The Implementation of a Local Surveillance System for Fatal and Non-Fatal Impacts Associated with Crystal Methamphetamine Use: Final Summary Report

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Executive Summary

Background

Crystal methamphetamine use appears to be increasing in Middlesex-London and impacting the community to a greater degree than across Ontario. The Middlesex-London Health Unit's (MLHU) Population Health Assessment and Surveillance Team (PHAST) submitted a proposal which was accepted for funding from the Public Health Agency of Canada's (PHAC) Substance-related Harms Division to develop and implement a local methamphetamine surveillance system to quantify the impacts of crystal methamphetamine use in Middlesex-London. This initiative fills a gap in surveillance data needed to support a fulsome and coordinated community response to address methamphetamine use. It does so by providing data that when combined with other indicators can identify and prioritize community issues that can be addressed by public health action.

At the end of March 2021, the first summary report was submitted to PHAC, detailing the progress made. The first report detailed the project plan, community partners and consultation plan, results of the environmental scan, results of the literature scan, and candidate indicators to potentially be included in the methamphetamine surveillance dashboard. The current report is a continuation of the work, and includes details about community consultations, finalized indicators, a PDF of the current surveillance dashboard, and the implementation of the methamphetamine surveillance dashboard.

Community Partners and Consultation Summary

Fifteen organizations were identified as key community partners for this project. In-depth consultations with community partners occurred in Spring 2021 (March-May). These consultations were used as opportunities to provide details about the project and to gather feedback about the candidate indicators. Subsequently the community partners reviewed the surveillance dashboard to ensure it would meet their needs.

Community partner organizations provided valuable feedback, suggestions for additional indicators to include, and potential data sources for indicators of interest. Connections to other organizations were also made through these consultations. Overall, consultations with community partners were an incredibly valuable part of the creation of the methamphetamine surveillance system, and its development would not have been possible without their contributions, both in data and feedback.

Finalized Indicators

Numerous population health indicators were identified through both the literature scan and environmental scan. The list of indicators was refined to only include indicators that could be feasibly, and routinely updated, and where the data was available. The indicators included on the dashboard are from five categories (harm reduction service utilization, healthcare utilization, treatment service utilization, outcomes and fatalities, crimination related to methamphetamine). In the future, if more data becomes available, more indicators could potentially be added to the surveillance dashboard.

Surveillance Dashboard

The finalized methamphetamine surveillance dashboard has five pages, corresponding to the five categories of indicators previously described, plus a sixth page that includes technical notes about the data. Data are presented as counts by month or year, percentages, or rates per 100,000. Each page includes details about the data sources, including a brief description of the data. Additional data notes or definitions, important for data interpretation, can be found on the technical notes page. The data included are updated at varying intervals (monthly, quarterly, or annually), based on when data are available. The methamphetamine dashboard will be available on MLHU's website.

Dashboard Update Process

The dashboard has been built in the Microsoft Power BI platform and can be updated by anyone who has access to the source data. It is important whoever is responsible for updating the dashboard is aware of the update interval each for each data source because of the variation between sources. To aid with dashboard updates, a process document has been drafted, detailing the data sources included in the dashboard, how often the data is available, how the data is accessed, and the specific steps for updating the data. This document will be updated as the data and sources evolve.

Conclusions

The availability and presentation of this data in the form of a surveillance dashboard provides MLHU's community partners with evidence to be leveraged and used to inform their practice, enhance healthy public policy, and create change. This project is a key component in the creation of a fulsome and coordinated community response to address methamphetamine use. Many indicators included on the methamphetamine surveillance dashboard suggest methamphetamine use is trending up, while other indicators have been heavily influenced by the COVID-19 pandemic and suggest decreases in methamphetamine use. This highlights the importance of taking all indicators and additional context into consideration when identifying trends in methamphetamine use. Overall, the data included on the dashboard suggest methamphetamine use is increasing beyond the situation pre-pandemic and is continuing to increase.

Limitations

A lack of available morbidity data related to methamphetamine use is likely the most important limitation to developing a more fulsome surveillance system. Although many potential indicators were identified to represent the availability, use, and harms associated with methamphetamines, many data sources were unavailable. Other limitations of the development of the methamphetamine surveillance system included: 1) Methamphetamine use described by the dashboard likely underrepresents the true burden of methamphetamine on the Middlesex-London community, since those impacted by methamphetamine may not interact with any of the agencies who gather data, 2) The timing of this project, during the second and third waves of the COVID-19 pandemic, created some challenges when attempting to connect with community partners, therefore some partners could not be directly involved throughout the development of the methamphetamine surveillance dashboard.

Although the creation and dissemination of the methamphetamine surveillance dashboard was successful, it was not without challenges. Hopefully the lessons learned during the creation and dissemination of MLHU's methamphetamine surveillance dashboard are useful in informing other jurisdictions with the planning and implementing their own surveillance systems.

Next Steps

Although this methamphetamine surveillance system was created for one public health unit region, it provides a model which can be applied to other jurisdictions. It is important to share our findings, including the process undertaken so others can apply our learnings to their own surveillance dashboard development. The methamphetamine surveillance dashboard will be available on the MLHU website and will be routinely updated. There will also be a presentation for PHAC detailing the development and dissemination of the methamphetamine surveillance dashboard, including lessons learned.

This dashboard presents indicators for which data are routinely available. Further development of the dashboard will require collection of additional methamphetamine-related morbidity data at the local, regional, and provincial levels, such as self-reported data, emergency department and hospitalization data with specific methamphetamine codes, and wastewater data, among others.

It will be important to understand trends in the impacts of methamphetamine use on the community from the data included, especially in the context of the COVID-19 pandemic. Of note, rates of methamphetamine toxicity deaths increased in 2020, during the COVID-19 pandemic. This especially highlights the need for this surveillance, in conjunction with opioid surveillance.

Not only will the findings of the data included on this dashboard be used for methamphetamine surveillance but will also play an important role in identifying and prioritizing issues of public health significance. The data included on the methamphetamine dashboard will be merged with other key indicators, related to underlying public health issues, to provide support for community needs.

Background

Crystal methamphetamine use has been identified as an issue by community organizations in Middlesex-London. The negative impacts associated with methamphetamine use extend beyond the individual to affect the community. To effectively respond to these impacts a coordinated community response will be needed, including public health and other community partners.

Police-reported methamphetamine offences have been increasing across Canada for the past several years. The use of methamphetamine is a growing issue in many communities, and may also be contributing to other types of crime, including violent crimes and property damage (1). The number of methamphetamine offences in Canada increased by 3% from 2018 to 2019, a continuation of the upward trend since 2008 (1). In 2019, methamphetamine-related offences accounted for 21% of all police reported drug crime, and methamphetamine possessions had the second highest incidence rate (1). In 2020, all police reported crime decreased, including methamphetamine offences; however, police reported rates of methamphetamine offences remained the second highest among drug offences (2).

Methamphetamine use appears to be increasing in Middlesex-London and impacting the community to a greater degree than across Ontario. From 2018 to 2020, methamphetamine toxicity death rates in Middlesex-London more than tripled (3). Methamphetamine toxicity death rates in Middlesex-London were significantly higher than rates across Ontario from 2018 to 2020, and the rate reported in Middlesex-London in 2020 was 2.8 times higher than the rate across the rest of Ontario (3). Stimulant toxicity deaths involving methamphetamine across Canada have followed a similar trajectory. The percent of stimulant toxicity deaths in Canada involving methamphetamine increased from 43% in 2018 to 47% in 2020 (4).

Specifically, during the COVID-19 pandemic, there has been a significant increase in stimulants contributing to opioid-related deaths (50.0% to 58.1%, $p<0.01$), specifically cocaine and methamphetamine (5). Across Ontario, methamphetamine directly contributed to over 25% of opioid-related deaths during the pandemic, significantly higher than before the pandemic (23%, $p<0.01$) (5). Similarly, across Canada, 52% of opioid toxicity deaths in 2020 also involved a stimulant (4). These findings may be reflective of increased availability of methamphetamine within the drug supply, and potential polysubstance use throughout the pandemic.

The Middlesex-London Health Unit's (MLHU) Population Health Assessment and Surveillance Team (PHAST) received funding from the Public Health Agency of Canada's (PHAC) Substance-related Harms Division to develop and implement a local methamphetamine surveillance system to quantify the impacts of crystal methamphetamine use in Middlesex-London. This initiative fills a gap in surveillance data needed to support a fulsome and coordinated community response to address methamphetamine use, while also providing data that will be combined with other indicators to identify and prioritize community issues that can be addressed by public health action.

Community Partners and Consultation Summary

Community Partners

The following organizations supporting the Middlesex-London community were identified as key community partners and stakeholders for this project:

1. Community Drug and Alcohol Strategy (CDAS)
2. Regional HIV AIDS Connection (RHAC)
3. Addiction Services Thames Valley (ADSTV)
4. London Intercommunity Health Centre (LIHC)
5. CMHA Elgin - Middlesex (Canadian Mental Health Association)
6. London Police Service
7. The City of London
8. London Health Sciences Centre (LHSC)
9. Western University
10. The Strategic Direction Council (SDC)
11. Parkwood Institute - St. Joseph's Health Care London
12. St. Leonard's Community Services (SLCS)
13. The Human Service and Justice Coordinating Committee (HSJCC)
14. London Middlesex Addictions and Mental Health Network (LMAMHN)
15. The Salvation Army Centre of Hope
16. Street Level Women at Risk Collaborative

Additional organizations were consulted, based on previous experience with methamphetamine surveillance or to request data to include in the methamphetamine dashboard. These organizations included:

1. Drug and Alcohol Treatment Information System (DATIS) Support
2. ICES
3. BC Centre for Disease Control (BC CDC)
4. Health Canada Drug Analytics Services
5. Office of the Chief Coroner of Ontario
6. ConnexOntario

Consultation Summary

An important step in developing the methamphetamine surveillance system was obtaining input from local community partner organizations. Phase 1 involved conducting an environmental scan of organizations who provide programs and services related to methamphetamine use, and to identify data being collected by these organizations. Specific details related to the environmental scan can be found in the previous summary report (Summary Report of Project Plan).

Phase 2 involved more specific consultations with community partners and a request for feedback on the methamphetamine surveillance system. These consultations occurred with a greater number of community organizations, compared to phase 1. Initially, in-person consultations were considered; however, based on the COVID-19 situation in Middlesex-London, in-person consultations were not feasible, and virtual meetings were utilized.

Phase 2: *Consultation with community partners*

Consultations

In-depth consultations with community partners occurred in Spring 2021 (March-May). These consultations were used as opportunities to provide details about the project, to gather feedback about the candidate indicators, and subsequently the surveillance dashboard, to ensure the dashboard would meet the needs of community partner organizations.

Consultations included:

- email exchange between the project lead and community partner organizations,
- virtual meetings between the project lead and representatives identified by community partner organizations (through Zoom, Webex, Teams, etc.),
- opportunities for community partner organizations to provide feedback on the list of candidate population health indicators and draft dashboard,
- virtual group meetings where applicable,
- input from community partner organizations about dissemination of data included in the dashboard.

The Community Drug and Alcohol Strategy (CDAS) was the first group to be consulted. One of the internal MLHU project members is the co-chair of the steering committee, and member organizations were identified as partners who would be keenly interested in methamphetamine surveillance in Middlesex-London. Members of these organizations were invited to participate in the environmental scan, and to provide feedback on the candidate list of indicators.

