

# Pan-Canadian Poison Centres 2021 Annual Report



Canadian  
Association for  
**Poison  
Centres and  
Clinical  
Toxicology**



Association  
canadienne pour  
**centres  
antipoison et  
toxicologie  
clinique**

# Pan-Canadian Poison Centres 2021 Annual Report

This report was developed  
in co-ordination with:



Health  
Canada

Santé  
Canada



Canadian  
Association for  
**Poison  
Centres and  
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Toxicology**

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# **“...invaluable actions and collaboration...”**

## **A message from the President**

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This year's Pan-Canadian Poison Centres Annual Report provides valuable information about the most common hazards and toxins that people are exposed to in Canada, the populations most at risk as well as the invaluable actions and collaboration of the poison centres and their partners.

This report highlights hazards that other health-care providers may not see as often. In fact, the majority of calls to poison centres come from people at home and, in most cases, patients are kept at home for self-treatment or monitoring. No other pharmacist, nurse or physician becomes aware of these exposures and poison centres can reduce the burden placed on health-care resources.

In the past, poison centre staff focused solely on answering phone calls from people who were worried they might have been exposed to a harmful substance and providing advice to the patient or their caregivers. While useful and necessary, it didn't allow much time for Specialists in Poison Information, Toxicologists and support

personnel in the poison centres to follow up on the hazards that had caused the poisonings. That is no longer the case.

Poisoning is being recognized as a public health issue and appropriate messaging and recalls can now be initiated in a timely manner. Under the leadership of Health Canada, Toxicovigilance Canada was created to bring together a network of professionals to share expertise, opinions and data to improve and protect the health of people in Canada. A hazard, identified by a telephone call to a Specialist in Poison Information, now leads to determining the frequency and risk of exposure to that hazard, which makes it easier to take action at the source of the problem.

While “see something, say something” will always be at the core of our work, we are very close to being able to track exposures experienced by people in Canada in real time, day-to-day. Once in operation, the Canadian Surveillance System for Poison Information (CSSPI) will allow the sharing and identification of signals at the national level so they can be investigated and removed, as well as triggering public health messaging.

There are innumerable people to thank for the production of the 2021 Pan-Canadian Poison Centres Annual Report. The Association recognizes and thanks every Specialist in Poison Information who answers the phone at each of our centres, provides up-to-date and evidence-based compassionate care, and documents these cases. Support personnel at each centre include the epidemiologists, receptionists and information

technologists, as well as mycologists, botanists, herpetologists and others who volunteer their time to identify natural toxins.

Thank you to our partners across Canada and those in the media who amplify critical health information, resources and public health messaging. We thank our partner, Health Canada, for their knowledge and financial and technical support. Finally, the Association recognizes the important partnership poison centres have in Parachute, Canada’s national injury prevention charity. We thank them for their ongoing support of poison prevention messaging, research and collaboration, and their assistance in offering this publication.

Thank you for taking the time to read this year’s edition.



**Dr. Margaret Thompson, MD, FRCPC**

*President, Canadian Association of Poison Centres  
and Clinical Toxicology*

*Medical Director, Ontario Poison Centre*

# **“...saved countless lives and prevented suffering...”**

## **A message from Health Canada**

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I would like to thank all of the organizations and individuals that contributed to the Pan-Canadian Poison Centres 2021 Annual Report, including the poison centres, the Canadian Association of Poison Centres and Clinical Toxicology, and Parachute.



The dedication of the frontline specialists in poison information from Canada's five Poison Centres is inspiring. Their round-the-clock commitment to addressing emergencies, providing guidance and offering reassurance has saved countless lives and prevented suffering. Their role extends beyond the technical, embracing the emotional support needed by individuals and families navigating distressing situations. It is their empathetic approach that transforms these interactions into moments of reassurance and hope.

As the roles and responsibilities to address risks are shared across several sectors and jurisdictions, close collaboration is essential to help Canadians maintain and protect their health. In 2021, the Toxicovigilance Canada network continued its important work fostering pan-Canadian collaboration to facilitate timely detection, evaluation and action to prevent, treat, reduce

harm and manage risks of toxic exposures to drugs and chemicals.

Through the development of the Canadian Surveillance System for Poison Information (CSSPI), a core component of the Toxicovigilance Canada network that enables timely access to poison centre information, priority health issues were identified and action was taken. Examples of this work include public advisories to inform Canadians on potential harms associated with camp fire flame colourants, cleaning products, acetaminophen, ivermectin and illegal and unregulated cannabis products.

Internationally, Canadian Poison Centres, Toxicovigilance Canada partners and Health Canada contributed to the World Health Organization (WHO) 2021 Guidelines for establishing a poison centre and provided

leadership in the development of the chapter on toxicovigilance and prevention in poisoning, which details the role of poison centres in toxicovigilance, the requirements and recommendations to support toxicovigilance and the importance of collaborative networks in advancing toxicovigilance activities.

While reflecting on our accomplishments, we also acknowledge the challenges that remain. The complexity of emerging health risks, and the constant evolution of consumer preferences, require us to remain vigilant and adaptable. We are determined to embrace these challenges as opportunities for growth and innovation.

By learning from each experience, we increase our capacity to respond effectively, enhancing the safety and wellbeing of those we serve.

On behalf of Health Canada, I would like to thank the Toxicovigilance Canada members for their ongoing dedication and commitment. Health Canada is committed to continuing this collaboration and providing leadership to support actions that can reduce the burden of poisonings in Canada.



**Matt Jones**

*Assistant Deputy Minister, Healthy Environments and Consumer Safety Branch*

*Health Canada, Government of Canada*

# **"Prevention begins with understanding..."**

**A message from Parachute**

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At the beginning of my career in the health-care sector, I had the privilege of supporting the work of the then-called Ontario Poison Information Centre, now the Ontario Poison Centre (OPC), located at The Hospital for Sick Children.



I remember being shocked when I first saw how few staff comprised the Centre. I had envisioned a huge room full of experts answering calls and providing advice but, in reality, there were four. I soon learned about how well the small but mighty team of nurses, toxicologists and physicians who were dedicated to serving the public and professionals supported the volume of calls they received. I recall the transition from paper-based to computerized systems to streamline and better assist these experts in responding to diverse issues from callers through an electronic case management system. When I moved into injury prevention, I reconnected with OPC when I recognized the burden of poisoning, the effective prevention strategies that were known and to explore collaboration.

Fast forward to this report: the 2021 Pan-Canadian Poison Centres Annual Report. There have been significant improvements through the purposeful collaborations across Canada among the poison centres, the Canadian Association for Poison Centres and Clinical Toxicology, Parachute, provincial injury prevention centres and Health Canada. Prevention begins with understanding who is getting injured, why, how, where and when. The data in the 2021 Pan-Canadian Poison Centres Annual Report, combined with the health-system data on deaths, hospitalizations and emergency department visits, provide us with the picture of poisonings in Canada. In particular, the details from poison centres on the contextual elements of exposures are particularly informative to prevention as we understand what is contributing to these injuries.

At Parachute, and among our provincial injury prevention centres such as the BC Injury Research and Prevention Unit, Injury Prevention Centre in Alberta, and Child Safety Link in Nova Scotia, we analyze these data and information to identify the most effective preventative solutions. Another benefit of this report is to document and draw attention to trends over time, similarities and differences among the provinces and territories, as well as the identification of emerging issues.

For too long, poisoning and its prevention have been hidden or thought to be solved, e.g., with the advent of child-resistant caps on medications. This report is one component of bringing attention to the fact that poisoning is a significant issue in Canada. In the Cost of Injury in Canada 2021 report, for the first time, poisoning surpassed transport-related injuries as a leading cause of death. It is not insignificant and there is much more work to be done.

Thank you to all our partners and their collaboration, which has resulted in the collective success that has been realized. Together we are stronger.



**Pamela Fuselli, MSc**

*President and CEO, Parachute*

## Poisoning is a significant public health and safety issue in Canada.

In 2018, unintentional poisonings resulted in 3,477 deaths, 10,772 hospitalizations and 79,231 emergency department visits. Poisoning is the third-leading cause of injury-related death for Canadians and the top cause of injury death for those aged 24 to 65. Poisoning incidents cost the Canadian economy \$2.6 billion in a single year, including \$456 million in direct health-care system costs (Parachute, 2021). Poison centres are essential in reducing direct health-care costs of poisonings as the majority of cases can be treated over the phone without a visit to a physician or hospital (Galvao et al., 2012).

