is likely conservative because inpatient hospitalizations may not always be coded to reflect the underlying contribution of drug use. The data included in this section reports not only those who had a most responsible diagnosis related to specific drug use, but also those who had any other diagnostic codes related to drug use.

Opioid-Related Inpatient Hospitalizations

Inpatient hospitalizations in the opioid drug class included prescription opioids as well as non-prescription opioids, such as heroin. Among Middlesex-London residents, there was an average of 183 opioid-related inpatient hospitalizations each year between 2008 and 2012. Table 6.1 shows that depending on the year, the number of inpatient hospitalizations in Middlesex-London related to opioids ranged from 156 to 230 between 2008 and 2012, and was consistently two to three times greater than the number of hospitalizations for the next most frequently reported drug class in Middlesex-London.

Figure 6.1 shows that inpatient hospitalization rates related to opioid use in Middlesex-London increased from 34.8 (±5.5) hospitalizations per 100,000 population in 2008 to 49.6 (±6.4) hospitalizations per 100,000 population in 2012. Across the five year time period, local rates were significantly higher than the opioid-related hospitalization rates in Ontario, which increased from 21.7 where in 2012, the inpatient hospitalizations rate was 32.9 (±1.0) hospitalizations per 100,000 people.

Table 6.2 provides the average length of stay (LOS) for hospitalizations with diagnosis codes related to drug use. In 2012, the average LOS for a hospitalization related to opioid use was 7.5 days in Middlesex-London. While this was the highest average LOS among all drug classes in Middlesex-London, it was comparable to the average LOS of 8.0 for Ontario.

Cannabinoid-Related Inpatient Hospitalizations

Between 2008 and 2012, there was an annual average of 56 cannabinoid-related hospitalizations in Middlesex-London. Table 6.1 shows that the number of inpatient hospitalizations in Middlesex-London generally increased, from 41 to 66 between 2008 and 2012.

Similarly, it can be seen in Figure 6.1 that cannabinoid-related hospitalization rates also generally increased, in both Middlesex-London and Ontario. In 2008, the rates of hospitalizations associated with cannabinoids were 9.1 (±2.8) and 7.3 (±0.5) hospitalizations per 100,000 population in Middlesex-London and Ontario, respectively. By 2012, the cannabinoid-related hospitalization rate in Middlesex-London was 14.2 (±3.4) hospitalizations per 100,000 population, while the Ontario rate was 11.2 (±0.6) hospitalizations per 100,000 population.

Table 6.2 shows that the average LOS for cannabinoid-related hospitalizations in Middlesex-London was generally lower than the average LOS for Ontario for all year except 2009. In 2012, the average LOS for hospitalizations related to cannabinoids in Middlesex-London was 5.6 days, while the average LOS for Ontario was 6.8 days. Overall, average LOS for cannabinoid-related hospitalization fluctuated between 2008 and 2012, however, some of this variability may have been due to small cell counts.

Cocaine and Stimulant-Related Inpatient Hospitalizations

Table 6.1 shows that depending on the year, there were between 42 and 67 inpatient hospitalizations related to cocaine and other stimulant use in Middlesex-London between 2008 and 2012. This corresponds to an average of 53 hospitalizations each year in the five year time period.

As seen in Figure 6.1, inpatient hospitalization rates associated with cocaine and other stimulant were different in Middlesex-London and Ontario. Stimulant-related hospitalization rates in Middlesex-London increased from 10.9 (±3.1) hospitalizations per 100,000 population in 2008 to 14.4 (±3.5) hospitalizations per 100,000 population in 2012. During the same time period, Ontario hospitalization rates decreased from 14.6 (±0.7) hospitalizations per 100,000 population to 11.9 (±0.6) hospitalizations per 100,000. Although different patterns existed between the two jurisdictions, there were no statistical difference between the rates in Middlesex-London and Ontario for any of the five years.

Similarly, different patterns have emerged related to LOS for patients in hospital related to cocaine and stimulant use. Table 6.2 shows that LOS has increased in Middlesex-London from 2008 to 2012, with a peak in 2011 of an average of 7.8 days in hospital. Although the peak also occurs in 2011 for Ontario, the overall trend in Ontario is decreasing lengths of hospital stays.

Sedative and Hypnotic-Related Inpatient Hospitalizations

For inpatient hospitalizations related to sedative and hypnotic drugs, there was an average of 69 hospitalizations per year between 2008 and 2012 in Middlesex-London. Table 6.1 shows that the number of hospitalizations varied from year to year, ranging from a low of 56 hospitalizations in 2011 to a high of 81 hospitalizations in 2009.

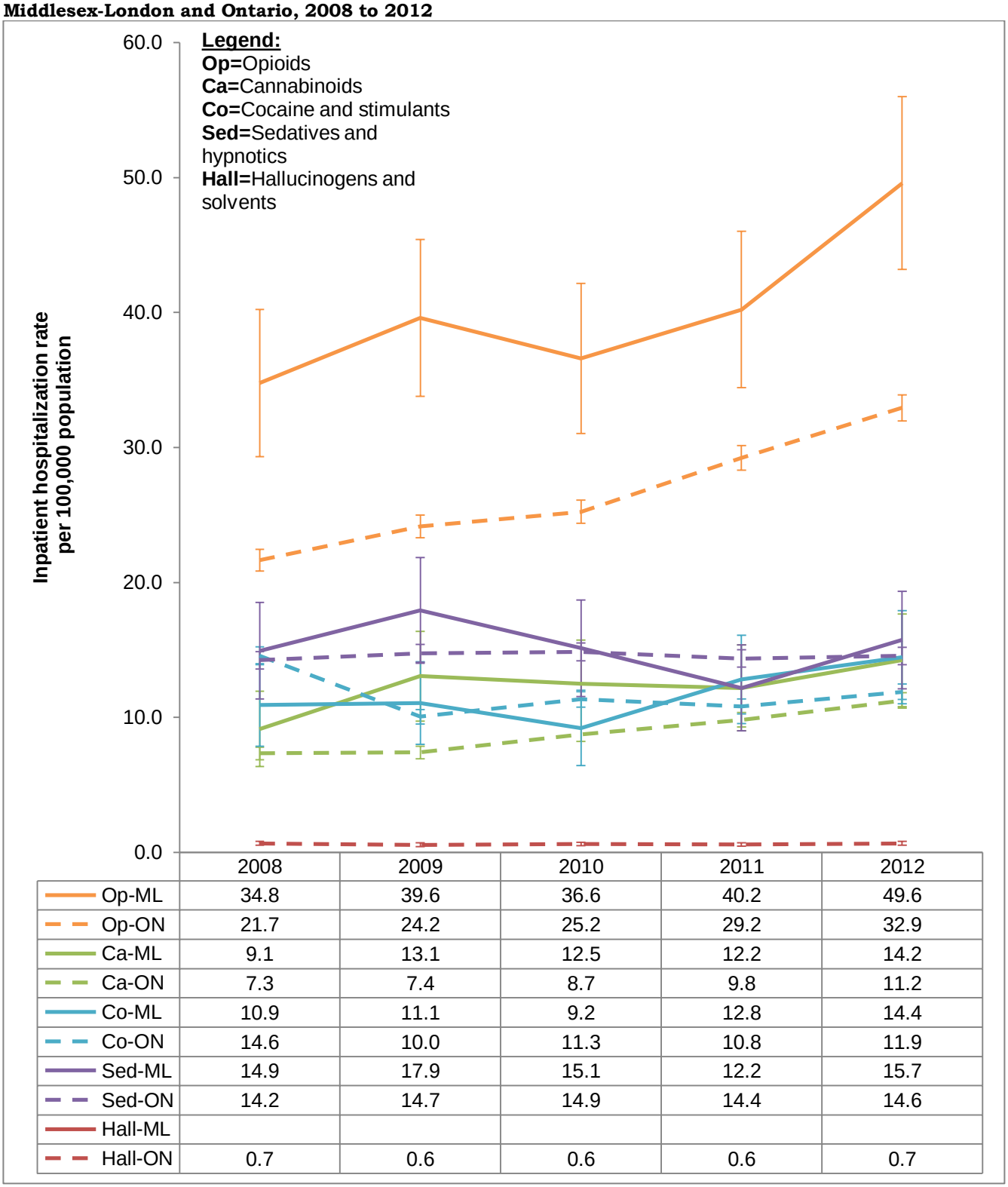
Figure 6.1 shows that between 2008 and 2012, the rates of sedative and hypnotic-related hospitalization in Middlesex-London fluctuated, while in Ontario, inpatient hospitalization rates remained quite stable. Although there were not significant increases or decreases across the five year time period in Middlesex-London, annual fluctuations resulted in a low of 12.2 (±3.2) hospitalizations per 100,000 population in 2011, and a high of 17.9 (±3.9) hospitalizations per 100,000 population in 2009. In Ontario, the hospitalization rates associated with sedatives and hypnotics was 14.6 (±0.6) hospitalizations per 100,000 population in 2012, which was comparable to all other years. Although variation occurred across time, the hospitalization rate for sedative and hypnotic use in Middlesex-London was not significantly different than Ontario.

In terms of average LOS in hospital associated with sedative and hypnotic use, Table 6.2 shows that values remained relatively stable in both Middlesex-London and Ontario between 2008 and 2012, with the exception 2009, when average LOS increased sharply in both Middlesex-London and Ontario. However, average LOS decreased again in 2010. Most recently, in 2012, the average LOS associated with sedative and hypnotic-related hospitalizations was 5.1 days in Middlesex-London which was comparable to the Ontario average LOS of 5.0 days.

Hallucinogen and Solvent-Related Inpatient Hospitalizations

Information about the number, rates of, and average LOS associated with hallucinogen and solvent-related inpatient hospitalizations could not be released for Middlesex-London, due to low cell counts. Figure 6.1 shows that at the provincial level, rates of hallucinogen and solvent-related hospitalization were consistently low, with 0.7 (±0.1) hospitalizations per 100,000 population in Ontario in 2012. Figure 6.2 shows that in Ontario in 2012, the average LOS associated with hallucinogen and solvent-related hospitalizations was 10.5 days. Although the provincial average LOS appeared to increase between 2008 and 2012, it should be noted that the annual numbers of inpatient hospitalizations were much lower than for the other drug classes. As a result, the calculation of average LOS may be subject to more random fluctuation, which may potentially account for the observed trend.