From the CDAS group, other community partner organizations were referred to the project team, including the London-Middlesex Mental Health and Addiction Strategic Direction Council (SDC). The SDC is a collaborative group, created in response to the City of London's Community Mental Health and Addiction Strategy. The SDC acts as a strategic planning network, seeking to foster greater system collaboration and communication by bringing various planning tables, groups, and organizations together who support mental health and substance use. The SDC was instrumental in connecting the project team with additional community organizations, and in promoting the project to community partners, such as the London Middlesex Mental Health and Addictions Network table. Additionally, a brief summary of the work was included in the SDC's 2021 first quarter summary report, and an update will be included in their second quarter report.

Community partner organizations who were consulted provided valuable feedback, suggestions for additional indicators to include, and potential data sources for the indicators of interest. Connections to other organizations were also made through these consultations. For example, members of St. Leonard's Community Services connected the project lead with both the Salvation Army Centre of Hope and the Street Level Women at Risk Collaborative. Additionally, connections between MLHU and these community organizations were established to support ongoing collaboration. Members of the methamphetamine surveillance project team were asked to participate in, and give feedback on, other methamphetamine research projects.

Consultations with DATIS and ICES (two of the included data sources) also occurred during the community consultation stage to gather data to include on the methamphetamine dashboard. DATIS support provided custom data reports based on the data needs of this project. Determining the parameters of the reports was an iterative process, and greatly benefitted from the input of DATIS support, who are more familiar with the data that is available. The data provided by DATIS is an important component of the dashboard and gives insight into methamphetamine use and accessing substance use treatment by individuals living in Middlesex-London.

To include the data from ICES, an Applied Health Research Question (AHRQ) was submitted. Through the AHRQ, the objectives of the methamphetamine surveillance system were shared with ICES, and specific data was requested. The research under AHRQ is intended to support the collection of data to improve Ontario's healthcare system (6). The research team is still waiting for the data to be provided by ICES. When it is incorporated it will provide additional information about methamphetamine use in Middlesex-London and will be an important indicator on the healthcare page of the surveillance dashboard.

Feedback

The data collected during the environmental scan was key in the creation of the initial list of candidate population health indicators. The list of indicators was refined based on feedback from community consultations, and data availability. Meaningful indicators were identified and included on the methamphetamine dashboard, to reliably signal when community action in response to methamphetamine use needs to be taken. These actions may include, for example, increased availability of crystal methamphetamine harm reduction kits, or additional education or other resources for individuals who use methamphetamine in Middlesex-London. Identifying what the corresponding actions will be, based on the results of epidemiologic interpretation of the indicator data collected, is essential in ensuring the success of this surveillance system.

While not all organizations had methamphetamine data to share, all were supportive of the project, and expressed interest in being data users. Many organizations also offered feedback on the draft dashboard. Feedback on indicators and data included in the dashboard was very important. Further, feedback on the language included and the way the data is presented was provided. It is imperative the way the data is presented is not stigmatizing to the populations supported through methamphetamine surveillance.

Community partners shared positive impressions of the methamphetamine dashboard, including feedback that the dashboard is readable, inclusive, and easy to navigate. Additionally, community partners highlighted that having the data presented together in a comprehensive way is helpful for service providers to understand the magnitude of the impacts of crystal methamphetamine in the Middlesex-London community and is a great resource for service planning and co-ordination.

Additionally, feedback provided by community partners was utilized to inform the development and dissemination of the crystal methamphetamine surveillance system and dashboard. It will be important to ensure ongoing alignment of the crystal methamphetamine surveillance system with existing work, including the work of the Community Drug and Alcohol Strategy (CDAS), and others. Ensuring alignment between the purpose and goals of this project, thresholds for community action, and the goals of community partner organizations, will allow for a comprehensive and useful methamphetamine surveillance dashboard.

Overall, consultations with community partners were an incredibly valuable part of the creation of the methamphetamine surveillance system, and its development would not have been possible without their contributions, both in data and feedback.

Finalized Indicators

Numerous population health indicators were identified through both the literature scan and environmental scan. Indicators were evaluated based on the goals of this project and local data availability.

It is important that the indicators included in this surveillance system align with the Ontario Public Health Standards (OPHS). The OPHS provides direction for public health units to identify and address current and evolving health issues (7). Methamphetamine use in Middlesex-London would be considered one such issue, under the Substance Use and Injury Prevention Guideline (8).

The list included below underwent assessment by the internal project team, and community partners. Indicators were removed or added to the initial list, based on data availability, assessment of the data, and other feedback. The indicators were reworded after discussions with community partners, and once the data was available. This list may change over time, as data availability changes.

It is important to note that both count and percent were included where possible. The percentage provided context for the count data also included. This was especially important for harm reduction service utilizations, where trends could be evaluated using both the number and percent of visits for service. Additionally, different iterations of the data were included to provide a snapshot of the most recent data for an indicator. For example, all pages include the percent change for the most recent data, compared to the previous data.

Table 1: Population Health Indicators

Indicator	Data collection
Harm Reduction Service Utilization	
Number of occasions of service at Carepoint where methamphetamine was identified as the drug used	RHAC
Percent of occasions of service at Carepoint where methamphetamine was identified as the drug used	RHAC
Number of crystal methamphetamine harm reduction kits distributed in Middlesex-London by counterpoint and satellite locations	RHAC
Number of bowl pipes to smoke crystal methamphetamine distributed in Middlesex-London by counterpoint and satellite locations	RHAC
Healthcare Utilization	
Rate of emergency department (ED) visits associated with stimulant use including methamphetamine in Middlesex-London and Ontario, per 100,000	Intellihealth
Rate of ED visits associated with stimulant poisonings including methamphetamine in Middlesex-London and Ontario, per 100,000	Intellihealth
Rate of hospitalizations associated with stimulant use including methamphetamine in Middlesex-London and Ontario, per 100,000	Intellihealth
Rate of hospitalizations associated with stimulant poisonings including methamphetamine in Middlesex-London and Ontario, per 100,000	Intellihealth
Percent of urine drug test samples for clients in Middlesex-London testing positive for methamphetamine	ICES
Treatment Service Utilization	
Number of clients reporting methamphetamine as a presenting problem substance (PPS) at admission to substance use programs in London	DATIS

Number of clients reporting methamphetamine use in the 12 months prior to admission to substance use programs in London	DATIS
Number of individuals from Middlesex-London who have contacted ConnexOntario for services related to substance abuse and identified methamphetamine use	ConnexOntario
Percent of individuals from Middlesex-London who have contacted ConnexOntario for services related to substance abuse and identified methamphetamine use	ConnexOntario
Outcomes and Fatalities	
Crude mortality rate from methamphetamine in Middlesex-London, Peer Group, and Ontario, per 100,000	Public Health Ontario
Crude mortality rate from methamphetamine for females in Middlesex-London, per 100,000	Public Health Ontario
Crude mortality rate from methamphetamine for males in Middlesex-London, per 100,000	Public Health Ontario
Age-standardized mortality rate from methamphetamine age 15 to 24 in Middlesex-London, per 100,000	Public Health Ontario
Age-standardized mortality rate from methamphetamine age 25 to 44 in Middlesex-London, per 100,000	Public Health Ontario
Age standardized mortality rate from methamphetamine age 45 to 64 in Middlesex-London, per 100,000	Public Health Ontario
Age standardized mortality rate from methamphetamine age 65+ in Middlesex-London, per 100,000	Public Health Ontario
Methamphetamine-related Crimes	
Rate of methamphetamine possession incidents in London CMA, per 100,000	Statistics Canada
Count of methamphetamine possession incidents in London CMA, per 100,000	Statistics Canada
Rate of methamphetamine trafficking incidents in London CMA, per 100,000	Statistics Canada
Count of methamphetamine trafficking incidents in London CMA, per 100,000	Statistics Canada
Rate of methamphetamine production incidents in London CMA, per 100,000	Statistics Canada
Count of methamphetamine production incidents in London CMA, per 100,000	Statistics Canada

Surveillance Dashboard

The finalized methamphetamine surveillance dashboard was built on the Microsoft Power BI platform and has five pages, corresponding to the five categories of indicators previously described. An additional sixth page has been included to provide technical notes about the data. Data are presented as counts by month or year, percentages, or rates per 100,000. Each page includes details about the data sources, including a brief description of the data. Additional data notes or definitions, important for data interpretation, are included on the technical notes page. The initial version of the dashboard includes some data interpretation; however, subsequent updates will include minimal data interpretation, to allow data updates to be made as simply as possible. Instead, an annual report including data interpretations will be developed to be shared with community partners. Additionally, the technical notes page was added to the dashboard, so most of the text heavy descriptions and definitions could be appended to the dashboard without overloading the main data pages.

Comparisons are provided between Middlesex-London and the rest of Ontario where possible. An additional comparison included on the Outcomes and Fatalities page includes MLHU's peer group. The peer group consists of other public health units with similar socio-economic characteristics (9). These comparisons are included on the dashboard to give context to the observed methamphetamine-related rates in Middlesex-London.

People who use substances experience stigma. The project team has attempted to use language on the methamphetamine surveillance dashboard that is non-stigmatizing, by seeking feedback from community partners and referring to the Public Health Agency of Canada's resource 'Communicating about Substance Use in Compassionate, Safe, and Non-Stigmatizing Ways' (10). The project team acknowledges that the way substance use is discussed evolves over time, and some of the phrases or terms may need to be adjusted in the future.

The data included in the dashboard are updated at varying intervals (monthly, quarterly, or annually), based on when data are available. The methamphetamine dashboard will be available on MLHU's website, as a part of the Community Health Status Resource, for public consumption. For additional details, see Appendix 1 below.

Key Findings from the Data

Some of the key findings from the data included on the dashboard have been detailed below. For additional data findings, please review the dashboard itself. Additionally, please review the technical notes page of the dashboard for key data notes and definitions.

Harm Reduction Service Utilization

Although the identification of methamphetamine as a the drug of use when accessing Carepoint services began trending up in the summer of 2019 to early 2020, it is important to note the percent of visits where methamphetamine was identified as the drug of use did not follow the same trend, and rather remained fairly stable through that time period. This means that both the number of occasions of service where methamphetamine was identified as the drug being used increased, and the overall number of occasions of service at Carepoint also increased.

Healthcare Utilization

Emergency Department Visits

Rates of emergency department (ED) visits in Middlesex-London associated with stimulant use including methamphetamine increased each year from 2016 to 2019. Increases were significant from 2017 to 2018 ($p<0.01$) and 2018 to 2019 ($p<0.01$). Additionally, there was a significant decrease in the rate of ED

visits in Middlesex-London associated with stimulant use including methamphetamine from 2019 to 2020 (p=0.02), likely due to the COVID-19 pandemic. From 2016 to 2020 rates of ED visits associated with stimulant use including methamphetamine were significantly higher in Middlesex-London compared to the rest of Ontario (2016-2020, p<0.01 every year).

Rates of emergency department (ED) visits in Middlesex-London associated with stimulant poisonings including methamphetamine remained consistent each year from 2016 to 2020. From 2016 to 2020 rates of ED visits associated with stimulant poisonings including methamphetamine were higher in Middlesex-London compared to the rest of Ontario. These rates were only significantly higher in 2016 (p<0.01) and 2019 (p=0.04).

