CURRENT TRENDS OF METHAMPHETAMINE USE AND IMPLICATIONS IN NORTH AMERICA
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The Executive Secretariat of CICAD (ES-CICAD) would like to thank the
governments of Canada, Mexico, and the United States for their invaluable
contributions.

Special thanks to the Government of Canada for its support and funding of
CICAD’s “Early Warning Systems in Response to Opioids and New Psychoactive
Substances” project in Latin America and the Caribbean.
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EXECUTIVE SUMMARY

Across North America, methamphetamine use appears to have increased since around 2015. Prevalence is rising in Mexico and the United States, with more mixed data for Canada; however, the COVID-19 pandemic limits comprehensive data on methamphetamine use. Canada and the United States conduct regular national surveys of substance use. Canada’s last survey was conducted in 2019, while the United States conducted more recent surveys, but the findings must be interpreted with caution due to data collection changes. Mexico has not conducted a survey since 2016. National surveys present self-report data that can be supplemented by other direct and indirect measures of use. Data are available for select cities in Canada and Mexico on the quantity of methamphetamine grams found within wastewater per one million people per day. Smaller studies, particularly of treatment admissions, also help assess the scope of use.

The consequences of methamphetamine use have increased in the United States and may have increased in Canada, but data do not permit firm conclusions about trends for Mexico. Hospital emergency department visits and fatal overdoses are the primary consequence measures, but they are only available for Canada and the United States. Canada does not distinguish methamphetamine from other stimulants, presenting challenges. Studies of total health care costs and rates of impaired driving attributable to methamphetamine provide other evidence of consequences for each country.

For example, Canada reports national data for hospital emergency visits and fatal overdose by substance type but not by specific substance, limiting the ability to assess methamphetamine’s impact. Nevertheless, there was a 73.5% increase in fatal stimulant-involved overdoses from 2019 to 2020, and a 15.5% increase in hospital emergency visits in Canada. In the United States, the Drug Abuse Warning Network (DAWN) - found that methamphetamine was the third most common source of substance-involved hospital emergency visits (811,464 visits), behind only alcohol and all opioids combined.

Production and trafficking across North America have shifted from small, individually operated labs across the region to industrial-scale labs operated by transnational criminal organizations (TCOs) in Mexico. This has yielded cheap, potent methamphetamine that is readily available across the continent. It is estimated that methamphetamine exports to the United States have earned Mexican TCOs ranged between an average of USD$1.39 to $4.49 billion over the period...
from 2015 to 2018.¹ All three countries report a mix of seizures by law enforcement, seizure sample analysis, illicit laboratory seizures, observed purchase prices, and general assessments from law enforcement. Combined, these present a picture of methamphetamine production, trafficking, and general availability.

Polysubstance use of methamphetamine with opioids, particularly fentanyl, presents a growing concern. The scope of polysubstance use is difficult to assess, and there are no national-level measures of polysubstance use involving methamphetamine and fentanyl in North America. Proxy measures such as fatal overdoses, urine drug screenings, and hospital emergency visits provide some indication of the scope. They are generally only available for the United States, with more limited data available for Canada. An analysis of methamphetamine seized by Canadian law enforcement found that 11% of samples contained an additional psychoactive substance (excluding cutting agents). Data from the United States indicate that 48.7% of methamphetamine-related emergency visits were for polysubstance use in 2021.

¹ United Nations Office on Drugs and Crime (n.d.). Country: Mexico
INTRODUCTION

Data from North America, suggest a rise in methamphetamine since 2015. Prevalence is rising in Mexico and the United States, while the trend in Canada is less clear. Methamphetamine use and its consequences present important public health and safety challenges in the region. While data on methamphetamine use is sparse, the existing data indicates increased use in Canada and the United States, while trends are less clear in Mexico. This information bulletin reviews the impact of methamphetamine across Canada, Mexico, and the United States. For each country, this paper highlights data and trends in the production, trafficking, availability, use, and public health impact of methamphetamine.

What is Methamphetamine?

