



2009

Annual Report



Ontario Centre[®]
Poison Anti-Poison
Centre de l'Ontario

Table of Contents

Message from the Medical Director	1
History	2
Ontario Poison Centre Staff	4
Education	6
Statistics	8
Ontario Poison Centre Data	14
Acknowledgements	16

Mandate

The Ontario Poison Centre / Centre Anti-Poison de l'Ontario (OPC / CAPO) is a telephone toxicology consultation service that provides expert poison advice 24 hours a day to the public and health-care professionals throughout Ontario. When deemed appropriate, the OPC participates in the ongoing care of the poisoned patient, performs follow-up calls to assess the effectiveness of treatment recommendations based on patient status and to follow these to a known outcome. Our toxicology experts collaborate with other health-care professionals to advocate for optimal, current and evidence-based care of the poisoned patient.

In addition to its primary role, the OPC collects statistical data on poisoning cases, develops and distributes poison prevention education, provides toxicology training and participates in research.

Message from the Medical Director

2009 was an extremely busy year for the Ontario Poison Centre. During this year, we saw exciting growth within the centre as four new health-care professionals joined our team of experts. As well, in collaboration with Montfort Hospital our satellite site in Ottawa underwent technical enhancements to improve its stability.

With a stronger infrastructure, the OPC has continued to seek out ways to improve the service we provide to the people of Ontario.

The recommendations made by the toxicology experts at the OPC reflect the most current evidence available. As always, we rely on the knowledge and expertise found within our partner organizations, including academic health sciences centres, community hospitals, and outpost nursing stations, to ensure all poisoned patients receive the best care possible. It is through this spirit of partnership and collaboration that we all strive to achieve optimal outcomes for our poisoned patients.

Margaret Thompson MD, FRCP(C), FACMT

History

Located at The Hospital for Sick Children (SickKids) in Toronto, the OPC has been formally recognized as a regional poison centre since the provincial Ministry of Health provided funding for two regional centres in 1979. As a regional centre the OPC initially managed approximately 8,000 calls annually. Since 2005, the OPC has provided care to the province of Ontario and now manages an annual call volume of over 100,000 calls.

Although these numbers are significant, the true magnitude of poison exposures in Ontario is unknown as poisonings are not considered a reportable event. The OPC data presented in this report is based on voluntary reports to our centre only.

Since expanding its services to the entire province, the OPC has launched an initiative to ensure the provision of French language care to Ontario's Francophone community. In collaboration with Montfort Hospital in Ottawa, the OPC opened the Centre Anti-Poison satellite site in 2007. The OPC has recruited bilingual specialists to the satellite site and is now able to provide live, expert poison advice in both official languages. In addition, through the use of telephone interpreter services, the centre provides live telephone advice to callers from the province's diverse multicultural community.

The OPC is a member of the Canadian Association of Poison Control Centres and an affiliate member of the American Association of Poison Control Centers. Although our colleagues in the United States maintain a robust National Poison Data System that provides national statistics and acts as an early warning surveillance system, Canada has no such equivalent.

Canadians also lack an early warning toxico-surveillance system that could detect threats to public safety.

As well as a lack of Canadian poison exposure statistics, there are Canadian provinces and territories that do not have access to the services of an accredited poison centre. Canadians also lack an early warning toxico-surveillance system that could detect threats to public safety.



The total number of calls managed by the OPC in 2009 was 103,656 calls

Ontario Poison Centre Staff

Poison Specialists

The Poison Specialist is a registered nurse or pharmacist who has received specialized training in toxicology. The Poison Specialists are the front-line staff who answer the poison calls 24 hours a day, seven days a week. After an ongoing two-year training period, eligible Specialists in Poison Information write a certification exam to achieve the designation of Certified Specialist in Poison Information (CSPI).

Medical Director

Margaret Thompson MD, FRCP(C), FACMT
The medical director is ultimately responsible for the toxicological advice given for all telephone consultations coming to the OPC. As such, the medical director writes and reviews protocols, provides one-on-one consultations, offers electives and other continuing education opportunities at various levels for health-care providers and collaborates on toxicology research.

Director

Lutfi Haj-Assaad RN, BA, MBA
The director is accountable for all aspects of managing patient care services, including patient care delivery, operational planning, human resource development, financial management, quality management, education and research.

The Poison Specialists are
the front-line staff who answer
the poison calls 24 hours
a day, seven days a week.

