



2021 Annual Report

Centre antipoison du Québec

Centre intégré universitaire
de santé et de services sociaux
de la Capitale-Nationale

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PRESENTATION

Since 1986, the Centre antipoison du Québec (CAPQ) has provided bilingual 24/7 telephone consultation services to the public and health professionals on cases of acute exposure to potentially toxic substances. From 2008 to 2021, the CAPQ handled an average of 46,966 cases annually. This number has, however, increased in recent years – from 47,375 in 2016 to 50,945 in 2021 (in addition to 1,419 requests for information). Among the callers, 34% were health professionals, compared to 30% the previous year. Over 86% of calls were answered within 30 seconds, and 2% of calls were dropped.

On November 25, 2021, the CAPQ celebrated its 35 years of operation. On this occasion, the organization seized this opportunity to update its website and its logo.



OUR MISSIONS

The CAPQ has been tasked with the following missions:

Clinical Mission

- ❖ Offer the public and health professionals in Québec 24/7 telephone access to poison control specialists in the event of real or potential acute poisonings.
- ❖ Provide a telephone consultation service by on-call medical toxicologists to assist health professionals in the diagnosis and treatment of complex poisonings.
- ❖ Offer toxicology analyses to support centres that do not have the necessary equipment to conduct their own testing. Two laboratories have been mandated by the Ministère de la Santé et des Services sociaux (MSSS) to carry out this task.
- ❖ Participate in activities aiming to prevent and monitor acute poisonings.

Teaching Mission

- ❖ Play a leadership role in the Québec medical community by educating physicians, residents, medical professionals and paramedics on matters related to acute poisonings.
- ❖ Evaluate and improve the management of poisoned patients.

Research Mission

- ❖ Contribute to the advancement of knowledge in toxicology by developing better tools for monitoring, prevention, prognosis and treatment.
- ❖ Using an evidence-based approach, contribute to the efficient organization and delivery of health care in cases of acute poisoning.
- ❖ Develop ways to promote the effective transfer of knowledge to the public and health professionals.

OUR TEAM

Our team currently includes approximately 24 nurses trained in toxicology. Eight toxicologists (Dr. Sophie Gosselin, Dr. Guillaume Lacombe, Dr. Martin Laliberté, Dr. Alexandre Larocque, Dr. Anne-Érika Vermette-Marcotte, Dr. Maxime Nadeau, Dr. Maude St-Onge and Dr. Josh Wang) have been on second call 24/7 with occasional help, Dr. Nancy Murphy, a toxicologist from Nova Scotia. Pharmacist Audrée Elliott has been with the CAPQ for several years now. The CAPQ also has three administrative officers.

Since 2015, Dr. Maude St-Onge has served as Medical Director of the CAPQ. Marylaine Bédard was appointed department head in May 2021. Since 2018, Guillaume Bélair has worked as assistant to the immediate superior. The former Medical Director, Dr. René Blais is still involved with the team in teaching, mentoring and reviewing protocols.

OUR SERVICES AND ACTIVITIES

To start, with respect to the clinical services provided in response to the 50,945 actual or potential cases of acute poisoning evaluated and managed in 2021, the female-to-male ratio was 116 for 100, a trend which has remained stable over time. Just under one-third of patients were 0-5 years old (32%), 22% were 20 to 39 years old and 13.5% were over 60 years old.

Most cases of poisoning were unintentional (general, 54.2%), followed by therapeutic errors (15.7%), suicidal acts (14.1%), workplace accidents (5.4%), drug-abuse related (3.0%) and intentional misuse (2.5%). The most common route of exposure was oral (75.3%), followed by inhalation (8.4%) and ocular (5.9%). Just over half of the cases involved medications; analgesics (14,939 cases) were the most common medications encountered, followed by sedatives/hypnotics/antipsychotics (10,934 cases), antidepressants (8,214 cases) and cardiovascular drugs (5,638 cases). With regard to substances reported, household cleaners ranked first (11,299 cases), followed by cosmetics/personal care products (7,476 cases) and drugs of abuse (6,300 cases).

Data on the surveillance of cannabis use revealed 976 cases, including 309 accidental exposures, primarily in children. No deaths have been reported, but 49 patients suffered moderate to severe effects. The surveillance of opioid use found 687 cases of deliberate exposure, including 512 with suicidal intent.