Methamphetamine is a potent and addictive stimulant that can be inhaled, swallowed, or injected. It causes powerful short-term and long-term effects within the central nervous system. Methamphetamine use is associated with many adverse health effects, including fatal overdose. The vast majority of methamphetamine use stems from a large and growing illicit supply chain. Methamphetamine is used on its own and in combination with other substances, particularly opioids like fentanyl. Methamphetamine polysubstance use occurs intentionally and unintentionally, presenting additional public health challenges. For lay people, methamphetamine overdose can be difficult to identify, and there is no approved overdose reversal medication. Unintentional polysubstance use can also dramatically increase the risk of an opioid overdose, as a person intending to use methamphetamine may not have opioid tolerance. Methamphetamine use disorder can also be difficult to treat. There are no approved medication-assisted treatments, but some behavioral therapies have shown effectiveness.

**CANADA**

**Overview**

In 2022 reporting to CICAD, Canada did not report methamphetamine as a “major concern,” though it is widely available in the country. Data suggest that methamphetamine use is lower in Canada than in Mexico or the United States; however, data sources are inconsistent regarding the trajectory of use – making it difficult to determine whether Canadian methamphetamine use is growing, declining, or remaining steady.

**Production and Trafficking**

Canada reports that Mexican TCOs are the primary producers of the country’s methamphetamine. Methamphetamine seizures are low compared with Mexico or the United States, and Canada has not reported comprehensive seizure data since 2017. Though dated, Canada’s seizure data show a 186% increase from 2015 to 2017, from 132 to 379 kilograms. Methamphetamine trafficking arrests also increased 42% from 2017 to 2020 (2,409 to 3,423) – possibly indicating a growing problem – but declined in 2021 (2,976). Notably, 2021 data may represent a temporary pandemic-related change. Methamphetamine production arrests showed a similar pattern but on a significantly smaller scale (52 in 2017, 79 in 2020, and 68 in 2021). Domestic Canadian production is estimated to have declined since Canada implemented stricter restrictions on precursor chemicals in 2006.

**Availability**

Officials report that methamphetamine is widely available across Canada, with supply exceeding demand. In 2020, Canada’s Drug Analysis Service reported that methamphetamine was the most commonly identified substance among law enforcement seizure samples (in 24.2% of all samples), but it ranked second behind cocaine in 2021 (22.6%) and 2022 (21.6%). Regional data are incomplete, but availability is highest in Canada’s western provinces of British Columbia, Alberta, Saskatchewan, and Manitoba. Finally, as of 2018, the price per gram (PPG) declined from roughly CAN$100 to CAN$50, consistent with high availability. A 2022 CICAD report estimated the PPG across the Americas at USD$28.08, indicating that Canada’s PPG may be even lower today.

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10. Ibid
Scope of Use

The biannual Canadian Alcohol and Drugs Survey (CADS) is the primary national measure of substance use, with most recent data available from 2017 and 2019. In 2019, past-year methamphetamine use was 0.5%, up from 0.2% in 2013 and 2015. From 2017 to 2019, overall lifetime use declined from 3.7% to 3.2%, but increased from 3.8% to 6.7% for the 20- to 24-year-old age group. As of 2019, lifetime use was highest in Quebec (5.5%) and New Brunswick (4.1%). Only Quebec (0.7%) and Ontario (0.5%) have past-year use data for 2019. Canada reports major gender variation, with 0.8% of male respondents reporting past-year use compared with only 0.1% of female respondents. Among people seeking harm reduction services, methamphetamine use may be common. A study of harm reduction sites in British Columbia found that methamphetamine was the most used illegal substance among people seeking services in 2018 and 2019, with 59.7% of people reporting methamphetamine, 48.1% reporting marijuana, and 43.6% reporting heroin.

Canadian wastewater analysis for five major cities (Edmonton, Halifax, Montreal, Toronto, and metro Vancouver) found that the methamphetamine load declined for four cities from 2019 to 2020, with an average decline of 6%. Toronto was the exception, reporting a nearly 20% increase. Despite the near-uniform directionality, there is substantial variation in load across cities, with 2019 monthly averages lowest in Halifax (23.6 grams) and highest in Edmonton (920.1 grams). The highest loads were found in the westernmost of the five cities—Edmonton and metro Vancouver—consistent with the law enforcement assessment that availability is highest in the western provinces.