Surveillance, information exchange and collaboration across a network of partners is key to reducing the morbidity and mortality caused by poisonings. Poison centres are a source of specialized expertise and guidance and the data collected by centres are a critical source of information that can be used for public health purposes. This Pan-Canadian Poison Centres Annual Report provides an overview of the volume and nature of cases managed by poison centres and highlights the role of these centres in poisoning prevention efforts.

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## About Poison Centres in Canada

Poison centres are the key point of contact for the general public and health professionals seeking medical advice on poisonings\*. Canada has five provincially and territorially funded poison centres, operating 24 hours a day, seven days a week:

- **Atlantic Canada Poison Centre (ACPC)** in Nova Scotia
- **Centre antipoison du Québec (CAPQ)**
- **Ontario Poison Centre (OPC)**
- **Poison and Drug Information Service (PADIS)** in Alberta
- **Drug and Poison Information Centre (DPIC)** in British Columbia

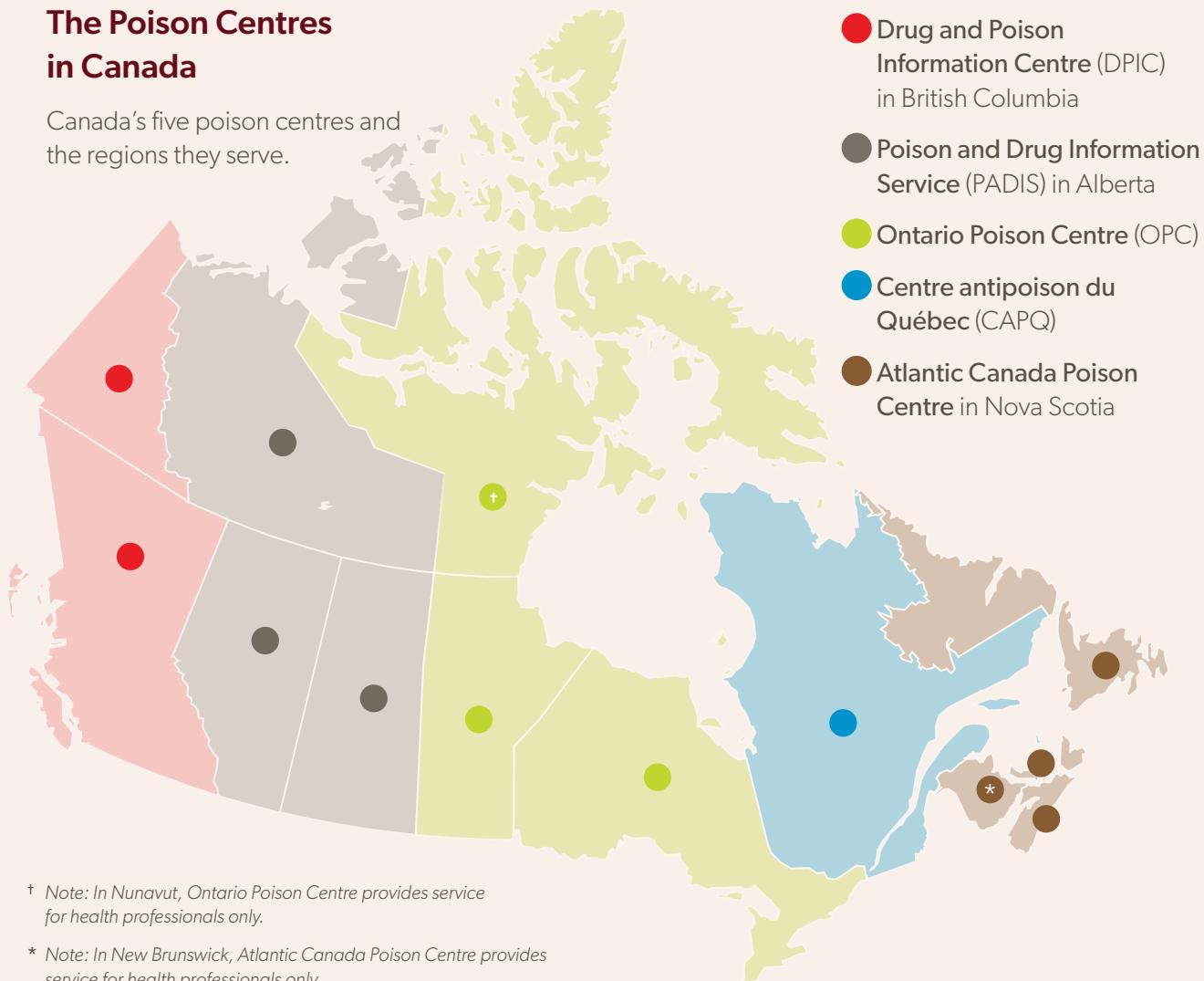
Each centre is staffed with medical toxicologists, registered nurses and/or pharmacists certified by America's Poison Centers (formerly, the American Association of Poison Control Centers) as Specialists in Poison Information, who become eligible for certification after approximately two years of full-time employment at a poison centre, handling 2,000 human exposure calls and logging 1,200 hours.

Canadian poison centres manage an average of 200,000 cases per year collectively.

\* Poison centres provide support to the general public in all provinces and territories with the exception of New Brunswick and Nunavut. In New Brunswick, Atlantic Canada Poison Centre provides service to health professionals only. The public receives support for poison-related concerns through the provincial health information line, Tele-Care. In Nunavut, the Ontario Poison Centre provides service to health professionals while the public accesses poison-related care through their local health units.

## The Poison Centres in Canada

Canada's five poison centres and the regions they serve.



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## The Canadian Surveillance System for Poison Information

The Canadian Surveillance System for Poison Information (CSSPI) initiative started in 2014 with Health Canada, in collaboration with Canadian poison centres and federal, provincial and territorial health partners to establish a pan-Canadian toxicovigilance system for poison information. CSSPI was created because all collaborators agreed that Canada required a national system to access poison centre information and expertise.

All partners worked together to identify requirements, analyze and pilot solutions for timely detection of safety concerns, data quality to inform health protection and development of tools to foster a strong collaboration among partners. This approach would inform poison prevention, treatment, harm reduction and risk management in Canada.

As a result, CSSPI implementation began in 2018 with the following goals:

- Fostering collaboration across multiple agencies, sectors and jurisdictions, including the formation of a Toxicovigilance Canada network.
- Developing the CSSPI surveillance system to aggregate, analyze and interpret poison centre data as well as establishing a process for frontline poison centre specialists to provide

timely notifications when they identify safety concerns.

- Managing pan-Canadian poison centre data requests for public health and regulatory partners to inform interventions that best protect Canadians from poisonings.

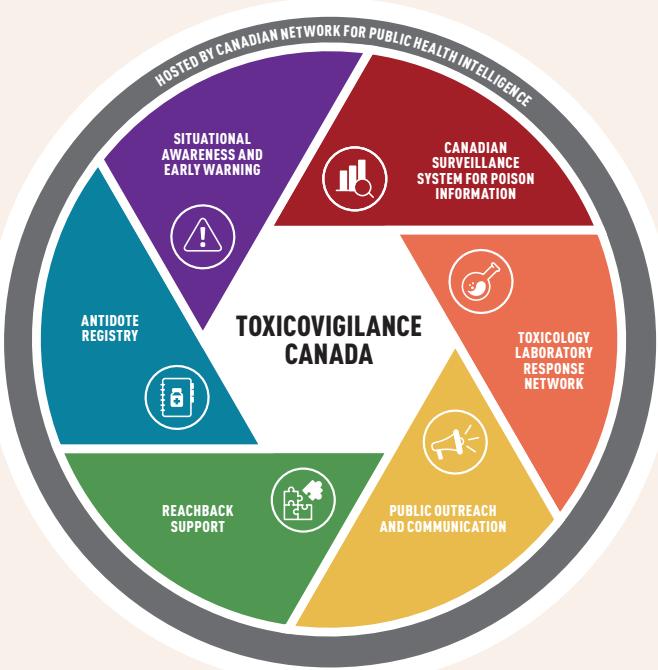
CSSPI provides detection of novel or ongoing poisoning trends and facilitates collaborative interventions based on real-world evidence to protect the health of Canadians.