Figure 6.1: Rates of drug-related inpatient hospitalizations per 100,000 population, by drug class, Middlesex-London and Ontario, 2008 to 2012



	2008	2009	2010	2011	2012
Op-ML	34.8	39.6	36.6	40.2	49.6
Op-ON	21.7	24.2	25.2	29.2	32.9
Ca-ML	9.1	13.1	12.5	12.2	14.2
Ca-ON	7.3	7.4	8.7	9.8	11.2
Co-ML	10.9	11.1	9.2	12.8	14.4
Co-ON	14.6	10.0	11.3	10.8	11.9
Sed-ML	14.9	17.9	15.1	12.2	15.7
Sed-ON	14.2	14.7	14.9	14.4	14.6
Hall-ML					
Hall-ON	0.7	0.6	0.6	0.6	0.7

Sources: Inpatient Hospitalizations – Discharge Abstract Database (DAD), Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted April 22, 2014; Population Estimates – Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted December 16, 2013

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Table 6.1: Number of drug-related inpatient hospitalizations and annual ranking by frequency, by drug class, Middlesex-London and Ontario, 2008 to 2012

Year	2008	2009	2010	2011	2012
Opioids					
ML	156	179	167	185	230
ON	2800	3158	3336	3906	4449
Annual Rank (ML / ON)	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Cannabis					
ML	41	59	57	56	66
ON	948	968	1153	1312	1519
Annual Rank (ML / ON)	4 / 4	3 / 4	3 / 4	3† / 4	4 / 4
Cocaine and Other Stimulants					
ML	49	50	42	59	67
ON	1885	1313	1498	1446	1606
Annual Rank (ML / ON)	3 / 2	4 / 3	4 / 3	2 / 3	3 / 3
Sedatives and Hypnotics					
ML	67	81	69	56	73
ON	1840	1927	1964	1920	1967
Annual Rank (ML / ON)	2 / 3	2 / 2	2 / 2	3† / 2	2 / 2
Hallucinogens and Solvents					
ML	-	-	-	-	-
ON	86	73	81	78	90
Annual Rank (ML / ON)	- / 5	- / 5	- / 5	- / 5	- / 5

Sources: Inpatient Hospitalization – Discharge Abstract Database (DAD), Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted April 22, 2014; Population Estimates – Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted December 16, 2013

- Number cannot be reported due to cells counts less than 5
† Same number of hospitalizations in two different drug classes

Table 6.2: Average length of stay (LOS) (days) in hospital for drug-related hospitalizations, by drug class, Middlesex-London and Ontario, 2008 to 2012

Year	2008	2009	2010	2011	2012
Opioids					
ML	7.8	8.2	9.0	8.4	7.5
ON	8.3	8.2	8.8	8.0	8.0
Annual Rank (ML / ON)	1 / 1	2 / 1	1 / 1	1 / 2	1 / 2
Cannabis					
ML	4.4	9.3	5.0	5.0	5.6
ON	5.7	6.5	5.7	7.5	6.8
Annual Rank (ML / ON)	4 / 4	1 / 4	4 / 4	4 / 3	3 / 3
Cocaine and Other Stimulants					
ML	4.5	5.6	7.6	7.8	6.2
ON	7.1	6.7	6.4	7.4	6.3
Annual Rank (ML / ON)	3 / 2	4 / 2	2 / 3	2 / 4	2 / 4
Sedatives and Hypnotics					
ML	4.8	6.9	5.6	5.5	5.1
ON	5.0	5.9	5.2	5.4	5.0
Annual Rank (ML / ON)	2 / 5	3 / 5	3 / 5	3 / 5	4 / 5
Hallucinogens and Solvents					
ML	-	-	-	-	-
ON	6.6	6.6	8.5	8.2	10.5
Annual Rank (ML / ON)	- / 3	- / 3	- / 2	- / 1	- / 1

Sources: Inpatient Hospitalization – Discharge Abstract Database (DAD), Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted April 22, 2014; Population Estimates – Ministry of Health and Long-Term Care IntelliHEALTH ONTARIO, Extracted December 16, 2013

- Number cannot be reported due to cells counts less than 5

VII. Admission to Substance Misuse and Addictions Programs

Highlights

- In 2013, the Middlesex-London rates of admissions to substance misuse and addictions programs reporting prescription opioids, methamphetamines, and other stimulants as a presenting problem substance were significantly higher than the Ontario rates; the rates of admissions related to cannabis, cocaine, benzodiazepines, heroin/opium, codeine, ecstasy, and hallucinogens were significantly lower in Middlesex-London than the comparable Ontario rates.
- For Middlesex-London, cannabis, prescription opioid, and crack were the presenting problem substances with the highest rates of admission between 2008 and 2013.
- Between 2008 and 2013, the rates of admissions to substance misuse and addictions services related to crack and cocaine generally decreased in Middlesex-London. However, there was a marked increase in admissions reporting methamphetamines as a presenting problem over the six year time period.

"I changed my habits. I tried to control my own addiction,
thinking that somehow if I only got high on the weekend,
or only did one drug as opposed to another, I could manage that.
It took me about two years to get a grip."
- Tabitha's Story (www.its-possible.ca).

Substance misuse and addiction recovery programs and services are important components of the continuum of care for those who misuse substances. Use of these programs and services provide an indicator of the extent of substance use in a community. It should be noted that this indicator is somewhat dependant on the availability of these programs and services in the local community. It should also be noted that the number of admissions is greater than the number of individuals using these services, since an individual may be admitted more than one time in a calendar year for the same service or different services, or may be admitted for more than one service concurrently.

In Middlesex-London from 2008 to 2013, there was an average of 2,381 admissions to substance misuse and addictions programs, ranging from a high of 2,422 in 2011 to a low of 2,244 in 2008. This represents an average of 1,428 individuals per year admitted from 2008 to 2013, ranging from a high of 1,462 individuals in 2008 to a low of 1,357 individuals in 2010, and corresponding to an average of 1.6 admissions per individual. In Ontario from 2008 to 2013, there was an average of 78,125 admissions to substance misuse and addictions programs, from a high of 79,612 in 2012 to a low of 72,362 in 2013. An average of 46,457 individuals is represented in these admissions between 2008 and 2013, ranging from a high of 46,957 individuals in 2009 to a low of 45,401 individuals in 2013, which corresponds to an average of 1.7 admissions per individual.

Each admission to substance misuse and addictions programs may have up to five substances recorded as the presenting problem substance, that is, the main substance(s) of addiction for which the person is seeking help. Alcohol and tobacco were the most commonly reported presenting problem substances for both Middlesex-London and Ontario. Between 2008 and 2013, alcohol was reported as a presenting problem substance for 58.5% to 60.6% of admissions per year in Middlesex-London; tobacco was reported as a presenting problem substance for 43.8% to 50.6% of admissions between 2008 and 2013 in Middlesex-London. For admissions to substance misuse and addictions programs in the province as a whole, alcohol (67.5% to 70.7% of admissions per year) and tobacco (20.7% to 27.8% of admissions per year) were the most frequently reported presenting problem substances between 2008 and 2013. The analyses that follow exclude alcohol and tobacco because those substances are not the focus of this report.

Figure 7.1 shows the rates of presenting problem substances on admission to substance misuse and addiction services that are significantly different comparing Middlesex-London and Ontario in 2013. For both Middlesex-London and Ontario, the rates of cannabis-related admissions were higher than those for any other substance in 2013, in both Middlesex-London (486.6 cannabis-related admissions per 1,000 individuals admitted) and Ontario (536.0 cannabis-related admissions per 1,000 individuals admitted). However, the Middlesex-London rate of cannabis-related admissions was significantly lower than the provincial rate. Similarly, the 2013 Middlesex-London rates for cocaine-, benzodiazepine-, heroin/opium-, codeine preparation-, ecstasy, and hallucinogen-related admissions were also significantly lower than the comparable Ontario rates.

There were three substances where the rates of presenting problem substance admissions in Middlesex-London were significantly higher than those for Ontario: prescription opioid-related, methamphetamine-related, and stimulant-related admissions. The greatest difference was for methamphetamines, where the 2013 rate in Middlesex-London of 251.9 methamphetamine-related admissions per 1,000 individuals admitted was more than three times greater than the Ontario rate of 73.1 methamphetamine-related admissions per 1,000 individuals admitted. There was also a large difference between the Middlesex-London (430.1 admissions per 1,000 individuals admitted) and provincial (308.6 admissions per 1,000 individuals admitted) rates for prescription opioid-related admissions.

Opioids as Presenting Problem Substances

Information was available about three different types of presenting problem substances in the opioid drug class: prescription opioids, over-the-counter (OTC) codeine preparations, and heroin/opium. Figure 7.2 shows that the rates of admissions related to prescription opioids in Middlesex-London were significantly higher than Ontario for all years between 2008 and 2013. In Middlesex-London, the rates of prescription opioid–related admissions ranged from a low of 382.4 (±31.7) prescription opioid-related admissions per 1,000 individuals admitted in 2008 to a high of 580.1 (±39.1) admissions per 1,000 individuals admitted in 2011. The rates of prescription opioid-related admissions declined in 2012 and 2013, both in Middlesex-London and Ontario. This may be related to drug policy changes and additional opioid prescribing training of health care providers in recent years.

The rates of admissions reporting OTC codeine preparations as a presenting problem substance remained fairly stable over time for both Middlesex-London and Ontario, with 12.4 (±5.7) and 22.3 (±1.4) OTC codeine-related admissions per 1,000 individuals admitted in 2013, respectively. Since 2011, the rates of OTC codeine-related admissions have been significantly lower in Middlesex-London compared to Ontario.

For heroin/opium, the rate of substance use and addictions services admissions reporting the use of these substances varied in Middlesex London between 2008 and 2013, and increased over time in Ontario. In 2013, heroin/opium use was reported by 24.1 (±8.0) admissions per 1,000 individuals admitted in Middlesex-London, which was significantly lower than the Ontario rate of 65.3 (±2.4) admissions per 1,000 individuals admitted

Cannabinoids as Presenting Problem Substances

Figure 7.3 illustrates that from 2008 to 2013, rates of cannabis-related admissions to substance misuse and addictions programs fluctuated in Middlesex-London, while provincially, the rates were relatively stable. From 2010 onwards, the local rates of admissions reporting cannabis as a presenting problem substance were lower than provincial rates, and the differences were significant in 2010, 2011, and 2013. In the most recent year, the rate of cannabis-related admissions in Middlesex-London was 486.6 (± 35.9) admissions per 1,000 individuals admitted, compared to the Ontario rate of 536.0 (± 6.7) admissions per 1,000 individuals admitted.

Cocaine and Stimulants as Presenting Problem Substances

For this drug class, information about five different drugs was available: cocaine, crack, methamphetamines, ecstasy, and amphetamines and other stimulants. Figure 7.4 shows that there were a number of different trends between 2008 and 2013, depending on the drug. In Middlesex-London, the rates of crack, cocaine, and ecstasy as presenting problem substances decreased between 2008 and 2013, while methamphetamines and amphetamines and other stimulants increased during this time period. Most significant was the increase in the rate of methamphetamines as a presenting problem substance, increasing more than seven-fold from 34.9 (±9.6) admissions per 1,000 individuals admitted in 2008 to 251.9 (±25.8) admissions per 1,000 individuals admitted in 2013. Although increases in the rates of this presenting problem substance were seen provincially as well, it was to a much smaller extent than in Middlesex-London.

In Middlesex-London from 2008 to 2012, crack was the presenting problem substance with the highest rates of admissions, relative to other stimulants, surpassed in 2013 by methamphetamines. The rate of crack-related admissions in Middlesex-London decreased over the six-year time period, ranging from 496.6 (±36.1) admissions per 1,000 people admitted in 2008 to 219.5 (±24.1) admissions per 1,000 people admitted in 2013. Between 2008 and 2012, the rates in Middlesex-London were significantly lower than the Ontario rates, which declined from 363.9 (±5.5) admissions per 1,000 individuals admitted in 2008 to 242.3 (±4.5) admissions per 1,000 individuals admitted in 2013.

Between 2008 and 2013, the rates of cocaine-related admissions to substance misuse and addiction programs in Middlesex-London were significantly lower than the Ontario rates in all years except 2011. Rates in Middlesex-London generally decreased from 2008 to 2013, while rates in Ontario have shown some variability. In 2013, the admission rate for cocaine use in Middlesex-London was 212.7 (± 23.7) per 1,000 individuals admitted compared to 288.5 (± 4.9) per 1,000 individuals admitted in Ontario.