Only limited proxy measures on polysubstance use are available for Canada. An analysis of methamphetamine seized by law enforcement found that 11% of samples contained an additional psychoactive substance (excluding cutting agents). Only 3% of samples contained fentanyl, but there is regional variation. Fentanyl was identified in 10% of samples from British Columbia.

Public Health Impact

The total annual Canadian health care costs associated with methamphetamine were estimated at CAN$100 million in 2014. As past-year use more than doubled from 2013 to 2019, these costs have likely grown. Canada reports national data for hospital emergency visits and fatal overdose by substance type but not by specific substance, limiting the ability to assess methamphetamine’s impact. Nationally, Table 1 illustrates a 73.5% increase in fatal stimulant-involved overdoses from 2019 to 2020, and a 15.5% increase in hospital emergency visits. These changes are not directly attributable to methamphetamine, but additional research is warranted. Relatedly, in roadside testing, stimulants—including methamphetamine—are generally the second most common substance found among substance-positive drivers.
Some provincial data indicate that fatal methamphetamine overdoses are a rising problem, accounting for 29% of fatal overdoses in British Columbia in 2017 (up from 8% in 2008) and being the direct cause of death for 217 cases in Ontario in 2017 (up from 14 in 2012). British Columbia’s medical examiner reported that 80% of fatal methamphetamine-involved overdoses already involved fentanyl between 2016 to 2018. As fentanyl becomes more present throughout the continent, it may lead to more polysubstance health impacts in Canada.

Table 1. Stimulant-Involved Fatal Overdoses and Hospital Emergency Visits

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal Overdoses</td>
<td>2,250</td>
<td>1,851</td>
<td>3,212</td>
<td>3,144</td>
</tr>
<tr>
<td>Hospital Emergency Visits</td>
<td>2,373</td>
<td>2,179</td>
<td>2,516</td>
<td>2,422</td>
</tr>
</tbody>
</table>

Overview

In 2022 reporting to CICAD, Mexico reported methamphetamine as a “major concern.” Mexican TCOs are now the primary producers of methamphetamine in North America, with most production intended for export. Comprehensive data on substance use in Mexico are often not available, but limited data from a wide range of sources all suggest that domestic methamphetamine use is a large and growing issue.

Production and Trafficking

Mexican and United States officials both report that large-scale production of methamphetamine in North America has shifted from the United States to Mexico’s northern states. Since Mexico banned the major precursor chemicals for methamphetamine in 2008, Mexican TCOs now source the chemicals from companies and TCOs in China and India to produce methamphetamine in industrial-scale labs. Nearly all methamphetamine produced in Mexico is sold in North America, mostly in the United States. It is estimated that methamphetamine exports to the United States have earned Mexican TCOs ranged between an average of USD$1.39 to $4.49 billion over the period from 2015 to 2018.

Mexico and the United States both seize large quantities of methamphetamine produced in Mexico. Mexico seized between 11 and 30 metric tons of methamphetamine each year from 2016 to 2020. At its border with Mexico, in addition, the United States seized 21 metric tons in 2016, increasing each year until 68 metric tons in 2019. The United States Drug Enforcement Administration (DEA) has determined that the high purity and potency of Mexican methamphetamine along with low production costs have helped Mexican TCOs control North American production.

31. Ibid
37. Ibid
Availability

There are no comprehensive data on methamphetamine availability in Mexico. One study in northern states near the U.S. border found that pharmacies regularly sell counterfeit prescription pills that contain methamphetamine.\(^{38}\) In that study, 82% (9 of 11) of one-off “Adderall” purchases contained methamphetamine, 68.3% of pharmacies were willing to sell controlled substances without a prescription, and 26.8% of pharmacies sold counterfeit pills. The authors suggest that the counterfeit pills are primarily intended for tourists, but they are likely readily available to Mexican residents in northern states.