## Toxicovigilance Canada

According to the World Health Organization, toxicovigilance is “the active process of identifying and evaluating the toxic risks existing in a community and evaluating the measures taken to reduce or eliminate them” (2021). Risks of public health concern can include poisoning outbreaks due to contamination, emergence of novel drugs, mass chemical exposures and unusual patterns or trends. Toxicovigilance Canada is a pan-Canadian network aimed at enhancing capacity for the timely detection, analysis and response to poisonings and substance use that may lead to harms and toxic chemical exposures. The network has nearly 500 members from multiple sectors including poison centres, toxicology labs, public health agencies, health authorities and non-profit organizations.

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### The components of Toxicovigilance Canada



# 2021 Poison Centre Data

## About the data in this report

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Data collected by poison centres are entered into an electronic case management system based on the poisoning information reported by the caller and collected by a Specialist in Poison Information (SPI).



The caller may be the person who was exposed but may also be a family member or friend, or medical personnel caring for the exposed person. Sometimes the caller may have limited information about the incident, which impacts the data that can be collected. For example, the sex of the exposed person will be coded based on what is reported to the SPI and will generally reflect their presenting gender, unless the caller reports otherwise.

All Canadian poison centres follow the National Poison Data System (NPDS) coding guidelines published by America's Poison Centers. These guidelines are intended to promote coding uniformity among regional poison centres on how to capture data on various poisoning exposure scenarios, such as how to categorize medical outcomes of poisonings (e.g., no effect, minor or major effect, potentially toxic exposure, death).

The compliance and standardization in coding practice across centres produces high quality, accurate national poison data.

Generally, in Canada, it is not mandatory to report poisonings; therefore, calls made to a poison centre can only occur when public individuals or health care practitioners have knowledge about their services and a willingness to call. Calls to poison centres are thus not fully representative of the burden of poisonings in the whole population, but do reflect general patterns over time and across groups.

Data from each of the five Canadian poison centres for the year of 2021 were requested and aggregated to the national level to compile this report.

Data presented in this report have been compared where relevant to data from the previous year, 2020. The same methodology was used to collect 2020 poison centre data and the same data

limitations apply. Refer to the Pan-Canadian Poison Centres 2020 Annual Report for the complete presentation of 2020 data.

## In 2021, Canada's poison centres managed 210,043 cases



**187,068**  
**Human exposure cases**  
(confirmed or potential)



**22,975**  
**Non-exposures and  
other cases**

*While all poison centres handle human exposure cases, other services offered vary by centre. Non-exposures may include questions about: drug identification, drug information, environmental information, medical information, occupational information, poison information, information on the potential adverse effects from exposure to a substance during pregnancy (known as teratogenicity), administrative practices, caller referral to another service, prevention/safety, substance abuse, and other general information. Poison centres in Canada do not seek to manage animal exposure cases; however, they do receive such calls from the public.*

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Total cases managed by poison centres decreased 2.6 per cent from 215,589 cases in 2020 to 210,043 in 2021. Human exposure cases

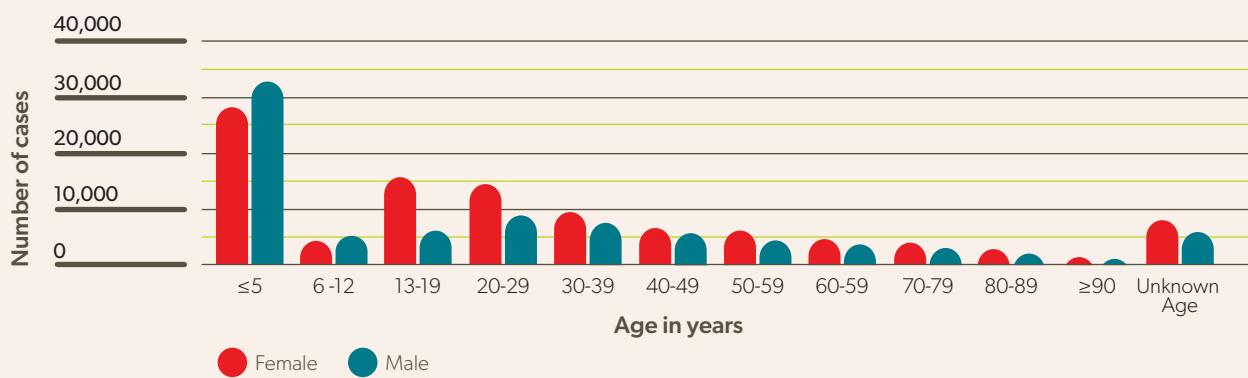
increased by 0.2 per cent while non-exposure cases decreased by 20 per cent.

## Who poison centres help

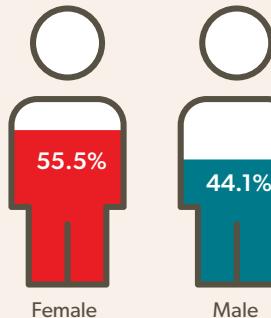
Poison centres manage exposure cases for Canadians of all ages. In 2021, 60,502 exposure cases – approximately one-third of confirmed exposure cases – involved a child aged 5 or under. For context, this age group has the highest rate of emergency department visits for unintentional poisoning in Canada (Parachute, 2021). In 2021, poison centres managed 23,201 (12 per cent) cases for young adults aged 20 to 29 and 39,450 cases (21 per cent) of adults aged 30 to 59. Significantly, death rates due to poisoning peak between the ages of 25 and 59 in Canada (Statistics Canada, 2022).

Poison centres serve the public as well as health professionals seeking specialized advice for patient care. In 2021, 66 per cent of exposure cases involved a person calling a poison centre from their home. In 25 per cent of exposure cases, the caller was from a health-care facility or other health-care provider (e.g. pre-hospital call from paramedics).

## Exposure cases by age and sex, 2021

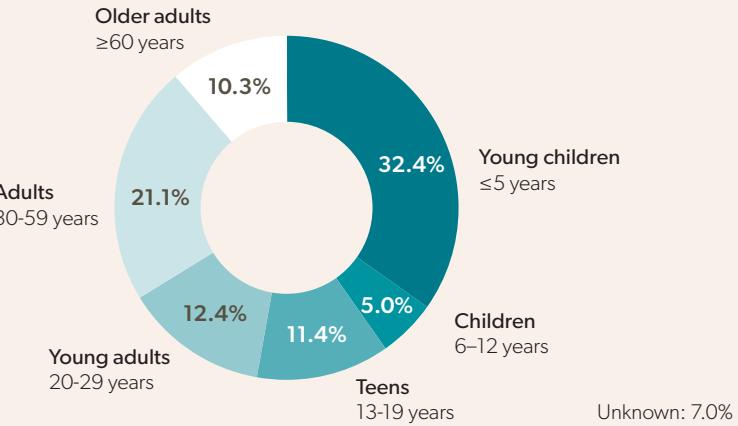


## Exposure cases by sex,\* 2021

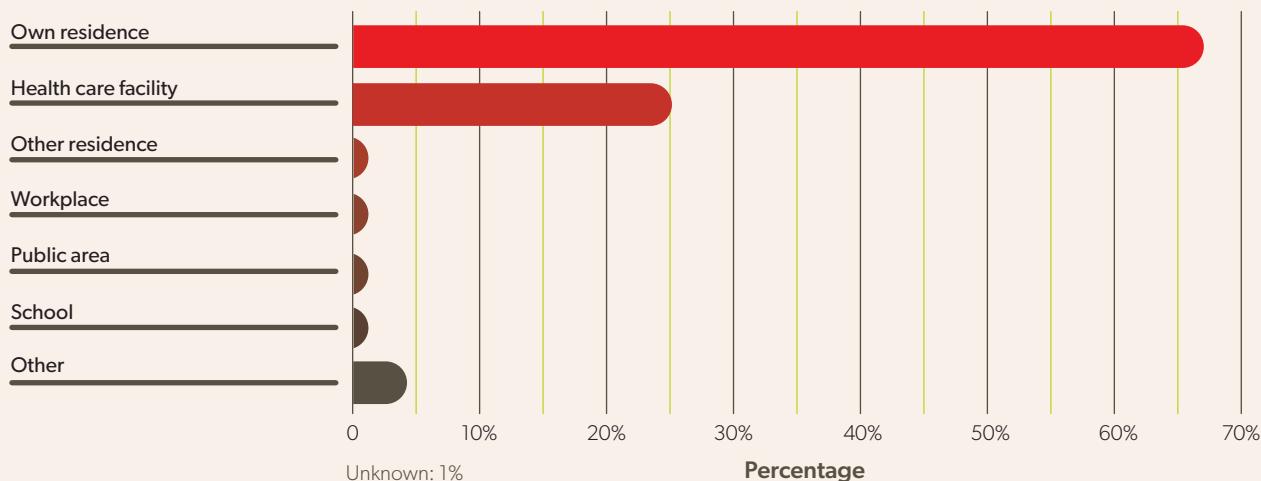


Unknown/other: 0.4%  
\*Sex as reported by caller

## Exposure cases by age category, 2021



## Exposure cases by caller location, 2021



Own residence includes calls redirected to poison centres from 811 health lines.