Hospitalizations

Rates of hospitalizations in Middlesex-London associated with stimulant use including methamphetamine increased each year from 2016 to 2020; however, the increase from 2018 to 2019 was the only significant increase (p=0.04). From 2016 to 2020 rates of hospitalizations associated with stimulant use including methamphetamine were significantly higher in Middlesex-London compared to the rest of Ontario (2016-2020, p<0.01 every year).

Rates of hospitalizations in Middlesex-London associated with stimulant poisoning including methamphetamine remained consistent each year from 2016 to 2020. From 2016 to 2020 rates of hospitalizations associated with stimulant poisonings including methamphetamine were higher in Middlesex-London compared to the rest of Ontario, and were significantly higher every year except 2018 (2016 p<0.01, 2017 p<0.01, 2019 p=0.04, 2020 p=0.03).

Treatment Service Utilization

The data from the Drug and Alcohol Treatment Information System (DATIS) shows the number of clients who identify using methamphetamine in the previous 12 months is consistently higher than the number of clients who indicate methamphetamine use was problematic and led them to substance use treatment. Therefore, some people who use methamphetamine seek out treatment for other substances, and/or do not feel their methamphetamine use is problematic.

Outcomes and Fatalities

The rate of methamphetamine toxicity deaths in Middlesex-London has been increasing significantly each year from 2018 to 2020 (2018 to 2019 p=0.03, 2019 to 2020 p<0.01) (3) and has been significantly higher than the rate across the rest of Ontario each of those years (2018 p=0.03, 2019 p<0.01, 2020 p<0.01). The rate of methamphetamine toxicity deaths in Middlesex-London was significantly higher than the rest of the peer group in both 2019 (p<0.01) and 2020 (p<0.01).

Crimination related to Methamphetamine

The rates of methamphetamine-related crimes in the London CMA remained stable from 2015 to 2019. However, the rate of possession incidents had a slight but significant decline in 2019 (31.6 per 100,000, 2018 to 2019 p=0.02) and 2020 (19.0 per 100,000, 2019 to 2020 p<0.01). Decreases in methamphetamine-related crimes observed in Middlesex-London in 2020 are consistent with the rest of Ontario.

Dashboard Update Process

The dashboard update process is very straight forward, and the dashboard has been designed so that it can be updated by anyone who has access to the data. It is important for whoever is updating the dashboard to be aware when each data source is updated, since the intervals vary.

To help with the dashboard updates, a process document has been drafted. This process document details the data sources included in the dashboard, how often the data is available, how the data is accessed, and specific steps for updating the data. This document is detailed to ensure the update process goes smoothly. Feedback on the process document will be requested internally, from the Population Health Assessment and Surveillance Team, to ensure the document is easy to follow for others who are less familiar with the methamphetamine dashboard.

It is important to keep in mind that the process document will need to be updated if the data included on the dashboard changes, or if the way the data is accessed changes. It is key to keep this resource up to date, so there is a reference document including detailed instructions if another person is updating the dashboard.

Conclusions

This project is a key component in the creation of a fulsome and coordinated community response to address methamphetamine use. Many indicators included in the methamphetamine surveillance dashboard suggest methamphetamine use is trending up, while other indicators have been heavily influenced by the COVID-19 pandemic and suggest decreases in methamphetamine use. This highlights the importance of taking all indicators and additional context into consideration when identifying trends in methamphetamine use. Overall, the data included on the dashboard suggest methamphetamine use is increasing beyond the situation pre-pandemic and is continuing to increase. For example, the percent of visits to Carepoint where methamphetamine was identified as the drug being used is now similar to the pre-pandemic percentage. Additionally, although healthcare utilization rates for stimulants including methamphetamine are lower than before the pandemic, treatment services for methamphetamine use are beginning to increase, indicating perhaps individuals are seeking treatment related to methamphetamine use in different ways as the pandemic continues to impact the healthcare system. Finally, methamphetamine-related toxicity deaths have been increasing since 2018. Methamphetamine-related deaths indicate both the burden and severity of disease. In this case, the data suggest increases for both the burden of methamphetamine use and the severity of the outcomes associated with methamphetamine use.

This project was, and continues to be, heavily reliant on our community partners, not only for feedback and insight, but also for data sharing. The timing of this project, during the second and third waves of the COVID-19 pandemic, created some challenges when attempting to connect with community partners. During the COVID-19 pandemic, much of the work of our community partners was altered, often increasing their workload. This made follow-up with some community partners difficult or impossible. Hopefully once restrictions related to the pandemic subside, the availability of community partners to connect around methamphetamine use in Middlesex-London will increase.

The goal of this dashboard is to have updated data to share monthly. However, not all data is available at the same interval, so only some data will be updated monthly, with most of the data being updated either quarterly or annually. Therefore, this dashboard might be considered more of a population health assessment, rather than surveillance, based on how often the data is available and updated (11).

Although analysis and interpretation are a key aspect of surveillance, the project team decided that including interpretation for all data, was too cumbersome to include in a surveillance dashboard. Therefore, interpretation was included on the initial dashboard, and moving forward, general data notes and interpretations will be included; however, specific interpretation of the data will be presented in an annual report.

The creation and dissemination of the methamphetamine surveillance dashboard was successful, but not without its challenges. Hopefully the lessons learned during the creation and dissemination of MLHU's methamphetamine surveillance dashboard are useful in informing other jurisdictions with the planning to implementation of a similar surveillance dashboard.

Limitations

A lack of available morbidity data related to methamphetamine use is likely the most important limitation to developing a more fulsome surveillance system. While searching for data to include on the dashboard, and data sources, it became apparent that methamphetamine morbidity data is limited. Although the literature scan conducted during phase one of this project identified many potential indicators to represent the availability, use, and harms associated with community methamphetamine use, many of these data sources were unavailable. For example, self-reported methamphetamine use

was included in most of the peer-reviewed and grey literature; however, self-reported use information in Middlesex-London was only available for clients who were disclosing methamphetamine as their drug of use during a visit to a supervised consumption facility, and for clients seeking addiction service treatment. Although these are good data sources, the population of individuals who do not access harm reduction and/or treatment services are missed. Therefore, data collected from these sources cannot be generalizable to the entire Middlesex-London population. Additionally, methamphetamine use can cause rapid and severe physical and psychological effects (12). These effects are difficult to track because, unlike opioid use where overdoses are used to track impact, methamphetamine use is often associated with longer term health problems. Additionally, individuals who die from methamphetamine use disorder are often not considered methamphetamine overdose deaths (13). More work must be done to collect methamphetamine related morbidity data.

Methamphetamine use described by the methamphetamine impacts dashboard likely underrepresents the true burden of methamphetamine on the Middlesex-London community, since those impacted by methamphetamine use may not interact with any of the agencies who gather data. This may also be related to the stigma experienced by those who use methamphetamine, leading to underreporting (14).

One way to combat the lack of available methamphetamine morbidity data and underreporting methamphetamine use, could be through wastewater-based epidemiology methods to estimate prevalence of methamphetamine use. Wastewater-based epidemiology methods were used frequently by studies included in the literature scan to identify indicators of methamphetamine use, included in the first report. Since illicit drugs are not completely metabolized after being ingested, the amount of an illicit substance found in wastewater can be used as an indicator of consumption of that substance at the population level (15). Wastewater-based epidemiology is a valuable population-level indicator because it is a comprehensive, cost-effective, and immediate measure of population drug consumption, and should be considered as a future data source.

Next Steps

Although this surveillance system was created for one public health unit region, it does provide a model which can be applied to other jurisdictions. It will be important to share not only our findings, but also details about the process to create the surveillance system so others can apply our learnings to their own surveillance dashboard development. The methamphetamine surveillance dashboard will be available on the MLHU website, as a part of the Community Health Status Resource, and will be routinely updated, and the data will be shared with community partners. There will also be a presentation to PHAC detailing the development and dissemination of the methamphetamine surveillance dashboard, including any lessons learned, so other jurisdictions can apply them to their work.

Consultations with community partner organizations were an incredibly valuable component of the development of the methamphetamine surveillance dashboard. Unfortunately, due to the COVID-19 pandemic, the project team was not able to engage with individuals who use methamphetamine. In the future, the project team plans to have fulsome engagement with community members who use methamphetamine to better understand the harms associated with methamphetamine use and to assess how the surveillance of crystal methamphetamine morbidity data could be meaningfully actioned in the Middlesex-London region.

Specifically related to the data included in the Middlesex-London methamphetamine surveillance system, it will be important to understand trends in the impacts of methamphetamine use on the community, especially in the context of the COVID-19 pandemic. Although some trends show decreases during the pandemic, others increased, including rates of methamphetamine toxicity deaths increased

in 2020 compared to previous years. This especially highlights the need for this surveillance, in conjunction with opioid surveillance.

Not only will the findings of the data included on this dashboard be used for methamphetamine surveillance but will also play an important role in identifying and prioritizing issues of public health significance. The data included on the methamphetamine dashboard will be merged with other key indicators, related to underlying public health issues.

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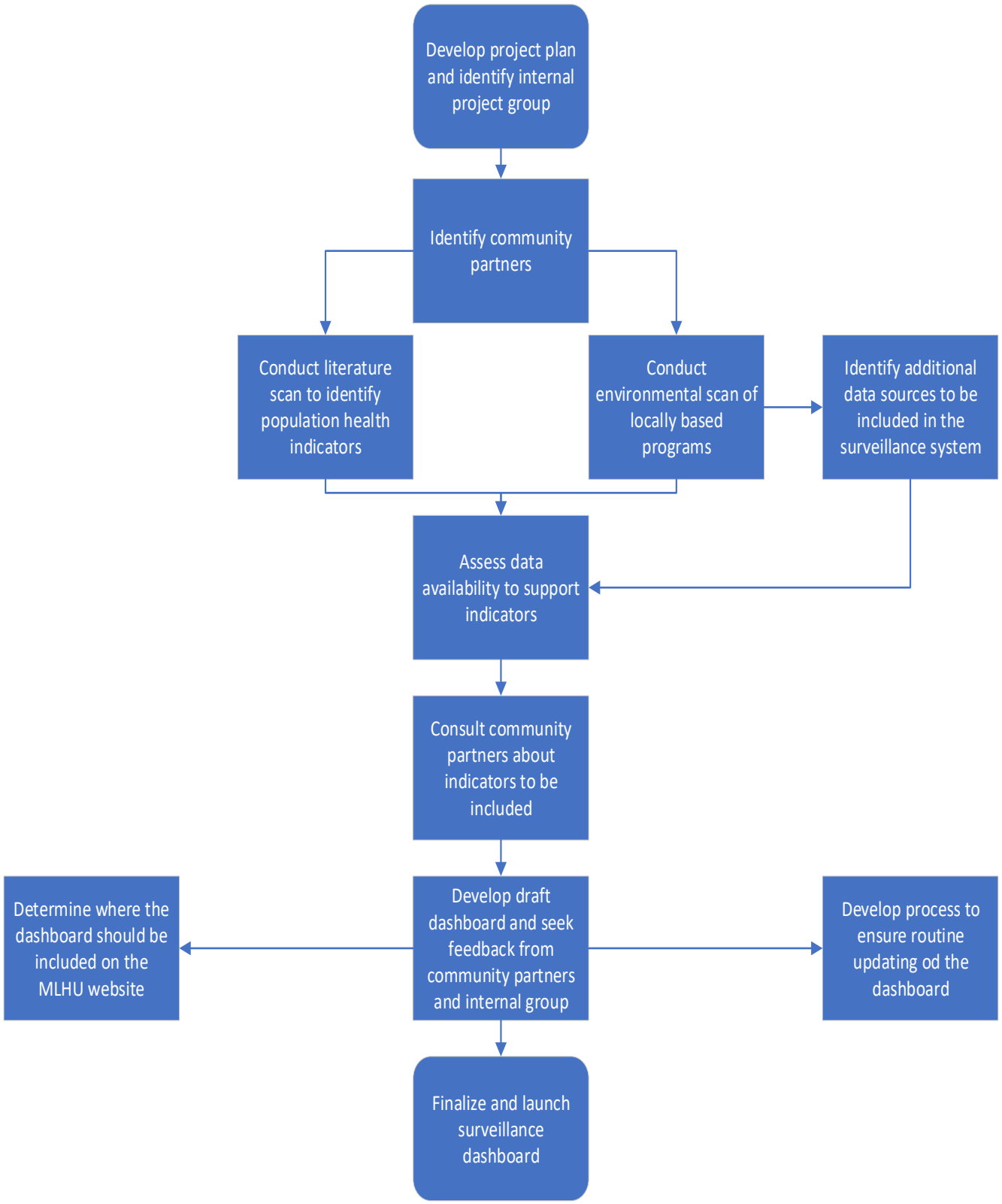
Appendices