Scope of Use

Timely and comprehensive data on the scope of Mexican methamphetamine use are not available. The most recent National Survey of Drug, Alcohol, and Tobacco Consumption (ENCODAT, by its Spanish-language acronym) is from 2016.\(^{39}\) Nonetheless, substance use treatment data suggest growing methamphetamine use among youth and adults. Mexico’s Youth Integration Centers (CIJ, by its Spanish-language acronym), under the Secretariat of Health, reports that methamphetamine is now the second most treated substance, after marijuana.\(^{40}\) The percentage of admissions for methamphetamine increased from 4% in 2011 to 30% in 2020. In addition, in 2020, 45% of those seeking services had used methamphetamine in their life, second only to marijuana among illegal drugs. Meanwhile, methamphetamine treatment admissions at Secretariat of Health Addiction Treatment Centers (UNEME-CAPA, by its Spanish-language acronym) grew from 0.3% of clients in 2013 to 14.1% of clients in 2018.\(^{41}\) Treatment centers also report a gender gap, with 15.0% of all male clients seeking methamphetamine treatment, compared with 11.6% of all female clients. This is smaller than the gender gaps found in Canada or the United States, although those gaps were among overall use rates rather than within treatment admissions only.

A 2021 wastewater analysis from 15 Mexican cities found methamphetamine was the second most common substance, after marijuana.\(^{42}\) Overall, there was substantial variation across cities (between five and 3,628 grams), but methamphetamine was most prevalent in the northern border cities of Tijuana and San Luis Rio Colorado. In Tijuana, methamphetamine was even more prevalent than marijuana. Notably, the Mexican cities with the highest rates reported levels roughly four times greater than the Canadian cities with the highest rates.

Public Health Impact

No comprehensive data on measures such as hospital emergency visits or fatal overdoses involving methamphetamine are available for Mexico. A 2023 study of hospital patients from traffic accidents in Mexico City found that methamphetamine was the second mostly commonly identified substance, with 8.6% testing positive.\(^{43}\) In addition, violence stemming from the TCOs that produce methamphetamine has had a major public safety impact in Mexico, though no study has assessed the specific role of methamphetamine production and distribution.\(^{44}\)

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UNITED STATES

Overview

In 2022 reporting to CICAD, the United States reported methamphetamine as a “major concern.” Methamphetamine is widely available throughout the country, while the shift in production from domestic labs to Mexican TCOs presents challenges to law enforcement. Data show that methamphetamine use and consequences have significantly increased in recent years - alone and in conjunction with other substances, particularly fentanyl.

Production and Trafficking

Mexican TCOs are the primary producers of methamphetamine available in the United States, with an estimated 90% of the domestic supply imported from Mexico. Methamphetamine most commonly enters the country via the southwest border with Mexico, and border seizures have dramatically increased. From 2013 to 2019, annual seizures increased 522%, from 10.97 to 68.36 metric tons. Seizures grew even more rapidly in 2018/2019, from 39.27 to 68.36 metric tons. Criminal cases for methamphetamine trafficking saw a corresponding 17.2% rise from 2017 to 2021, and methamphetamine was involved with 48.3% of all trafficking cases in 2021.

U.S. domestic production of methamphetamine is in long-term decline, as measured by annual DEA lab seizures. Seizures peaked in 2004 (at 23,703) and steadily declined since 2010 to 890 in 2019. DEA attributes the decline to several factors, including U.S. restrictions on precursor chemicals and competition from Mexican TCOs. Methamphetamine remains the most common domestic lab-produced substance in the United States, because it is relatively easy to produce. But most remaining U.S. labs are very small scale.

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50. Ibid
51. Ibid
Availability

Methamphetamine is widely available across the United States, with the greatest availability in the western and southwestern states. Among the 23 DEA field divisions, 17 reported “high” availability in 2019, and six reported rising availability since 2018. From 2014 to 2019, there was a 75% increase in the presence of methamphetamine among DEA seizures. Seizure testing also reveals dramatic increases in purity and potency. Since 2014, average purity has been over 96%, well above the 30%-60% level observed from the 1980s to 2008.

The price per gram (PPG) of methamphetamine declined from USD$100-$200 in 2005-2008 to USD$50-$70 in 2013-2017. A 2022 CICAD report estimated the PPG across the Americas at USD$28.08, and the United States is a major contributor to that average price – indicating that the U.S. price is likely lower today. Ultimately, purity, potency, and use have been rising as prices fall.