Sedatives and Hypnotics as Presenting Problem Substances

Benzodiazepines and barbiturates were the only two drugs in the sedatives and hypnotics drug class about which presenting problem substance information was available. Figure 7.5 shows that between 2008 and 2013, the rates of benzodiazepine and barbiturate reported as presenting problem substances were low for both Middlesex-London and Ontario. In Middlesex-London, the benzodiazepine rates decreased from 82.8 (±14.7) admissions per 1,000 individuals admitted in 2008 to 25.5 (±8.2) admissions per 1,000 individuals admitted in 2013. By comparison, the Ontario rates of benzodiazepines as a presenting problem substance was relatively stable over the six year period, with 60.8 (±2.3) admissions per 1,000 individuals admitted reporting benzodiazepine use in 2013. Between 2008 and 2010, the rates of benzodiazepine-related admissions were significantly higher in Middlesex-London than Ontario, but between 2011 and 2013, the local rate was significantly lower than the provincial rate.

Between 2008 and 2013, barbiturates reported as a presenting problem substance was very low in both Middlesex-London and Ontario, with numbers too small to report for Middlesex-London. In Ontario, barbiturate admission rates was relatively stable across the six year time period, ranging from 3.7 (±0.6) admissions per 1,000 individuals admitted in 2013 to 4.9 (±0.6) admissions per 1,000 individuals admitted in 2010.

Hallucinogens and Solvents as Presenting Problem Substances

For this reporting category, information about two presenting problem substances was available: hallucinogens and glue and other inhalant use. It was very uncommon for any of these substances to be reported as a presenting problem substance in both Middlesex-London and Ontario. Overall, hallucinogens as a presenting problem substance in Middlesex-London had an admission rate that ranged from a low of 4.9 (±3.7) admissions per 1,000 individuals admitted in 2009 to a high of 7.5 (±4.5) admissions per 1,000 individuals admitted in 2011 (data not shown). In Ontario, hallucinogen-related admission rates generally declined, ranging from 18.6 (±1.2) admissions per 1,000 individuals admitted in 2008 to 12.9 (±1.0) admissions per 1,000 individuals admitted in 2013 (data not shown).

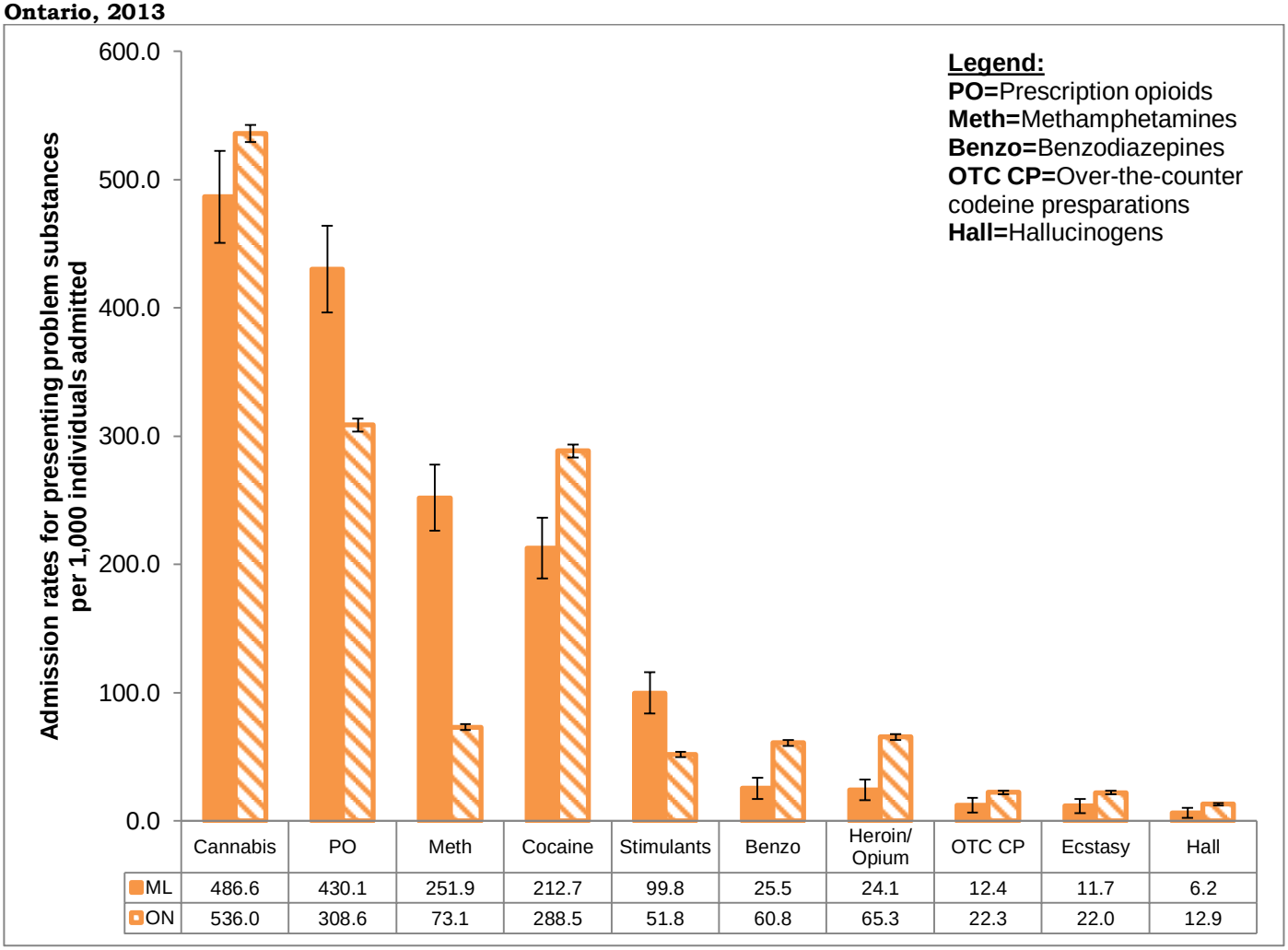
Between 2008 and 2013, the number of admissions to substance misuse and addictions services related to glue and other inhalant use was too low to be reported for Middlesex-London. In Ontario, the rate of admissions reporting glue and other inhalants as presenting problem substances decreased from 12.6 (±1.0) admissions per 1,000 individuals admitted in 2009 to 3.6 (±0.6) admissions per 1,000 individuals admitted in 2013 (data not shown).

Substance Misuse and Addiction Services Admissions and Injection Drug Use

Besides presenting problem substances, a variety of other information is gathered upon admission to substance misuse and addictions services, including the use of injection drugs in the 12 months prior to admission. Use of injection drugs is an important risk factor for bloodborne infections like hepatitis C (PHAC, 2009) and human immunodeficiency virus (HIV) (PHAC, 2010), and is associated with other health sequelae like infective endocarditis (Brown & Levine, 2002).

Figure 7.6 shows that between 2008 and 2012, Middlesex-London had significantly higher rates of admissions reporting injection drug use in the 12 months prior to admission compared to Ontario; local rates of reported injection drug use were approximately two times greater than the provincial rates. Middlesex-London admission rates for reported injection drug use in the past 12 months ranged from a low of 171.0 (±21.2) admissions per 1,000 individuals admitted in 2008 to a high of 212.0 (±24.0) per 1,000 individuals admitted in 2012. In contrast, the Ontario rates of admissions reporting injection drug use in the past 12 months were much lower, ranging between 91.6 (±2.7) per 1,000 individuals admitted in 2009 and 112.4 (±3.1) per 1,000 individuals admitted in 2013.

Figure 7.1: Rates of presenting problem substances admissions per 1,000 individuals admitted to substance misuse and addictions services programs with significant differences* between Middlesex-London and Ontario, 2013



	Cannabis	PO	Meth	Cocaine	Stimulants	Benzo	Heroin/ Opium	OTC CP	Ecstasy	Hall
ML	486.6	430.1	251.9	212.7	99.8	25.5	24.1	12.4	11.7	6.2
ON	536.0	308.6	73.1	288.5	51.8	60.8	65.3	22.3	22.0	12.9