Appendix 1: Steps in the development of the methamphetamine surveillance system



Appendix 2: Crystal Methamphetamine Surveillance Dashboard

Impacts of Crystal Methamphetamine Use in Middlesex-London

Last Updated: October 2021

The data included on this dashboard are key in helping to identify trends in methamphetamine use within the Middlesex-London community. The data are updated at varying intervals, based on when data are available (monthly, quarterly, annually). The data included on the dashboard may change over time, as new data sources becomes available.
For additional details about the data and definitions included on each page of the dashboard, please visit the **technical notes** page.

Harm Reduction Service Utilization | Healthcare Utilization | Treatment Service Utilization

Outcomes and Fatalities | Crimination related to Methamphetamine | Technical Notes

Methamphetamine Harm Reduction

Data included on this page of the dashboard are from Regional HIV/AIDS Connection (RHAC). Data presented in the graph below show the number and percent of occasions of service at Carepoint, where individuals have identified using methamphetamine during their visit.

Key Points

The number of occasions of service at Carepoint, where methamphetamine was identified as the substance of use was stable through 2018 to mid-2019. In August 2019, the identification of methamphetamine as the drug of use began trending up, to its peak in February 2020. Overall visits to Carepoint increased during this time as well, and the percent of visits where methamphetamine was identified remained stable. This means both the number of occasions of service where methamphetamine was identified as the drug being used increased, and the overall number of occasions of service at Carepoint also increased.

A decline in both identified methamphetamine use at Carepoint and overall number of visits began in March 2020, likely due to the COVID-19 pandemic and public health restrictions. The number of occasions of service at Carepoint, where methamphetamine was identified as the substance of use in 2021 (January-June) was significantly higher than the same time in 2020 ($p<0.001$); however, the overall number of occasions of service at Carepoint in 2021 was numerically lower.

Most Recent Data Summary

Occasions of service where methamphetamine was identified

Year	Month	Number of occasions of service	Percent of occasions of service
2021	August	361	35.81%

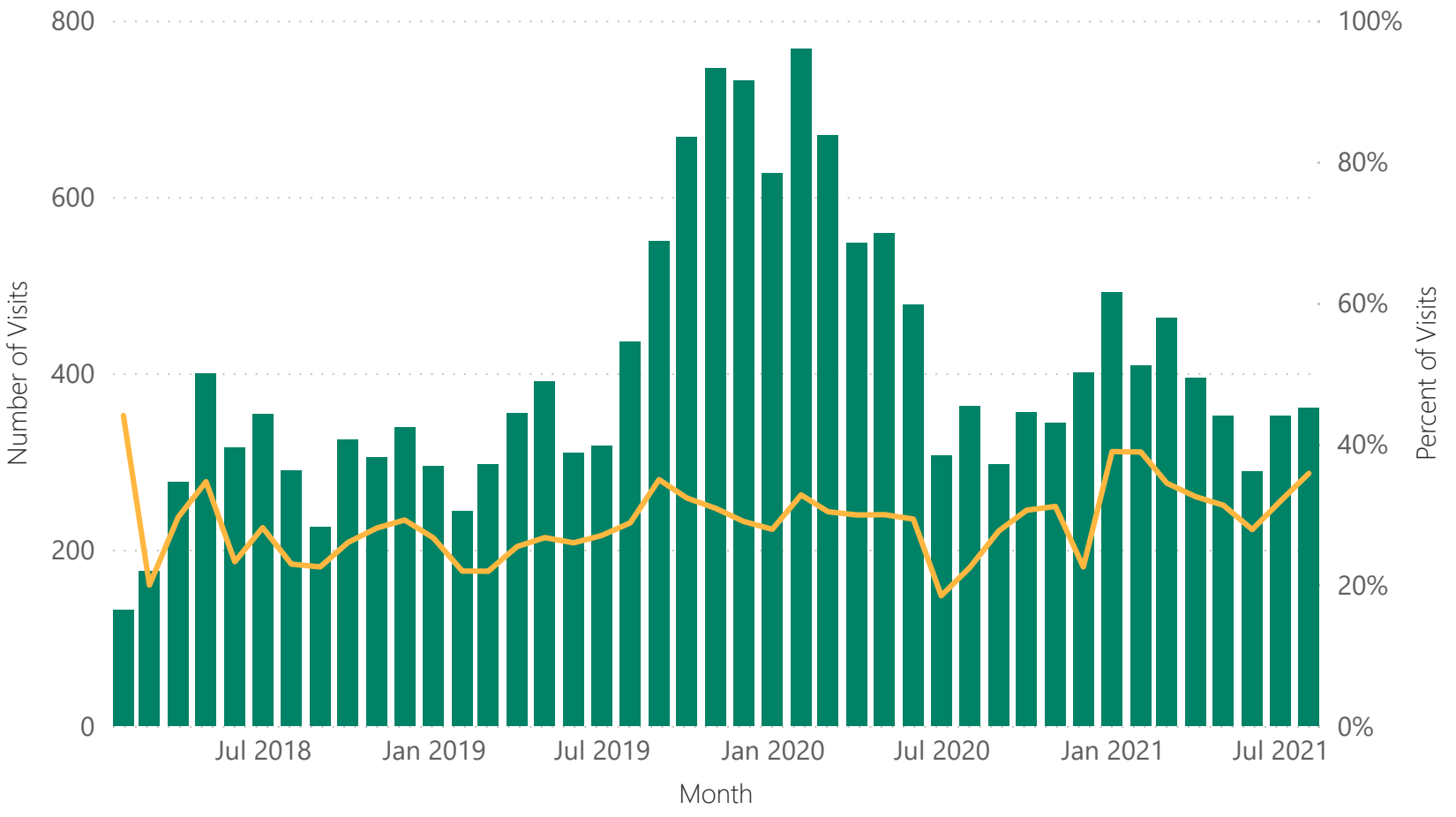
% change in number of occasions of service where methamphetamine was identified

3%

change from previous month

August 2021

Number and Percent of Occasions of Service at Carepoint where Methamphetamine was Identified as the Drug Used



Methamphetamine Harm Reduction Kits Distributed by Counterpoint and Satellite Locations

5227

Number of harm reduction kits distributed in 2020

Bowl Pipes for Methamphetamine Harm Reduction Distributed by Counterpoint and Satellite Locations

3154

Number of bowl pipes distributed in 2020

Source: Regional HIV/AIDS Connection. September 17, 2021.

Impacts of Crystal Methamphetamine Use in Middlesex-London

Last Updated: October 2021

The data included on this dashboard are key in helping to identify trends in methamphetamine use within the Middlesex-London community. The data are updated at varying intervals, based on when data are available (monthly, quarterly, annually). The data included on the dashboard may change over time, as new data sources becomes available.
For additional details about the data and definitions included on each page of the dashboard, please visit the **technical notes** page.

Harm Reduction Service Utilization | **Healthcare Utilization** | **Treatment Service Utilization**

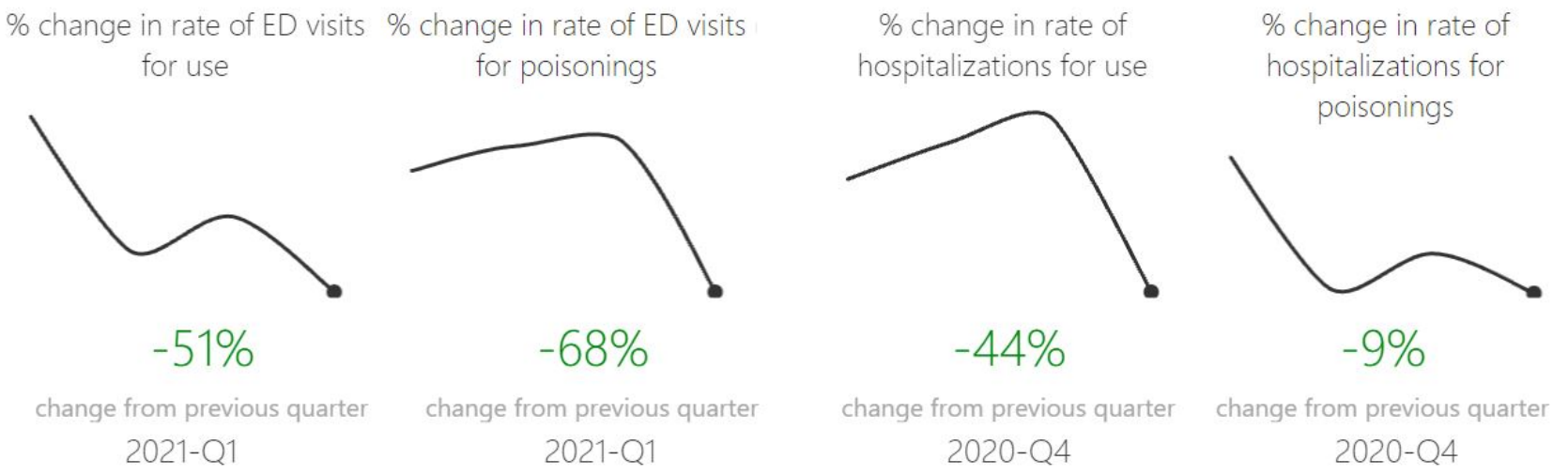
Outcomes and Fatalities | **Crimination related to Methamphetamine** | **Technical Notes**

Healthcare Utilization

Data included on this page of the dashboard are from two sources. Data are from the National Ambulatory Care Reporting System (NACRS), and the Discharge Abstract Database (DAD).

The data shows the ways individuals who use methamphetamine may access the healthcare system, often through emergency department (ED) visits, or hospitalizations.