Manager

Anne Gallo RN, BScN, CSPI
The manager is responsible for the day-to-day activities within the OPC through the co-ordination and facilitation of clinical activities and resources.

Advanced Nursing Practice Educator

Heather Ferries RN, BScN, MEd, CSPI
The advanced nursing practice educator is responsible for co-ordinating all education initiatives involving the OPC. These education initiatives include new staff orientation, SPI education, public outreach, and health professional education. In 2009, Heather Ferries received the Grace Evelyn Simpson Reeves Award for Excellence in Nursing Innovation for her work in developing a distance education program for the Centre.

Administrative Assistant

Donna Tedesco

The administrative assistant provides administrative support to the medical director, manager and interprofessional team, and is responsible for the co-ordination of physician electives and while facilitating smooth unit functioning.

Technology and Information

Support Specialist (TISS)

Dino Bernabeo

The technology and information support specialist is responsible for implementing and maintaining all information and communication technologies within the centre. In addition, the TISS is responsible for developing and generating information system reports.

Division Director

Shinya Ito MD, FRCP(C)

The division head of Clinical Pharmacology and Toxicology at SickKids and the Department of Medicine at the University of Toronto is responsible for quality of care, professional practice, research and education as it applies to the OPC.

Toxicology Consultants

Prashant Joshi MD, FRCP(C)

David Juurlink BPhm, MD, PhD, FRCP(C),
FACMT, FAACT

Gideon Koren MD, FRCP(C), FABMT

Marco L. A. Sivilotti MD, MSc, FRCP(C),
FACEP, FACMT

The OPC is supported by a group of board certified medical toxicologists who provide physician consultations when the care of a poisoned patient is beyond the scope of practice of the Poison Specialists. They also participate in the toxicology education and research at the OPC.

Mycology Consultant

James Scott BSc, PhD, ARMCCM

The mycology consultant is an Associate Professor in the Division of Occupational and Environmental Health at the Dalla Lana School of Public Health, University of Toronto. He provides mycological consultation to the OPC, collaborating with the interprofessional team in the management of mushroom exposures.

Education

The Ontario Poison Centre is staffed by a group of professionals who have undertaken rigorous education and training in order to provide the best possible care to the poisoned patient. Front-line staff, made up of Poison Specialists and Certified Specialists in Poison Information (CSPI), must be a registered nurse or pharmacist with several years of clinical experience typically in an emergency department or ICU setting. These hardworking staff are supported by medical residents and fellows doing specialized training in Toxicology, as well as board certified Toxicologists who have completed extensive training to become experts in their field.

The majority of registered nurses and pharmacists that take on the challenge of becoming a Poison Specialist come to the centre with very little prior knowledge in Toxicology and poison management. Once hired to the centre, these individuals undergo a rigorous education program to develop their knowledge in the provision of telephone care, call management techniques, as well as detailed information surrounding a wide variety of toxins commonly encountered in Ontario. Orientation to the role of Poison Specialist is approximately three months in length and consists of a blended approach of classroom-type lectures, self-directed online learning, and preceptored shifts on the phones. In 2009 the OPC had four orientees successfully complete this program.

Upon successful completion of orientation, Poison Specialists then begin the real work of in-depth learning about the broad range of potential toxins that could potentially be encountered. Staff members strive to develop an expert level of knowledge regarding management of the poisoned patient. They develop this expertise by engaging in ongoing reflective practice and participating in ongoing learning opportunities. Staff attend semi-annual education days that focus on a variety of clinical and professional development topics. As well, they have opportunities to attend professional conferences to enhance their learning in this highly specialized discipline. In 2009, approximately half of the OPC staff were able to attend professionally relevant conferences and workshops to enhance their learning.

After approximately two years in the role, the Poison Specialist nurse or pharmacist undertakes a written exam in order to receive the designation of Certified Specialist in Poison Information (CSPI). This designation indicates a superior degree of expertise in the field

In 2009 the OPC had
four orientees successfully
complete this program.

of Toxicology. This exam is rewritten every seven years to ensure maintenance of expert knowledge and covers such topics as general poison management principles, natural toxins such as plants, mushrooms, snakes and spiders,

industrial chemicals, metals and gases, pharmaceuticals, household products, pesticides, and substances of abuse. In 2009, two staff successfully renewed their Certification status, while two other staff successfully achieved their CSPI status for the first time. Currently, 80 per cent of OPC front line staff hold the Certified Specialist designation.