Other residence refers to any home that is not the caller's home.

Public area includes public locations such as parks, stores, theatres and event spaces.

Total percentage by caller location is representative of four out of the five poison centres in Canada. One poison centre does not collect caller location information.

## Why Canadians call poison centres

When managing a case, poison centre specialists collect information about the incident. This information is valuable for understanding how and why exposures occur, identifying concerning trends and public safety concerns and informing prevention efforts. Incidents are categorized as unintentional, intentional or other. Cases categorized as “other” include those where the reason for the incident was recorded as unknown, not available or other.

Most exposure cases managed by poison centres are unintentional incidents. In 2021:

- **22,656 cases were related to therapeutic error.** *For example, a person being given the wrong dose of a medication or medicine being administered to the wrong person.*
- **5,140 cases were related to unintentional misuse of non-pharmaceutical substances.** *For example, being exposed to toxic gas from mixing cleaning chemicals.*
- **96,147 cases were general unintentional incidents.** *These are incidents that don't fit other, specific definitions like the ones above and include most cases of young children getting into medications, cleaners or other substances stored in the home.*

Intentional exposures are incidents resulting from a purposeful action. In 2021, poison centres managed **35,674 cases resulting from suspected substance- and toxin-related self-harm.** Compared to the previous year (2020), this represents an 18-per-cent increase in cases of suspected substance- and toxin-related self-harm. In 73 per cent of these self-harm calls managed by the poison centres in 2021, the person exposed was female. A similarly high proportion of self-harm cases involving females was reported in 2020 (71 per cent). Cases categorized as self-harm include incidents where self-harm or self-injury with substances or medications was apparent or suspected.

There is a growing need to understand and address increases in intentional self-harm-associated poisonings. Poisoning is a leading mechanism of non-fatal self-harm attempts as well as self-harm/suicide deaths in Canada. Calls to poison centres capture a portion of the magnitude of this issue but demonstrate a need to understand who is at risk, potential risk factors and the relationship between poisonings (both intentional and unintentional), mental health and substance use.

### Types of incidents

<b>126,032 (67.5%)</b>	<b>47,622 (25.5%)</b>
<b>Unintentional</b>	<b>Intentional</b>
<b>13,051 (7.0%)</b>	
<b>Other</b>	

## Exposure cases by reason of calling, 2021



Other reason includes Contamination/Tampering; Malicious; Withdrawal; Unintentional - Environmental; Unintentional - Occupational; Unintentional - Bite/Sting; Unintentional - Food Poisoning; Unintentional - Unknown; Intentional - Unknown; Unknown reasons; N/A

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## Types of substances

In 2021, the most common substances involved in exposure cases managed by poison centres were medications for pain relief (analgesics) and household cleaning substances. These were also the most commonly reported substances in 2020. While cases involving exposure to analgesics increased by 9.7 per cent from 2020 (27,438) to 2021 (30,096), cases involving household cleaning substances decreased by 11.7 per cent from 2020 (20,821) to 2021 (18,382).

### Exposures: Top 5 substance categories, 2021\*

- 1. Analgesics**  
30,096 (16.1%) ↑ 9.7%
- 2. Cleaning substances (Household)**  
18,382 (9.8%) ↓ 11.7%
- 3. Antidepressants**  
17,572 (9.4%) ↑ 11.9%
- 4. Sedatives/hypnotics/antipsychotics**  
16,477 (8.8%) ↑ 1.1%
- 5. Cosmetics/personal care products**  
13,110 (7.0%) ↓ 7.3%

\*Data reflect top five substance categories from January 1, 2021 to December 31, 2021. The percent changes are calculated by comparing against the exposure counts from the previous year (January 1, 2020 to December 31, 2020). Please be aware that cases involving exposure to multiple substances were counted only once per relevant category.

## Drug Exposures:

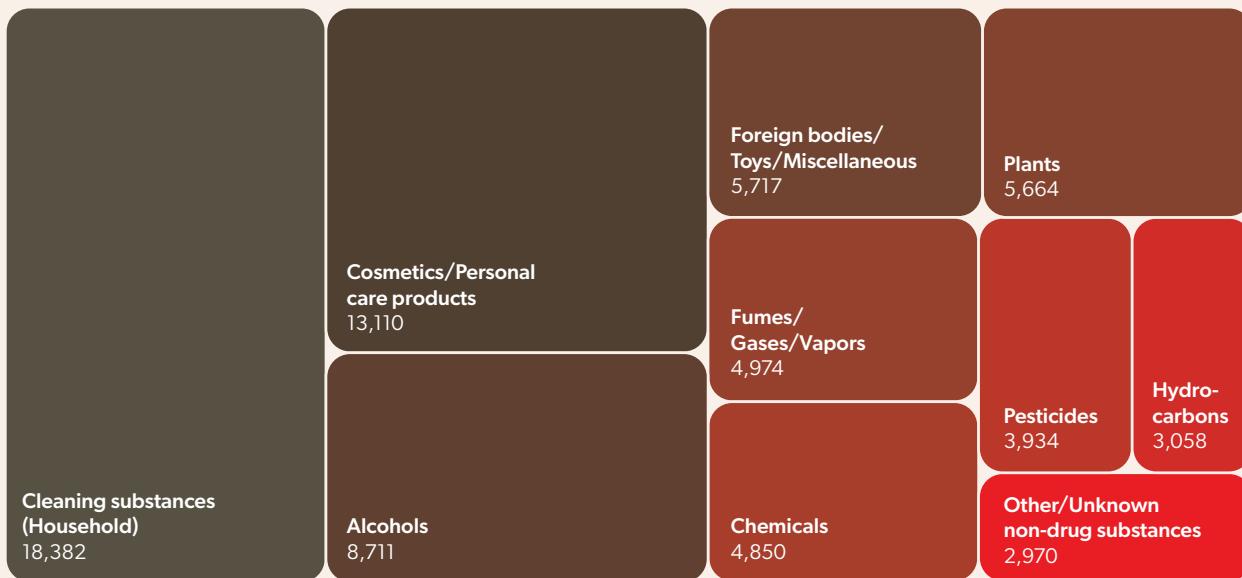
### Top 10 substance categories, 2021



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## Non-Drug Exposures:

### Top 10 substance categories, 2021



Note: See Appendix for examples of top drug and non-drug products.



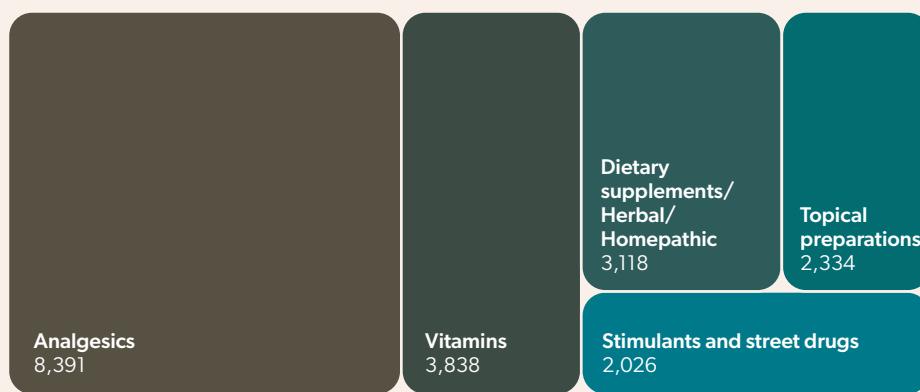
## Types of substances: 0 to 12 years of age

Children – particularly young children, from birth to five years – are vulnerable to poisoning. In 2021, most calls to poison centres concerning children up to 12 years of age involved medications for pain relief (analgesics) and exposures to non-drug substances commonly found in homes, such as household cleaning substances, cosmetics and personal care products, toys and other objects, and plants.