Most Recent Data Summary - Middlesex-London



Rate of ED Visits per 100,000 population

Year and Quarter	Rate of Visits for Use	Rate of Visits for Poisonings
2021-Q1	12.50	2.30

Rate of Hospitalizations per 100,000 population

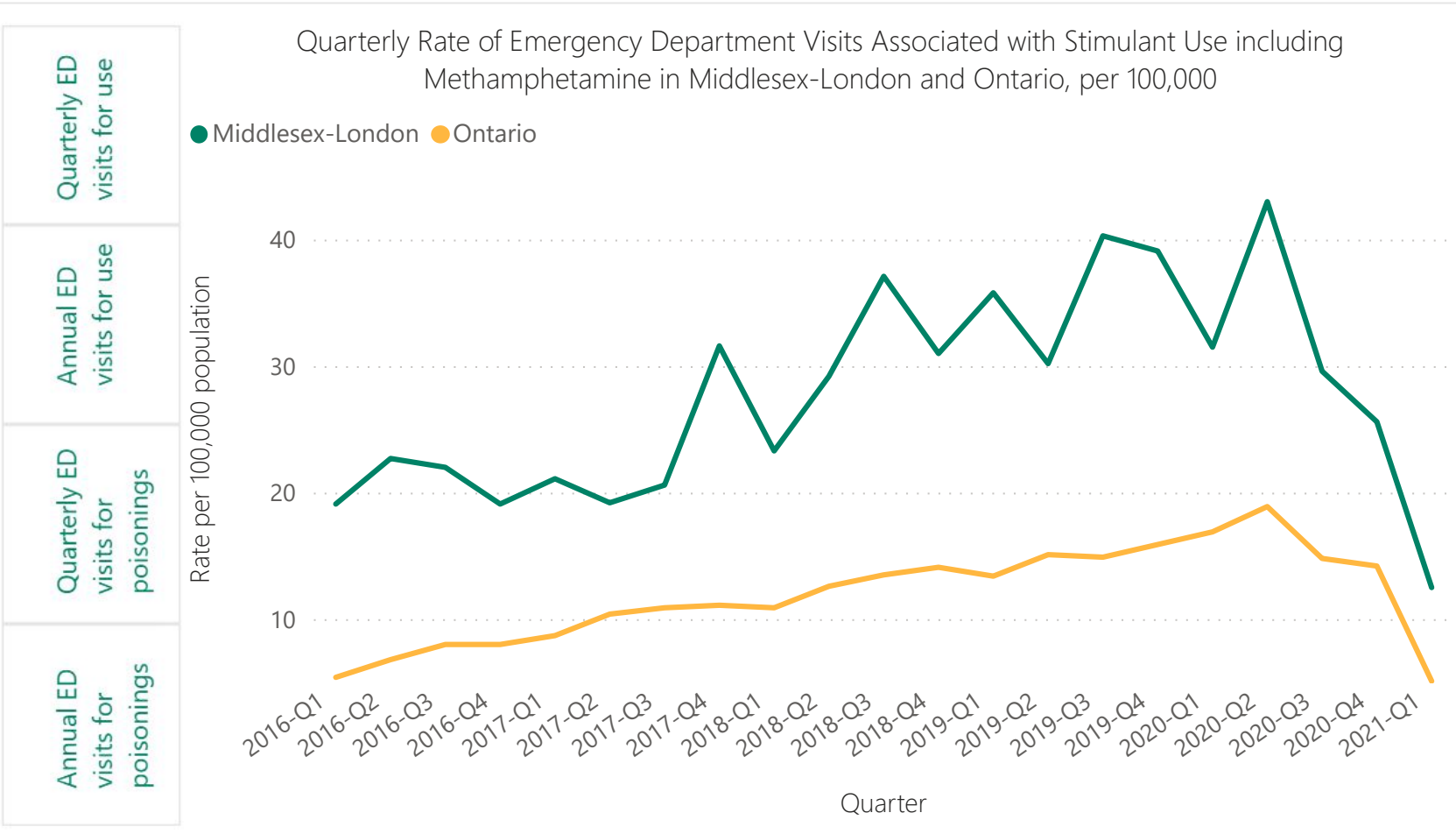
Year and Quarter	Rate of Hospitalizations for Use	Rate of Hospitalizations for Poisonings
2020-Q4	4.90	3.20

Emergency Department Visits

Data from the National Ambulatory Care Reporting System (NACRS) in the graphs below include individuals who live in Middlesex-London, who identified stimulant use or poisoning as a reason for seeking medical care. Data is presented both quarterly and annually, and comparisons are presented with Ontario.

Key Points

Rates of emergency department (ED) visits associated with stimulant use including methamphetamine increased each year from 2016 to 2019. From 2016 to 2020 rates of ED visits associated with stimulant use including methamphetamine were significantly higher in Middlesex-London compared to the rest of Ontario. Additionally, from 2016 to 2020 ED visits associated with stimulant poisonings including methamphetamine were higher in Middlesex-London compared to the rest of Ontario, but the rates were only significantly higher in Middlesex-London in 2016 and 2019.



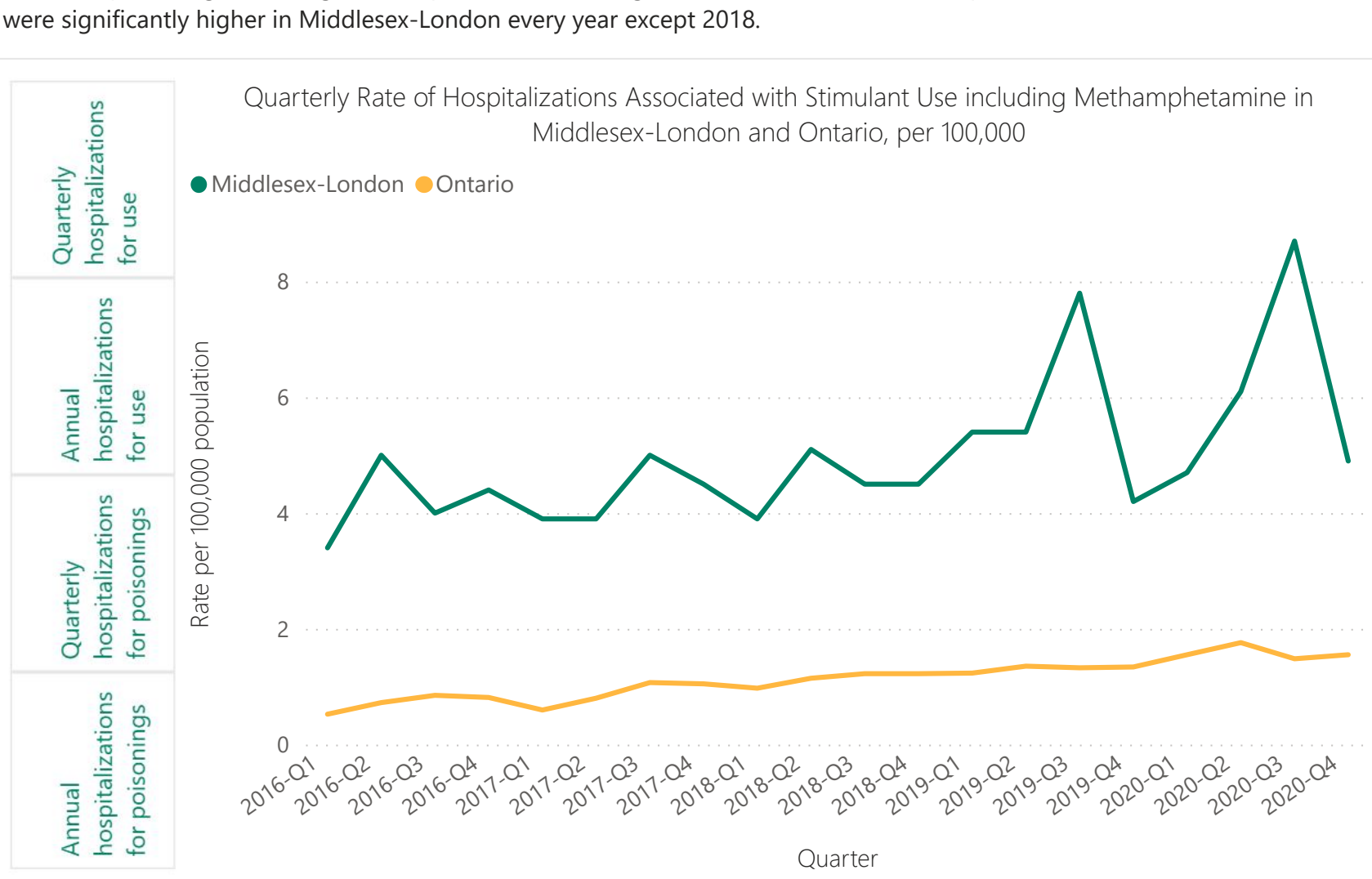
*Ontario rates exclude Middlesex-London cases
Source: NACRS. August 13, 2021.

Hospitalizations

Data from the Discharge Abstract Database (DAD) in the graphs below include individuals who live in Middlesex-London, who were discharged from the hospital, after being admitted for stimulant use or poisoning, including methamphetamine. Comparisons are also presented with Ontario.

Key Points

Rates of hospitalizations associated with stimulant use including methamphetamine increased each year from 2016 to 2020. From 2016 to 2020 rates of hospitalizations associated with stimulant use including methamphetamine were significantly higher in Middlesex-London compared to the rest of Ontario. Additionally, from 2016 to 2020 hospitalizations associated with stimulant poisonings including methamphetamine were higher in Middlesex-London compared to the rest of Ontario, and rates were significantly higher in Middlesex-London every year except 2018.



*Ontario rates exclude Middlesex-London cases
Source: DAD. June 23, 2021.

Impacts of Crystal Methamphetamine Use in Middlesex-London

Last Updated: October 2021

The data included on this dashboard are key in helping to identify trends in methamphetamine use within the Middlesex-London community. The data are updated at varying intervals, based on when data are available (monthly, quarterly, annually). The data included on the dashboard may change over time, as new data sources becomes available.
For additional details about the data and definitions included on each page of the dashboard, please visit the **technical notes** page.

Harm Reduction Service Utilization | **Healthcare Utilization** | **Treatment Service Utilization**

Outcomes and Fatalities | **Crimination related to Methamphetamine** | **Technical Notes**

Treatment Service Utilization

Data included on this page of the dashboard are from two sources. Data are from ConnexOntario, and the Drug and Alcohol Treatment Information System (DATIS).

The data show the ways individuals who use methamphetamine may access or inquire about substance use treatment programs. In Middlesex-London there are multiple agencies providing support and treatment to people who use substances.

Most Recent Data Summary

Substance Use Treatment Program Admissions

% change in number of individuals identifying methamphetamine as a PPS

1%

change from previous month

March 2021

% change in number of individuals identifying methamphetamine as a substance used in the last 12 months

2%

change from previous month

March 2021

Treatment Information

% change in number of phone calls to ConnexOntario where methamphetamine was identified

-25%

change from previous month

September 2021

Methamphetamine as a PPS or a substance used in the last 12 months

Year	Month	Methamphetamine as a PPS	Methamphetamine use in the last 12 months
2021	March	173	250

Methamphetamine calls to ConnexOntario

Year	Month	Number of methamphetamine calls	% of substance calls identifying methamphetamine
2021	September	6	7.59%

Substance Use Treatment Program Admissions

Data from the Drug and Alcohol Treatment Information System (DATIS) included in the graphs below includes clients who live in the city of London. The data includes anyone seeking addictions treatment from a publicly funded program in Ontario. Organizations include Addiciton Services Thames Valley (ADSTV), Canadian Mental Health Association (CMHA), Mission Services, Salvation Army, and Turning Point Inc., among others.