Ongoing interprofessional education is provided through weekly case rounds discussion, as well as monthly Toxicology Grand Rounds. Weekly rounds are broadcast over the web to a select group of participants throughout the province. Similarly, Grand Rounds have participants logging in from across the country, often generating rich discussion regarding similarities and differences seen in various regions throughout Canada.

Statistics

Volume of Calls

The total number of calls managed by the OPC was **103,656** calls. This number reflects both new and follow-up calls.

In 2009, the OPC received a total of **58,977** new calls. Of these new calls the majority **52,414** (89%) were poison exposures calls and **6,563** (11%) calls were for information only.

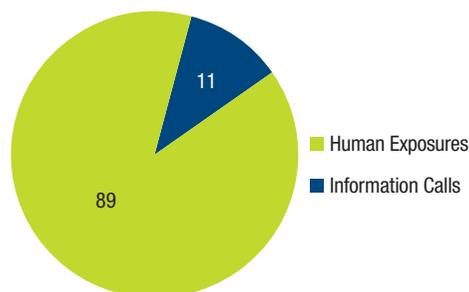
Additionally, the OPC performed **44,679** follow-up calls in 2009. Follow-up calls are necessary to assess the effectiveness of medical management, to make decisions regarding altering treatment, and to determine the medical outcome of poison exposures.

Poison Exposures versus Poisonings

Not all human exposure calls result in a serious poisoning. Exposure calls may be related to a product or substance that is considered minimally toxic or involve a non-toxic amount. OPC data refers to

all poison exposures regardless of the severity of symptoms and outcome.

Call Type (%)



Types of Information Calls

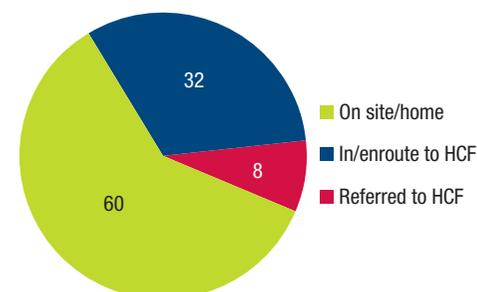
Information call type	%
Caller Referred*	43%
Poison Information	32%
Drug Information	7%
Medical Information	4%
Environmental Information	2%
Administrative	2%
Drug Identification	1%
Prevention/Safety	1%
Other	8%

*Calls referred to veterinarians, veterinary poison centre, medical advice line or public health departments.

Treatment Site

The majority of exposures 31,389 (60%) were managed at the site of the exposure, thereby saving significant health-care dollars by preventing unnecessary emergency room visits.

Treatment site (%)



A small percentage of patients are referred to a health-care facility for treatment. As well, health-care professionals may also seek toxicology consultation for patients presenting to their facility following an exposure. For patients requiring medical management



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our toxicology experts will collaborate with health-care professionals throughout the province to advocate for current and evidence-based care. This includes consulting with interprofessional members at academic health sciences

centres, community hospitals; out-post nursing stations or family physician's offices. The OPC may recommend emergency antidotes or adjunctive agents, suggest advanced medical management technologies or advocate

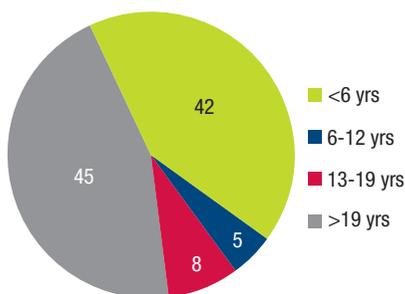
**More than 80% of the OPC
pharmacy and nursing staff
are Certified Specialists
in Poison Information**

for patient transfer to a more appropriate facility based on the patient's clinical status and the capacity of the treating health-care facility.

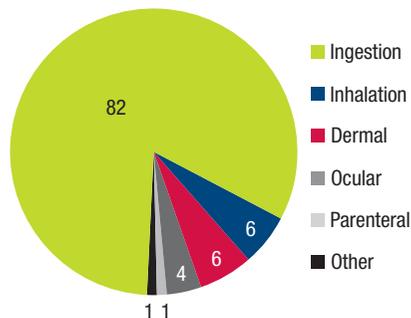
Age of exposures

Of the **52,414** poison exposures in 2009, 22,125 (42%) involved children under six years old; 2,423 (5%) occurred in children six to 12 years; 4,452 (8%) occurred in adolescents ranging from 13 to 19 years; and 23,414 (45%) in adults over 19 years.

