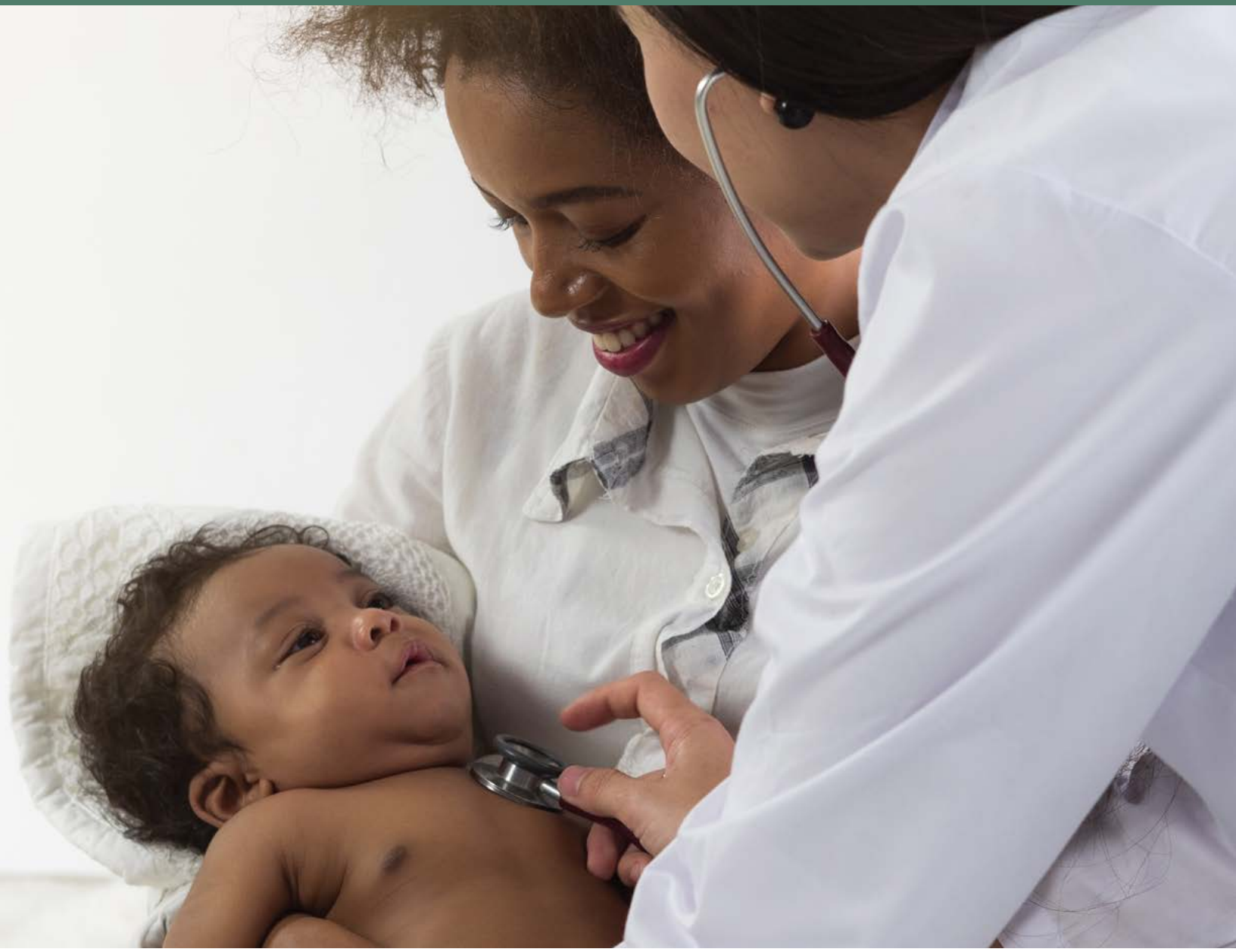
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

2025 Results



CPSP
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

Public Health Agency of Canada
Agence de la santé publique du Canada

Canadian Paediatric Society
Société canadienne de pédiatrie

Mission

To contribute to the improvement of the health of children and youth in Canada through national surveillance of childhood disorders that are high in disability, morbidity, mortality, and economic costs to society, despite their low frequency.

Canadian Paediatric Surveillance Program Annual Results

Surveillance is integral to the practice of public health. Public health surveillance, as defined by the World Health Organization, includes the systematic collection, collation, and analysis of data coupled with the timely dissemination of information for assessment and public health response. Integral to its public health mandate, the Canadian Paediatric Surveillance Program (CPSP) is committed to sharing valuable information obtained through its active surveillance of rare diseases and emerging conditions in children and youth in Canada. Key results of CPSP multi-year studies and one-time surveys are published in this annual report. These results highlight important findings and inform health professionals, researchers, and policy makers in developing strategies to improve the health of children and youth in Canada.

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Active surveillance protects patients

The importance of national paediatric surveillance cannot be overstated: It reinforces timely public health action, informs evidence-based care, and ultimately, protects the health and well-being of our children and youth. They are the future—and a critical investment in the long-term strength and resilience of society.

The Canadian Paediatric Surveillance Program strengthens national public health efforts by:

Warning

of emerging public health issues

Accidental ingestion of edible cannabis is a danger for young children and guidance is required on safe storage; study results inform *Cannabis Act* legislative review

COVID-19 study results informed clinical care and public health recommendations affecting children

Life-threatening substance use and overdoses among adolescents are concerning at the population level; survey results justify national surveillance

Identifying

product health and safety hazards

Button battery ingestions cause harms and health complications; survey results support Canadian Paediatric Society (CPS) advocacy for safer packaging, storage, and disposal

Children and adolescents need protection from vaping-related illness and injury; survey results support CPS advocacy and position statement

Mobilizing

knowledge on possible adverse events

Medication compounding can lead to serious adverse events; CPS position statement calls for commercially available, child-friendly drug formulations

Paediatric virtual care was associated with few reported adverse events and appears to be a safe method of practice in appropriate clinical circumstances

Appearance- and performance-enhancing drugs and substances are implicated in an unexpected number of adverse events; survey results justify national surveillance

CPSP
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

www.cpsp.cps.ca

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Foreword

Public Health Agency of Canada | Agence de la santé publique du Canada

Message from the Federal Minister of Health

The Honourable Marjorie Michel, P.C., M.P.

Fostering the health of all children and youth is a priority for the Government of Canada and supporting the collection and dissemination of up-to-date data on paediatric conditions and health events is essential to achieving this objective.

Our healthcare systems must continue to evolve and adapt to best serve and care for the needs of all Canadians. Data collection and research provide health professionals, researchers, and policy makers the tools they need to better understand and respond to the needs of young Canadians.

For nearly 30 years, experts from the Canadian Paediatric Society, Health Canada and the Public Health Agency of Canada have collaborated to support the development of better treatments, detection, and prevention strategies. I extend my gratitude to the Canadian Paediatric Society for its commitment in advancing this annual report, and thank the thousands of health professionals, paediatricians and investigators across the country who consistently shared data and insights to inform this program; this important work would not be possible without your dedication. These efforts have contributed to improved understanding of paediatric health issues and informed actions to better support the health outcomes for children and youth across the country.

Together, we are fostering a healthier and stronger Canada for generations to come.

Public Health Agency of Canada | Agence de la santé publique du Canada

Message from the Chief Public Health Officer of Canada

Dr. Joss Reimer

Strong public health systems rely on timely, high-quality data to identify, monitor, and better understand emerging and rapidly evolving health issues. Access to reliable evidence strengthens our collective capacity to anticipate, prepare for, and respond to public health challenges, while supporting collective efforts to promote the health and well-being of people in Canada.

For nearly three decades, the Canadian Paediatric Society, the Public Health Agency of Canada, and Health Canada have worked together to advance surveillance and research among children and youth across the country. Through this longstanding collaboration, the Canadian Paediatric Surveillance Program (CPSP) serves as an essential and trusted source of data on rare and emerging childhood conditions and serious adverse health events in Canada.

The *Canadian Paediatric Surveillance Program 2025 Results* annual report provides valuable insights into the health of children and youth in Canada and supports public health efforts to improve health outcomes for future generations. This year's report highlights several pressing and evolving public health issues. Surveillance continues to identify events of acute, life-threatening harms linked to the illicit or non-medical use of opioids, stimulants, and sedatives, as well as serious events linked to non-medical cannabis use. These findings underscore the ongoing impacts of substance use and the critical importance of prevention, harm reduction, and public awareness efforts.

In addition, the ongoing surveillance of certain acute and chronic paediatric conditions continues to advance clinical knowledge and inform public health action. The study on acute flaccid paralysis supports the maintenance of Canada's polio-free status, while studies such as severe neonatal hyperbilirubinemia, hyperglycemic hyperosmolar state, and fetal alcohol spectrum disorder diagnoses provide valuable information to guide prevention, early identification, and treatment.

Collectively, the evidence presented in this year's report demonstrates the vital role of national surveillance in identifying risks, informing targeted interventions, and improving health outcomes for children and youth in Canada.

I congratulate the Canadian Paediatric Society on the release of this annual report and thank the thousands of healthcare providers and paediatric subspecialists across the country whose contributions support the CPSP each month. Their ongoing commitment, along with their expertise and insights, are critical to the program's continued success and impact.

Message from the President of the Canadian Paediatric Society

Dr. Laura Sauvé

As a paediatric infectious disease specialist practising in British Columbia, with a particular interest in public health surveillance, I would like to highlight the importance of a surveillance program like the Canadian Paediatric Surveillance Program (CPSP), and its continued impact on the health of children and youth across Canada. Through the systematic collection and analysis of data on rare and emerging paediatric conditions, the CPSP has the ability to translate findings into better clinical care, evidence-based health policies, and advocacy for stronger laws that protect children from harm.

In 2025, the CPSP concluded studies on adverse events related to virtual care and hyperglycemic hyperosmolar state, and conducted one-time surveys on severe self-injurious behaviours in neurodiverse children and youth, infants born to parents with Grave's disease, and serious injuries and deaths arising from usage of powered personal micromobility devices.

I would like to thank my fellow colleagues who diligently report to the CPSP on a monthly basis. Your dedication to the program continues to allow us to gather the information we need to improve the lives of Canadian children and youth. And finally, on behalf of the Canadian Paediatric Society and its Board of Directors, thank you to the Public Health Agency of Canada and Health Canada; without their continued support, this work would not be possible.

Message from the Chair of the Canadian Paediatric Surveillance Program

Dr. Catherine Farrell

Canada benefits from several public health surveillance systems designed to measure and monitor changes in health status, identify risk factors and treatment options, detect emerging health threats, and evaluate the impact of previously implemented health policies. The Canadian Paediatric Surveillance Program (CPSP) is one such system that is especially important for children and youth living with rare or emerging diseases (or suffering from a rare complication of more common conditions). The collection of data from across Canada builds a large enough pool of data to enable more comprehensive analyses and more meaningful conclusions.

In 2025, the CPSP continued to play a vital role in addressing evolving public health challenges impacting children and youth in Canada. At the beginning of the year, the CPSP relaunched a study on severe neonatal hyperbilirubinemia with the primary goal of assessing the impact of the introduction of updated Canadian Paediatric Society guidelines on hyperbilirubinemia, particularly in comparison with the results of two prior studies conducted from 2002–2004 and 2011–2013.

In this annual report, you will also observe the Program's role in responding to emerging paediatric health issues. With increasing concerns about drug overdoses in adolescents, surveillance continues on acute life-threatening harms related to illicit/non-medical opioids, stimulants, or sedatives. Recognizing the importance of monitoring the impact of cannabis legalization on the paediatric population, the duration of the study on serious and life-threatening events associated with non-medical cannabis use has been extended.

As CPSP Chair, I would like to offer my thanks to all the study and survey investigators whose hard work to analyze the data and report on the results furthers our understanding of many rare paediatric conditions. I would also like to thank my colleagues on the Scientific Steering Committee who volunteer their time to ensure the highest scientific rigor for all CPSP studies. The data obtained through these studies are only made possible through the dedication of over 2700 paediatricians and paediatric subspecialists who contribute to the Program on a monthly basis. We are grateful for their time and commitment, which ultimately support the health and well-being of children and youth across Canada. Finally, I would like to extend my sincere appreciation for the Public Health Agency of Canada's continued support of the CPSP.