Key Points

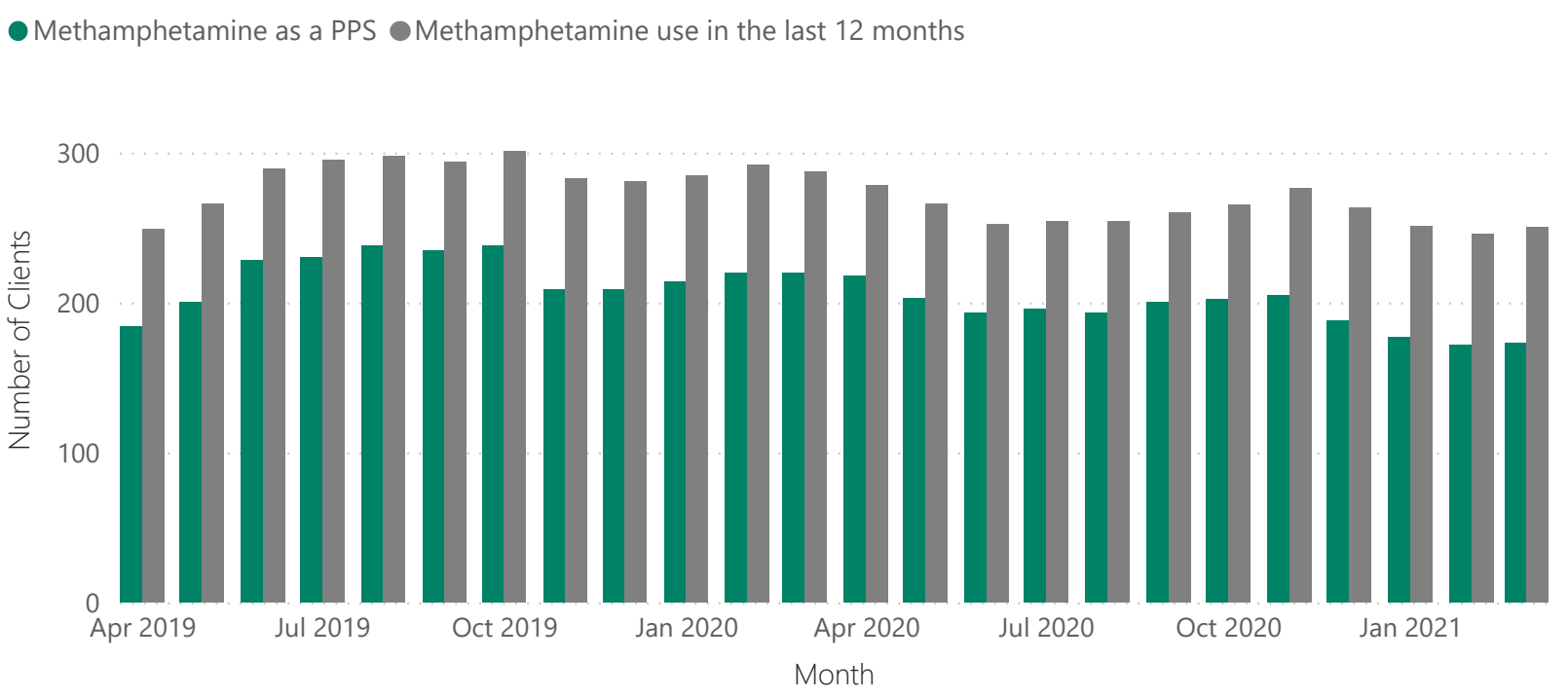
It is important to note that overall admissions through most of 2020 and 2021 to date are around 60% lower than they would normally be, presumably as a result of lockdown measures. However, this trend differed for some organizations. For example, ADSTV had approximately 20% fewer admissions in 2021, but supported a greater number of individuals overall (approximately 1%), as many clients remained in treatment longer as a result of the pandemic. Therefore, trends through the COVID-19 pandemic should be interpreted cautiously. Additionally, this data is self-reported and likely underrepresents methamphetamine use by individuals accessing treatment services.

Based on the data presented below, the number of clients who identify using methamphetamine in the previous 12 months is consistently higher than the number of clients who indicate methamphetamine use was problematic and led them to substance use treatment. Therefore, some people who use methamphetamine seek out treatment for other substances, and/or do not feel their methamphetamine use is problematic.

Crystal Methamphetamine as a Presenting Problem Substance (PPS) or as a Substance used in the last 12 months

Data presented in the graph below shows the number of clients who indicated crystal methamphetamine was a substance that led the client to seek substance use treatment and the number of clients who identified using crystal methamphetamine in the 12 months prior to the initiation of substance use treatment.

Number of clients who Identify Crystal Methamphetamine as a PPS or as a Substance used in the last 12 months upon Admission to Substance Use Programs, City of London



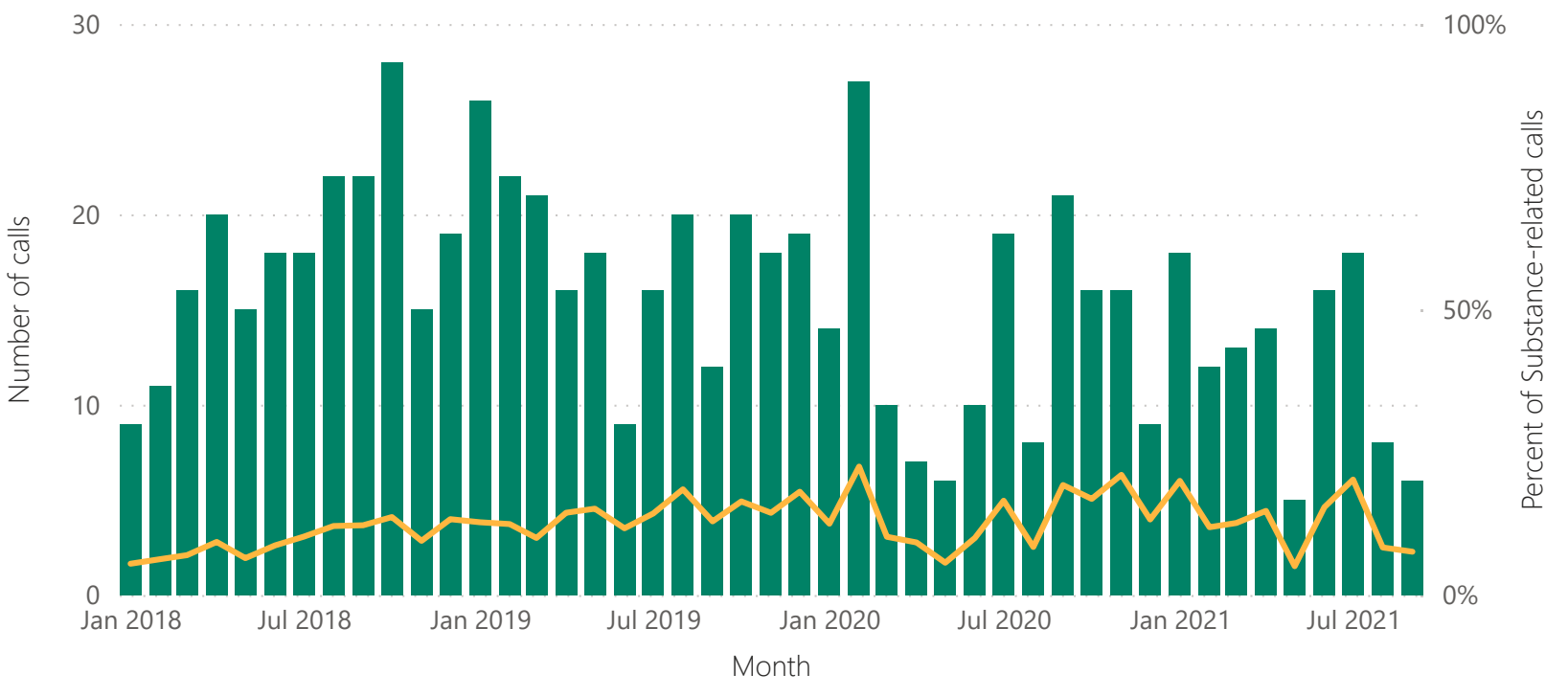
Source: DATIS. July 13, 2021.

Treatment Information

Data presented in the graph below from ConnexOntario displays the number of contacts from Middlesex-London seeking services associated with substance use who identify methamphetamine as a substance used. Please note that inquiries to ConnexOntario are often from concerned family members and friends, or professionals, on behalf of others.

Through 2018 and early 2019, there was a spike in call volume because ConnexOntario also received the calls to the Reach Out program during this time. Reach Out continues to operate; however, the calls are received through CMHA. Additionally, throughout the COVID-19 pandemic, there has been a decrease in the number of individuals contacting ConnexOntario regarding substance use in Middlesex County.

Number and Percent of individuals contacting ConnexOntario about substance use identifying methamphetamine, Middlesex-London



Source: ConnexOntario. October 1, 2021.

Impacts of Crystal Methamphetamine Use in Middlesex-London

Last Updated: October 2021

The data included on this dashboard are key in helping to identify trends in methamphetamine use within the Middlesex-London community. The data are updated at varying intervals, based on when data are available (monthly, quarterly, annually). The data included on the dashboard may change over time, as new data sources becomes available.
For additional details about the data and definitions included on each page of the dashboard, please visit the **technical notes** page.

Harm Reduction Service Utilization | **Healthcare Utilization** | **Treatment Service Utilization**

Outcomes and Fatalities | **Crimination related to Methamphetamine** | **Technical Notes**

Methamphetamine Mortality

Data included on this page of the dashboard is from the Office of the Chief Coroner effective June 7, 2021, as reported by Public Health Ontario. Data presented below show confirmed methamphetamine toxicity deaths in Middlesex-London.

Key Points

Methamphetamine-related harms have been highlighted by community partners as an issue impacting the Middlesex-London community for many years. The rate of methamphetamine toxicity deaths in Middlesex-London has been increasing significantly each year from 2018 to 2020 and has been significantly higher than the rate across the rest of Ontario each of those years. The rate of methamphetamine toxicity deaths in Middlesex-London was significantly higher than the rest of the peer group in 2019 and 2020.

In Middlesex-London, the rate of methamphetamine toxicity deaths was significantly higher for males compared to females from 2018 to 2020. The 25-44 age group had the highest rates of toxicity deaths from 2018-2020; however, rates were not significantly higher than those in the 45-64 age group with the next highest rates. Individuals aged 15-24 and over 65 had very few methamphetamine toxicity deaths over the three-year period.