Source: Drug and Alcohol Treatment Information System, 2014
* Significant differences determined using 95% confidence intervals (CIs)
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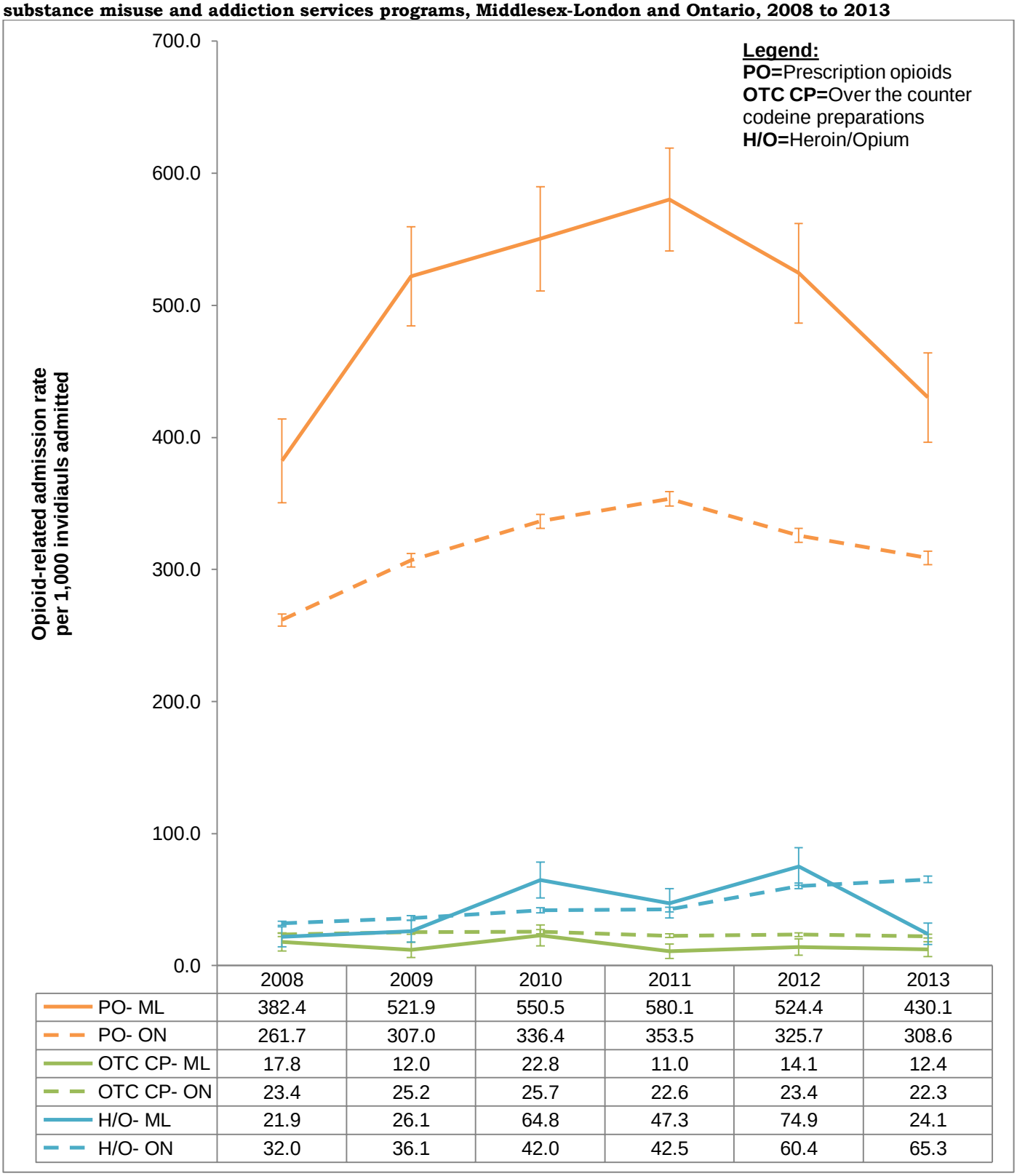
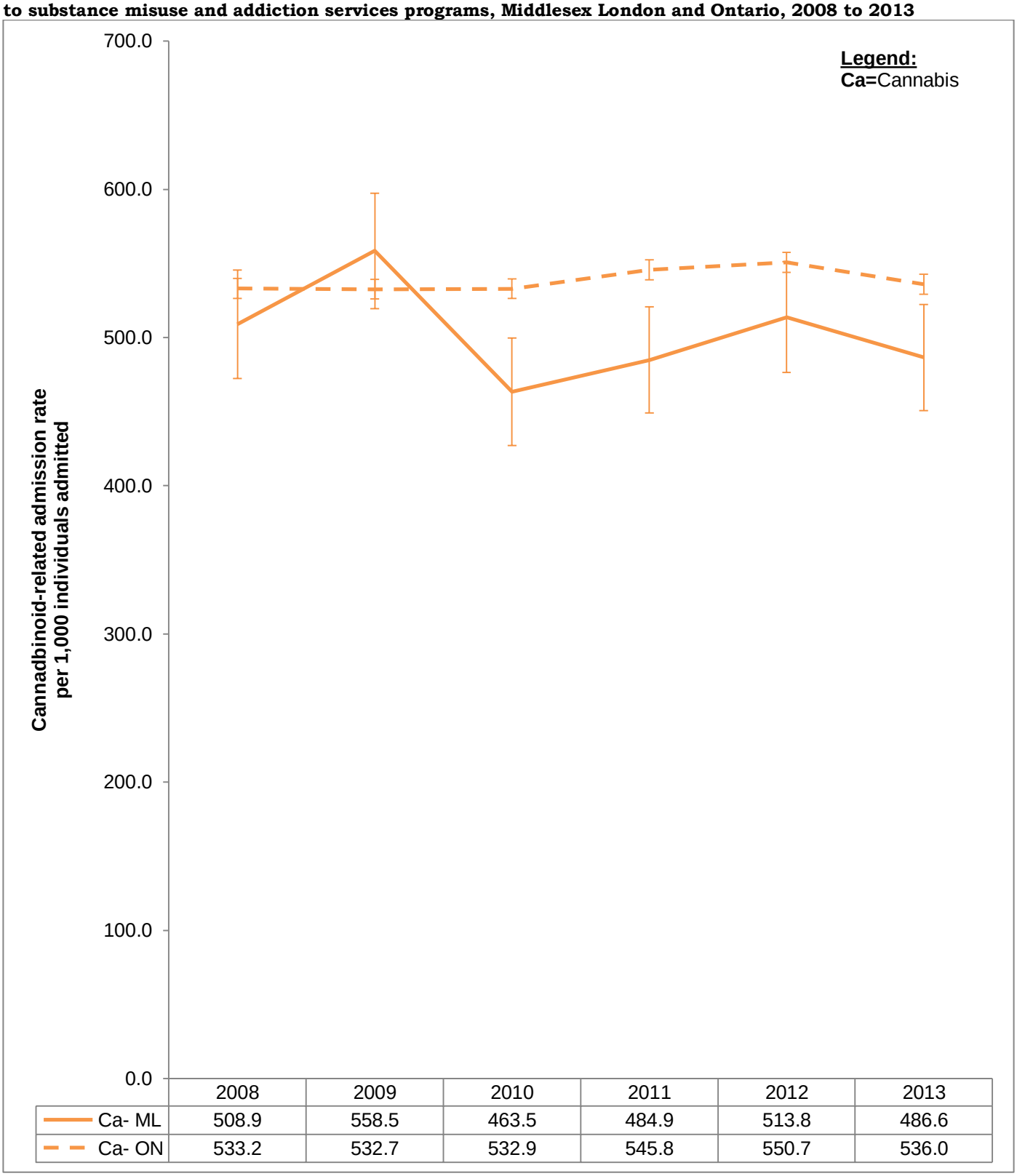
Figure 7.2: Rates of opioid presenting problem substance admissions per 1,000 individuals admitted to substance misuse and addiction services programs, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
PO- ML	382.4	521.9	550.5	580.1	524.4	430.1
PO- ON	261.7	307.0	336.4	353.5	325.7	308.6
OTC CP- ML	17.8	12.0	22.8	11.0	14.1	12.4
OTC CP- ON	23.4	25.2	25.7	22.6	23.4	22.3
H/O- ML	21.9	26.1	64.8	47.3	74.9	24.1
H/O- ON	32.0	36.1	42.0	42.5	60.4	65.3

Source: Drug and Alcohol Treatment Information System, 2014.

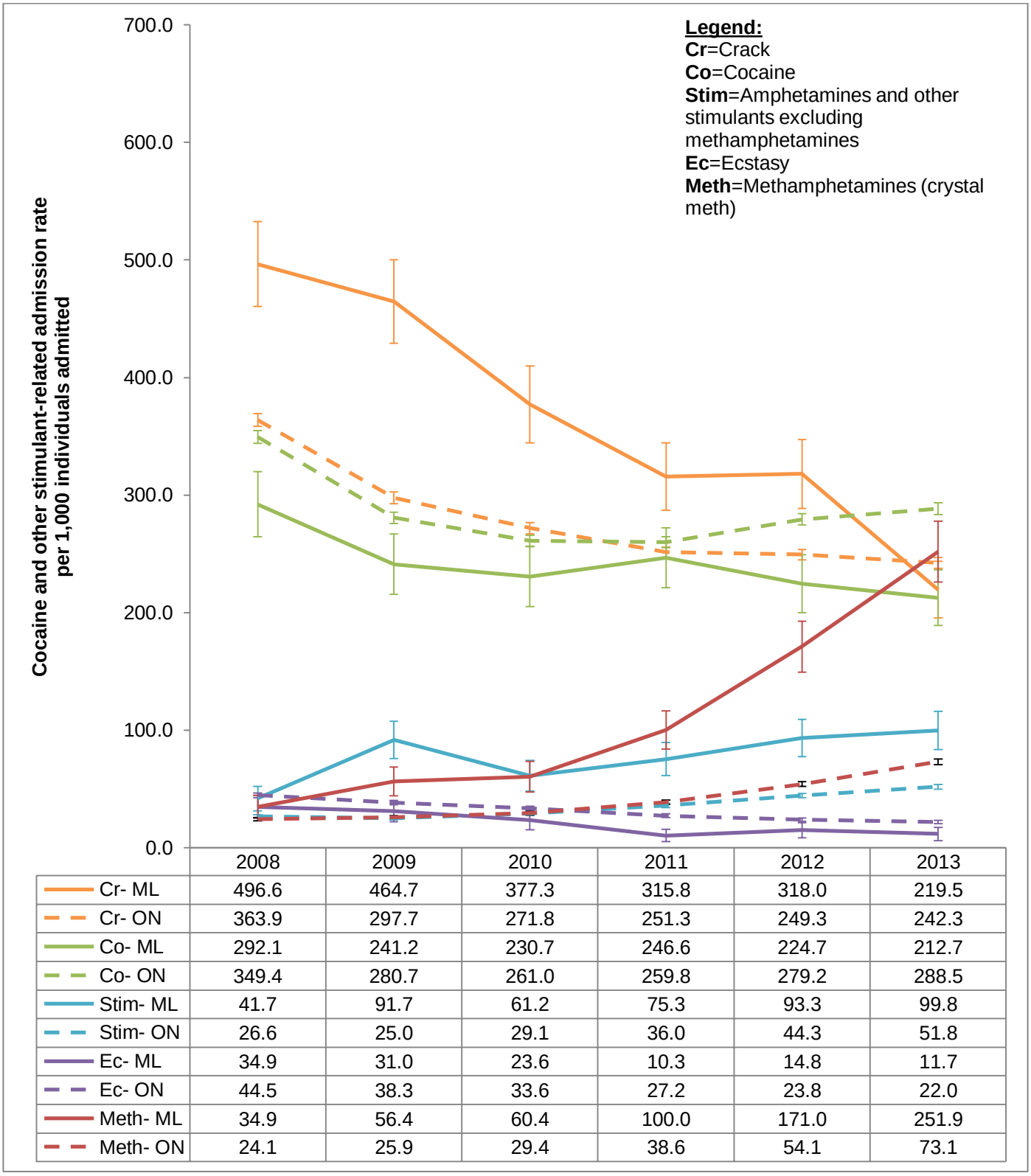
Figure 7.3: Rates of cannabinoid presenting problem substance admissions per 1,000 individuals admitted to substance misuse and addiction services programs, Middlesex London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
Ca- ML	508.9	558.5	463.5	484.9	513.8	486.6
Ca- ON	533.2	532.7	532.9	545.8	550.7	536.0

Source: Drug and Alcohol Treatment Information System, 2014.

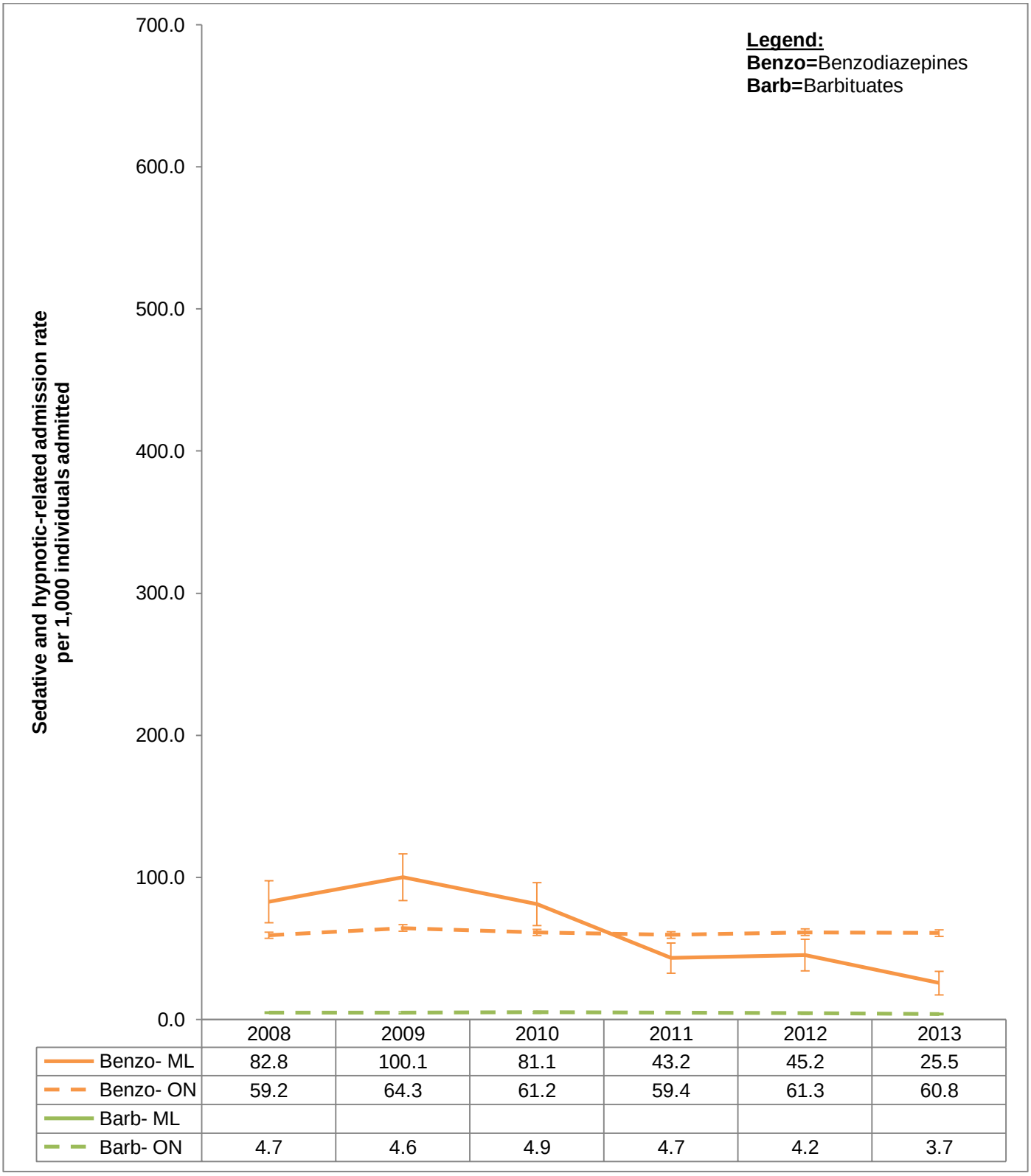
Figure 7.4: Rates of cocaine and other stimulant presenting problem substance admissions per 1,000 individuals admitted to substance misuse and addiction services programs, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
Cr- ML	496.6	464.7	377.3	315.8	318.0	219.5
Cr- ON	363.9	297.7	271.8	251.3	249.3	242.3
Co- ML	292.1	241.2	230.7	246.6	224.7	212.7
Co- ON	349.4	280.7	261.0	259.8	279.2	288.5
Stim- ML	41.7	91.7	61.2	75.3	93.3	99.8
Stim- ON	26.6	25.0	29.1	36.0	44.3	51.8
Ec- ML	34.9	31.0	23.6	10.3	14.8	11.7
Ec- ON	44.5	38.3	33.6	27.2	23.8	22.0
Meth- ML	34.9	56.4	60.4	100.0	171.0	251.9
Meth- ON	24.1	25.9	29.4	38.6	54.1	73.1