Despite strong evidence of widespread methamphetamine availability in the United States, Monitoring the Future, a national study on drug use among high school students, reports a dramatic long-term decline in perceived availability among youth. From 2007 to 2019 the percentage of 12th grade students who reported that methamphetamine was “fairly easy” or “very easy” declined from 25.1% to 11.9%, further declining to 8% in 2022. At the same time, national data indicate that U.S. methamphetamine use is concentrated among adults. Methamphetamine may be widely available overall, but less available to youth.

Scope of Use

The National Survey on Drug Use and Health (NSDUH) provides annual data on substance use rates and trends, showing a steady increase in U.S. methamphetamine use over time. As depicted in Table 2, this increase is primarily driven by adults ages 26 and older. Among youth and young adults, methamphetamine use has declined since 2015. Monitoring the Future also shows a similar decline in past-year methamphetamine use among youth, from 1.4% in 2007 to 0.3% in 2022. This trend runs counter to prior waves of U.S. methamphetamine use, which were driven primarily by users between ages 18-25. It also has implications for public health services.

Most years NSDUH also shows a gender gap in methamphetamine use, with past-year use about twice as high among male respondents than female respondents.
Table 2. Past-Year Methamphetamine Use, by Age Group

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</tr>
</thead>
<tbody>
<tr>
<td>All Ages</td>
<td>0.6%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.7%</td>
<td>0.9%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Ages 12-17</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Ages 18-25</td>
<td>0.9%</td>
<td>0.8%</td>
<td>1.1%</td>
<td>0.8%</td>
<td>0.8%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Ages 26+</td>
<td>0.6%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.8%</td>
<td>1.1%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Despite caveats about relevance or reliability, taken together, the available proxy measures for polysubstance use involving methamphetamine indicate that such use is frequent and increasing. At least 68.1% of fatal methamphetamine overdoses in 2021 involved another substance and 58.4% involved fentanyl.\(^{65}\) A large study of 1.05 million urine samples taken from routine health care settings found that the number of positive methamphetamine tests that also tested positive for fentanyl increased 798% from 2013 to 2019.\(^{66}\) Data show that 48.7% of methamphetamine-related emergency visits were for polysubstance use in 2021, of which 35% involved alcohol, 24% marijuana, 19% heroin, 18% cocaine, and 18% fentanyl.\(^{67}\)

Public Health Impact

A 2009 report estimated the annual U.S. health care costs associated with methamphetamine at USD$351 million for 2005.\(^{68}\) As depicted in Table 3, fatal methamphetamine-involved overdoses have significantly increased since 2015, driven largely by an increase in overdoses involving opioids. Even so, methamphetamine overdoses without opioids are also increasing—by 231% from 2015 to 2021—indicating that the rise in fatal methamphetamine overdoses is not simply an extension of the United States opioid epidemic.

Table 3. Fatal Methamphetamine-Involved Overdoses

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Methamphetamine-Involved Overdoses</td>
<td>5,716</td>
<td>7,542</td>
<td>10,333</td>
<td>12,676</td>
<td>16,167</td>
<td>23,837</td>
<td>32,537</td>
</tr>
<tr>
<td>Percentage Involving Opioids</td>
<td>41.0%</td>
<td>45.3%</td>
<td>50.4%</td>
<td>50.5%</td>
<td>53.5%</td>
<td>62.0%</td>
<td>65.7%</td>
</tr>
<tr>
<td>No Opioids Involved</td>
<td>3,371</td>
<td>4,126</td>
<td>5,130</td>
<td>6,271</td>
<td>7,525</td>
<td>9,060</td>
<td>11,166</td>
</tr>
</tbody>
</table>

Hospital data highlight the growing public health impact of methamphetamine as well. In 2021, the primary national surveillance system of hospital emergency departments – the Drug Abuse Warning Network (DAWN) – found that methamphetamine was the third most common source of substance-involved hospital emergency visits (811,464 visits), behind only alcohol and all opioids combined.\(^{70}\) Trend data are not yet available because DAWN restarted in 2021 after a lengthy hiatus.

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\(^{64}\) Ibid
\(^{65}\) Centers for Disease Control and Prevention (n.d.). Mortality Data on CDC WONDER, National Center for Health Statistics https://wonder.cdc.gov/mcd.html
\(^{69}\) Centers for Disease Control and Prevention (n.d.). Mortality Data on CDC WONDER, National Center for Health Statistics https://wonder.cdc.gov/mcd.html