Acknowledgements

The key strength of the Canadian Paediatric Surveillance Program (CPSP) is its commitment to improve the health of children and youth in Canada and around the world. This focus would not be possible without the participation of Canadian paediatricians, subspecialists, and other health care providers in the monthly collection of information on rare paediatric conditions, the investigators who design studies and analyse the data to provide knowledge and educational solutions, or the guidance of the Scientific Steering Committee members. We thank them all.

We also thank IMPACT (Immunization Monitoring Program ACTive) centres for their role in verifying the acute flaccid paralysis study data and for their support of the CPSP.

The strong partnership between the Canadian Paediatric Society, the Public Health Agency of Canada, and Health Canada allows the Program to grow in Canada and to take a leadership role on the international scene.

Funding

Funding for the CPSP is required to support Program management. The surveillance Program is funded through a combination of government support and unrestricted grants from Canadian charities, research institutions, hospitals, and corporations. All funding is provided to maintain and expand the Program.

We gratefully acknowledge the financial support received in 2025 from the Public Health Agency of Canada's Centre for Surveillance and Applied Research, Health Canada's Marketed Health Products Directorate, and the following non-governmental sources:

- The Hospital for Sick Children, Division of Endocrinology, internal research funds of Dr. Jill Hamilton
- University of Toronto, Elizabeth Arbuthnot Dyson Fellowship, awarded to Dr. Paul MacDaragh Ryan

Canadian Paediatric Surveillance Program Scientific Steering Committee

Catherine Farrell, MD	Canadian Paediatric Society (Chair)
Jill Borland Starkes, MD	Canadian Paediatric Society
Peter Buck, DVM, MSc	Centre for Food-borne, Environmental and Zoonotic Infectious Diseases, Public Health Agency of Canada
Craig Campbell, MD	Pediatric Chairs of Canada (liaison incoming)
Paul Dancey, MD	Pediatric Chairs of Canada (liaison outgoing)
Marie Adèle Davis, MBA	Canadian Paediatric Society
Elizabeth Donner, MD	Canadian Association of Child Neurology (liaison)
Evelyne Doyon-Trottier, MD	Canadian Paediatric Society
Alison Eaton, MD	Canadian College of Medical Geneticists (liaison)
Karen Forbes, MD	Canadian Paediatric Society
Meghan Grainger, BSc	Centre for Surveillance and Applied Research, Public Health Agency of Canada
Megan Harrison, MD	Canadian Paediatric Society
Melanie King, BA	Canadian Paediatric Society
Shaun Morris, MD, MPH	IMPACT (Immunization Monitoring Program ACTive)
Stevie O'Brien, JD	Consultant
Jay Onysko, MA	Centre for Surveillance and Applied Research, Public Health Agency of Canada
Christina Ricci, MPH	Centre for Surveillance and Applied Research, Public Health Agency of Canada
Chelsea Ruth, MD	Canadian Paediatric Society
Paul Ryan, MB, Bch, BAO, PhD	Canadian Paediatric Society (resident incoming)
Patrick Seitzinger, MD	Canadian Paediatric Society (resident outgoing)
Sam Wong, MD	Canadian Paediatric Society

Members of the CPSP Scientific Steering Committee would like to extend their sincere gratitude to **Dr. Paul Dancey** for his time on the Committee as liaison for the Pediatric Chairs of Canada. His insight, dedication, and thoughtful contributions have been invaluable. We wish him all the best in his future pursuits.

The Committee would also like to thank resident representative **Dr. Patrick Seitzinger** whose valuable perspectives, enthusiasm, and commitment fostered thoughtful and meaningful discussions. We are grateful for his time and wish him continued success and fulfillment in the years ahead.

About the Canadian Paediatric Surveillance Program

Overview

The Canadian Paediatric Surveillance Program (CPSP) is a joint project of the Public Health Agency of Canada and the Canadian Paediatric Society that contributes to the improvement of the health of children and youth in Canada by national surveillance into childhood disorders that are high in disability, morbidity, and economic costs to society, despite their low frequency. The CPSP gathers data from approximately 2700 paediatricians and paediatric subspecialists from across the country each month to monitor rare diseases and conditions in children.

Objectives

- Maintain an active national surveillance system that monitors low-frequency, high-impact conditions and diseases in children and youth in Canada
- Involve paediatricians, paediatric subspecialists, and other medical professionals in related disciplines in the surveillance of rare conditions that are of public health and medical importance
- Generate new knowledge into rare childhood disorders to facilitate improvements in treatment, prevention, and health care planning
- Respond rapidly to public health emergencies relevant to Canadian children and youth by initiating rapid one-time surveys and new studies
- Participate in international paediatric surveillance efforts through the International Network of Paediatric Surveillance Units

Surveillance

- The full surveillance process is summarized in Figure 1 and includes the 3Ds of surveillance: detection, deduction, and dissemination.
- Health surveillance can be defined as: the tracking of any health event or health determinant through the continuous collection of high-quality data (detection); the integration, analysis, and interpretation of the data (deduction); and the communication of the results to those who need to know (dissemination) so that appropriate action can be taken.

Process

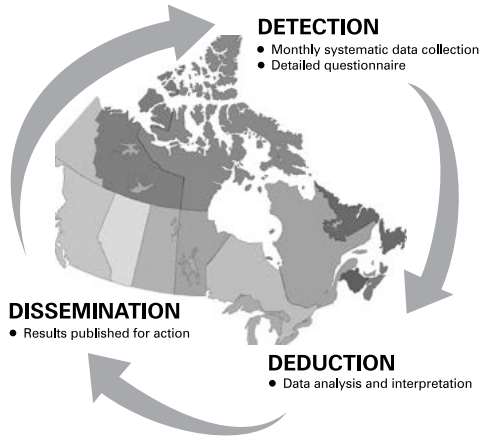
- Study teams from across Canada are encouraged to submit proposals for new studies or one-time surveys that meet the "criteria for submission," available on the CPSP website at www.cpsp.cps.ca/apply-proposez/criteria-for-inclusion-of-studies.
- The CPSP Scientific Steering Committee then reviews the proposals on a biannual basis and selects those of highest medical and public health importance. Proposals are evaluated against set criteria and are subject to comprehensive feedback from the multidisciplinary Scientific Steering Committee, composed of representatives from the Public Health Agency of Canada, the Canadian Paediatric Society, former CPSP investigators, academic clinicians from diverse specialties, and community paediatricians.
- Each month, CPSP participants from across Canada receive a form listing the current conditions under study. Participants notify the Program if they have seen any cases that meet the case definitions or have "nothing to report." Participants are encouraged to report all cases, including suspect or probable cases. This sometimes leads to duplicate reporting but avoids missed cases.
- Participants who have seen a case are sent a detailed clinical questionnaire to complete and return to the CPSP.
- Once the detailed questionnaire is returned to the CPSP, it is stripped of all unique identifiers and sent to the investigators for data analysis. All notifications of potential cases are assessed against the case definition. Duplicates or cases that don't meet the case definition are excluded.

CPSP Quick Facts

Did you know?

- The CPSP celebrated its 29th anniversary in 2025.
- The CPSP is comprised of approximately 2700 dedicated paediatricians and paediatric subspecialists.
- Since its inception, the CPSP has studied 90 rare conditions/diseases and initiated 65 one-time surveys.
- Over 100 peer-reviewed manuscripts on study/survey results have been published in high-impact journals.
- The average monthly response rate is 80%.
- The average detailed questionnaire response rate varies between 80 to 90%.
- By December 2025, 100% of participants had committed to receiving their monthly forms electronically.

Figure 1 – Surveillance process summary



- It is important to note that CPSP studies use non-identifiable data from patient charts; the study investigators have no direct contact with individual patients.
- The study team is responsible for data analysis, and for ensuring that a solid knowledge translation plan is in place to disseminate the results in a timely and effective manner.
- Study results are published annually and acted upon to improve the health of children and youth in Canada. For example, CPSP study results help to warn of emergent public health issues, identify safety hazards, mobilize knowledge on rare conditions, and inform new policies and guidelines.

Limitations of surveillance

As with any voluntary reporting surveillance system, the CPSP recognizes that its surveillance has some limitations, including the following:

- The results presented in this annual report are provisional. At the time when investigators are asked to prepare study reports, some clinical questionnaires may still be pending. Once pending questionnaires are analyzed, study conclusions may change. Especially for preliminary study reports, the distribution of cases by province/territory may not be representative of the study's final results.
- Data from Quebec are incomplete. Due to Quebec legislation, cases reported from that province can only be included in the data analysis when reported from a centre with project-specific research ethics board approval.
- Reporting on minimum incidence rates can under-represent events in the population. For example, some cases may not be included in the surveillance totals because they presented to family doctors or other health care practitioners and not to paediatricians, while others may live in rural or remote areas and are less likely to receive timely specialist care.
- Some data elements (e.g., laboratory investigations, pre-existing medical conditions) may not be available in the patient chart at the time of reporting and therefore may be absent from the surveillance totals. Every effort is made to ensure complete data capture and to handle missing data appropriately in the data analysis.
- Studies may only collect data on the patient/family's self-declared race/ethnicity/Indigenous identity if approved by a research ethics board and, as of 2023, only if the reporting physician's practice setting already systematically collects this data.
- According to CPSP's privacy policy, only aggregate data are reported and case counts of fewer than five are suppressed. While intended to protect privacy, this policy may limit data utility and the ability to report results, particularly for very rare conditions.

Despite these limitations, surveillance serves an important purpose and provides rich clinical data that allows for a better understanding of the rare childhood conditions under study.

Response rates

The CPSP's average national monthly response rate is 80% and the average detailed questionnaire completion rate varies between 80 to 90%.

TABLE 1 – Initial response rates (%) and number of participants for 2025

Provinces/territories	Reporting rates (%)*	Number of participants†
Alberta	81	355
British Columbia	83	319
Manitoba	84	98
New Brunswick	76	35
Newfoundland and Labrador	78	40
Northwest Territories	—	<5
Nova Scotia	85	84
Nunavut	—	<5
Ontario	81	1020
Prince Edward Island	87	12
Quebec	81	470
Saskatchewan	84	64
Yukon	—	<5
Canada	**81**	**2506**

* The CPSP national monthly reporting rate averages 80%. Every effort is made to maximize reporting, and annual response rates are subject to change due to delays in reporting. According to CPSP privacy policy, some values have been suppressed.

† The total number of individual CPSP participants is approximately 2700. However, in this table, the number of CPSP participants in Canada is calculated based on both individual and group reporting. When a group designate responds to the CPSP on behalf of group members, it is counted as one response.

TABLE 2 – National initial response rates 2021–2025

Reporting year	Reporting rates (%)
2021	80
2022	80
2023	83
2024	82
2025	81

TABLE 3 – 2025 detailed questionnaire completion rates as of June 1, 2026*

Studies/conditions	Notifications of potential cases	Pending	% completion rate
Acute flaccid paralysis†	33	2	94
Acute life-threatening harms related to illicit/non-medical use of opioids, stimulants, or sedatives†	26	6	77
Adverse drug reactions – serious and life-threatening	16	4	75
Adverse events related to virtual care‡	0	0	—
Fetal alcohol spectrum disorder diagnosis in school-age children	172	45	76
Hyperglycemic hyperosmolar state	<5	0	100
Neonatal hyperbilirubinemia—Severe (2025–2027)	17	1	94
Serious and life-threatening events associated with non-medical (recreational) cannabis use in Canadian children and youth	42	3	93
Total number of cases (all studies)	**>306**	**61**	**80**

* The numbers in this table were compiled later than those contained in the individual study reports and hence may differ because of delayed case reporting or case analysis. According to CPSP privacy policy, some values have been suppressed.
† Includes case notifications from Quebec from centres with project-specific research ethics board approval. For all other studies, case notifications from Quebec were excluded.
‡ Study ended January 31, 2025

Glossary of terms in study results

Reported: Notifications of potential cases received by the CPSP

Duplicates: Cases reported by more than one CPSP participant

Excluded: Cases not meeting the case definition and cases reported from Quebec institutions without project-specific research ethics board approval*

Pending: Detailed questionnaires not received or not yet verified as meeting the case definition

Met case definition: Cases verified as meeting the case definition, excluding duplicate case reports, cases failing to meet the case definition, cases pending verification, and cases reported from Quebec from institutions without project-specific research ethics board approval

* In mid-2018, the CPSP became aware of a change in Quebec legislation that affected the ability of the Program to collect detailed surveillance information from that province. The ministère de la Santé et des Services sociaux approved the collection of CPSP case notifications (including date of birth and sex) from paediatricians and subspecialists in Quebec as well as more detailed case-level data from institutions where research ethics board approval has been granted for a specific study. Therefore, cases notified by Quebec participants after August 1, 2018 are included in the data analysis **only** if they are reported from an institution that granted study-specific research ethics board approval.