### Exposures: Top five substance categories, 2021 (0 to 12 age group)

1. Cleaning substances (Household)  
**9,428** (13.5%)
2. Analgesics  
**8,391** (12.0%)
3. Cosmetics/personal care products  
**8,016** (11.5%)
4. Foreign bodies/Toys/Miscellaneous  
**4,201** (6.0%)
5. Plants  
**3,927** (5.6%)

### Drug Exposures: 0 to 12 age group top five substance categories, 2021



### Non-Drug Exposures: 0 to 12 age group top five substance categories, 2021



## Types of substances: 13 to 19 years of age

Youth and adolescents are also an at-risk group for poisonings. Periods of impulsivity, rebelliousness and risky behaviour as well as the influence of social media and peer pressure can result in exposures to poisonous substances and poison-related harm. For many youths and adolescents, this is also a period of exploration where they are exposed to alcohol, cannabis or other substances for the first time. Poisoning is the most common form of self-harm among adolescents and is a growing issue for young people in Canada, particularly females aged 10 to 19 years.

In 2021, top substance exposures in the 13 to 19 population primarily involved drugs including medications for pain relief (analgesics), drugs commonly used to treat mental health conditions

### Exposures: Top five substance categories, 2021 (13 to 19 age group)

1. Analgesics  
**6,617** (31.1%)
2. Antidepressants  
**4,986** (23.4%)
3. Sedatives/Hypnotics/Antipsychotics  
**2,469** (11.6%)
4. Stimulants and street drugs  
**2,284** (10.7%)
5. Alcohols  
**1,225** (5.8%)

such as antidepressants, antipsychotics, sedatives, and hypnotics, as well as stimulants and street drugs. Compared to other age groups in 2021, the proportion of analgesic-related exposures – 31.1 per cent – is highest among the 13 to 19 age group.

### Drug Exposures: 13 to 19 age group top five substance categories, 2021



### Non-Drug Exposures: 13 to 19 age group top five substance categories, 2021



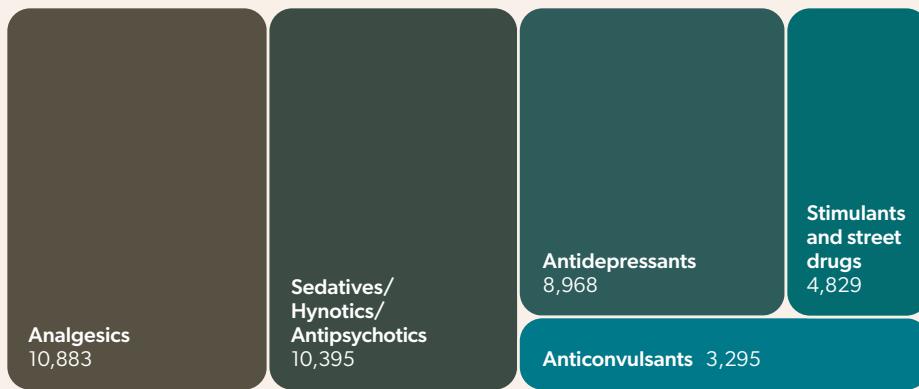
## Types of substances: 20 to 59 age group

In 2021, the most common substances involved in exposure cases among adults (20 to 59 years of age) managed by poison centres were medications for pain relief (analgesics) and drugs commonly used to treat mental health conditions such as antipsychotics, sedatives/hypnotics and antidepressants.

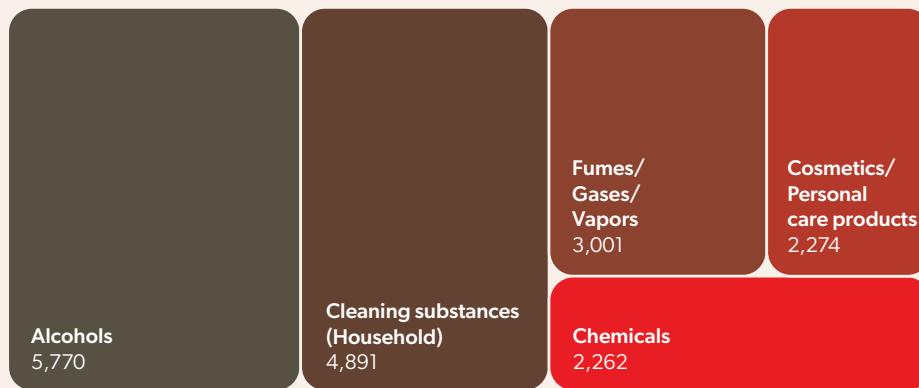
### Exposures: Top five substance categories, 2021 (20 to 59 age group)

1. Analgesics  
**10,883** (17.1%)
2. Sedatives/Hypnotics/Antipsychotics  
**10,395** (16.3%)
2. Antidepressants  
**8,968** (14.1%)
4. Alcohols  
**5,770** (9.1%)
5. Cleaning substances (Household)  
**4,891** (7.7%)

### Drug Exposures: 20 to 59 age group top five substance categories, 2021



### Non-Drug Exposures: 20 to 59 age group top five substance categories, 2021



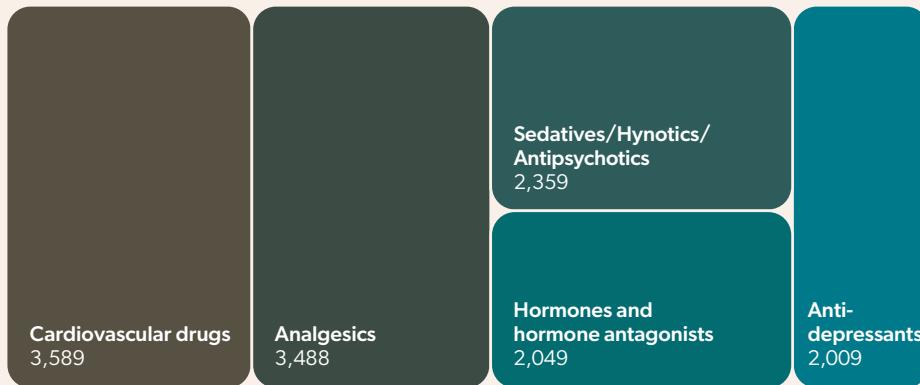
## Types of substances: 60+ age group

Older adults are at risk for poisoning primarily due to using multiple medications or more than medically necessary (known as polypharmacy) and adverse drug events. In 2021, the top substances involved in calls to poison centres for older adults (60 years and older) were various medications.

### Exposures: Top five substance categories, 2021 (60+ age group)

1. Cardiovascular drugs  
**3,589** (18.6%)
2. Analgesics  
**3,488** (18.1%)
3. Sedatives/Hypnotics/Antipsychotics  
**2,359** (12.2%)
4. Hormones and hormone antagonists  
**2,049** (10.6%)
5. Antidepressants  
**2,009** (10.4%)

### Drug Exposures: 60+ age group top five substance categories, 2021



### Non-Drug Exposures: 60+ age group top five substance categories, 2021

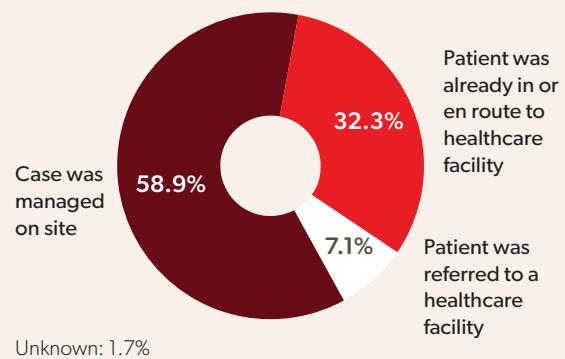


## Outcomes after Canadians call poison centres

Most poisoning exposure cases are managed at home, without requiring medical attention at a hospital, clinic or doctor's office. Poison centre staff provide guidance and reassurance to Canadians while preventing unnecessary strain on health-care resources.