Source: Drug and Alcohol Treatment Information System, 2014.

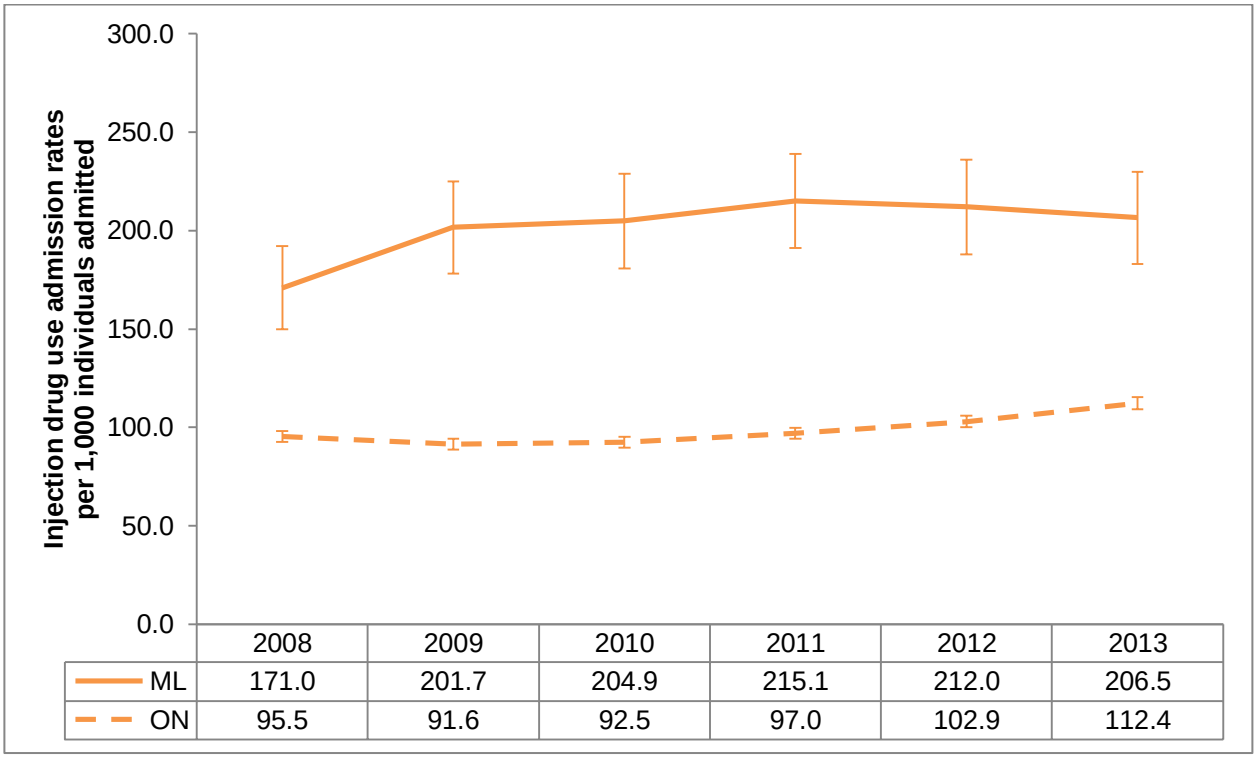
Figure 7.5: Rates of sedatives and hypnotics presenting problem substance admissions per 1,000 individuals admitted to substance misuse and addiction services programs, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
Benzo- ML	82.8	100.1	81.1	43.2	45.2	25.5
Benzo- ON	59.2	64.3	61.2	59.4	61.3	60.8
Barb- ML						
Barb- ON	4.7	4.6	4.9	4.7	4.2	3.7

Source: Drug and Alcohol Treatment Information System, 2014.

Figure 7.6: Rates of admissions to substance misuse and addiction services programs reporting injection drug use in the past 12 months per 1,000 individuals admitted, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
ML	171.0	201.7	204.9	215.1	212.0	206.5
ON	95.5	91.6	92.5	97.0	102.9	112.4

Source: Drug and Alcohol Treatment Information System, 2014.

VIII. Prescription Opioids

Highlights

- Between 2008 and 2013, the use rates for all opioids were slightly higher among Ontario Drug Benefit (ODB) Program beneficiaries in Middlesex-London than beneficiaries in Ontario. However, overall use rates generally declined over the six year time period.
- In Middlesex-London and Ontario, codeine, oxycodone and hydromorphone were the opioid products with the highest use rates among ODB beneficiaries between 2008 and 2013.
- Between 2008 and 2013, codeine and morphine use rates among ODB beneficiaries were generally lower in Middlesex-London compared to Ontario; oxycodone, hydromorphone, methadone and fentanyl use rates were generally higher in Middlesex-London compared to Ontario.
- ODB beneficiary use rates for hydromorphone and methadone generally increased in both Middlesex-London and Ontario between 2008 and 2013, while the general trend for all other opioid products either decreased or remained relatively stable.

"It felt like, you know, this was maybe going to be how I was going to live the rest of my life. I felt like there was a good chance that I was going to die as an opiate addict."
- Adrienne's story (www.its-possible.ca)

Overall Prescription Opioid Use Rates

Opioids emerged as an important drug class for rates of emergency department (ED) visits, hospitalizations, and admissions to substance misuse and addictions programs. Information about opioid prescribing rates for people enrolled in the Ontario Drug Benefit (ODB) Program was requested from the Ontario Drug Policy Research Network to further examine opioid prescription patterns. Details about both the number of opioid prescriptions filled by ODB beneficiaries, and the number of individual ODB beneficiaries using those prescriptions were available. It is important to note that the characteristics of each opioid product influence the number of prescriptions filled, for example, some products require a daily prescription while others may be dispensed in volumes sufficient for several months' supply. Given the potential for some opioids requiring more frequent prescriptions to be over-represented in rates, and for other opioids that are dispensed less frequently to be under-represented, this analysis is based on the numbers of individual ODB beneficiaries using prescription opioids, rather than number of opioid prescriptions filled, in an effort to better reflect prescription opioid use in the ODB-eligible population.

For those aged under 65 years, the opioid use rate was expressed as the number of users of a given opioid product per 1,000 eligible population, which was the number of individuals who have filled at least one prescription covered under ODB that year. For those 65 and over, the opioid use rate was defined as the number of users of a given opioid product per 1,000 ODB users, which was determined by Statistics Canada's population estimates for those 65 years and older in Middlesex-London and Ontario (ODPRN, ICES, 2014), since everyone 65 years of age and over with a valid health card are eligible for ODB. Between 2008 and 2013, the annual average number of ODB beneficiaries in Middlesex-London who used opioids was 25,169; in Ontario, the annual average was 665,840. It is important to note that this data shows the potential for opioid drug misuse, and does not necessarily reflect actual patterns of misuse.

Figure 8.1 illustrates that between 2008 and 2013, the ODB beneficiary use rate for all prescription opioids combined and all ages combined was significantly higher in Middlesex-London compared to Ontario for all years; however, a trend toward decreasing use rates was noted for both jurisdictions. Prescription opioid use ranged from a high of 265.1 (±3.4) per 1,000 ODB-eligible population in 2008 to a low of 191.7 (±2.4) per 1,000 ODB-eligible population in 2013 in Middlesex-London, while in Ontario, prescription opioid use ranged from 252.6 (±0.6) per 1,000 ODB-eligible population in 2008 to 184.6 (±0.4) users per 1,000 ODB-eligible population in 2013.

The overall analysis comprised of all ages of the ODB-eligible population was further broken down to compare those 65 years of age and over to those under the age of 65 years of age. Figure 8.2 shows that the prescription opioid use rates for ODB beneficiaries less than 65 years old decreased between 2008 and 2013 in both Middlesex-London and in Ontario. However, the Middlesex-London rates for those under 65 years of age, which ranged from 319.4 (±6.4) opioid users per 1,000 ODB-eligible population in 2008 to 166.9 (±3.2) opioid users per 1,000 ODB-eligible population in 2013, were significantly higher than the comparable Ontario rates, which decreased from 283.8 (±1.2) opioid users per 1,000 ODB-eligible population in 2008 to 150.2 (±0.6) opioid users per 1,000 ODB-eligible

population in 2013. Among ODB beneficiaries 65 years and over, there were no significant differences in the rates of opioid users between Middlesex-London and Ontario. For all years between 2008 and 2013, the local rates were very similar to provincial rates, and demonstrated a modest decrease over the six year time period.

Codeine Use Rates

As shown in Figure 8.3, codeine use rates were the highest among all the specific opioid use rates, both for Middlesex-London and Ontario, but demonstrated a general decline between 2008 and 2013. Across the six year time period, codeine use rates for all ages in Middlesex London were significantly lower than the Ontario rates for all years except 2009. In Middlesex-London, rates decreased from 171.0 (±2.7) codeine users per 1,000 ODB-eligible population in 2008 to 103.0 (±1.7) users per 1,000 ODB-eligible population in 2013; in Ontario, the rates decreased from 177.8 (±0.5) codeine users per 1,000 ODB-eligible population in 2008 to 110.0 (±0.3) users per 1,000 ODB-eligible population in 2013.

Table 8.1 shows that among ODB beneficiaries under the age of 65 years, codeine use rates in Middlesex-London were similar to those in Ontario for most years between 2008 and 2013. In 2009, codeine use rates in this age group were significantly higher in Middlesex-London (166.6 (±4.3) users per 1,000 ODB-eligible population) compared to Ontario (155.2 (±0.8) users per 1,000 ODB-eligible population), but by 2013, the local rate of 72.8 (±2.1) users per 1,000 ODB-eligible population was significantly lower than the provincial rate of 77.0 (±0.4) users per 1,000 ODB-eligible population under the age of 65 years.