International Network of Paediatric Surveillance Units

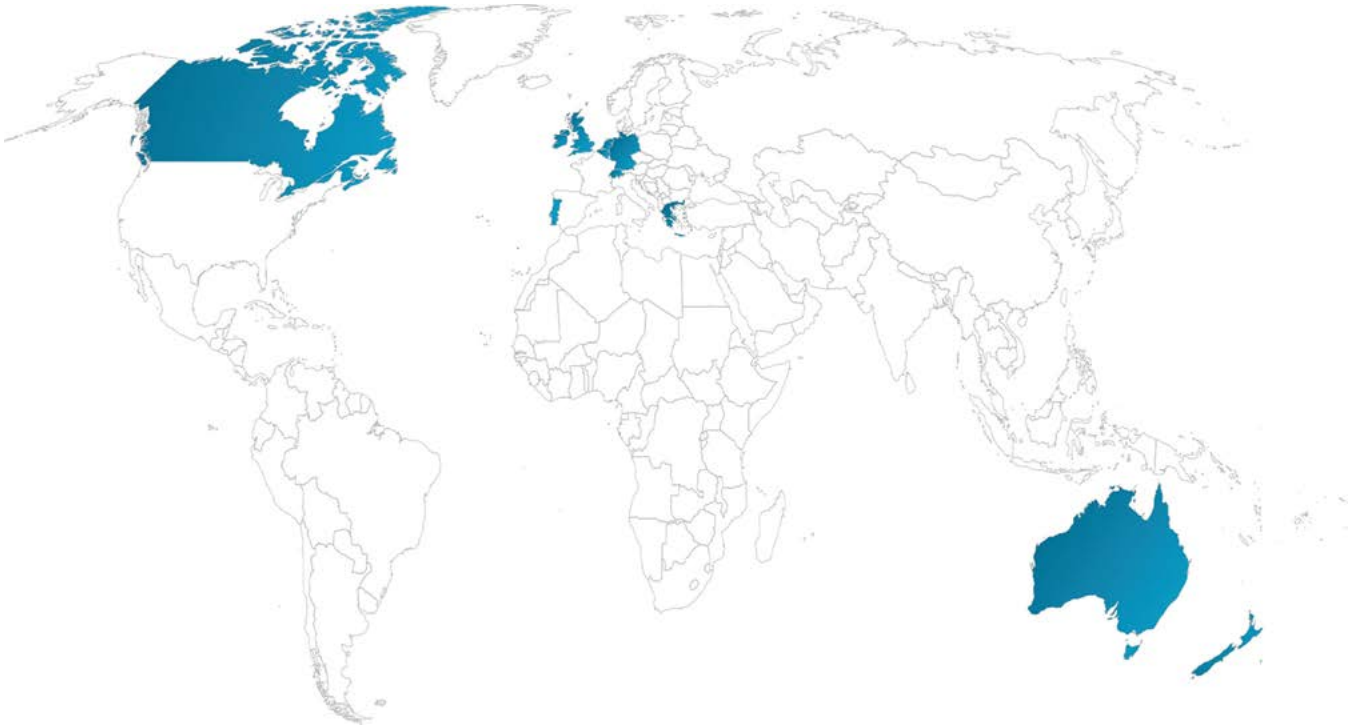
The CPSP offers an opportunity for international collaboration with other paediatric surveillance units worldwide, through the International Network of Paediatric Surveillance Units (INOPSU). The network provides a successful and easily accessible platform for international surveillance. No other network enables international comparisons of demographics, diagnoses, treatments, and outcomes for rare childhood conditions.

Established in 1998, INOPSU's membership includes many paediatric surveillance units from around the world, from Canada to New Zealand. Many of the paediatric surveillance units have been collecting data on rare childhood conditions for 20 years or more. Over 300 rare conditions have been studied to date, including rare infectious and vaccine-preventable diseases, mental health disorders, child injuries, and immunological conditions. The network encompasses approximately 10,000 child health care providers who voluntarily contribute data on these rare diseases every month.

Joint collaborative studies are seen as an important method of advancing the knowledge of uncommon childhood disorders around the world. For example, collaborative work is taking place to combine the data from the CPSP's congenital Zika syndrome and severe microcephaly studies with data from similar national surveillance projects conducted in the United Kingdom, Australia, and New Zealand.

During INOPSU meetings, member countries can highlight their surveillance program activities, explore innovative study ideas of interest to the network, discuss knowledge translation and joint publication opportunities, as well as strategize on how best to maintain active engagement of participants.

More information on INOPSU can be found at www.inopsu.com.



Surveillance Studies in 2025

Acute flaccid paralysis

Study duration: Ongoing study since January 1996

Marina Salvadori

Principal investigator (interim)
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Co-investigator
Nicole Salem

Question

Did Canada maintain its polio-free status in 2025?

Importance

- Poliomyelitis is targeted for global eradication, with only two countries having ongoing wild poliovirus transmission, as well as several countries experiencing outbreaks of vaccine-derived polio. Acute flaccid paralysis (AFP) surveillance is the cornerstone of monitoring for polio and is critical for documenting the absence of poliovirus circulation required for countries to declare polio-free status.
- Canada conducts AFP surveillance in children under 15 years of age, in accordance with World Health Organization (WHO) recommendations and standards of practice.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/acute-flaccid-paralysis.

Case definition

Acute onset of focal weakness or paralysis characterized as flaccid (reduced tone) without other obvious cause (e.g., trauma) in a child less than 15 years of age. Transient weakness (e.g., post-ictal weakness) does not meet the case definition.

Unique to this study

Cases are captured through both the Canadian Paediatric Surveillance Program (CPSP) and Canada's Immunization Monitoring Program ACTive (IMPACT) based in 14 paediatric tertiary care centres. Of the cases reported from Quebec, only AFP cases reported by Quebec IMPACT centres (Centre hospitalier universitaire [CHU] Sainte-Justine, Montreal Children's Hospital, and Centre mère-enfant Soleil–CHU de Québec–Université Laval) are eligible for data analysis in this report.

Results – January to December 2025

Please note: This report represents a snapshot of data available as of January 30, 2026. There may be uncaptured cases due to reporting delays. The total AFP case counts for 2021 to 2025 have been updated with all the confirmed cases that have been reported and are presented in Table 2.

TABLE 1 – AFP cases in 2025

Reported	Duplicates	Excluded	Pending	Met case definition*
23	1	4	1	17

* Due to Quebec legislation, any cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis, unless reported from one of the following centres that granted project-specific research ethics board approval: CHU Sainte-Justine, Montreal Children's Hospital, and Centre mère-enfant Soleil–CHU de Québec–Université Laval.

TABLE 2 – Annual comparison of AFP cases 2021–2025

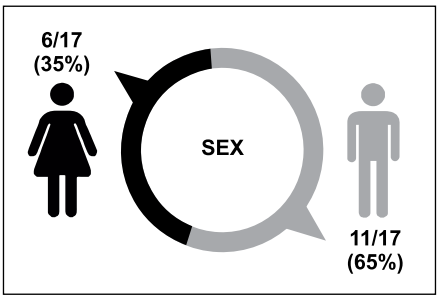
Year	Total cases
2021	10
2022	29
2023	34
2024	45
2025	17

Cases that met the case definition

- At the time of analysis, 17 cases were verified as meeting the AFP case definition in 2025; none were assessed as meeting the polio case definition. All 17 cases (100%) were reported through an IMPACT centre.
- The median time from case onset of paralysis to reporting to the Public Health Agency of Canada was 51 days (IQR: 46.0–119.0).

Demographics

- Among confirmed cases, 11/17 (65%) were male and 6/17 (35%) were female.
- Cases ranged in age from 9 months to 14.3 years, with a median of 8.6 years.



Presentation and diagnosis

- All 17 cases (100%) were hospitalized. The median length of hospital stay was 11 days (IQR: 5.0–26.5).
- Over half of the cases (10/17, 59%) were diagnosed with Guillain-Barré syndrome. Other diagnoses included transverse myelitis, acute disseminated encephalomyelitis, botulism, and viral acute flaccid myelitis. No cases had a missing or unknown final diagnosis.
- Among cases eligible for polio vaccination based on age and that had vaccination status recorded, 10 of 15 (67%) were up-to-date with their age-appropriate polio vaccines according to their jurisdiction's schedule.
- Fewer than 5 cases had stool samples submitted for viral testing; all samples were taken within 14 days of paralysis onset. No stool samples were positive for polio.

Treatment and outcomes

- All cases (100%) had an outcome documented in the initial report. The majority (10/17, 59%) reported a partial recovery.
- Five cases had a clinical outcome reported at least 60 days after the onset of paralysis or weakness, representing only 31% of the cases eligible for follow up (excludes cases where no follow-up was conducted due to full recovery at the initial assessment). Of the cases with 60-day follow up, the majority reported a full recovery.
- No fatalities were reported at the initial or follow-up assessment.

TABLE 3 – Measure of Canada's performance against WHO AFP surveillance performance indicators in 2025[1]

Number of cases	Incidence rate*	% with adequate stool sample†§	% with 60-day follow-up‡§¶
17	0.27	—	31.2%

* Per 100 000 population in those less than 15 years of age - target is 1.0 AFP case per 100 000 population less than 15 years of age
† WHO target is at least 80% of cases have adequate stool sampling within 14 days of paralysis onset
‡ WHO target is at least 80% have follow-up examination for residual paralysis at least 60 days after onset
§ Percentage suppressed based on small number of cases (<5)
¶ Cases deemed not applicable for follow-up based on a full recovery or fatal outcome at initial assessment are excluded from the denominato

Study limitations

- Limitations common to all CPSP studies are listed on page 11.
- Canada's performance on the WHO surveillance indicators should be interpreted with caution. Canada, like many other countries that have achieved polio elimination, does not consistently meet the recommended performance indicators for AFP surveillance for a number of reasons, including:
  - — Availability of rapid diagnostic testing and imaging often leads to a final diagnosis prior to the collection of stool, and outcome at 60 days may not be available or may be deemed not applicable by the clinician.
  - — Retrospective data collection is periodically conducted to increase the sensitivity of reporting. As such, case-level surveillance data are extracted following the clinical encounter during which stool samples may not have been obtained and follow-up may not have been arranged, or information was not available at the time of reporting.
  - — Stool samples in patients with AFP are sometimes difficult to obtain due to the nature of the patient's symptoms, including constipation.

Conclusions

- At the time of analysis, confirmed AFP case counts for 2025 were lower than in recent years. While additional 2025 cases are expected through retrospective reporting, interpretation of the observed decrease is limited and should be considered alongside other epidemiologic trends, including activity of common non-polio AFP causes, such as circulating enteroviruses in Canada.

1. Detailed information on WHO surveillance performance indicators can be found at https://polioeradication.org/what-we-do/surveillance-indicators/

- Although Canada did not meet the WHO performance indicators for national AFP surveillance in 2025, there was sufficient evidence to suggest that no paralytic polio cases occurred among children in Canada.
- AFP surveillance in Canada is conducted through a sensitive and active surveillance system that allows prompt and appropriate investigation of AFP cases to detect polio. Polio is a reportable disease nationally, and in every province and territory.

Anticipated study impact

Canada's polio-free status remains intact, as assessed annually by Canada's National Certification Committee for Polio Eradication and the Regional Commission for the Certification of Polio Eradication in the Americas.

Acknowledgements
The investigators would like to thank everyone who participated in collecting the data. They would also like to acknowledge the excellent work of Elsie Grudeski, Sagikaa Rajakumar, Shannon Magee, and Kristyn Franklin from the Public Health Agency of Canada.

Acute life-threatening harms related to illicit/ non-medical use of opioids, stimulants, or sedatives

Study duration: October 2024 to September 2027

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Collaborator

Bridget Maloney-Hall

Questions

- What is the minimum incidence of toxicity related to illicit/non-medical use of opioids, stimulants, or sedatives in children and adolescents in Canada?
- What are the most common co-morbidities and features of presentations that paediatric providers should be aware of?