When cases are managed at home – in 59 per cent of cases in 2021 – a benign outcome is expected based on clinical assessment of known exposure information. Where possible, poison centre staff follow cases where the patient is in, en route to, or referred to a health-care facility until the patient's medical outcome is known. In 2021, outcomes were known for more than

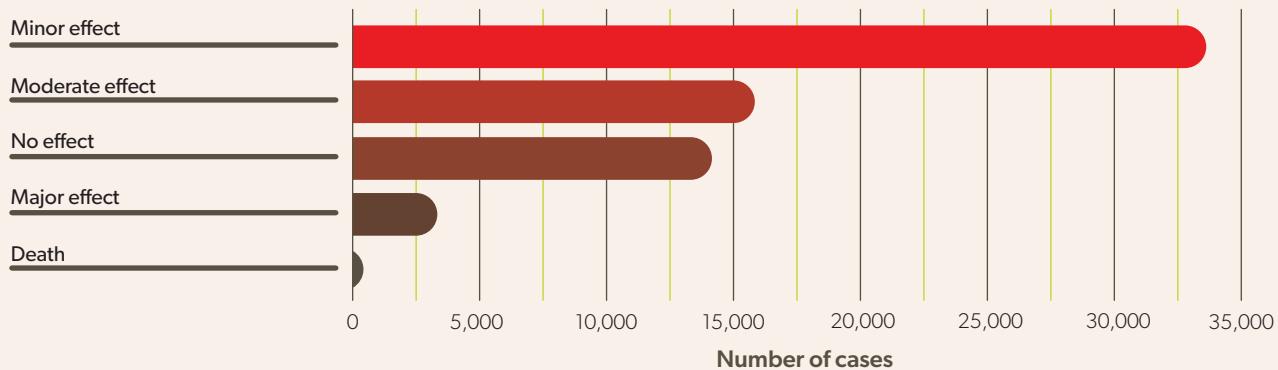
### Exposure cases by patient flow, 2021



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one-third of all exposure cases handled by poison centres. For half of these, the exposure resulted in minor effects, 24 per cent involved moderate effects, 5 per cent involved major effects and 20 per cent led to no effects. In 264 cases (0.4 per cent), the patient died because of the exposure or complications directly related to it.

### Exposure cases by medical outcome, 2021



This chart excludes instances where the case was not followed to a known medical outcome and minimal clinical effects were possible, not followed and judged as a non-toxic exposure and cases where the exposure was deemed probably not responsible for the effect(s). The total number of excluded cases is 120,176.

## Medical outcomes explained

Here are examples of potential clinical effects from poisoning exposures:

### No effect

No symptoms developed due to the exposure.

### Minor effect

Minor symptoms such as skin irritation, drowsiness or mild stomach upset.

### Moderate effect

More pronounced symptoms such as high fever, low blood pressure or dehydration.

### Major effect

Life-threatening symptoms such as seizures, cardiac arrest or coma.

### Death

Cases where the patient dies as a direct result or direct complication of the exposure.

# From information to impact:

## Mobilizing poison centre data and expertise

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Poison centre data and expertise provide critical information used to identify poisoning risks in the community, inform regulatory action, update professional knowledge, and educate and protect the public.



In 2021, Canada's poison centres provided data and expertise to Health Canada on priority health issues, which guided policy work and regulatory action, led to early warnings and alerting of safety signals, and resulted in five

public advisories issued by Health Canada. The advisories addressed potential harms from flame colourants, cleaning products, acetaminophen, ivermectin and illegal and unregulated cannabis products.



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### [Health Canada Warns Parents and Caregivers about the Dangers of Flame Colourant Packets](#)

Health Canada warned people in Canada about the risk of poisoning from improperly using flame colourant packets. These products contain potentially poisonous chemicals and can be mistaken for candy or food by children and adults.

### [Reduce your risk from toxic gases: Never mix bleach with other cleaning products](#)

Health Canada shared a public advisory, warning people in Canada about the risks of mixing bleach with other common household cleaning products, which can lead to the creation of toxic gases that can be poisonous if inhaled.

## Unintentional exposure of young children to adult acetaminophen tablets may pose serious health risks

Health Canada issued an advisory to people in Canada about multiple incidents of acetaminophen poisoning in young children due to unintentional exposure to adult acetaminophen easy-to-swallow tablets. Acetaminophen overdose poses a high risk of liver damage.

## Ivermectin not authorized to prevent or treat COVID-19; may cause serious health problems

Based on increasing reports from poison centres, Health Canada issued a warning to people in Canada not to use the veterinary or human drug versions of ivermectin to prevent or treat COVID-19 infection. No evidence supports that ivermectin works to prevent or treat COVID-19 and it is not authorized for this use in Canada.

## Accidental ingestion of illegal “copycat” edible cannabis products causing serious harm to children

Health Canada issued an advisory, reminding people in Canada of the risk of serious harm to children if they unintentionally consume cannabis edibles. The advisory was issued in response to increases in children being hospitalized and increased calls to poison centres, particularly after consuming illegal or unregulated cannabis products. The advisory reminded the public to purchase legal and regulated cannabis products in plain packaging with child-resistant features, to purchase only from provincially and territorially authorized retailers, and to safely store all cannabis products out of reach and sight of children.



Health Canada also released three additional public advisories relevant to poison prevention, which poison centres and partners shared to raise awareness:

## When purchasing smoke or carbon monoxide alarms, look for a Canadian certification mark

In 2021, Canada's poison centres reported 1,987 cases related to carbon monoxide (CO) exposure. As of 2021, most provinces and one territory require the installation of CO detectors in residential buildings but the same requirements are not necessarily in place for public and institutional spaces, such as schools. As outlined in the Evidence Summary on the Prevention of Poisonings in Canada (2021), legislation requiring mandatory CO alarms in all homes, schools and public spaces in Canada would save lives and reduce the burden on first responders and the health-care system.

## Button batteries pose life-threatening dangers to young children

Button batteries continue to pose a risk to young children in Canada. During 2021, poison centres received 932 calls regarding exposure to batteries, with 46 per cent of cases involving a child 12 years of age or younger. In response, poison centres, Health Canada and partners incorporated prevention messaging into resources and continue to raise awareness of the risks.

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OntarioPoisonCentre @ON.Poison · Nov 24, 2021  
Great reminder @ParachuteCanada

Button batteries have caused severe internal burns and death when swallowed!

Make sure you regularly check and secure ALL toys and electronic products that use them!

1-800-268-9017

#ButtonBatterySafety  
#PreventPoison

Parachute @parachutecanada · Nov 19, 2021  
This holiday season, be sure to check toys & gifts for button batteries. These batteries are small, round & shiny & can be easily swallowed by young children, causing serious harm in a short amount of time. Learn more about #ButtonBatterySafety: ow.ly/T4RQ50GRY7A

0 3 3 9 111 111

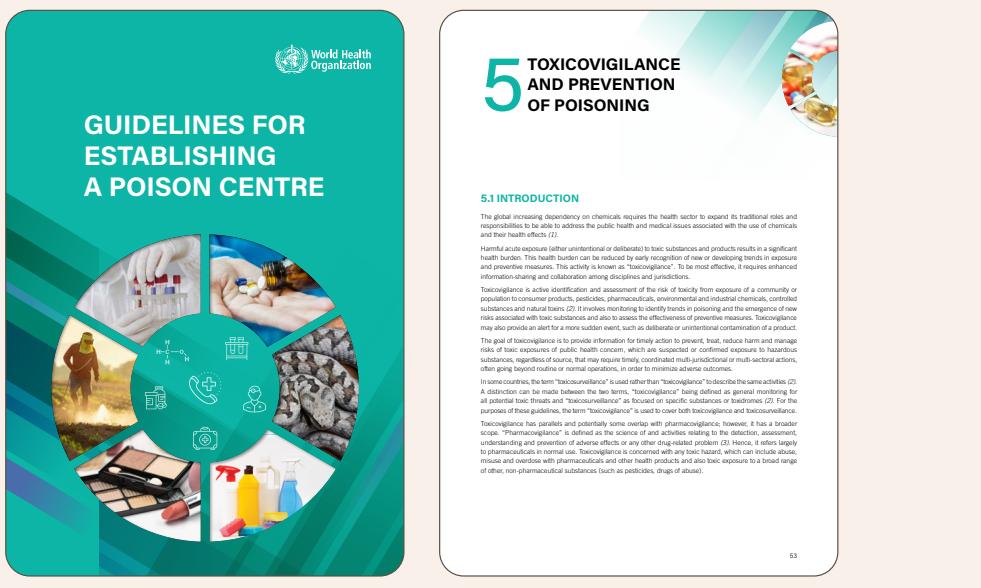
## Be informed: know the potential risks of buying health products online

Poison centres often receive calls regarding exposure to products purchased online. Unauthorized health products pose a danger to people in Canada as drugs or health products that appear legitimate and safe may not be authorized for sale in Canada.