Most Recent Data Summary

Percent change in methamphetamine mortality rate from previous quarter, Middlesex-London

0%

change from previous quarter

2020-Q4

Total Deaths

64

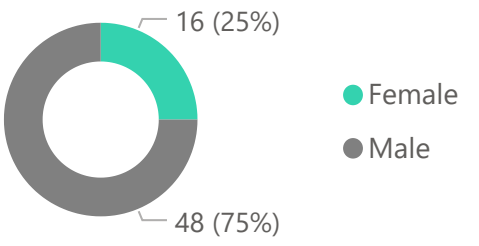
Number of methamphetamine-related toxicity deaths in Middlesex-London, 2020

Rate of methamphetamine-related toxicity deaths, per 100,000 population

Year and Quarter	Middlesex-London Rate	Peer Group Rate	Ontario Rate
2020-Q4	2.80	1.18	1.27

*Ontario and Peer Group rates exclude Middlesex-London cases

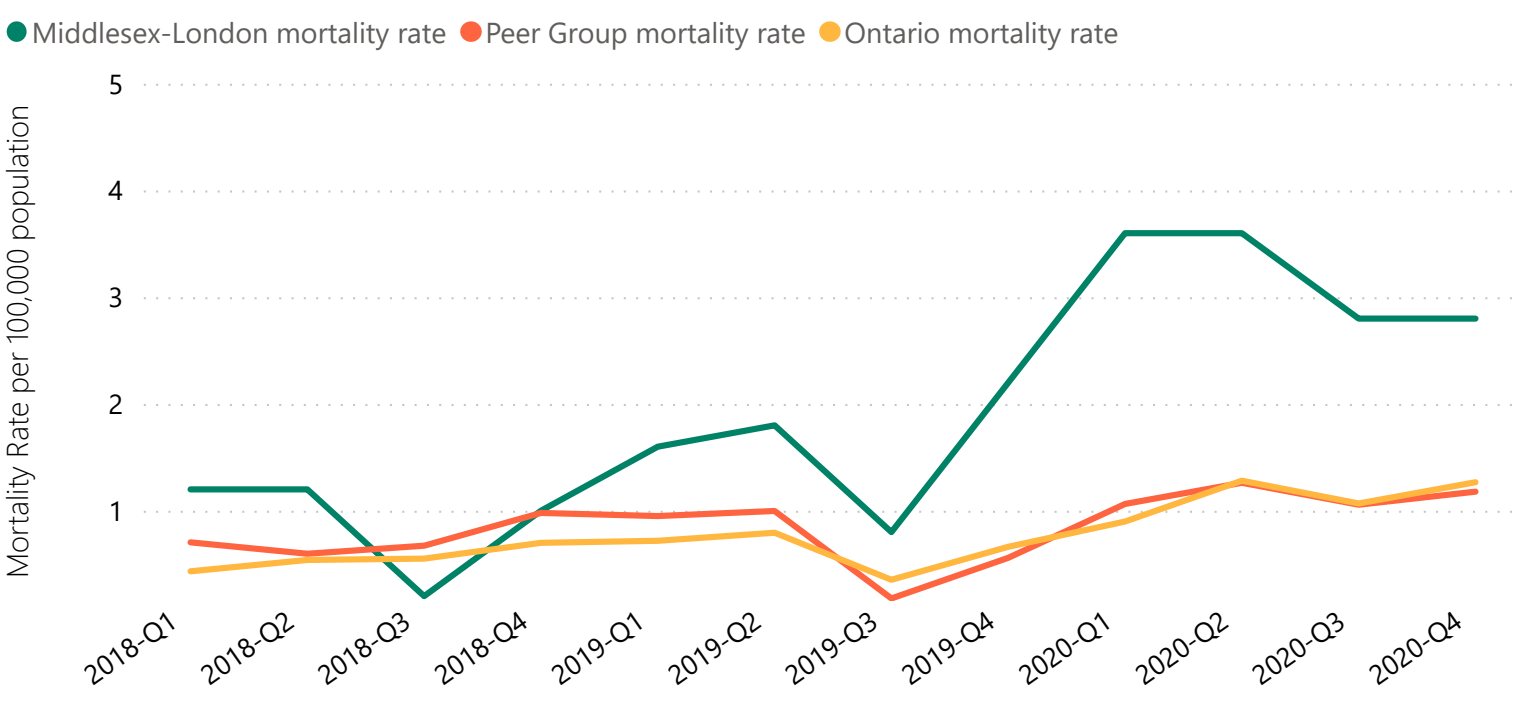
Number of methamphetamine-related toxicity deaths in Middlesex-London by sex, 2020



Crude Mortality Rate from Methamphetamine by Quarter, per 100,000

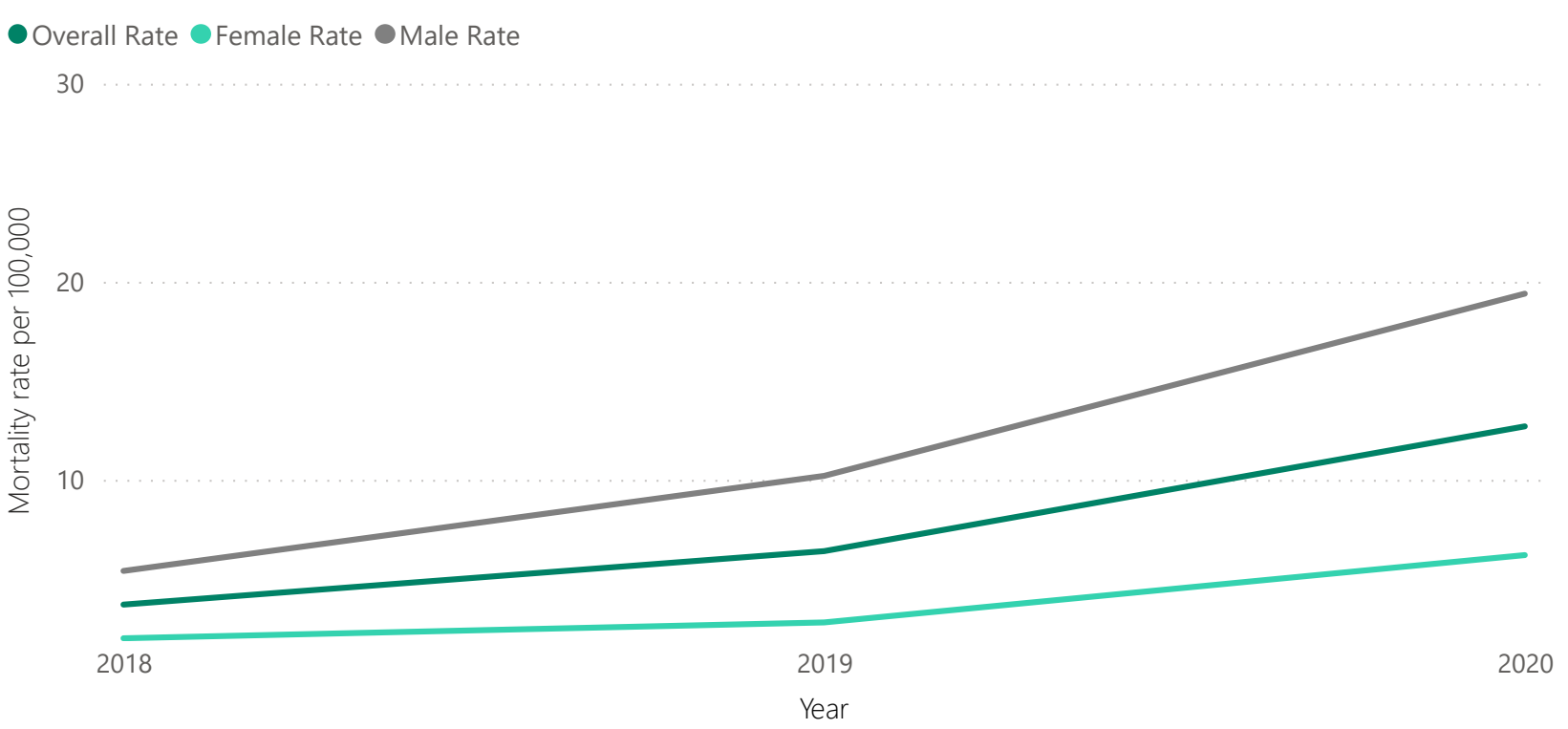
Table - Crude Mortality Rates, with 95% CI

Graph - Crude Mortality Rates

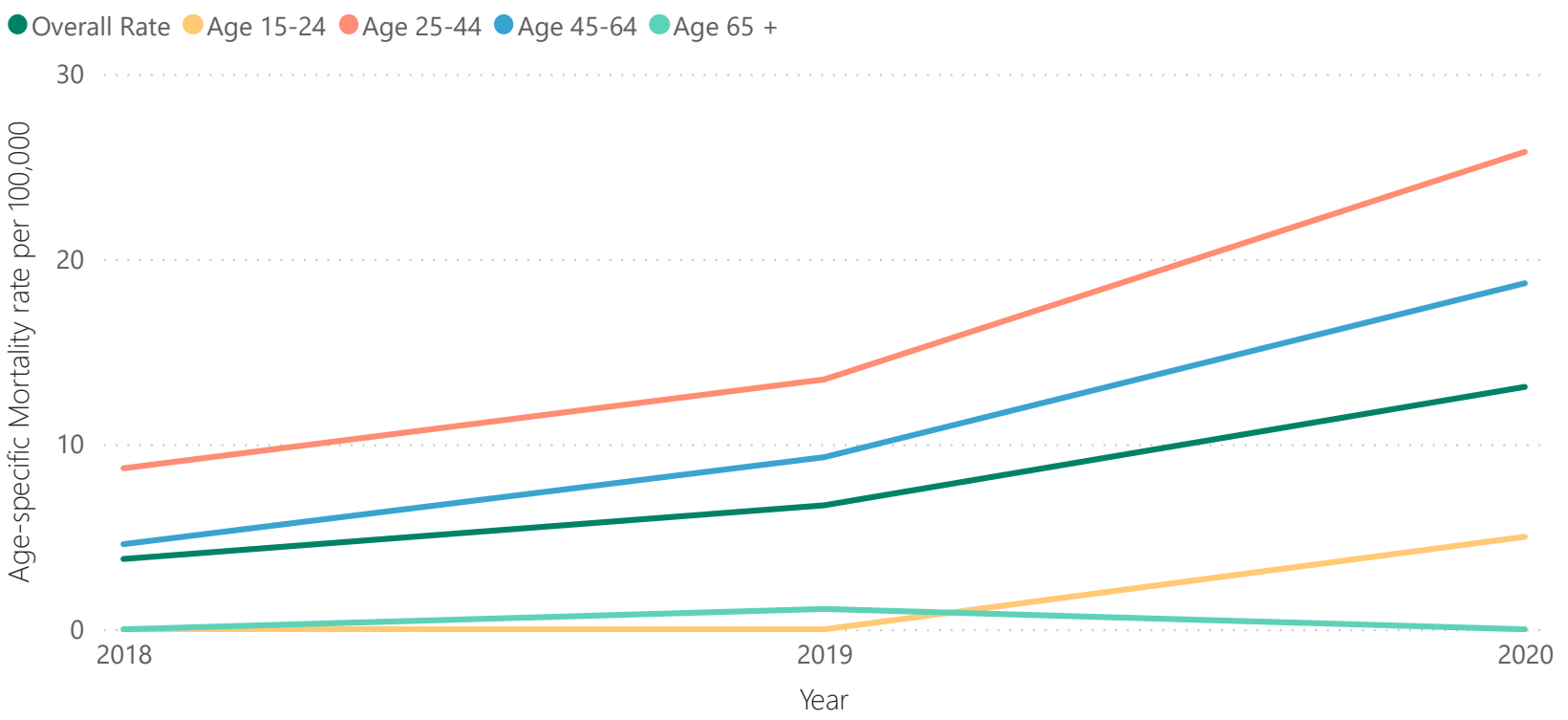


*Ontario and Peer Group rates exclude Middlesex-London cases

Crude Mortality Rates from Methamphetamine in Middlesex-London by Sex, per 100,000



Age-Specific Mortality Rates from Methamphetamine in Middlesex-London by Age Group, per 100,000



Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Snapshots: Stimulant Harms Snapshot [Internet]. Last Updated June 7, 2021.