Importance

Overdose from illicit drug toxicity is the leading cause of death for adolescents in British Columbia, and of increasing concern elsewhere in Canada. Epidemiology for this condition, including detailed patient demographics, co-morbidities, and treatment outcomes, are lacking.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/acute-life-threatening-harms-related-to-illicit-non-medical-use-of-opioids-stimulants-or-sedatives.

Case definition

Any patient less than 18 years of age (up to their 18th birthday) requiring any of the following:

- Emergency department care, hospitalization, or admission to an intensive care unit (ICU)
- Resuscitation (e.g., naloxone), or indication for resuscitation outside of hospital*

Due to either of the following:

- Use of an illicit/non-prescription opioid, stimulant, or sedative substance
- Non-medical use of a prescription opioid (e.g., codeine, hydromorphone, oxycodone), stimulant (e.g., psychostimulant), or sedative drug (e.g., benzodiazepine, barbiturate) (e.g., using prescription medication in a manner other than as prescribed, using prescription medication prescribed to someone else)

* *Children and adolescents who experienced a critical toxicity incident and received emergency resuscitation outside of hospital at the time of the incident (e.g., community-based naloxone administration) are also eligible for this study when they present for a first health care visit following resuscitation in the community.*

Exclusion criteria

- A condition due to inadvertent exposure to another person's substances (e.g., child accidentally ingesting an adult's substance)
- A condition resulting from use of an illicit substance during pregnancy/breastfeeding (information already captured elsewhere)
- A condition resulting from indicated use of medications prescribed to the patient for medical purposes
- A condition arising from accidental misuse of medications prescribed to the patient for medical purposes
- A condition resulting solely from the use of alcohol, cannabis, vaping, cigarettes, and/or tobacco products

Unique to this study

This is the only known national surveillance study for adolescents with harms related to illicit substance use in Canada and the first study to collect patient demographics, including co-morbidities, at a national level.

Results – October 2024 to December 2025

Please note: The decision was made to combine the data for 2024 and 2025 in this study report to allow for the presentation of study results from 2024 that would otherwise be suppressed according to CPSP's privacy policy.

TABLE 1 – Cases of acute life-threatening harms related to illicit/non-medical use of opioids, stimulants, or sedatives from October 1, 2024 to December 31, 2025

Reported	Duplicates	Excluded	Pending	Met case definition*
37	2	6	15	14

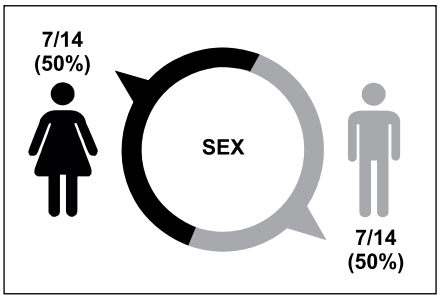
* Due to Quebec legislation, any cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis, unless reported from Centre hospitalier universitaire Sainte-Justine, which granted research ethics board approval for this study.

Cases that met the case definition

At the time of analysis, 14 cases that were reported between October 1, 2024 and December 31, 2025 met the case definition and are included in this annual report. An additional 15 cases were pending verification.

Demographics

- An equal number of male and female cases were reported (7/14, 50% each).
- Patients ranged from 14 to 17 years of age (median 16 years).
- Almost all cases spoke English as their preferred language.
- Adolescent medicine physicians reported most cases (8/14, 57%), with the remainder being reported by physicians in general paediatrics, paediatric emergency, and paediatric intensive care.



Presentation and diagnosis

- All of the cases (14/14, 100%) had at least one concurrent mental health disorder, and more than half (9/14, 64%) had multiple mental health disorders.
- The most common mental health disorders were mood disorder (8/14, 57%), anxiety disorder (7/14, 50%), attention deficit/hyperactivity disorder (ADHD) (6/14, 43%), and suicidality/self harm (5/14, 36%).
- Polysubstance use was reported in 9/14 (64%) cases; 5/14 (36%) cases presented with isolated opioid overdose.
- Among 12 patients where the route of exposure was known, ingestion was reported in 6 (50%).
- Symptoms related to opioid overdose (e.g., decreased level of consciousness, respiratory depression) were the primary cause for medical care in 10/14 (71%) cases.
- Among 11 patients with drug screening completed, the most common substances included fentanyl or other opioids (11/11, 100%), amphetamine/methamphetamine (5/11, 45%), and tetrahydrocannabinol (THC) (5/11, 45%). Patients could have multiple positive screening results.

Treatment and outcomes

- Most patients required naloxone reversal (10/14, 71%).
- Admission to hospital was required for 12/14 (86%) patients, with length of stay ranging from 3 to over 23 days (median 5 days). Fewer than 5 patients required care in an intensive care unit, with length of stay ranging from 2 to 5 days (median 4 days).
- Half of the patients (7/14, 50%) were discharged with a full medical recovery, while the remainder were either discharged with ongoing health problems, were still in hospital, or are deceased.

Study limitations

- Limitations common to all CPSP studies are listed on page 11.
- Eligible cases may present to non-paediatric providers, which could lead to an under-estimation of the burden of life-threatening harms from illicit/non-medical use of opioids, sedatives, or stimulants in the under-18 population. To help mitigate this situation, the study team identified study-specific reporters in remote/rural areas or predominantly adult settings who will report cases where paediatric providers participating in the CPSP may not be providing care directly to youth. The study team will work with the Public Health Agency of Canada to triangulate study data with other available data sources (e.g., overdose mortality data).

Conclusions

This study is still in its early phases. From the limited data available, patients presenting with overdose syndromes have high rates of mental health comorbidities and are often presenting with polysubstance exposure. Symptoms related to opioid overdose are being reported in most cases and the majority of patients are requiring naloxone reversal and/or admission to hospital. Outcomes to date suggest high morbidity and mortality.

Anticipated study impact

This study will allow clinicians and policy makers to co-develop overdose interventions alongside youth to mitigate harms and improve health outcomes.

Acknowledgements
Thank you to the CPSP team, particularly Melanie King, for all of the support with the study.

Adverse drug reactions—Serious and life-threatening

Study duration: Ongoing study since January 2004

Sally Pepper

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Question

What serious and life-threatening events suspected to be related to adverse drug reactions (ADRs) in children and youth were reported in 2025?

Importance

- Only a minority of prescribed pharmaceuticals on the market in North America have been tested in paediatric patients, and many of them are used without the benefit of adequate and/or specific guidance on safety or efficacy in this population.
- Post-marketing surveillance is essential for detection of ADRs and contributes to the ongoing monitoring of the benefit-risk profile of health products used in children.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/adverse-drug-reactions-serious-and-life-threatening.

Case definition

Serious and life-threatening adverse drug reactions* in an infant or child up to the age of 18 years, associated with the use of prescription, non-prescription, biological products (immunoglobulin), complementary medicines (including herbals), and radiopharmaceutical products

* *Noxious and unintended severe response to a drug, which occurs at any dose and results in emergency observation, hospitalization, persistent or significant disability, or death*

Exclusion criteria

Reactions to medical devices, blood products (platelets, red cells and single-donor plasma), vaccines, poisonings or self-administered overdoses

Unique to this study

Significant results for the ADR study contributed to the monthly ADR Tips distributed by the Canadian Paediatric Surveillance Program (CPSP) until December 2025.

Results – January to December 2025

Please note: This report represents a snapshot as of December 31, 2025. Due to reporting delays, some 2025 cases may not be captured in this annual report. The annual case counts presented in Table 2 have been updated with all the cases reported to date that met the study case definition.

TABLE 1 – ADR cases in 2025

Reported	Duplicates	Excluded	Pending	Met case definition*
7	0	1	0	6

* Due to Quebec legislation, any cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis.

Cases that met the case definition

At the time of analysis, 6 suspected serious or life-threatening paediatric ADR reports were verified as meeting the case definition in 2025.

TABLE 2 – Annual comparison of ADR cases 2018–2025

Year	Total cases
2018	20
2019	13
2020	9
2021	5
2022	11
2023	9
2024	<5
2025	6

TABLE 3 – Suspect health products in 2025

Class of health product	Name of health product
Antibacterials for systemic use	Amoxicillin
Drugs for obstructive airway diseases	Omalizumab
Immunosuppressants	Infliximab
Other dermatological preparations	Dupilumab
Psychoanaleptics	Sertraline
Psycholeptics	Aripiprazole

Demographics

- Cases were received for both male and female patients.
- Cases were reported from all of the following age ranges: 0 to 5 years, 6 to 12 years, and 13 to 17 years.

Presentation and diagnosis

- The 6 cases were classified as serious according to the following criteria (more than one cause for classification was provided in some of the reports): fewer than 5 cases were considered to be life-threatening; fewer than 5 cases required hospitalization; and 5 cases were considered to be medically important. Medically important is defined as a case that may not be immediately life-threatening or result in death/hospitalization but may jeopardize the patient or require intervention to prevent one of these other outcomes from occurring.
- The majority of the adverse reactions described skin and subcutaneous tissue disorders. This finding is consistent with the trend seen for all reports received through the CPSP since the study's initiation in 2004.
- Adverse reactions also described the following disorders, among others: gastrointestinal disorders; respiratory, thoracic, and mediastinal disorders; and nervous system disorders.

Treatment and outcomes

- The outcome was known in all of the 6 cases, with the majority of patients experiencing a full recovery and the remainder reported as not yet recovered.
- No deaths were reported.

Study limitations

- Limitations common to all CPSP studies are listed on page 11.
- All adverse reactions to health products are considered as "suspected," as a definite causal association often cannot be determined. The true incidence of adverse reactions is unknown because they remain under-reported and total patient exposure is unknown.

Conclusions

- In 2025, health products from 6 distinct classes of products were reported. Product classes are identified according to the World Health Organization's Anatomical Therapeutic Chemical (ATC) classification system.
- Since the implementation of the CPSP surveillance for adverse reactions in 2004, the product classes most frequently associated with suspect products have been antibacterials for systemic use, antiepileptics, and psychoanaleptics. The most frequently reported suspect drugs in these classes are amoxicillin, carbamazepine, and methylphenidate respectively. No reports meeting the study criteria were received in 2025 for antiepileptics.

Anticipated study impact

- Health Canada recognizes the need to strengthen information related to paediatric health, as medication safety and efficacy may be significantly different for children than adults, and data on safety and efficacy in the paediatric population are limited.[1, 2] The sharing of safety information through voluntary reporting of ADRs from various sources, such as the CPSP, is valuable to Health Canada as it contributes to ongoing monitoring of the benefit-risk profile of health products used in children and can thus result in the implementation of risk mitigation measures.

1. Klassen TP, Hartling L, Craig JC, et al. Children are not just small adults: the urgent need for high-quality trial evidence in children. *PLoS Medicine* 2008;5(8):1180-2
2. Abi Khaled L, Ahmad F, Brogan T, et al. Prescription medicine use by one million Canadian children. *Paediatr Child Health* 2003;8(A):6A-56A

- In acknowledgement of the importance of safety information provided by ADR reporting, Health Canada has implemented Vanessa's Law, an amendment to the *Food & Drugs Act* that requires certain health care institutions to identify and report serious ADRs and medical device incidents to the federal regulator (for more information, visit: https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada/adverse-reaction-reporting/mandatory-hospital-reporting.html). A key objective of mandatory reporting is to improve the quality and quantity of serious ADR reports, and to expand on the real-world data available to monitor the safety of health products used in children..

Acknowledgements
The assistance of Maria Longo is greatly appreciated.

Adverse events related to virtual care

Study duration: February 2023 to January 2025—Final report

Ellen Goldbloom

Principal investigators

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Questions

- What is the burden and nature of recognized adverse events (AEs) suspected to be related to the provision of virtual care in the Canadian paediatric population?
- Is there any association between clinical and sociodemographic characteristics and the likelihood of an AE related to virtual care?

Importance

- Though there are benefits to providing virtual care, it is unknown whether virtual care leads to adverse medical outcomes that would not occur if care was delivered in person.
- Results of this surveillance may help paediatricians, public health authorities, and health care systems make evidence-informed decisions to guide care delivery recommendations and programs for children and adolescents receiving care virtually.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/adverse-events-related-to-virtual-care.