It can be seen in Table 8.2 that among ODB beneficiaries 65 years of age and over, the codeine use rates in Middlesex-London were significantly lower than the comparable Ontario rates, from 2008 to 2013. The Middlesex-London rates decreased from 168.0 (±3.3) codeine users per 1,000 ODB-eligible population in 2008 to 131.3 (±2.7) users per 1,000 ODB-eligible population in 2013. In Ontario, the rates decreased from 176.8 (±0.6) codeine users per 1,000 ODB-eligible population in 2008 to 136.7 (±0.5) users per 1,000 ODB-eligible population in 2013.

Oxycodone Use Rates

Oxycodone, by contrast, had a significantly higher use rate for all years and all ages in Middlesex London compared to Ontario. However, Figure 8.3 shows that both the local and provincial use rates declined dramatically over the past six years. In Middlesex-London, the oxycodone use rates decreased from 94.1 (±2.0) users per 1,000 ODB-eligible population in 2008 to 57.2 (±1.3) users per 1,000 ODB-eligible population in 2013, while in Ontario, use rates declined from 78.4 (±0.4) users per 1,000 ODB-eligible population to 54.0 (±0.2) users per 1,000 ODB-eligible population. The reason for the steep decline in use in the past few years may be due to increased awareness among prescribers about the misuse potential of some oxycodone products, and changes to provincial regulations regarding the funding of long-acting oxycodone products under the Ontario Public Drugs Program such that ODB coverage of the drug OxyContin was discontinued and a new form of the drug OxyNEO was introduced in February 2012.

Table 8.1 shows that the significant differences between Middlesex-London and Ontario oxycodone user rates were particularly marked in the under 65 age group. In 2008, there were 143.0 (±4.3) users per 1,000 ODB-eligible population in Middlesex-London and 109.3 (±0.7) users per 1,000 ODB-eligible population in Ontario. By 2013, the gap between the local and provincial rates of oxycodone use was much smaller, but still significant with 57.7 (±1.9) users per 1,000 ODB-eligible population in Middlesex-London and 53.9 (±0.4) users per 1,000 ODB-eligible population in Ontario.

Table 8.2 shows that for ODB beneficiaries 65 years of age and over, oxycodone use rates in Middlesex-London were significantly higher than Ontario for all years between 2008 and 2013, except 2012. Similar to the under 65 year old age group, the gap between the local and provincial rates of oxycodone became smaller by 2013, but was still significant, with 57.4 (±1.8) users per 1,000 ODB-eligible population in Middlesex-London and 54.5 (±0.3) users per 1,000 ODB-eligible population in Ontario.

Hydromorphone Use Rates

Figure 8.3 shows that for hydromorphone use rates, the rates in Middlesex-London were significantly higher than Ontario rates for all years between 2008 and 2013. Moreover, there appeared to be a trend of increasing use rates in both Middlesex-London and Ontario over time. There were 44.0 (±1.1) hydromorphone users per 1,000 ODB-eligible population in Middlesex-London and 34.6 (±0.2) users per 1,000 ODB-eligible population in Ontario in 2013. This compares to 28.2 (±1.1) hydromorphone users per 1,000 ODB-eligible population in Middlesex-London and 19.6 (±0.2) per 1,000 ODB-eligible population in 2008.

Table 8.1 shows that for ODB beneficiaries under 65 years of age, hydromorphone use rates in Middlesex-London increased from 27.5 (±1.9) users per 1,000 ODB-eligible population in 2008, to 33.7 (±1.4) users per 1,000 ODB-eligible population in 2013. In Ontario, hydromorphone rates also increased from 19.6 (±0.3) users per 1,000 ODB-eligible population to 23.8 (±0.2) users per 1,000 ODB-eligible population in the same time period.

It can be seen in Table 8.2 that rates of hydromorphone use also increased for ODB beneficiaries 65 years of age and over. In Middlesex-London, hydromorphone rates steadily increased from 28.6 (±1.3) users per 1,000 ODB-eligible population in 2008 to 54.1 (±1.7) users per 1,000 ODB-eligible population in 2013, while in Ontario, rates increased from 19.6 (±0.2) users per 1,000 ODB-eligible population to 43.3 (±0.3) users per 1,000 ODB-eligible population.

Morphine Use Rates

Figure 8.3 illustrates that for morphine, the Middlesex-London and Ontario use rates decreased between 2008 and 2013; however, compared to provincial rates, Middlesex-London had a significantly lower morphine use rate for all ages across all years. Rates in Middlesex-London decreased from 14.7 (±0.8) users per 1,000 ODB-eligible population in 2008 to 11.0 (±0.6) users per 1,000 ODB-eligible population in 2013, while in Ontario, rates decreased from 17.2 (±0.2) users per 1,000 ODB-eligible population to 15.1 (±0.1) per 1,000 ODB-eligible population from 2008 to 2013.

Table 8.1 shows that between 2008 and 2013, morphine use rates decreased among ODB beneficiaries under 65 years of age, both locally and provincially. The morphine use rates in this age group decreased from 19.4 (±1.5) users per 1,000 ODB-eligible population in 2008 to 12.8 (±0.9) users per 1,000 ODB-eligible population in 2013 in Middlesex-London. In Ontario, rates decreased from 19.9 (±0.3) users per 1,000 ODB-eligible population to 14.3 (±0.2) per 1,000 ODB-eligible population during the six year time period. From 2011 to 2013, the morphine use rates among ODB beneficiaries under the age of 65 years in Middlesex-London were significantly lower than the Ontario rates.

Table 8.2 shows that ODB beneficiaries 65 years of age and over in Middlesex-London had significantly lower morphine use rates compared to Ontario for all years between 2008 and 2013. Middlesex-London rates decreased from 12.5 (±0.9) users per 1,000 ODB-eligible population in 2008 to 9.4 (±0.7) users per 1,000 ODB-eligible population in 2013. By comparison, the Ontario use rate was relatively stable over the six year time period, from 16.1 (±0.2) users per 1,000 ODB-eligible population in 2008 to 15.8 (±0.2) users per 1,000 ODB-eligible population in 2013.

Methadone Use Rates

As shown in Figure 8.3, between 2008 and 2013, the rates of methadone use for all ODB beneficiaries were significantly higher in Middlesex-London compared to the Ontario rates. As well, both the local and provincial use rates generally increased between 2008 and 2013. The Middlesex-London methadone use rate increased from 9.0 (±0.6) users per 1,000 ODB-eligible population in 2008 to 14.9 (±0.7) users per 1,000 ODB-eligible population in 2013. The Ontario rate also increased, from 5.6 (±0.1) users per 1,000 ODB-eligible population in 2008 to 7.7 (±0.1) users per 1,000 ODB-eligible population in 2013.

The significant differences between the Middlesex-London and Ontario use rates for all ages were largely driven by ODB beneficiaries under the age of 65 years. Table 8.1 shows that the Middlesex-London methadone use rates in this age group were significantly higher than Ontario rates for all years between 2008 and 2013. Both the Middlesex-London (38.9 (±2.0) users per 1,000 ODB-eligible population) and Ontario (22.6 (±0.3) users per 1,000 ODB-eligible population) rates peaked in 2011 among this age group, with use rates decreasing in subsequent years. In 2013, there were 30.7 (±1.4) methadone users per 1,000 ODB-eligible population in Middlesex-London, while in Ontario, there were 17.0 (±0.2) users per 1,000 ODB-eligible population.

In contrast, Table 8.2 shows that the rates of methadone use were quite low among ODB beneficiaries 65 years of age and over, both locally and provincially (<1.0 user per 1,000 ODB-eligible population for both Middlesex-London and Ontario). Remaining relatively stable over the six year time period, there were no significant differences between Middlesex-London and Ontario use rates for this age group.

Fentanyl Use Rates

Figure 8.3 illustrates that while fentanyl use rates generally declined between 2008 and 2013, both locally and provincially, the Middlesex-London use rates were significantly higher than Ontario rates for all years. The Middlesex-London rates decreased from 11.6 (±0.7) users per 1,000 ODB-eligible population in 2008 to 8.4 (±0.5) users per 1,000 ODB-eligible population in 2013, while for Ontario, fentanyl use rates also decreased, from 10.4 (±0.1) users per 1,000 ODB-eligible population to 6.7 (±0.1) users per 1,000 ODB-eligible population between 2008 and 2013.

Table 8.1 shows that between 2008 and 2013, fentanyl use rates for ODB beneficiaries under the age of 65 years decreased both locally and provincially, however, Middlesex-London use rates were still significantly higher than the comparable Ontario rates for all years except 2008. The fentanyl use rates in Middlesex-London for this age group ranged from a high of 11.3 (±0.2) users per 1,000 ODB-eligible population in 2009 to 7.4 (±0.7) users per 1,000 ODB-eligible population in 2013, while the Ontario rate decreased from 9.8 (±0.2) users per 1,000 ODB-eligible population in 2008 to 5.9 (±0.1) users per 1,000 ODB-eligible population in 2013.

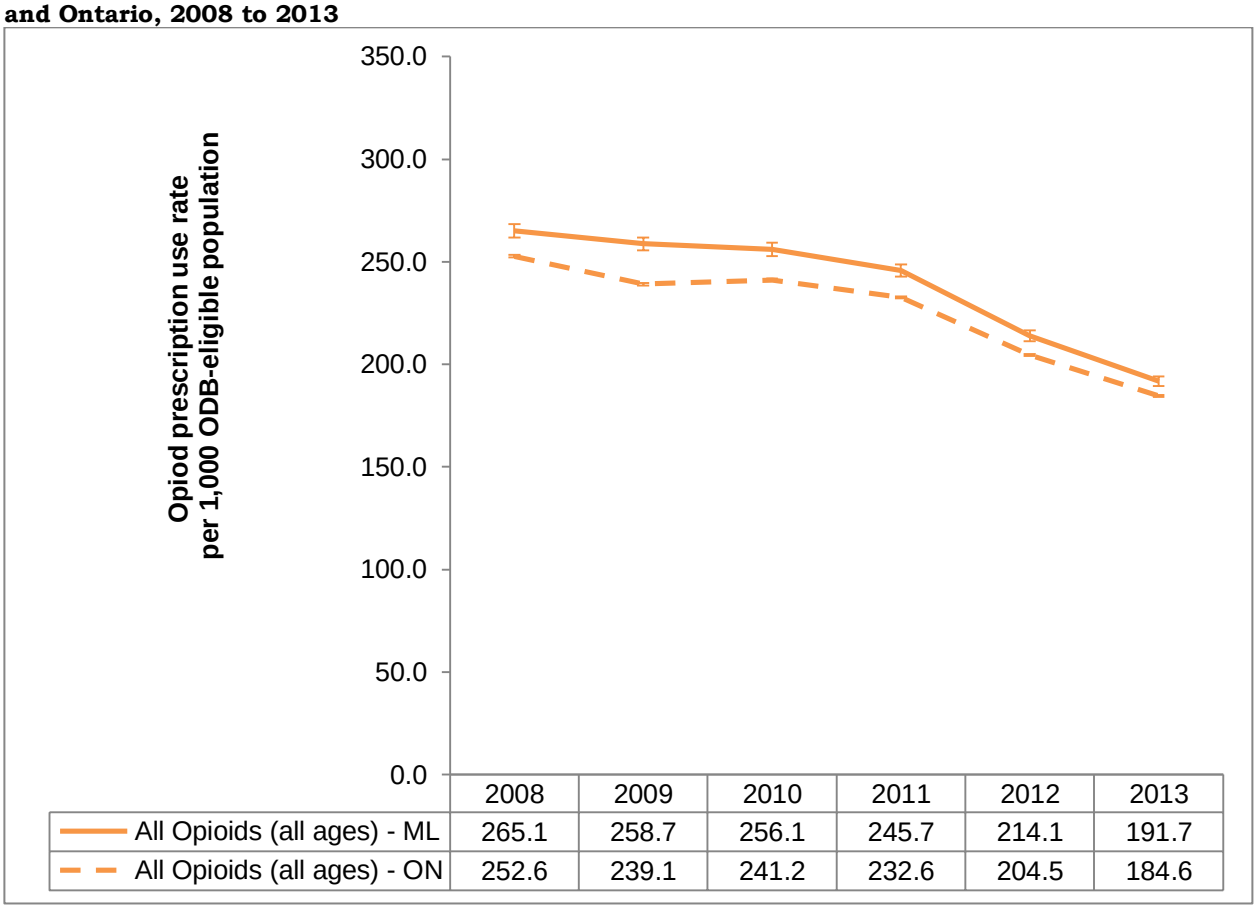
Similarly, Table 8.2 shows that fentanyl use rates for ODB beneficiaries 65 years of age and over decreased in both Middlesex-London and Ontario between 2008 and 2013. Compared to Ontario, use rates were significantly higher in Middlesex-London across the six year time period, ranging from 12.0 (±0.9) users per 1,000 ODB-eligible population in 2008 to 9.4 (±0.8) users per 1,000 ODB-eligible population in 2013. The provincial rates for fentanyl use in this age group decreased from 10.7 (±0.2) users per 1,000 ODB-eligible population to 7.5 (±0.1) users per 1,000 ODB-eligible users between 2008 and 2013.