Age of exposures (%)



Routes of exposure (%)



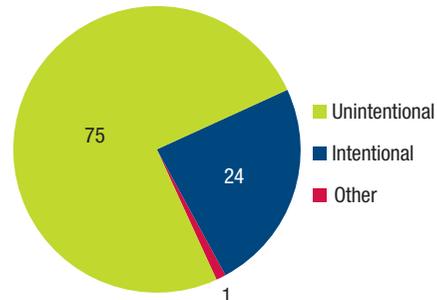
Reason for exposure

Unintentional exposures are unplanned but predictable, preventable events.

Unintentional exposures accounted for 39,340 (75%) of the poison exposures

Unintentional exposures are generally unplanned events that are predictable and preventable.

Reason for exposure (%)



in 2009. Poison prevention strategies must therefore be implemented in order to decrease the number of unnecessary poison exposures.

Reason for unintentional exposures

Reason	(%)
General	82
Therapeutic error	11
Environmental	2
Misuse	2
Occupational	1
Other	2

Therapeutic Errors

In 2009, almost 4,500 (11%) exposures were related to a therapeutic error.

A therapeutic error is a departure from the appropriate therapeutic regime resulting in the wrong dose being given, the wrong substance being administered, an incorrect route of administration or wrong person receiving a medicine.

Top 10 reasons for therapeutic errors

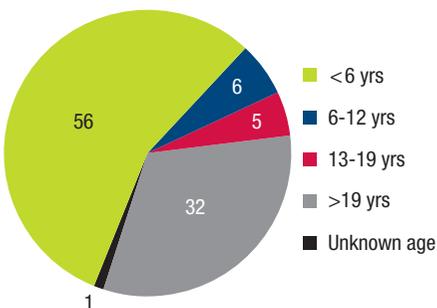
Description of scenario

1. Inadvertently took their medication twice
2. Inadvertently took or was given some else's medicine
3. An incorrect dose was taken or given
4. Wrong medication was taken or given
5. Medication doses taken too close together
6. Confused units of measure
7. Incorrect dosing route
8. Incorrect formulation or concentration given
9. More than one product containing the same ingredient was taken or given
10. Health-care Professional iatrogenic error

Age of unintentional exposures

These numbers highlight the need for poison prevention strategies in all age groups.

Age of unintentional exposures (%)

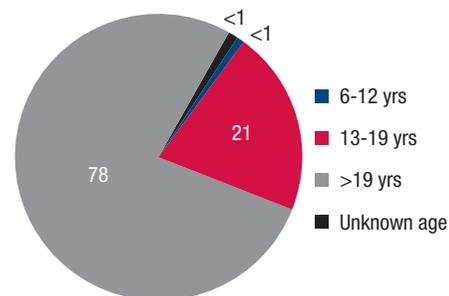


Intentional exposures including suicide attempts, substance abuse and misuse of products, accounted for 12,707 (24%) poison exposures.

Reason for intentional exposures

Reason	%
Suspected suicide	80
Abuse	10
Misuse	6
Unknown	4

Age of intentional exposures (%)



As twenty one per cent of intentional exposures affect youth between the ages of 13 to 19 years, better health promotion strategies should be developed to reach this at-risk age group.

Substance of Exposure

The most common substances of exposure include both pharmaceutical (prescription medicines, over-the-counter medicines and natural health care products) and non-pharmaceutical agents (cleaners, chemicals, household products, plants, mushrooms, alcohols, insect and snake bites).

What's New in the Top Ten?

In 2009, pesticide exposures in children less than six years of age have dropped out of the top 10 list. This is likely due to the increasing number of municipalities that have banned their routine use as lawn and garden care products.