Case definition

Any patient less than 18 years of age (up to their 18th birthday) presenting with a new AE associated with harm that the reporting physician suspects is related to virtual care, including:

- *Misdiagnosis:* The limitations of virtual care in patient assessment results in incorrect, missed, or delayed diagnosis.
- *Emergency without the ability to respond:* The virtual care provider identifies an emergency clinical or social situation but is not able to provide timely emergency care.

Exclusion criteria

- AEs not deemed to be related to virtual care
- Near misses and no-harm incidents
- Event due to connectivity issues that interfered with patient care but did not result in harm
- AEs related to breach of privacy

Results – February 2023 to January 2025

TABLE 1 – AEs related to virtual care cases from February 1, 2023 to January 31, 2025

Years	Reported	Duplicates	Excluded	Pending	Met case definition*
2023† to 2025‡	12	1	3	0	8

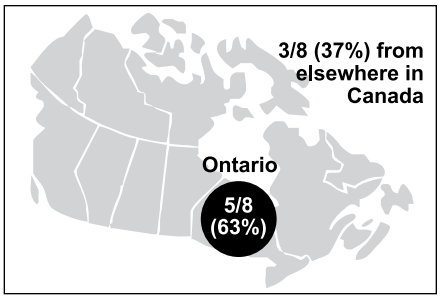
* Due to Quebec legislation, cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis.
† February 1 to December 31, 2023
‡ January 1 to 31, 2025

Cases that met the case definition

At the time of analysis, a total of 8 cases of AEs related to virtual care were confirmed to have met the case definition over the course of the study, from February 1, 2023 to January 31, 2025.

Demographics

- Both male and female patients were reported.
- The median patient age was 13.7 years, with most between 12 and 14 years of age (5/8, 63%).
- Children were from 3 different provinces, with 5/8 (63%) from Ontario.
- The majority of the patients were born in Canada (6/8, 75%) and their population group was reported as white (6/8, 75%).
- Most physicians who reported cases were general paediatricians and the rest were paediatric subspecialists. The proportion of patient encounters delivered virtually in the past month was less than 40% for all reporting physicians. Most physicians practised in outpatient clinics and were located in urban areas.



Presentation and diagnosis

- Of the 8 cases, there was a mixture of incorrect diagnoses, delayed diagnoses, and missed diagnoses. There were no emergencies without the ability to respond.
- AEs related to virtual care were predominantly identified during subsequent in-person encounters, such as in the emergency department, mental health care visits, or consultant/specialist visits.
- The severity of the AEs was classified by reporting physicians as a mixture of possible permanent harm and temporary harm. Over half the cases (5/8, 63%) required medical monitoring or intervention to address the AE.

Treatment and outcomes

- In all cases, the reporting physician perceived the AE to have been preventable had the virtual visit been in person.
- Factors that may have contributed to the AEs were reported to be lack of physical exam in all cases, as well as lack of follow-up care and communication issues (e.g., inability to discern nonverbal cues).
- None of the cases were known to have been reported through a formal reporting mechanism (e.g., institutional safety reporting systems) other than this study.
- Most of the AEs were identified by a physician other than the one involved in the virtual care encounter associated with the AE. Five reporting physicians indicated that the AE was disclosed by the patient, their family, or a caregiver.

Study limitations

- Limitations common to all CPSP studies are listed on page 11.
- This study did not capture unrecognized AEs nor AEs not recognized as being related to virtual care.
- AEs were reported based on the suspicion that they were related to virtual care; however, the determination of causation was not possible.
- While all reporting physicians indicated that the AEs would not have occurred if care had been provided in person, it is not possible to validate this assertion, as clinical mistakes remain possible even in in-person contexts.
- While a nationally representative study group likely helped to promote reporting of cases across the country, it is possible that geographic variability in case numbers may have been influenced by other factors, and may not reflect true variability in incidence.
- This study collected data on AEs causing harm that were recognized by, or disclosed to, paediatricians/subspecialists who are CPSP participants and not those recognized by patients, families/caregivers, or other health care providers.

Conclusions

- Patients, families, and health care providers value virtual paediatric care for its convenience, accessibility, and continuity, and wish to have it available when appropriate.[1, 2, 3]
- While AEs can occur with virtual care, paediatricians reported very few of these events. These results support the continued provision of high-quality virtual care alongside the development of evidence-based guidelines to guide appropriate use of virtual care for children, families, and health care providers.

1. Philipp DA, Szczech K, Hanson NL, O'Hara G, Puckett J. Virtual care delivery of whole family assessment and intervention with infants and preschoolers: a thematic analysis of clinician and family experiences. *Aust N Z Fam Ther* 2023;44(4):521–36.
2. Curfman AL, Haycraft M, McSwain SD, Dooley M, Simpson KN. Implementation and evaluation of a wraparound virtual care program for children with medical complexity. *Telemed J E Health* 2023 Jun;29(6):947–53
3. Lawrence J, Measey MA, Hoq M, Hiscock H, Rhodes A. Virtual health care for children: Parental willingness to adopt virtual health-care technologies. *J Paediatr Child Health* 2022;58(8):1323–9

Anticipated study impact

Results will contribute to the evidence base on paediatric virtual care and will help inform guidelines outlining the safe use of virtual care in paediatric practice, including when and for whom virtual care is or is not an adequate replacement for in-person care.

Publication and dissemination

A Canadian Paediatric Surveillance Program study to guide safe integration of virtual care for children. Vanderhout S, Rosenfield D, Goldbloom EB. *Paediatr Child Health* 2023 Sep 5;28(8):468–9. doi:10.1093/pch/pxad059

Acknowledgements
We would like to acknowledge Melanie Laffin, Melanie King, and Marie Adèle Davis for their contributions to the design and conduct of this study, and all physician participants in the CPSP for contributing data to our analysis.

Fetal alcohol spectrum disorder diagnosis in school-age children

Study duration: November 2024 to October 2026

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Questions

- How is fetal alcohol spectrum disorder (FASD) diagnosed among children aged 6 to 12 years, including clinical guidelines used, involvement of other health professionals, as well as the services and supports provided?
- What is the minimum incidence of paediatrician-diagnosed FASD in children aged 6 to 12 years in Canada, how does it vary by age, sex, and location, and what are the common concurrent diagnoses?

Importance

- This study will improve understanding about how and where new cases of FASD are diagnosed in children in Canada and how diagnostic practices may influence the prevalence of this disorder. The information collected can support the development of guidelines and early intervention and/or prevention strategies related to FASD.
- Determining the incidence of FASD is key, as the information cannot be gathered from population-based surveys or derived effectively from health administrative data. Comparable international paediatric surveillance programs in Australia, New Zealand, and the United Kingdom have conducted analogous studies of FASD within their membership in the International Network of Paediatric Surveillance Units.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/fetal-alcohol-spectrum-disorder-diagnosis-in-school-age-children.

Case definition

Any new diagnosis of FASD in children aged 6 to 12 years (up to their 13th birthday), using recognized/established FASD diagnostic guidelines

Unique to this study

The clinical questionnaire for this study was based on a study by the Australian Paediatric Surveillance Unit, thus facilitating international comparisons of the findings.

Results – January to December 2025

TABLE 1 – Cases of FASD diagnosis in school-age children in 2025				
Reported	**Duplicates**	**Excluded**	**Pending**	**Met case definition***
132	0	23	50	59

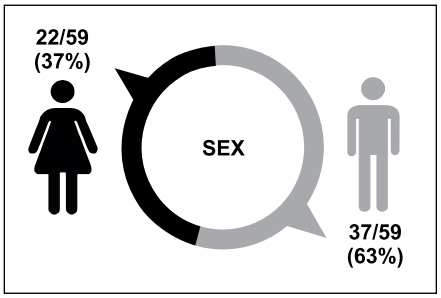
* Due to Quebec legislation, any cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis.

Cases that met the case definition

- At the time of the analysis, 59 cases met the case definition for FASD diagnosis in school-age children between January 1, 2025 and December 31, 2025.
- An additional 50 cases are pending verification. There were 23 cases excluded from the analysis because they were from Quebec or because they did not meet the case definition (outside the age range or unstated use of recognized FASD guidelines).

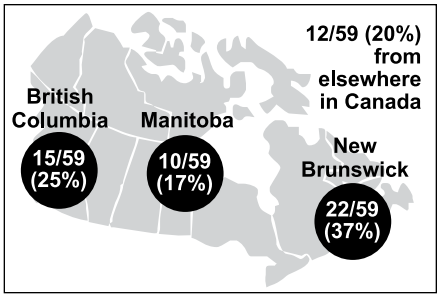
Demographics

- The average age at diagnosis was 9.5 years.
- More diagnosed children were male (37/59, 63%) than female (22/59, 37%).
- New Brunswick reported the highest proportion of diagnosed children (22/59, 37%), followed by British Columbia (15/59, 25%) and Manitoba (10/59, 17%).
- Among those whose clinics collected data on patient- or family-reported ethnic, racial, or Indigenous identity, over half (27/47, 57%) of cases were white, while over one third (19/47, 40%) were Indigenous.
- Over half (34/59, 58%) of diagnosed children had been in a foster home.



Presentation and diagnosis

- Almost all of the diagnosed children had confirmed prenatal alcohol exposure.
- All had a diagnosis made using the Canadian FASD Guidelines.
- The most common source of referral for FASD assessment was a paediatrician (23/59, 39%), followed by a child welfare agency (8/59, 14%).
- Polysubstance exposure was common: 76% (45/59) of diagnosed children had prenatal exposure to at least one substance in addition to alcohol. Nicotine and cannabis were most frequently reported, followed by methamphetamines/amphetamines, cocaine, opioids, and other substances.



Treatment and outcomes

Among diagnosed children, the most common types of service and support currently provided for the children were educational support (52/59, 88%), occupational therapy (28/59, 47%), and respite/mentor/community support (25/59, 42%).

Study limitations

- Limitations common to all CPSP studies are listed on page 11.
- It is possible that there might not be sufficient access to paediatric care in some areas of the country, leading to under-reporting. Early monitoring of the geographic distribution of case reports and follow-up with non-responsive CPSP paediatricians in under-represented areas might mitigate this issue.
- The CPSP does not include family physicians; therefore, any cases initially diagnosed and managed by family physicians will not be captured. Yet, as the Canadian diagnosis guidelines are targeted towards paediatricians making the FASD diagnosis, this may not be a concern.

Conclusions

- Over halfway through data collection, results show that the Canadian FASD Guidelines were used in all cases.
- Based on the preliminary data currently available, over three quarters of diagnosed children were exposed to substances in addition to alcohol.
- The majority of children diagnosed with FASD are receiving educational support; however, fewer are receiving other types of support.
- Data collection for this study will continue until October 2026, at which point minimum incidence will be reported.

Anticipated study impact

- Studies like this contribute to increasing awareness about FASD and providing needed evidence to support prevention, diagnosis, and health care services.
- Information collected by this study may be used to support the development of a potential Canadian Paediatric Society (CPS) position statement, and other knowledge translation activities related to FASD diagnosis. If variation in diagnostic practices, standards, and norms is found, this information could be used to inform the development of educational tools (e.g., CPS annual conference seminars and/or workshops) on FASD case identification and diagnosis.
- Information on racialized and Indigenous groups can help identify potential factors related to inequities regarding FASD diagnosis across populations.

Publication and dissemination in 2025

Asking difficult questions about fetal alcohol spectrum disorder: Finding a new path forward for children with neurodevelopmental differences. Eliason S, Gibbard B, Salh P. Canadian Paediatric Society Annual Conference, Québec, in May (oral presentation)

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We would like to thank Dr. Tracey Tsang and Dr. Elizabeth Elliot of the Australian Paediatric Surveillance Unit for their assistance in developing the clinical questionnaire. We would like to acknowledge and thank all of the physicians who reported cases to this CPSP study and provided data, as well as Melanie King and the CPSP team for all of the support with the study.

Hyperglycemic hyperosmolar state

Study duration: June 2023 to May 2025—Final report

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Principal investigators

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Questions

- What is the minimum annual incidence of hyperglycemic hyperosmolar state (HHS) in children and adolescents across Canada?
- What are the populations that are most at risk for HSS, and what are the precipitating factors?
- What degree of morbidity and mortality is associated with HHS?
- What are the relative contributions of the different types of diabetes to cases of HHS?
- How frequently is HHS the first presentation of diabetes in children and adolescents?