Deaths Due to Acute Drug Toxicity Involving Prescription Opioids

To supplement opioid prescribing information, data about deaths due to acute drug toxicity involving prescription opioids was requested from the Office of the Chief Coroner of Ontario. Between 2008 and 2012, the number of deaths due to acute drug toxicity involving prescription opioids in Middlesex-London ranged from 13 to 41, corresponding to an average of 22.8 prescription opioid-related deaths per year. In Ontario as a whole, there was an annual average of 465.2 prescription opioid-related deaths reported in the five year time period.

Figure 8.4 shows that between 2008 and 2012, the rates of deaths due to acute drug toxicity involving prescription opioids increased in Ontario, but fluctuated for Middlesex-London. With the exception of 2011, the rate of deaths involving prescription opioids were higher in Middlesex-London than in Ontario; however, 2012 was the only year where the death rates in Middlesex-London (8.8 (±2.7) deaths per 100,000 population) were significantly higher than the Ontario rate (4.1 (±0.3) deaths per 100,000 population), due to a much higher number of deaths in Middlesex-London than year than in preceding years.

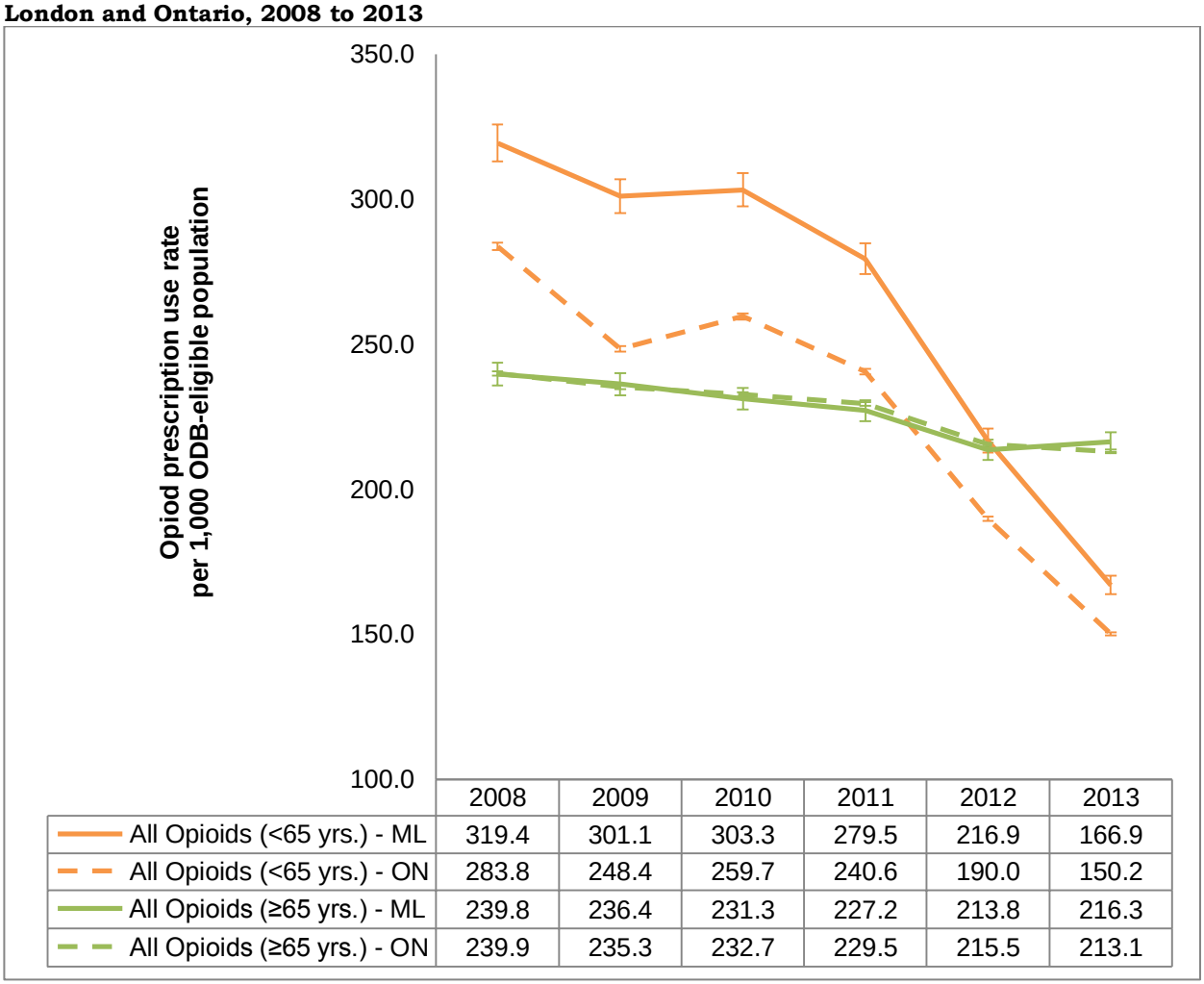
Figure 8.1: Rates of all opioid product use per 1,000 ODB-eligible population, all ages, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
All Opioids (all ages) - ML	265.1	258.7	256.1	245.7	214.1	191.7
All Opioids (all ages) - ON	252.6	239.1	241.2	232.6	204.5	184.6

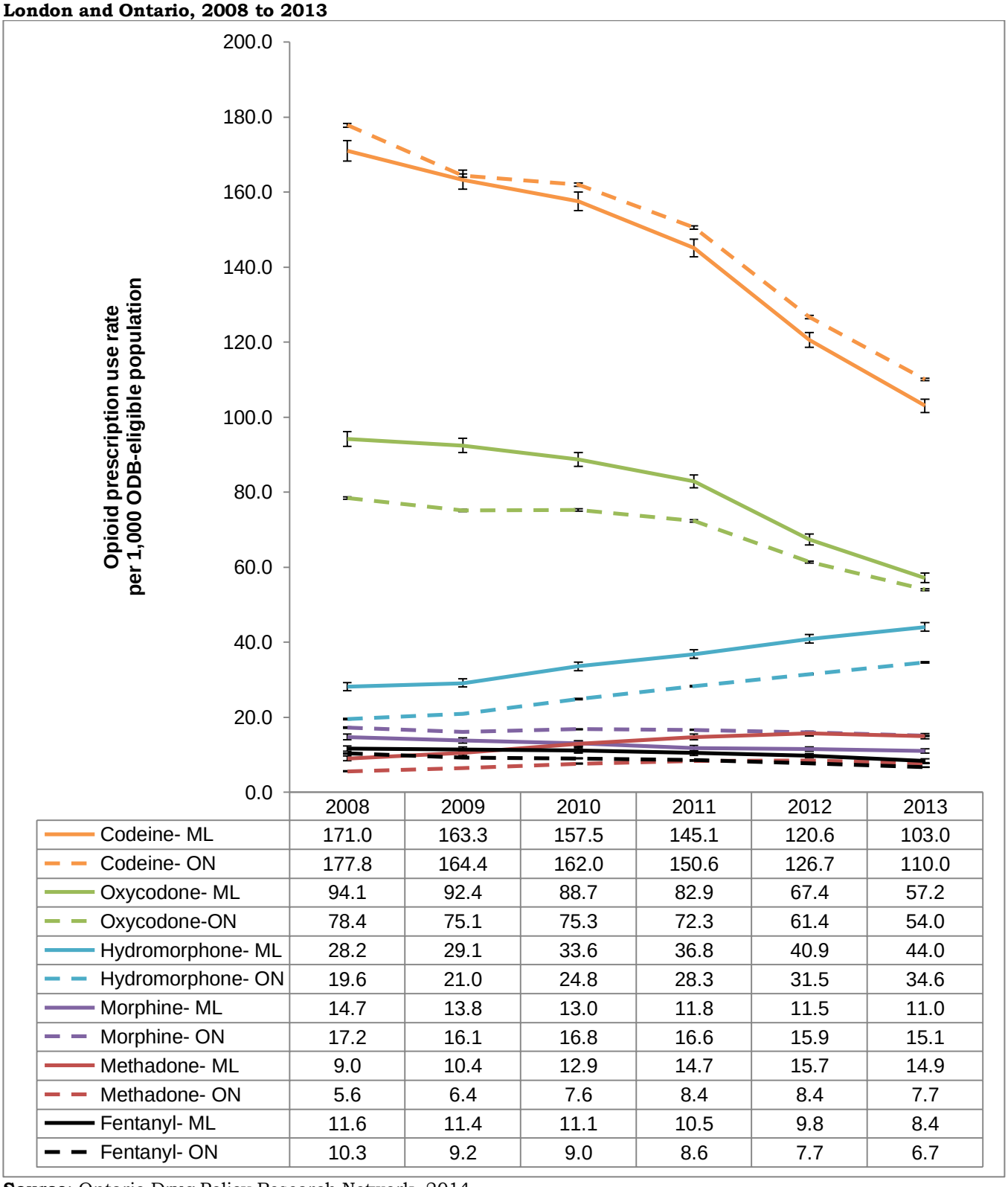
Source: Ontario Drug Policy Research Network, 2014

Figure 8.2: Rates of all opioid product use per 1,000 ODB-eligible population, by age group, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
All Opioids (<65 yrs.) - ML	319.4	301.1	303.3	279.5	216.9	166.9
All Opioids (<65 yrs.) - ON	283.8	248.4	259.7	240.6	190.0	150.2
All Opioids (≥65 yrs.) - ML	239.8	236.4	231.3	227.2	213.8	216.3
All Opioids (≥65 yrs.) - ON	239.9	235.3	232.7	229.5	215.5	213.1