# Publications

Poison centres contributed data and expertise to support three publications in 2021. The [World Health Organization \(WHO\) Guidelines for establishing a poison centre](#) is an updated version of the international guideline from 1997. Toxicovigilance Canada members were recognized for their contributions to

this report and their leadership in developing Chapter 5: Toxicovigilance and prevention in poisoning, which details the role of poison centres in toxicovigilance, the requirements and recommendations to support toxicovigilance and the importance of collaborative networks in advancing toxicovigilance activities.



[Caffeinated energy drinks in the Canadian context: health risk assessment with a focus on cardiovascular effects](#) was published in the peer-reviewed journal, Applied Physiology, Nutrition, and Metabolism in May 2021. The paper provides an update to the Health Canada risk assessment conducted in 2013 and examines new evidence on potential cardiovascular effects related to caffeinated energy drink consumption.

This image is a screenshot of a journal article abstract. The title is 'Caffeinated energy drinks in the Canadian context: health risk assessment with a focus on cardiovascular effects'. It is categorized as a 'REVIEW'. The abstract discusses the risk assessment of energy drinks in Canada, noting that while consumption has increased, the risk to public health remains low. It highlights that moderate consumption (up to 200 mg of caffeine per day) is safe for most individuals. The article is from the journal 'Appl. Physiol. Nutr. Metab.' and includes author information like Sebastian La Velle, Zor Gilaspie, Yvette Bonvalot, Karima Benkhedda, Nancy Grinberg, Joel Rotsstein, Jennifer Barber, and Andrew D. Krahn. The abstract is dated March 2021 and accepted on May 7, 2021. It includes a 'Corresponding author' note and a 'Copyright © 2021' notice. The journal's logo 'Applied Physiology, Nutrition, and Metabolism' is visible at the bottom.

## Hospital Readiness to Use the Antidote

**Methylene Blue** was published by the Institute for Safe Medication Practices (ISMP) Canada in a May 2021 ISMP Canada Safety Bulletin. The bulletin addresses availability and dosing concerns related to methylene blue as an antidote for methemoglobinemia (resulting from sodium nitrate/nitrite exposure). Recommendations for hospitals were put forward, including the need to call poison centres for additional patient care guidance if considering the use of methylene blue.

### Hospital Readiness to Use the Antidote Methylene Blue

ISMP Canada became aware of incidents that described an immediate need for methylene blue as an available first-line treatment for methemoglobinemia resulting from methemoglobin exposure. In these urgent situations, there was confusion as to its availability and dosing, resulting in delays in administration.

Information about methylene blue dosing and administration, adverse effects, and monitoring parameters can be found on the Canadian Antidote Guide in

<https://www.ciasc-captialnationale.gov.qc.ca/en/antidotes/methylene-blue>

#### Recommendations for Hospitals

- Verify that an adequate supply of methylene blue is available in the emergency department. A minimum of 10 x 50 mg vials may be needed in a 14-day period for a typical hospital.
- Ensure that staff are familiar with the location of the antidote stock and have readily available information to support its use.
- Contact the provincial/territorial poison centre for additional patient care guidance, if considering the use of methylene blue.

#### Acknowledgements

ISMP Canada thanks the Toxicovigilance Canada Network and Margaret Thompson MD FRCPC, Medical Director, Ontario, Manitoba & Nunavut Poison Centres, Toronto, ON.

#### Reference

1. Methylene blue [monograph]. Centre intégré universitaire de santé et de services sociaux de la Capitale-Nationale. Canadian Antidote Guide in Acute Care Toxicology. 2020 Jul 10 [cited 2021 Jan 19]. Cited <https://www.ciasc-captialnationale.gov.qc.ca/en/antidotes/methylene-blue>

## Addressing illegal online products

In 2021, Health Canada raised [public awareness to the risks of buying health products online](#). Canada's poison centres and prevention partners, such as Parachute, advocate for the expansion of this warning to online product procurement in general, as there is not the same level of protection that people in Canada benefit from when purchasing from physical stores.

Canadian poison centres continue to manage cases involving major outcomes and deaths resulting from the illegal sales of goods online.

The sale of products by fraudulent online pharmacies and retailers are of significant concern to the health and safety of people in Canada. Such products include opioids sold without a valid prescription, treatments not authorized for sale in Canada, high-dose cannabis edibles, substandard or counterfeit products potentially contain non-effective and/or dangerous ingredients (such as heavy metals), steroids not authorized for sale in Canada, chemicals not approved for use as a drug in Canada (e.g. weight-loss products such as 2,4-Dinitrophenol) and products for the purpose of self-harm.

Heritage Canada reopened consultations on online harms and, in response, the CAPCCT and Parachute requested the regulator consider including the sale of illegal goods as part of the

definition of online harmful content (currently defined as: terrorist content; content that incites violence; hate speech; the non-consensual sharing of intimate images; and child sexual exploitation content). By having the sale of online illegal goods included within the definition of harmful content, Canada could have new powers to prevent illegal sales of goods online by holding e-commerce platforms, social media and search engines accountable for what they provide access to. The [European Union Digital Services Act \(DSA\)](#) could be used as a model that can provide tools to enable accountability of online platforms regarding illegal and harmful content.

The CAPCCT and Parachute are of the opinion that enforcement alone cannot keep Canadians safe from illegal online activity. Better protection for people in Canada is necessary to help prevent these illegal purchases. Currently people may unknowingly purchase counterfeit and dangerous products that will place them and their loved ones at risk. Prevention measures are key to help protect people in Canada. This includes access to critical mental health resources, including suicide prevention services. Public communication regarding the risks of buying products online is also important. As highlighted by the European Union when they introduced their DSA "what is illegal offline, should be illegal online".

# The poison prevention community in action: National Poison Prevention Week

National Poison Prevention Week (NPPW) takes place every year during the third week of March. In 2021, poison centres and poison prevention partners participated in this national campaign to draw attention to the causes of poisoning and prevention of these injuries. Under the theme "Poison Prevention ... It's in your hands", messaging focused on empowering people in Canada to take steps to prevent poisoning.

Poison centres, as well as provincial, territorial and national partners, created resources including infographics, activities and checklist tools, participated in social media campaigns and distributed resources into their communities. Poison centres and community partners collaborated with Parachute to distribute cabinet locks and lock bags to emphasize safe storage of potential poisons, such as medications and cannabis.

## Launching the new CAPCCT name, logo and website: [infopoison.ca](http://infopoison.ca)

In 2021, the Canadian Association of Poison Control Centres rebranded to the Canadian Association of Poison Centres and Clinical Toxicology (CAPCCT). A new logo and brand presence for the organization was developed with input from partners and CAPCCT members.

The CAPCCT website was redesigned in 2021 to create [infopoison.ca](http://infopoison.ca), a national site serving the public as well as healthcare professionals.



**Poison Prevention Checklist**  
Children can be injured  
by ALL the products on this checklist.  
Which ones are in YOUR home?



### CLEANING SUBSTANCES

- Laundry pods
- All-purpose cleaner
- Dishwasher tabs
- Disinfectants
- Bleach
- Drain openers
- Toilet bowl cleaners
- Oven cleaners

### COSMETICS/PERSONAL CARE PRODUCTS

- Hand sanitizer
- Toothpaste
- Sunscreen
- Medicated cream
- Soap
- Mouthwash
- Nail polish and remover
- Perfume
- Hydrogen peroxide
- Bug repellants
- Mothballs
- Essential oils

### MEDICATIONS

- Ibuprofen
- Acetaminophen
- Iron pills
- Prescription medications
- Cough medicine
- Melatonin/sleeping pills
- Vitamins

### FOREIGN BODIES/TOYS

- Glow sticks
- Silica gel
- Coins
- Batteries/Button batteries
- Balloons
- Magnets

### CANNABIS

- Edibles
- All cannabis products

Keep all poisons out of sight and reach of children, and locked when possible.



A program of the  
IWK Health Centre

[childssafetylink.ca](http://childssafetylink.ca)

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**Regulated**

- Comes from an authorized government seller.
- Maximum 10 milligrams of THC per package of cannabis flower or oil; anything higher causes the "high" effect.
- Ingredient label is accurate.
- Has strict packaging and labelling rules to reduce appeal to children.
- See through strict testing and cleanliness checks.

**Unregulated**

- Comes from other sources.
- Possibly hundreds of milligrams of THC per package of entire cannabis.
- Ingredient label may not be accurate.
- Packaging can look like popular brands of candy.
- May be tainted with harmful chemicals or bacteria.