Importance

- Cases of HHS in the literature are relatively few but are frequently associated with high morbidity and, in some cases, mortality.
- HHS is likely an under-recognized hyperglycemic emergency, which may be confused for hyperosmolar diabetic ketoacidosis, and the consequences of delayed or missed recognition are not known.
- This study represents the first national surveillance effort to estimate the minimum annual incidence of HHS in children and adolescents.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/hyperglycemic-hyperosmolar-state.

Case definition

Any patient less than 18 years of age (up to the 18th birthday), with or without a prior diagnosis of diabetes, presenting to hospital with hyperglycemic hyperosmolar state (HHS), defined as:

- Serum glucose concentration of >33 mmol/L
- Serum osmolality of >320 mOsm/kg
- Absence of significant acidosis:
  - — Serum bicarbonate concentration of >15 mEq/L
  - — Arterial/capillary pH of >7.30 or venous pH of >7.25

*Please note: This case definition aligns with the current Diabetes Canada diagnostic criteria for HHS with one important amendment: ketosis is **NOT** an exclusion factor. The rationale for including ketosis is that the original HHS definition was based on adult presentation, and it is well demonstrated that more than 40% of children and adolescents with type 2 diabetes present with ketones (even if not acidotic).*

Results – June 2023 to May 2025

TABLE 1 – Hyperglycemic hyperosmolar state cases reported from June 1, 2023 to May 31, 2025					
Years	**Reported**	**Duplicates**	**Excluded**	**Pending**	**Met case definition***
2023† to 2025‡	24	2	12	3	7

* Due to Quebec legislation, cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis.
† June 1 to December 31, 2023
‡ January 1 to May 31, 2025

Cases that met the case definition

At the time of analysis, seven cases meeting the case definition of HHS were reported over the study period, indicating a minimum annual incidence of 0.053/100,000. Three cases were pending verification.

Demographics

- The median age at presentation was 14.8 years (IQR 5.25), with a predominance of males.
- Reported ethnicities in order of frequency, were First Nations/Métis, white, Black, and unknown.
- Diabetes was newly diagnosed at the time of HHS presentation in all cases, with a relatively even distribution of type 1 and type 2 diabetes.
- Common comorbidities at presentation, in order of frequency, included neurodevelopmental or intellectual disability, obesity, and hypertension.

Presentation and diagnosis

- Reported precipitating factors, in order of reported frequency, included infection, trauma, and surgery.
- Median Glasgow Coma Scale on arrival was 12 (IQR 7), with one child requiring intervention for clinical signs of cerebral injury.
- Median laboratory values at presentation were: glucose 38.2 mmol/L (IQR 6.6), pH 7.3 (IQR 0), bicarbonate 21.0 mmol/L (IQR 6.5), serum osmolality 369.0 mOsm/kg (IQR 23.0), serum sodium 150.0 mmol/L (IQR 22.0), serum potassium 4.9 mmol/L (IQR 1.3), serum creatinine 93.0 µmol/L (IQR 58.5), serum urea 12.3 mmol/L (IQR 6.6), β-hydroxybutyrate 6.6 mmol/L (IQR 2.2), and urinary ketones 1.5 mmol/L (IQR 1.0).

Treatment and outcomes

- Normal saline was universally preferred for the initial fluid bolus; however, there was no favoured bolus volume (*i.e.,* 10 ml/kg vs 20 ml/kg). Substantial heterogeneity was reported in the subsequent rehydration fluid composition and insulin infusion rates (range 0.02–0.1 units/kg/hr).
- Most patients required intensive care unit level care (5/7, 71%).
- The median hospital length of stay was 6 days (IQR 11).
- The most common complications were hypokalemia and acute kidney injury.

Study limitations

- Limitations common to all CPSP studies are listed on page 11.
- All cases reported from Quebec were excluded from the analysis due to provincial privacy legislation.
- The very small number of reported cases limits the interpretability of this data, particularly given restrictions on reporting results involving fewer than five cases.

Conclusions

- The minimum annual incidence of HHS in children and adolescents in Canada was approximately half of that predicted.
- Minority groups and children with neurodevelopmental or intellectual disabilities were overrepresented.
- All cases represented first presentations of diabetes, and children with type 1 diabetes appeared to be at similar risk as those with type 2 diabetes, which differs from adult cohorts in which HHS occurred exclusively in individuals with type 2 diabetes.

Anticipated study impact

- HHS is a very rare hyperglycemic emergency in youth, suggesting that most primary care, emergency medicine, and paediatric endocrinologists will not encounter it routinely; however, it should be considered in the differential diagnosis of first presentation of diabetes. Recognition of established signs and symptoms of new-onset diabetes (polyuria, polydipsia) could allow for early intervention and likely prevent progression to serious complications.

- Primary care and emergency medicine physicians should be aware that children with intellectual disability or neurodivergence may be at increased risk for unrecognized diabetes and subsequent progression to HHS.
- Larger case numbers are needed to determine the most effective and safe fluid rehydration strategies in paediatric HHS.

Publication and dissemination

Hyperglycaemic hyperosmolar state: No longer an endocrine crisis exclusive to adulthood. Ryan PM, Sellers EAC, Amed S, Hamilton JK. *Paediatr Child Health* 2023 Nov 7;29(2):81–3. doi: 10.1093/pch/pxad073. eCollection 2024 May

Acknowledgements
We wish to acknowledge the excellent work of Ms. Melanie Laffin, former Senior Manager Surveillance, Canadian Paediatric Society, and Ms. Christina Ricci, Epidemiologist, Public Health Agency of Canada, in progressing this study to launch.

Neonatal hyperbilirubinemia – Severe (2025–2027)

Study duration: February 2025 to January 2027

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Question

Do rates of severe neonatal hyperbilirubinemia and kernicterus differ before and after the introduction of the 2025 Canadian Paediatric Society (CPS) hyperbilirubinemia guidelines?

Importance

- Severe neonatal hyperbilirubinemia remains a preventable cause of acute bilirubin encephalopathy and kernicterus.
- Although previous Canadian Paediatric Surveillance Program (CPSP) surveillance demonstrated a decline in severe cases, cases continue to occur.
- The updated CPS national guidelines released in 2025 highlight the need for renewed surveillance to assess real-world neonatal hyperbilirubinemia treatment practices and outcomes.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/neonatal-hyperbilirubinemia-severe-2025-2027.

Case definition

Any infant with unconjugated hyperbilirubinemia born at ≥ 35 weeks gestation and aged ≤ 60 days who have had either:
1) Peak serum total bilirubin > 425 µmol/L
OR
2) Neonatal exchange transfusion

Exclusion criteria

Infants who have had exchange transfusion for documented Rh isoimmunization

Unique to this study

A unique aspect of this study is that it will compare results from 2025–2027 to those from two prior CPSP studies in 2002–2004 and 2011–2013.

Results – February to December 2025

TABLE 1 – Severe neonatal hyperbilirubinemia cases from February 1 to December 31, 2025

Reported	Duplicates	Excluded	Pending	Met case definition*
23	0	>5	>5	<5

* Due to Quebec legislation, cases notified by Quebec participants were counted in the "Met case definition" column, but detailed case information was not collected, and these cases were excluded from the data analysis.

Cases that met the case definition
At the time of analysis, fewer than 5 cases met the case definition for severe neonatal hyperbilirubinemia in infants aged 60 days or less.

Demographics
As per CPSP policy, demographic characteristics for fewer than 5 cases cannot be presented.

Presentation and diagnosis
As per CPSP policy, detailed data on presentation and diagnostic findings cannot be presented for fewer than 5 cases.

Treatment and outcomes
Management of severe neonatal hyperbilirubinemia typically includes phototherapy, exchange transfusion and/or intravenous immunoglobulin therapy. However, as per CPSP policy, treatment and outcome data for fewer than 5 cases cannot be presented.

Study limitations
Limitations common to all CPSP studies are listed on page 11.

Conclusions

- Severe neonatal hyperbilirubinemia continues to be reported in Canada following implementation of revised national guidelines.
- It appears that the incidence of severe hyperbilirubinemia continues to decrease in Canada relative to the two previous CPSP surveillance studies.

Anticipated study impact

- Inform evaluation of the 2025 CPS hyperbilirubinemia guidelines in real-world practice.
- Identify persistent clinical and system-level risk factors.
- Support quality improvement, education, and policy initiatives aimed at preventing severe neonatal hyperbilirubinemia.

Publication and dissemination in 2025

Severe neonatal hyperbilirubinemia in infants aged 60 days or less (2025 to 2027). Sgro M, Freeman S, Rasiah S, Campbell D, Shah V. *Paediatr Child Health* 2025 Jul 25;30(6):469–70. doi: 10.1093/pch/pxaf062. eCollection 2025 Sep

Acknowledgements
We thank all physicians who reported cases to the CPSP and the CPSP team for their support.

Serious and life-threatening events associated with non-medical (recreational) cannabis use in Canadian children and youth

Study duration: Ongoing since September 2018

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Questions

- What is the minimum incidence of serious and life-threatening events associated with non-medical use of cannabis in children and youth in Canada?
- What are the clinical presentations and associated medical needs of children and youth presenting with serious and life-threatening events related to non-medical cannabis exposure?
- Are there changes in the incidence of serious and life-threatening events following cannabis legalization?

Importance

- There are currently limited scientific data quantifying the impact of cannabis legalization and regulation on the health of children and youth in Canada.
- Data provided by this study will be used to assess the health impacts of cannabis legalization and regulation in the paediatric population and to inform policy, legislation and regulations, as well as public education and awareness communications.

Methodology

The complete protocol can be accessed at https://cpsp.cps.ca/surveillance/study-etude/serious-and-life-threatening-events-associated-with-non-medical-recreational-cannabis-use-in-canadian-children-and-youth.

Case definition

Any child or adolescent less than 18 years of age (up to the 18th birthday) presenting with a new health condition or a deteriorating chronic/previously diagnosed condition resulting in either hospitalization (inpatient, intensive care unit, psychiatric), permanent disability, or death, which was likely primarily caused by the use of cannabis for non-medical (recreational) purposes

This includes either intentional or unintentional exposure to cannabis in a child or adolescent, or a condition resulting from use by another individual, such as a friend or a parent/caregiver, who is under the influence of cannabis.

Exclusion criteria

- A condition resulting from cannabis use for non-medical purposes during pregnancy/breastfeeding
- A condition resulting from cannabis use for medical purposes

Results – January to December 2025

Please note: This report represents a snapshot as of January 6, 2026. Due to reporting delays, some 2025 cases may not be captured in this annual report. The annual case counts presented in Table 2 have been updated with all the cases reported to date that met the study case definition. Count differences from prior publications reflect the inclusion of case reports received after the analysis cut-off date.

TABLE 1 – Cases of serious and life-threatening events associated with non-medical use of cannabis in 2025

Reported	Duplicates	Excluded	Pending	Met case definition*
47	0	8	4	35

* Due to Quebec legislation, any cases notified by Quebec participants were counted in the "Reported" column, but detailed case information was not collected and these cases were excluded from the data analysis.

Cases that met the case definition

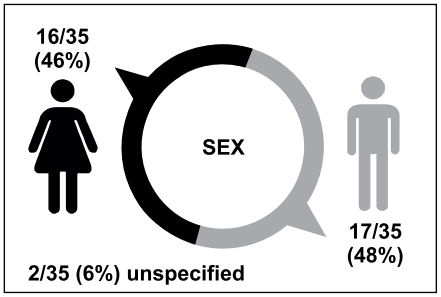
- In total, 47 cases of serious and life-threatening events associated with non-medical use of cannabis among children and youth were reported through the Canadian Paediatric Surveillance Program (CPSP) in 2025.
- At the time of analysis (January 2026), 35 of these cases were verified as meeting the case definition in 2025 and 4 cases were pending verification.
- In comparison, in previous years of the study, the annual number of cases that met the case definition ranged from a low of 31 in 2022 to a high of 50 in 2020.

TABLE 2 – Annual comparison of cases of serious and life-threatening events associated with non-medical use of cannabis 2019–2025

Year	Total cases
2019	38
2020	50
2021	34
2022	31
2023	42
2024	35
2025	35

Demographics

- Patient sex was male in 17/35 cases (48%, 95 CI 32–65), female in 16/35 cases (46%, 95 CI 29–62), and unspecified in 2/35 cases (6%, 95 CI 0–13).
- The mean age was 5.1 years with a median age of 3.5 years. The vast majority of cases (32/35, 91%, 95 CI 82–100) were among children under 13 years of age, largely involving children 5 years of age and younger (23/35, 66%, 95 CI 50–81).