Impacts of Crystal Methamphetamine Use in Middlesex-London

Last Updated: October 2021

The data included on this dashboard are key in helping to identify trends in methamphetamine use within the Middlesex-London community. The data are updated at varying intervals, based on when data are available (monthly, quarterly, annually). The data included on the dashboard may change over time, as new data sources becomes available.
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Harm Reduction Service Utilization | **Healthcare Utilization** | **Treatment Service Utilization**
Outcomes and Fatalities | **Crimination related to Methamphetamine** | **Technical Notes**

Crimination related to Methamphetamine

Data included on this page of the dashboard are from Statistics Canada, for the London CMA.

Key Points

The rates of methamphetamine-related crimes in the London CMA remained fairly stable from 2015 to 2019. However, the rate of possession incidents had a slight but significant decline in 2019 (31.59 per 100,000). This trend differed from what was observed both provincially and nationally, where the annual rate of methamphetamine possessions rose in 2019 by 1.0% in both Ontario and Canada (See Table 35-10-0177-01). In 2020, the rate of possession incidents continued to decline (18.98 per 100,000), which was consistent with the rest of Ontario and Canada.

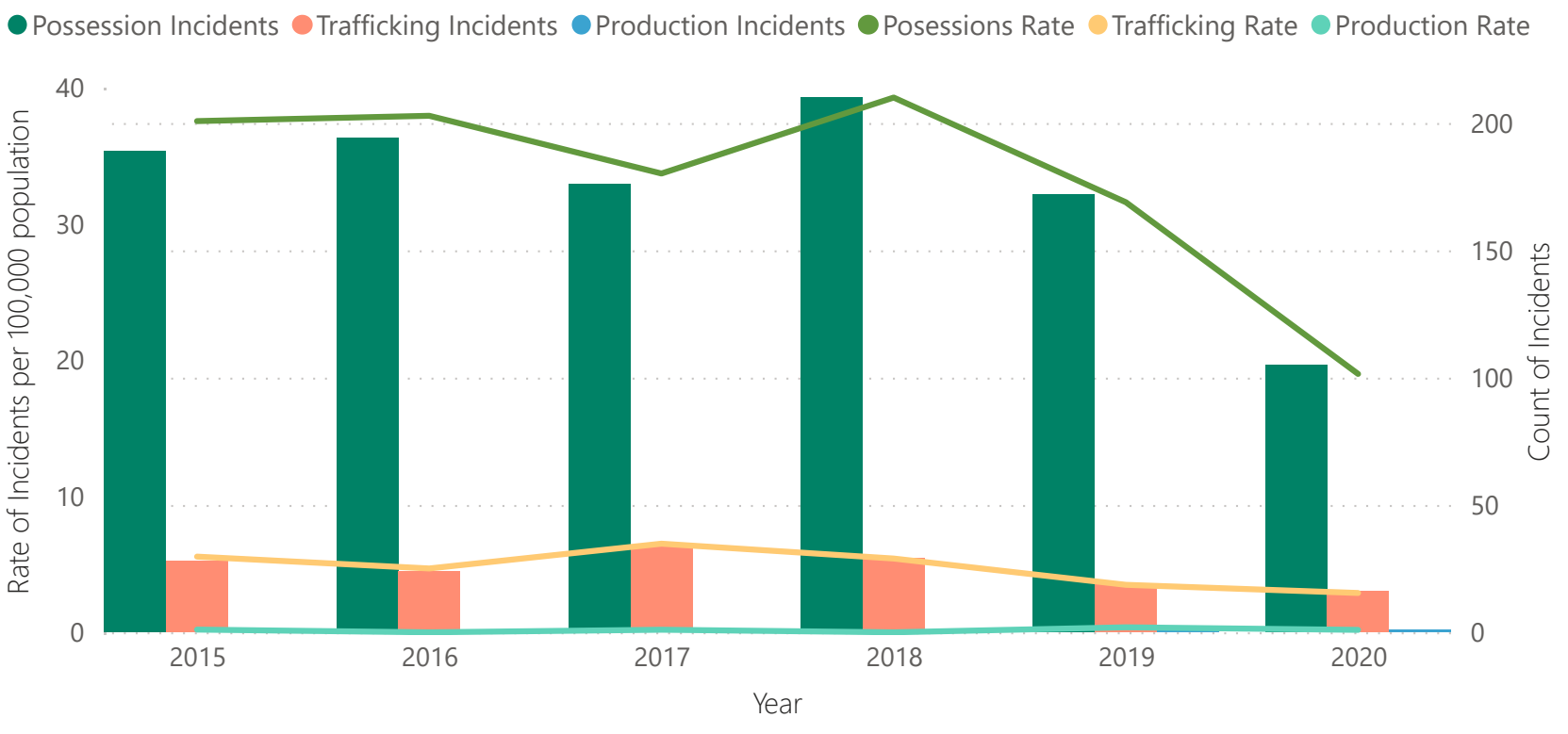
Most Recent Data Summary

% change in rate of methamphetamine possession	% change in rate of methamphetamine trafficking	% change in rate of methamphetamine production
-40%	-17%	-51%
change from the previous year	change from the previous year	change from the previous year
2020	2020	2020

Rates of methamphetamine crimination

Year	Posessions Rate (per 100,000)	Trafficking Rate (per 100,000)	Production Rate (per 100,000)
2020	18.98	2.89	0.18

Crimination related to Methamphetamine in the London CMA



Source: Statistics Canada. Table 35-10-0177-01 Incident-based crime statistics, by detailed violations, Canada, provinces, territories and Census Metropolitan Areas. Retrieved July 28, 2021.

Impacts of Crystal Methamphetamine Use in Middlesex-London

Last Updated: October 2021

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Harm Reduction Service Utilization | **Healthcare Utilization** | **Treatment Service Utilization**
Outcomes and Fatalities | **Crimination related to Methamphetamine** | **Technical Notes**

Technical Notes

Harm Reduction Service Utilization

The data from RHAC are not for unique individuals, and a person may be represented one or more times, depending on how often they access Carepoint services. Additionally, the data is self-reported and likely underrepresents methamphetamine use by individuals accessing services.

Definitions

Term	Definition
Bowl Pipes	Glass bowl pipes made of pyrex glass stems are distributed by RHAC. These do not break or shatter as easily as other types of glass, and the bowl shape helps prevent crystal meth from being swallowed or inhaled.
Methamphetamine Harm Reduction Kits	Kits include: 2 glass bowl pipes, 4 mouthpieces, 4 alcohol swabs, 2 condoms, and a "Safer Crystal Meth Smoking" card.
Carepoint	Provides consumption and treatment services for people to use drugs safely and seek services for recovery, in downtown London.
Counterpoint	Provides free harm reduction materials and information, including methamphetamine harm reduction kits. Harm reduction materials are provided at RHAC (downtown London), and at satellite locations in the community.
Regional HIV/AIDS Connection (RHAC)	Provides supports, services, and programming related to individuals living with and affected by issues related to HIV/AIDS. Services are provided in Perth, Huron, Lambton, Elgin, Middlesex, and Oxford Counties.
Occasions of Service	Visits to Carepoint for safe consumption.

Healthcare Utilization

Emergency Department Visits and Hospitalizations

Methamphetamine does not have its own ICD-10-CA code(s) and other stimulants may also be included in the data. An individual could visit the ED or be hospitalized and have one or multiple ICD-10-CA codes associated with it. The data on this dashboard includes any ED visit and hospitalization where the ICD-10-CA codes of interest were identified, either as the main problem, or as an additional problem.

Definitions

Term	Definition
Discharge Abstract Database (DAD)	DAD capture patient level administrative, clinical, and demographic data directly from acute care facilities. The data represent the number of hospitalizations of Middlesex-London residents.
National Ambulatory Care Reporting System (NACRS)	NACRS contains patient level data on visits to hospital ambulatory services, in this case, emergency departments (ED). The data represent the number of ED visits by Middlesex-London residents, not the number of people visiting the ED.
Methamphetamine Poisonings	The data included for methamphetamine poisonings fall under two categories: 1) poisoning by psychostimulants with abuse potential (ICD-10-CA code: T436), and 2) Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (ICD-10-CA code: X41).
Methamphetamine Use	The data included for methamphetamine use fall under the category for accidental intoxication, abuse, withdrawal etc. of stimulants including caffeine (ICD-10-CA codes: F150-159).
ICD-10-CA codes	The reason for an ED visit or hospitalization is determined using a predefined list of words or phrases to choose from. Based on the reason chosen, visits are mapped to ICD-10-CA codes, and these codes are used to extract data.

Treatment Service Utilization

Methamphetamine may not have been the only PPS for the patients included in the data on the dashboard. Substances used were not necessarily considered problematic by the client, and methamphetamine may not have been the only substance identified. The data also include both carry over and new admissions during the specified time period. This represents the caseload during the month, as it includes all admissions open for at least one day during the time period. Please note, a client may present to treatment multiple times and may be counted more than once.

Definitions

Term	Definition
Substance Used in the past 12 months	Substances admitted patients report having used in the 12 months prior to admission to substance use treatment. Multiple substances may be reported upon admission to substance use treatment.
Presenting Problem Substance (PPS)	Substances admitted patients report as being problematic when they are admitted to substance use treatment. Up to five PPS may be selected upon admission.
New Admissions	New individuals admitted to substance use treatment in the current time period.
Carry-Over Admissions	Individuals remaining in substance use treatment from the previous time period.
ConnexOntario	An information and referral service, focusing on mental health, addiction, and problem gambling services in the province. ConnexOntario keeps track of issues identified by individuals who reach out in search of treatment service information.
Drug and Alcohol Treatment Information System (DATIS)	A client-based information system that monitors the number and types of publicly-funded addiction treatment services in Ontario.

Outcomes and Fatalities

Data from Public Health Ontario (PHO) report on coroner investigations. It is important to note:
1. Some data are based on ongoing investigations by coroners, and are considered preliminary and subject to change.
2. Data on apparent opioid toxicity deaths and stimulant toxicity deaths are not mutually exclusive. A high proportion of deaths involving a stimulant also involved an opioid. Adding up those numbers would result in an overestimation of the burden of opioids and stimulants.

Definitions

Term	Definition
Methamphetamine Toxicity Death	A death caused by intoxication/toxicity (poisoning) resulting from substance use, where one substance is methamphetamine. Only confirmed cases of methamohetamine toxicity deaths are included.
Age-specific Mortality Rate	A rate limited to a particular age group. The numerator is the number of deaths in that age group; the denominator is the number of persons in that age group in the defined population.
Peer Group	Public health units are grouped by socio-economic characteristics, to provide geographic comparisons. MLHU's peer group includes other PHUs in Ontario identified as mainly urban centres with moderate population density.
Crude Rate	The frequency in which a disease or condition occurs in a defined population in a specified period of time.

Crimination related to Methamphetamine

The Statistics Canada data on the dashboard are from the Incident-based crime statistics, by detailed violations in Canada table, and are filtered to only include methamphetamine related violations in the London CMA.

Definitions

Term	Definition
Possession	An item in a person's personal possession or knowingly, a) has it in the actual possession or custody of another person, or b) has it in any place whether or not that place belongs to or is occupied by them, for the use or benefit of themselves or another person.
London CMA	The London CMA includes the municipalities of London, St. Thomas, as well as Thames Centre, Middlesex Centre, Strathroy-Caradoc, Adelaide Metcalfe, Central Elgin and Southwold.
Production	To obtain the substance by any method or process including manufacturing, synthesizing, or using any means of altering the chemical or physical properties of the substance, or offers to produce the substance.
Trafficking	To sell, administer, give, transfer, transport or deliver the substance, or sell an authorization to obtain the substance, or to offer to do any of those previously mentioned.