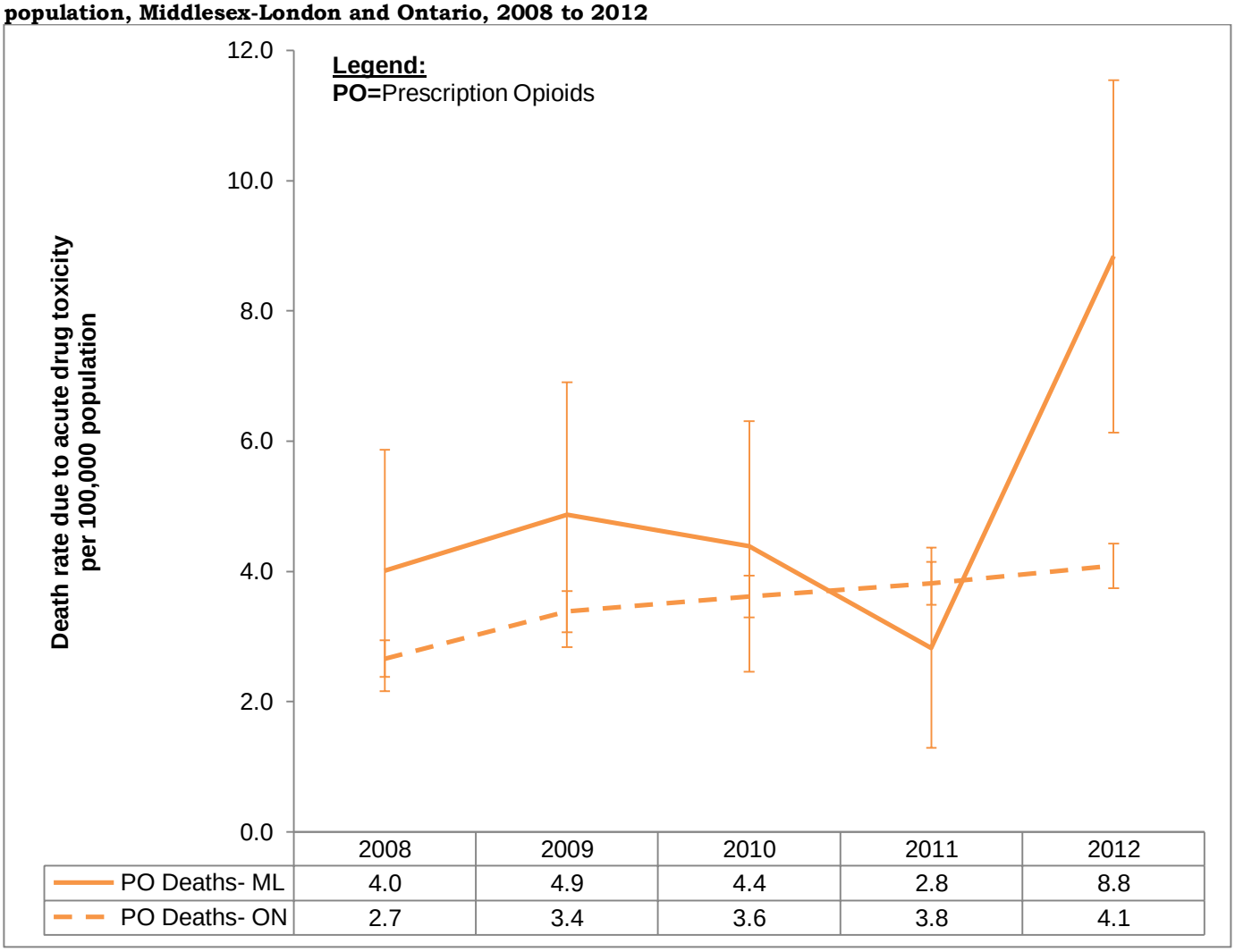
Figure 8.3: Rates of specific opioid product use per 1,000 ODB-eligible population, all ages, Middlesex-London and Ontario, 2008 to 2013



	2008	2009	2010	2011	2012	2013
Codeine- ML	171.0	163.3	157.5	145.1	120.6	103.0
Codeine- ON	177.8	164.4	162.0	150.6	126.7	110.0
Oxycodone- ML	94.1	92.4	88.7	82.9	67.4	57.2
Oxycodone-ON	78.4	75.1	75.3	72.3	61.4	54.0
Hydromorphone- ML	28.2	29.1	33.6	36.8	40.9	44.0
Hydromorphone- ON	19.6	21.0	24.8	28.3	31.5	34.6
Morphine- ML	14.7	13.8	13.0	11.8	11.5	11.0
Morphine- ON	17.2	16.1	16.8	16.6	15.9	15.1
Methadone- ML	9.0	10.4	12.9	14.7	15.7	14.9
Methadone- ON	5.6	6.4	7.6	8.4	8.4	7.7
Fentanyl- ML	11.6	11.4	11.1	10.5	9.8	8.4
Fentanyl- ON	10.3	9.2	9.0	8.6	7.7	6.7

Source: Ontario Drug Policy Research Network, 2014.

Figure 8.4: Rates of deaths due to acute drug toxicity involving prescription opioids per 100,000 population, Middlesex-London and Ontario, 2008 to 2012



	2008	2009	2010	2011	2012
PO Deaths- ML	4.0	4.9	4.4	2.8	8.8
PO Deaths- ON	2.7	3.4	3.6	3.8	4.1

Source: Office of the Chief Coroner of Ontario, 2014

Table 8.1: Rates of specific opioid product use per 1,000 ODB-eligible population, >65 years of age, Middlesex-London and Ontario, 2008 to 2013

	2008	2009	2010	2011	2012	2013	Trend
All opioids							
ML	319.4^	301.1^	303.3^	279.5^	216.9^	166.9^	↘
ON	283.8	248.4	259.7	240.6	190.0	150.2	↘
Codeine							
ML	178.5	166.6^	161.2	139.7	101.2	72.8*	↘
ON	181.5	155.2	156.8	138.5	102.2	77.0	↘
Oxycodone							
ML	143.0^	131.9^	128.4^	115.0^	81.9^	57.7^	↘
ON	109.3	96.1	100.1	92.0	70.4	53.9	↘
Hydromorphone							
ML	27.5^	25.7^	29.1^	30.5^	33.5^	33.7^	↗
ON	19.6	18.8	22.2	23.7	24.4	23.8	↗
Morphine							
ML	19.4	18.6	19.0	16.2*	14.9*	12.8*	↘
ON	19.9	17.0	18.5	18.1	16.4	14.3	↘
Methadone							
ML	26.7^	28.6^	35.7^	38.9^	36.6^	30.7^	↗↘
ON	17.3	17.7	21.4	22.6	20.7	17.0	↗↘
Fentanyl							
ML	11.2	11.3^	10.8^	10.5^	9.7^	7.4^	↘
ON	9.8	8.4	8.8	8.4	7.3	5.9	↘

Source: Ontario Drug Policy Research Network, 2014
* Middlesex-London use rate was significantly lower than Ontario rate, using 95% confidence intervals (CIs)
^ Middlesex-London use rate was significantly higher than Ontario, using 95% CIs
↘ From 2008 to 2013, general trend was a decrease in opioid use rate
↗ From 2008 to 2013, general trend was an increase in opioid use rate
— From 2008 to 2013, no change occurred in opioid use rate

Table 8.2: Rates of specific opioid product use per 1,000 ODB-eligible population, ≥65 years of age, Middlesex-London and Ontario, 2008 to 2013

	2008	2009	2010	2011	2012	2013	Trend
All opioids							
ML	239.8	236.4	231.3	227.2	213.8	216.3	↘
ON	239.9	235.3	232.7	229.5	215.5	213.1	↘
Codeine							
ML	168.0*	162.0*	156.1*	149.0*	135.3*	131.3*	↘
ON	176.8	170.1	165.4	158.1	143.3	136.7	↘
Oxycodone							
ML	70.5^	71.0^	67.3^	64.4^	57.5	57.4^	↘
ON	65.0	64.2	62.7	61.8	56.0	54.5	↘
Hydromorphone							
ML	28.6^	31.0^	36.2^	40.8^	46.6^	54.1^	↗
ON	19.6	22.2	26.3	31.0	36.3	43.3	↗
Morphine							
ML	12.5*	11.3*	9.8*	9.3*	9.2*	9.4*	↘
ON	16.1	15.8	16.0	15.9	15.7	15.8	—
Methadone							
ML	0.2	0.3	0.3	0.3	0.3	0.4	—
ON	0.4	0.4	0.4	0.4	0.4	0.4	—
Fentanyl							
ML	12.0^	11.5^	11.4^	10.6^	10.0^	9.4^	↘
ON	10.7	9.7	9.2	8.8	8.0	7.5	↘

Source: Ontario Drug Policy Research Network, 2014
* Middlesex-London use rate was significantly lower than Ontario rate, using 95% confidence intervals (CIs)
^ Middlesex-London use rate was significantly higher than Ontario, using 95% CIs
↘ From 2008 to 2013, general trend was a decrease in opioid use rate
↗ From 2008 to 2013, general trend was an increase in opioid use rate
— From 2008 to 2013, no change occurred in opioid use rate

IX. Conclusion

The use of information from a variety of sources, such as a self-reported survey, Middlesex-London Emergency Medical Services, London Police Services, emergency department visits, inpatient hospitalizations, admissions to substance misuse and addiction services, opioid drug prescription rates and opioid-related deaths, provides an understanding of the health service and social impacts related to prescription and non-prescription drug use in Middlesex-London.

Among the five classes of drugs discussed throughout the report, opioid use emerged as an important issue in Middlesex-London. Table 9.1 shows that in 2012 opioids ranked as the leading drug class associated with emergency department visits and inpatient hospitalizations, and had the longest average length of stay in the hospital. Although this trend is similar throughout Ontario, rates in Middlesex-London were consistently significantly higher for opioid use for these hospital-based indicators than the province as a whole. In addition, in 2013, excluding alcohol and tobacco, opioid use ranked second behind cannabis use with respect to the presenting problem substances recorded on admission to substance misuse and addiction services.

Focused analysis of opioid prescription rates from the Ontario Drug Benefit Program showed that while rates of opioid prescriptions to beneficiaries generally declined in Middlesex-London and Ontario, Middlesex-London rates were consistently significantly higher than the provincial rates. As well, the rate of deaths from acute drug toxicity involving prescription opioids was generally higher in Middlesex-London compared to Ontario as whole; the difference was statistically significant in 2013.

Combined with the results from the I-Track report released in 2013, this report outlines the significant impact of drug use, and particularly opioid use, in Middlesex-London. This report provides valuable information to inform the development of an inclusive, collaborative community drug strategy to address this significant public health issue.

Table 9.1: Summary rankings for emergency department visits, inpatient hospitalizations, average length of stay in hospital, and admissions to substance misuse and addiction services, Middlesex-London, 2012/2013

	Emergency Department Visits (2012)	Inpatient Hospitalizations (2012)	Average Length of Stay in Hospital (2012)	Substance Misuse & Addictions Services^ (2013)
Opioids	1	1	1	2
Cannabis	4	4	3	1
Cocaine and stimulants	3	3	2	3
Sedatives and hypnotics	2	2	4	4
Hallucinogens and solvents	5	-	-	5

^ Because each category has multiple associated substances, results of the most prevalent substance used are included in the ranking

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Appendix A: International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD-10-CA) Codes for Emergency Department Visits and Inpatient Hospitalizations

Table A.1–International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD-10-CA) codes used to classify drug classes for emergency department visits and inpatient hospitalizations

Drug Class	ICD-10-CA Codes
Opioid-related health events	F11.0-F11.9; T40.0-T40.4;T40.6
Cannabinoid-related health events	F12.0-F12.9; T40.7
Cocaine and other stimulant-related health events	F14.0-F15.9, T40.5; T41.3
Sedative and hypnotic-related health events	F13.0-F13.9; T42.3-T42.4
Hallucinogen and solvent-related health events	F16.0-F16.9; F18.0-F18.9; T40.8-T40.9