Presentation and diagnosis

- Like in previous years, the most common primary presentation was unintentional poisoning/intoxication (24/35, 69%, 95 CI 53–84), followed by neurological conditions other than seizure (5/35, 14%, 95 CI 3–26).
- Almost all of the unintentional poisoning/intoxication cases were children aged 5 years and younger (19/24, 79%, 95 CI 62–97), and most unintentional poisoning/intoxication cases involved cannabis in edible format (16/24, 67%, 95 CI 46–87).
- Overall, 21/35 cases (60%, 95 CI 44–76) ingested cannabis in an edible format, including gummies, candies, and chocolates.
- In the majority of cases the cannabis was from an unknown source (32/35, 91%, 95 CI 82–100), as reported by the reporting physician.
- The person who acquired the cannabis was largely unknown (23/35, 66%, 95 CI 50–81). In 7/35 cases (20%, 95 CI 7–33) the cannabis was reported as having been acquired by the parent.

Treatment and outcomes

- All cases required hospitalization, with a mean length of stay of 1.6 days.
- All cases required physical treatment, often monitoring/observation or supportive care such as intravenous fluids.
- Mental health treatment was required in 8/35 cases (23%, 95 CI 9–37), which was often referral to a social worker (6/8, 75%, 95 CI 45–100).
- The presence of cannabinoids was verified for 14/35 cases (40%, 95 CI 24–56).

Study limitations

Limitations common to all CPSP studies are listed on page 11.

Conclusions

- Serious and life-threatening events associated with non-medical use of cannabis continue to occur among children and youth in Canada, with 35 cases meeting the case definition in 2025. Most of these cases involved ingestion of cannabis in edible formats.

- More data are required to determine the impact of cannabis legalization and regulation on child and adolescent health. In most cases of serious and life-threatening events associated with non-medical use of cannabis, the cannabis was from an unknown source. Efforts to raise awareness surrounding the distinction between legal and illegal cannabis will help to ensure that this key piece of information is accurately captured in this study.
- The most common primary case presentation was unintentional poisoning/intoxication, largely involving children 5 years and younger and cannabis in edible formats. This trend continues to be monitored and highlights the importance of public education and awareness surrounding safe storage of cannabis to avoid accidental cannabis exposures in children.

Anticipated study impact

- This study will continue to provide Canadian-specific data on the impact of cannabis legalization and regulation on the health of children and youth. These data are used to inform policies, legislation, and regulations related to cannabis used for non-medical purposes. To date, study results have contributed to the Canadian Paediatric Society's submission to the legislative review of the *Cannabis Act* and to the final recommendations by the Expert Panel on the legislative review of the *Cannabis Act*.
- The information from this study may also be adapted to develop public education and awareness communication materials.
- This study has been successfully renewed for an additional five-year term, with the new end date set for September 30, 2030.

Publication and dissemination in 2025

The inpatient needs of children hospitalized for cannabis ingestion in Canada – insights from the Canadian Paediatric Surveillance Program. Bélanger RE, Grant C. Federal-Provincial-Territorial Cannabis Data Working Group, virtual, in July (oral presentation)

Acknowledgements
Thank you to Sieara Plebon-Huff, Health Canada, for her involvement in the analysis of the data relating to this project and the writing of this annual report.

One-Time Surveys

Infants born to parents with Grave's disease

June 2025—Awarded the 2023 Resident Surveillance Grant

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Questions

- How frequently do paediatricians and paediatric subspecialists see symptomatic infants born to a birthing parent with a history of Grave's disease or hyperthyroidism, where the infant required treatment in hospital?
- Of symptomatic infants, what are the most common features of presentation and how is their care commonly managed?

Importance

- Infants born to a birthing parent with a history of Grave's disease or hyperthyroidism are at risk of developing serious complications antenatally and in the neonatal stage, including goiter, low birth weight, hyperthermia, diarrhea, poor weight gain, tachycardia, heart failure, and others.
- The prevalence of transient hyperthyroidism in infants is largely unknown, and no recent population-based studies of infants born to a birthing parent with Grave's disease are available.
- This study will improve understanding of how symptomatic infants are managed in Canada and may support the development of treatment guidelines related to infants born to birthing parents with Grave's disease.

Methodology

A one-time survey was sent to paediatricians and paediatric subspecialists through the Canadian Paediatric Surveillance Program (CPSP). The survey tool can be accessed at www.cpsp.cps.ca/surveillance/one-time-surveys.

Results

Response rate
The survey received 908 responses out of a total of 2452 CPSP participants, for a survey response rate of 37%.

Protocols
A minority of respondents (166/757, 22%) reported that their institution or hospital had a protocol for caring for infants born to a parent with Grave's disease. Just over a third of respondents (272/757, 36%) were unsure if a protocol existed at their centre, just under a third (237/757, 31%) reported that their institution did not have a protocol, and a small proportion (82/757, 11%) reported they did not work at an institution or hospital.

Cases reported
In total, 32/757 (4%) survey respondents reported that, in the past 12 months, they had cared for an infant born to a birthing parent with a history of Grave's disease or hyperthyroidism, where the infant was symptomatic and required hospital treatment. These 32 respondents reported 34 cases.

Patient presentation

- Where presenting symptoms were reported, the most common symptoms were tachycardia (13/19, 68%), feeding difficulties (11/19, 58%), and poor weight trajectory (6/19, 32%). For just under half of the infants, the respondent could not recall the presenting symptoms (15/34, 44%).
- Of those with age at presentation reported, almost two thirds of the infants (14/23, 61%) were less than one week of age and over a third (9/23, 39%) were aged one week or more. For over a third of infants (12/34, 35%), the respondent could not recall the age at presentation.

Care setting and treatment

- Half of the infants (17/34, 50%) were cared for in the neonatal intensive care unit (NICU) and the other half (17/34, 50%) were cared for in either a paediatric inpatient unit or in postpartum or newborn nursery settings.
- When the treatment was reported, infants were most commonly treated with methimazole alone (13/24, 54%), followed by methimazole and beta blocker medication in combination (6/24, 25%). One fifth of infants (5/24, 21%) were treated with either beta blocker medications alone, or thyroxine alone.

Survey limitations

- Limitations common to all CPSP surveys are listed on page 11.
- Recall bias is a limitation, with several respondents answering that they could not recall the infant's symptoms, type of treatment, or duration of treatment.
- It is possible that there were duplicate cases reported among CPSP participants.

Conclusions

- Thirty-two paediatricians and paediatric subspecialists from across Canada reported seeing a total of 34 cases of symptomatic infants born to a birthing parent with Grave's disease in the previous 12 months.
- The majority of reported cases presented as symptomatic in the first week of life and half required NICU care.
- The most commonly reported presenting symptoms were tachycardia, feeding difficulties, and poor weight trajectory.
- The majority of infants (79%) were treated with either methimazole alone, or methimazole and beta blocker in combination.
- A minority of survey respondents indicated that they were aware of a hospital or institution-based protocol for caring for infants born to a parent with Grave's disease.

Anticipated survey impact

- Overall, these survey findings contribute to the Canadian understanding of the presentation, management, and minimum rates of symptomatic infants born to birth parents with Grave's disease.
- Future studies may focus on further characterization of presenting symptoms, treatment duration, and outcomes.
- The survey results highlight the need for guideline development and knowledge translation activities related to caring for infants born to parents with a history of Grave's disease.

Acknowledgements

We would like to thank the paediatricians across Canada who completed the CPSP survey, as well as the CPSP team for their support.

Powered personal micromobility devices —Serious injuries and death

November 2025—Awarded the 2024 Resident Surveillance Grant

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Question

What is the burden of moderate to severe injuries, defined as hospitalization for over 48 hours, intensive care unit (ICU) admission, or death, from using personal powered micromobility devices (PPMDs) in the Canadian paediatric population?

Importance

- PPMDs represent an increasingly popular form of short-distance travel. These devices include electric bikes (e-bikes) and scooters (e-scooters), among others. As the popularity of PPMDs has increased, so have associated injuries. Children may be at increased risk due to inexperience operating motorized vehicles, less caution/more risk-taking behaviour, and anatomic differences including skeletal immaturity and larger head size-to-body ratios.
- Little data exists on the burden, distribution, and associated risk factors of injuries from PPMD usage in the Canadian paediatric population. Additionally, Canadian legislation marking the rules around PPMD usage is unclear and made up of a patchwork of regulations, varying depending on the province/territory.
- More data is needed to accurately determine the risk PPMDs pose to the Canadian paediatric population and to identify relevant risk factors.

Methodology

A one-time survey was sent to paediatricians and paediatric subspecialists through the Canadian Paediatric Surveillance Program (CPSP). The survey tool can be accessed at www.cpsp.cps.ca/surveillance/one-time-surveys.

Unique to this survey

For this survey, PPMDs included e-bikes, e-scooters, e-skateboards, e-unicycles, hoverboards, and motorized mobility aids. All-terrain vehicles, personal watercraft, and snowmobiles were excluded. Survey respondents were asked to report severe injuries/deaths resulting from using a PPMD or being struck by one.

Results

Response rate

The survey obtained a response rate of 32% (800/2471), with respondents from every province and territory except for Nunavut.

Total reported severe PPMD injuries or deaths

- Of the 800 survey respondents, 4% (34) reported treating a PPMD injury resulting in a hospitalization for over 48 hours, ICU admission, or death in the past 12 months.
- In total, 57 cases were reported by these 34 respondents, some of which were missing additional classification data. Of the 48 cases that could be classified, there were 10 deaths, 12 ICU admissions, and 26 hospitalizations lasting over 48 hours.

Injury and treatment data

- The most commonly injured body parts were the head (27/57, 47%) and extremities/limbs (23/57, 40%). Other sites included the neck/spine (10/57, 18%) and the torso (10/57, 17%). Some injuries involved multiple body parts.
- About a third of cases required surgery (20/57, 35%), with neurosurgery being the most common surgical intervention (6/20, 30%).

Patient demographics

- Most cases involved males (34/57, 60%), while 9% involved females (5/57), and patient sex was not reported in 31% of cases (18/57).
- The age group most affected was 10- to 15-year-olds (24/57, 42%), followed by 5- to 9-year-olds (10/57, 18%), and 16- to 17-year-olds (9/57, 16%). Patient age was not reported in 24% (14/57) of cases. There were no patients reported who were 0 to 5 years old.

Respondent demographics

- Most cases were attended to by general paediatricians (14/34, 41%) or emergency physicians (9/34, 26%), with the remainder involving other paediatric subspecialists or having an unknown specialty.
- A majority of respondents who reported having seen cases practise in an urban area (28/34, 82%) and/or at an academic centre (26/34, 76%).
- Almost two thirds of serious PPMD injuries were reported by paediatricians in Ontario and Quebec (22/34, 65%), while 18% (6/34) were in Alberta and British Columbia, and the remainder were in Manitoba, Nova Scotia, and Saskatchewan.
- More than half of deaths were reported in Ontario (6/10, 60%).

Paediatrician awareness of PPMD rules and regulations

Only 7% (53/800) of respondents reported being well aware of the rules and regulations governing PPMD usage in their municipality or province. More than half were unaware (428/800, 53%), while 39% (311/800) were somewhat aware and 1% (8/800) did not respond.

Context of how PPMD injuries or deaths occurred (see Table 1)

- Where injury context was reported, the large majority of cases involved an e-scooter (12/14, 86%) driven on a road, sidewalk, or pathway (14/17, 82%).
- Most commonly, injuries were sustained during the late spring/summer months, followed by the first two months of the year.
- Most incidents involved a single rider, driving for recreational purposes, without a helmet, and without adult supervision.
- In almost all cases, there was no history of previous PPMD injury and no use of drugs or alcohol.

TABLE 1 – Most frequent responses about context of PPMD severe injuries or deaths

Contextual category	Number of cases reported by paediatricians (%)
Device type	(n=14)
E-scooter	12 (86%)
Month of injury	(n=22)
Late spring/summer (May to August)	15 (68%)
Remainder of year	7 (32%)
Injury setting	(n=17)
Road	8 (47%)
Sidewalk or pathway	6 (35%)
Land status of injury setting	(n=12)
Public land	5 (41%)
First Nations land or private property	7 (58%)
Activity during injury	(n=16)
Recreational use	12 (75%)
Vehicle use	(n=15)
Driving	12 (80%)
Number of children riding the PPMD	(n=16)
1 rider	13 (81%)
Helmet use	(n=16)
Wearing helmet	7 (44%)
Not wearing helmet	9 (56%)

Survey limitations

- Limitations common to all CPSP surveys are listed on page 11.
- Survey results may contain duplication of cases reported by separate respondents (two physicians encountering the same case). Additionally, there may be duplication of cases from individual respondents; when a single respondent listed multiple cases of ICU admission and death, the authors could not definitively conclude if this represented one case with both outcomes or two separate cases. As such, they were counted separately.