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Top 10 substances involved in all human exposures

Substance/s	Examples
Pain medicines	acetaminophen, aspirin, ibuprofen
Sleeping pills and anti-anxiety medicines	diazepam, lorazepam, quetiapine
Household cleaning products	bleach, cleaners, detergents, disinfectants
Antidepressant medicines	amitriptyline, bupropion, paroxetine, sertraline
Personal care products	creams, deodorants, mouthwash, perfumes, soaps
Alcohols	alcoholic beverages, ethanol, isopropanol, methanol
Foreign bodies	glass, silica gel, thermometers, toys
Cardiovascular (heart) medicines	atenolol, atorvastatin, enalapril, verapamil, digoxin
Antihistamines	cimetidine, diphenhydramine, hydroxyzine
Cold and cough medicines	chlorpheniramine, dextromethorphan, pseudoephedrine

Top 10 substances involved in exposures in children <6 years old

Substance/s	Examples
Household cleaning products	bleach, cleaners, detergents, disinfectants
Pain medicines	acetaminophen, aspirin, ibuprofen
Personal care products	creams, deodorants, perfumes, soaps, toothpaste
Foreign bodies	glass, silica gel, thermometers, toys
Vitamins	child and adult multivitamins
Topical products (for external use)	diaper cream, steroid creams, hydrogen peroxide
Plants	bittersweet, calla lily, dieffenbachia, jimson weed
Cold and cough medicines	chlorpheniramine, dextromethorphan, pseudoephedrine
Antimicrobials	antibiotics, antifungals, antivirals
Gastrointestinal (stomach) medicines	antacids, laxatives, proton pump inhibitors

Site of the caller and site of the exposure

Site	Site of caller (%)	Site of exposure (%)
Home /residence	62	97
Health care facility	30	<1
Telehealth Ontario®	5	
Workplace	1	2
School	<1	<1
Other	<2	<1

Telehealth Ontario® referred 2,863 calls to the OPC for expert poison advice from a qualified Poison Specialist.

Medical Outcome

As part of the standard of case management the Poison Specialists must determine the impact of the exposure on the patient. This may be accomplished through subsequent follow-up calls to determine the known medical outcome. In the case where follow-up information is unavailable the outcome may be extrapolated using the Poison Specialist's expert clinical judgment.

Medical Outcome	Number	%
No effect	3,271	6.2
Minor effect (Minimal symptoms, resolved quickly)	4,960	9.5
Moderate effect (Symptoms requiring medical treatment)	3,145	6.0
Major effect (Life threatening symptoms)	793	1.5
Death	65	0.1
Non toxic, patient not followed (Exposure not likely to cause any effect)	6,637	12.7
Minimally toxic, patient not followed (Exposure likely to cause a minor effect)	29,939	57.1
Potentially toxic, patient lost to follow-up (Potential moderate to fatal effect)	3,240	6.2
Unrelated effect (Symptoms not related to the exposure)	345	0.7



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Ontario Poison Centre Data

Data collected by the OPC conforms to the American Association of Poison Control Centers' National Poison Data System coding standards. OPC data is collected by Poison Specialists during initial telephone consultations and follow-up calls. OPC data can be useful to both government and health-care agencies to determine the full impact of poison exposures and to develop new national health promotion strategies.

Poison centre data is a useful source of information and can be utilized to monitor trends and publish public health alerts, to monitor the effectiveness of health promotion campaigns (for instance, the ban of pesticides as a routine lawn care product), to carry out post-marketing surveillance of new pharmaceutical products, to evaluate the safety of similar products and/or packaging, as well as to meet mandatory provincial or federal reporting requirements.

In order to establish a Canadian poison data system, an investment in federal dollars is needed. This system would provide the country with national data regarding poison exposures, which do not exist today. As well, the system would provide a real-time toxico-surveillance system which would act as an early warning system detecting threats to public safety.

For information about obtaining OPC statistical data contact the OPC Manager. Revenue generated by the purchase of OPC data is used to assist with the development of educational and health promotion initiatives.

OPC data can be useful to both government and health-care agencies to determine the full impact of poison exposures and to develop new national health promotion strategies.



17 medical residents completed an elective in Toxicology at the OPC in 2009.

Acknowledgements

The Ontario Poison Centre has a number of informal affiliations with organizations and individuals who support the work of the centre. We would like to thank the following for their ongoing contributions:

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Toronto Zoo

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Consultant Biochemist

Andrew Lentini

Curatorial keeper,
Amphibians and Reptiles,
Toronto Zoo

Lise Vaillancourt CD, B. Pharm, M.A.P.

Director, Clinical Services,
Montfort Hospital

Tom Mason

Curator of Invertebrates and Birds,
Toronto Zoo

**The Office of the
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