**What's the difference?**

Always buy your cannabis products from an authorized government seller. Store in a locked container, and separate from other household items. If a child ingests ANY cannabis product, take them to the nearest emergency department.

For more information call Ontario Poison Centre at 1-800-268-0017 or visit [ontariopoisoncentre.ca](http://ontariopoisoncentre.ca)

**MARCH 21-27, 2021**

**NATIONAL POISON PREVENTION WEEK**

#NPPW2021

**Poison Prevention**  
**IT'S IN YOUR HANDS**  
YOU HAVE THE POWER  
TO PREVENT POISONING.

ontario poison centre  
protection institute  
our goal is healthy children

EN FR  
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**What is a poison?**

A poison is anything that can cause harm to your body through a toxic effect that may injure you or make you sick. It can be something you inhale, swallow, inject or that touches your skin or eyes.

Medications are the leading cause of poisoning in Canada. Over-the-counter medicines, prescription drugs, illicit drugs, alcohol and cannabis can cause poisoning, depending on the quantity taken and the individual. What we sometimes call an "overdose" is really a poisoning.

**Other common sources of such poisons / toxins come from:**

Household cleaners, e.g. bleach or laundry detergent	Personal care products, e.g. nail polish	Car supplies, e.g. windshield washer fluid
Chemicals used in workplaces	Some plants	

Through responsive design, the website determines the province or territory of the viewer and presents them with the phone number for the poison centre in their region. The website features poison prevention information and resources.

The infopoison.ca website also continues to serve health-care professionals and provides a central

repository of relevant resources, such as Pan-Canadian Poison Centre Annual Reports, reporting avenues for incidents and concerns, additional supports and international associations.

Parachute facilitated the CAPCCT rebranding and website redesign and continues to maintain the website and its content.

## Knowledge exchange

### Webinar series

In 2021, Parachute and the Injury Prevention Centre hosted a three-part webinar series for multi-sector professionals on topics including poisoning data, regulatory response and community-based prevention. Poison centre staff participated as expert speakers, sharing data and insights on various poison prevention topics and collaborative efforts. Expert speakers in the webinar series also included those from CAPCCT, Health Canada, the Public Health Agency of Canada as well as provincial injury prevention partners including the Injury Prevention Centre (Alberta), BC Injury Research and Prevention Unit, IWK Health Centre (Atlantic Canada) and the Saskatchewan Prevention Institute.

#### [Poison Prevention in Canada: Data, trends and calls to action](#)

#### [Surveillance to Action: Canada's response to emerging poisoning issues during COVID-19](#)

#### [Poison Prevention: It's not just for Poison Prevention Week](#)

There were 252 participants across the three webinars and 1,049 subsequent views on Parachute's You Tube channel, where recordings of these webinars are hosted.

### **Conferences: North American Congress of Clinical Toxicology**

The North American Congress of Clinical Toxicology (NACCT) Annual Meeting took place virtually from October 13 to 17 in 2021. Every year, CAPCCT sponsors a Scientific Symposium. In 2021, the symposium focused on drug safety and included two speakers, Dr. Corinne Hohl, an Emergency Physician and Associate Professor at the University of British Columbia Department of Emergency Medicine and Matt Mink, a pharmacist and certified Specialist in Poison Information from the Poison and Drug Information Service (PADIS) in Alberta. Dr. Margaret Thompson from the Ontario Poison Centre and CAPCCT president moderated the discussion. More than 130 participants attended the live virtual symposium.

# Conclusion

Data highlighted in this report support the continued value of poison centres as vital sources of specialized expertise and guidance for the public and health-care professionals. Poisonings continue to be a major public health concern in Canada, as demonstrated by the 2021 trends in unintentional poisoning and self-harm-related poisonings.



Operating 24/7 across Canada, poison centres are critical resources for timely, credible health-care advice as well as surveillance and data collection. Poison centres are demonstrated and effective instigators of collaborative public health action to educate and protect the public, inform regulatory action and enhance professional knowledge. Most poisoning exposure cases reported to poison centres are managed at home, without requiring more costly medical attention at a hospital, clinic or doctor's office. Poison centre staff provide expert guidance and reassurance to Canadians while preventing unnecessary strain on health-care resources.

Poison centres also function as early-warning “canaries in the coal mine” when it comes to new issues related to poisonings. These first show up in Canada when individuals call poison centres, seeking help. Alerts raised by poison centres about a new danger can then translate into preventive action rolling out across the country.

No doubt there will be fresh challenges ahead as new products, medications and trends emerge in Canada that have the capacity to poison. Poison centres and their partners are committed to reducing the burden of poisonings, both to the Canadian public and to our health-care system.

## Acknowledgments

We would like to extend our sincere gratitude to the five poison centres who provided data and information, reviewed earlier versions of this report, and provided ongoing guidance and expertise:

- **Atlantic Canada Poison Centre,**  
Medical Director: Dr. Nancy Murphy
- **BC Drug and Poison Information Centre,**  
Medical Director: Dr. Roy Purssell
- **Centre antipoison du Québec,**  
Medical Director: Dr. Maude St-Onge;  
Assistant head nurse: Guillaume Bélair;  
Pharmacist: Audrée Elliott
- **Ontario Poison Centre,**  
Medical Director: Dr. Margaret Thompson;  
Senior Clinical Manager: Anna Leah  
Desembrana
- **Poison and Drug Information Service,**  
Medical Director: Dr. Mark Yarema

We thank the Specialists in Poison Information at each centre, without whom the systematic collection and reporting of poison centre data would not be possible.

This report has been made possible by funding provided by Health Canada. The Surveillance and Co-ordination Unit, Chemical Emergency Management and Toxicovigilance Division supported the collection, aggregation and analysis of data presented in this report.

Our thanks to the staff at Parachute for co-ordinating the production of this report.

Finally, we would like to thank our partner NGOs and injury prevention organizations for their ongoing collaboration and commitment to raising awareness and reducing poisoning harms for Canadians.

# Appendix

The following are examples of products included under the top 10 drug and non-drug substance categories in this report. These lists are not exhaustive.

## **Product examples for top substances: Drug exposures**

**Analgesics:** acetaminophen, aspirin, codeine, ibuprofen, fentanyl, morphine, tramadol

**Anticonvulsants:** carbamazepine, gabapentin, levetiracetam, primidone, valproic acid

**Antidepressants:** citalopram, escitalopram, fluoxetine, lithium, sertraline

**Antihistamines:** cetirizine, diphenhydramine, fexofenadine, loratadine

**Cardiovascular drugs:** ACE inhibitors, beta blockers, calcium antagonists, diuretics, nitroglycerin

**Dietary supplements/Herbal/Homeopathic:** creatine, echinacea, energy drinks, ginkgo biloba, ginseng, melatonin, St. John's wort

**Hormones and hormone antagonists:** androgen, estrogen, insulin, hypoglycemic, oral contraceptive, progestin

**Sedatives/ hypnotics/ antipsychotics:** barbiturate, benzodiazepine, methaqualone, sleep aid (over the counter)

**Stimulants and street drugs:** caffeine, cannabis, cocaine, LSD, methamphetamine, synthetic street drugs

**Vitamins:** multi-vitamin tablets and liquids, niacin (B3), vitamins A, C, D and E

## **Product examples for top substances: Non-drug exposures**

**Alcohols:** butanol, ethanol, methanol, rubbing alcohol

**Chemicals:** ammonia (excluding cleaners), boric acid, cyanide, formaldehyde, hydrochloric acid

**Cleaning substances (household):** automatic dishwasher detergent, bleach, disinfectant, drain, glass, oven and floor cleaners, rust remover

**Cosmetics/Personal care products:** baby oil, depilatory, lipstick, mouthwash, nail polish remover, peroxide, soap, sunscreen

**Foreign bodies/Toys/Miscellaneous:** ash, charcoal, coin, glow product, soil, thermometer

**Fumes/Gases/Vapours:** carbon dioxide, carbon monoxide, chlorine gas, methane and natural gas, propane

**Hydrocarbons:** benzene, diesel fuel, gasoline, kerosene, motor oil, turpentine, industrial cleaners

**Other/Unknown non-drug substances:** other non-drug substance, unknown non-drug substance

**Pesticides:** fumigants, fungicides, herbicides, insect repellent, insecticides, rodenticides

**Plants:** anticholinergic plants, plants causing gastrointestinal or skin irritation, nicotine, non-toxic plants

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