Conclusions

- Among surveyed paediatricians and paediatric subspecialists across Canada, 34 indicated treating a patient with a serious PPMD injury or death in the past 12 months. They reported a total of 57 cases, including 10 deaths, 12 ICU admissions, and 26 hospitalizations lasting over 48 hours.
- E-scooters were the most frequently implicated device and most injuries occurred with one rider, driving the device recreationally, on roads, in late spring/summer months (May to August), without substance use.
- The most commonly injured group was 10- to 15-year-old males and the head was the most frequently injured body site, with neurosurgery being the most common surgical intervention.
- There was a nearly identical number of patients aged 5 to 9 years as aged 16 to 17, and almost 80% of the cases with age reported were children under 16, highlighting an area for future targeted public education and advocacy.
- Many data points were missing amongst the responses, emphasizing the need for formalized surveillance of PPMD injuries to better predict risk factors and identify those at risk.

- Only 7% of respondents reported being well aware of the rules governing paediatric PPMD use in their municipality or province, highlighting the need for policy coordination and public education efforts to better clarify these laws.

Anticipated survey impact

Around the world, policymakers are struggling with guidance around micromobility device usage and regulation. There is a scarcity of paediatric data, and these findings will contribute to the evidence base on PPMD injuries in the Canadian paediatric population. Many jurisdictions have banned these devices for children under 16; however, these survey findings show that children and young adolescents are using PPMDs, with resultant mortality and severe morbidity. With the increasing use of these devices globally, this survey will help inform future studies on paediatric PPMD injury in Canada, including potential long-term projects utilizing paediatric Canadian injury and/or admission databases, and/or increased surveillance.

Acknowledgements
Thank you to the paediatricians across Canada who completed this CPSP survey and contributed to the successful completion of this project.

Severe self-injurious behaviours in neurodiverse children and youth

March 2025

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Question

What are Canadian paediatricians' experiences with patients who engage in severe self-injurious behaviours (SIB)?

Importance

- Severe SIB has significant consequences for children with neurodevelopmental disorders, including injury requiring medical attention, hospitalization, inability to attend or expulsion from school, inability to live safely at home, and in rare cases, death.
- Paediatricians face major challenges in caring for patients with severe SIB, including difficulty accessing specialized physicians, allied health, and respite services, long wait times for intensive specialized services, and increased time demands when providing care.
- Despite almost half of Canadian paediatricians caring for children with severe SIB, little is known about this patient population and no standardized evaluation or treatment guidelines exist.

Methodology

A one-time survey was sent to paediatricians and paediatric subspecialists through the Canadian Paediatric Surveillance Program (CPSP) in the spring of 2025. Results were analyzed using descriptive statistics. The survey tool can be accessed at www.cpsp.cps.ca/surveillance/one-time-surveys.

Unique to this survey

To the best of our knowledge, this is the first survey exploring Canadian paediatricians' experiences caring for children with severe SIB.

Results

Response rate

- The CPSP survey was sent to 2437 general and/or subspecialist paediatricians, with 827 paediatricians responding to the survey, for a survey response rate of 34%.
- Nearly half of the responding paediatricians (396*/827, 48%) provide or have provided care for children with severe SIB.

* *Please note: Not all of the 396 respondents answered each subsequent survey question, and therefore there is some variability in denomination for n numbers below.*

Respondent demographics

- The majority of respondents practise in urban settings (258/386, 67%), while 16% (62/386) practise in suburban settings, 9% (33/386) in rural/remote settings, and 9% (33/386) in more than one setting.
- The most common primary roles of the paediatricians when caring for children with severe SIB included management of the SIB (202/389, 52%), continuing care (70/389, 18%), and acute episodes of care (52/389, 13%).
- In the past 12 months, 62% (242/388) of responding paediatricians reported seeing 1 to 5 patients with severe SIB, 21% (82/388) saw 6 to 10 patients, 12% (48/388) saw 10 to 20 patients, and 4% (16/388) saw more than 20 patients.

Management strategies

- The majority (269/391, 69%) of responding paediatricians directly managed patients with SIB as a part of their practice, whereas 31% (122/391) referred these patients.
- Referral to other specialists and services most commonly occurred after trialling medications without seeing improvement in behaviours (176/292, 60%).
- Providing counselling or resources (261/287, 91%) and prescribing medications (264/287, 92%) were common management strategies for patients with severe SIB. Antipsychotics were the most commonly prescribed medication class (247/278, 89%). Among non-pharmacological approaches, behavioural strategies were the most frequently used or recommended (255/276, 92%).

Impacts and challenges of severe SIB

- Severe SIB was reported to have broad impacts on children, including beyond medical care. Paediatricians reported that children were unable to attend school (268/393, 68%), presented recurrently to the emergency department (200/393, 51%), and could not live safely at home (156/393, 40%).
- Paediatricians encountered significant barriers while caring for children with severe SIB. Resource gaps impeded care, with paediatricians reporting long waitlists for specialized services (271/388, 70%), a lack of available supports for families, such as no access to respite (213/388, 54%), limited allied health resources (212/388, 55%), and excessive time demands associated with clinical care (210/388, 54%).
- Half of paediatricians who practise in rural/remote settings (27/54, 50%) reported that providing care for patients with SIB in rural locations is a significant challenge. This was in part due to factors specific to rural areas (*e.g.,* lack of available specialized services) as well as factors that impacted children in all areas (*e.g.,* limited family financial resources, additional unpaid administrative burden).

Survey limitations

- Limitations common to all CPSP surveys are listed on page 11.
- A potential limitation of this specific survey relates to the term SIB, which some respondents may not have been familiar with. The authors attempted to mitigate this by clearly defining SIB and providing specific examples at the start of the survey.

Conclusions

- Canadian paediatricians commonly encounter severe SIB and are often challenged by the complexity of the cases.
- Paediatricians face significant systemic barriers accessing resources, which constrains their ability to provide comprehensive care.
- Consequences of severe SIB can be significant for individuals and families, highlighting the need for further research, advocacy, practice improvements, and standardized evaluation and treatment guidelines.

Anticipated survey impact

- These survey results will add significantly to the literature surrounding the care of children with severe SIB in Canada and lay the groundwork for future research, advocacy, and national clinical guidelines which could help develop a standard of care for SIB.
- Future work will support paediatricians in managing these complex patients, with the ultimate goal of improving care for children with SIB and their families in Canada.

Publication and dissemination in 2025

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Publications 2021–2025

Peer-reviewed papers related to studies and one-time surveys

(For a complete list with hyperlinks, see www.cpsp.cps.ca/publications/published-papers-related-to-studies-and-one-time-surveys.)

5q spinal muscular atrophy
A study on the incidence and prevalence of 5q spinal muscular atrophy in Canada using multiple data sources. Price TR, Hodgkinson V, Westbury G, Korngut L, Innes MA, Marshall CR, et al. *Can J Neurol Sci* 2024 Sep;51(5):660–71. doi: 10.1017/cjn.2024.1. Epub 2024 Jan 5

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Clinical features, management, and complications of paediatric button battery ingestions in Canada: an active surveillance study using surveys of Canadian paediatricians and paediatric subspecialists. Hudson AS, Carroll MW. *J Can Assoc Gastroenterol* 2024 Sep 28;7(6):416–22. doi: 10.1093/jcag/gwae032. Epub 2024 Dec

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Acute flaccid paralysis
Acute flaccid paralysis: A call for clinical vigilance. Salem N, Grudeski E, Booth TF, Bhagat D, Salvadori MI. *Paediatr Child Health* 2024 Dec 15;30(1):6–7. doi: 10.1093/pch/pxae100. eCollection 2025 Feb

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Severe self-injurious behaviours in neurodiverse children and youth
Severe self-injurious behaviours: A significant paediatric problem. Richardson A, Estes M, MacEachern SJ. *Paediatr Child Health* 2025 Sep 11;30(7):545–6. doi: 10.1093/pch/pxaf076. eCollection 2025 Nov

Presentations in 2025

(For a complete list with hyperlinks, see www.cpsp.cps.ca/publications/presentations.)

Fetal alcohol spectrum disorder diagnosis in school-age children
Asking difficult questions about fetal alcohol spectrum disorder: Finding a new path forward for children with neurodevelopmental differences. Eliason S, Gibbard B, Salh P. Canadian Paediatric Society Annual Conference, Québec, in May (oral)

Hypoglycemia during treatment of acute lymphoblastic leukemia
Hypoglycemia during treatment of acute lymphoblastic leukemia – A Canadian Paediatric Surveillance Program study. Jiang MR, Somerville S, Duan LX, Ens A, Geddie H, Gibson P, et al. 19th Annual Canadian Pediatric Endocrine Group Annual Scientific Meeting, London, Ontario, in February (poster)

Hypoglycemia during treatment of acute lymphoblastic leukemia – A Canadian Paediatric Surveillance Program study. Jiang MR, Somerville S, Duan LX, Ens A, Geddie H, Gibson P, et al. Canadian Paediatric Society Annual Conference, Québec, in May (poster)

Serious and life-threatening events associated with non-medical (recreational) cannabis use
The inpatient needs of children hospitalized for cannabis ingestion in Canada – insights from the Canadian Paediatric Surveillance Program. Bélanger RE, Grant C. Federal-Provincial-Territorial Cannabis Data Working Group, virtual, in July (oral)

Canadian Paediatric Surveillance Program

New Study and One-Time Survey Opportunities

The opportunity

- Benefit from the CPSP's well-established, timely, cost-effective, and internationally recognized surveillance platform.
- The CPSP is effective at monitoring low-frequency, high-impact diseases and conditions encountered by general paediatricians and paediatric subspecialists.

Track record

- The average monthly response rate from approximately 2700 paediatricians is 80%.
- The average detailed questionnaire response rate varies between 80% to 90%.

Themes of interest

Including examples of successful CPSP studies

- Rare diseases (including genetic, metabolic, or rare acquired conditions)
  - Congenital myotonic dystrophy
  - Medium-chain acyl-coenzyme A dehydrogenase deficiency
- Rare complications of more common diseases
  - Adrenal suppression with glucocorticoid therapy
  - Serious adverse events associated with complementary and alternative medicine
- Emerging infections
  - COVID-19
  - Lyme disease
- Threats to public health and safety
  - Vaping
  - Neonatal abstinence syndrome
  - Serious/life-threatening use of opioids, stimulants, and sedatives

Study success factors

- A disease or condition with an incidence of less than 500 cases per year
- A multidisciplinary study team, with national representation
- Local champions who encourage study reporting at their institutions

Study impact

Knowledge translation: Studies have been published in high-impact, peer-reviewed journals; the CPSP is well known and recognized by prominent editorial boards.

Public health policies and legislation: Results have informed the total ban on baby walkers and the promotion of booster seats to prevent lap-belt syndrome.

Professional medical guidelines: Results have informed guidelines such as the Canadian Paediatric Society position statements on neonatal hyperbilirubinemia and medical assistance in dying.

Public health promotion and education: Results have informed efforts to prevent vitamin D deficiency rickets and the use of e-cigarettes in those under the legal age to use conventional tobacco products.

CPSP
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

"As the Paediatric Chairs of Canada representative to the CPSP Scientific Steering Committee, I have witnessed the extraordinary ability of the CPSP to bring together study investigators from across paediatric disciplines and across Canada in the study of rare paediatric diseases. For conditions that are high in disability, morbidity, mortality, and economic costs to society, despite their low frequency, national surveillance to capture case-level data is essential. On behalf of the Scientific Steering Committee, I would like to extend a sincere thank you to the thousands of CPSP participants who contribute to the Program. We are truly fortunate to have such a robust paediatric surveillance program in Canada."

Ciarán M. Duffy, MB, BCh, MSc, FRCPC, FRCPI; Professor, Department of Paediatrics, Faculty of Medicine, University of Ottawa; Past CPSP Steering Committee representative, Paediatric Chairs of Canada

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