STATISTICS ON POISONINGS

Number of Case of Exposure by Type

TYPES	AGE GROUPS											Unknown <19	Unknown ≥19	Unknown	Total
	0 - 5	6 - 12	13 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	≥90				
ACCIDENTAL															
Public health accident	0	0	3	5	3	1	1	1	0	1	0	1	1	1	18
Workplace accident	10	2	235	775	593	461	294	117	14	1	0	3	177	64	2 746
Adverse effect: food	12	2	6	26	19	12	14	13	5	1	0	2	17	5	134
Adverse effect: other product	4	2	5	9	10	11	7	5	1	2	1	0	6	6	69
Adverse effect: medication	5	5	20	45	34	24	23	34	33	12	5	3	21	6	270
Adverse effect: natural health product	5	1	6	12	8	12	3	6	2	1	0	0	3	1	60
Therapeutic error	1 068	703	463	610	623	572	720	830	881	843	349	15	290	60	8 027
General	14 256	1 621	972	1 960	1 858	1 286	974	867	714	477	171	284	1 515	412	27 367
Food poisoning	31	7	10	32	27	15	9	9	10	7	1	10	26	6	200
Misuse	21	19	51	96	72	55	62	39	25	13	2	1	18	6	480
Bite or sting	1	1	5	11	14	6	13	1	3	2	0	0	15	0	72
INTENTIONAL															
Suicidal intent	4	107	1 880	1 573	997	913	825	386	203	67	17	4	137	62	7 175
Misuse	8	48	246	256	202	127	163	78	42	15	3	0	85	19	1 292
Drug abuse	3	10	346	386	275	143	86	33	11	1	0	1	168	68	1 531
OTHER															
Other	18	9	24	24	34	21	19	20	8	5	3	1	37	7	230
Contamination / Alteration	6	9	2	7	6	7	4	4	2	2	0	0	11	0	60
Malicious act	3	12	33	29	19	18	5	3	1	1	1	2	37	5	169
Unknown	26	27	106	148	127	104	127	111	75	41	11	6	91	45	1 045
Total	15 481	2 585	4 413	6 004	4 921	3 788	3 349	2 557	2 030	1 492	564	333	2 655	777	50 945

Definition of Exposure Types

ACCIDENTAL	
Workplace accident	Any exposure occurring in the workplace or while performing one's work duties.
Public health accident	Any environmental accident, including those related to public health. Excludes workplace accidents.
Adverse effect: medication	No overdose or contamination. The medication causes an adverse effect at therapeutic dosage.
Adverse effect: natural health product	No overdose or contamination. The natural health product causes an adverse effect at therapeutic dosage.
Adverse effect: food	No overdose or contamination. The product causes an adverse effect. E.g., sulfites, monosodium glutamate (MSG), food colouring.
Adverse effect: other product	No overdose or contamination. The product causes an adverse effect with normal use. E.g., dermatitis after using a cosmetic or detergent.
Therapeutic error	Any error in the administration of a medication; error in the dosage, medication, administration route or person.
General	Any accident excluding those not listed below.
Food poisoning	Suspected food poisoning.
Misuse	Improper use of product: dosage, usage and/or administration route, without suicidal intent. (e.g., F-10 used indoors, mixing bleach and Drano, siphoning fuel, etc.).
INTENTIONAL	
Suicidal intent	Any action aiming to harm or kill oneself.
Drug abuse	Exposure involved in the use or abuse of alcohol, street drugs, medication for the purpose of producing a euphoric or psychotropic effect. Recreational use of a substance to induce any type of effect.
Misuse	Improper use of a product, medication or other: dosage, usage and/or administration route without suicidal intent but with knowledge of the consequences. The abuse of substances to induce psychotropic effects is not included. (E.g., drinking methylene blue to pass blue urine, taking large quantities of caffeine to study for exams, mixing or using more pesticides for more effective results).
OTHER	
Malicious act	Suspected malicious or criminal act: attempt to cause harm to another person by exposing them to a toxic product or an overdose. E.g., patient thinks he was poisoned by someone even if his mental state is in doubt. E.g., narcotics added to a baby's bottle to make him or her stop crying. E.g., patient exposed to a substance used for crowd control (capsicum or pepper spray).
Unknown	Type of exposure unknown
Contamination / Alteration	Patient exposed to a substance that is contaminated or altered whether in a malicious or unintentional manner by adding to it a harmful substance. E.g., exposure to cocaine contaminated with levamisole. E.g., exposure to arsenic added to coffee machines. E.g., exposure to fragments of glass or metal that end up in products during manufacturing.
Other	Type of poisoning that does not fall into any of the above categories.

Number of Cases of Exposure Based on Final Evaluation

EFFECTS	AGE GROUPS														Total
	0 - 5	6 -12	13 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	>=90	Unknown <19	Unknown >=19	Unknown	
Unrelated effect															
Confirmed: no exposure	90	7	7	12	11	8	11	10	4	0	1	1	4	4	170
Unrelated symptoms	172	29	104	216	158	157	145	131	83	37	12	5	129	30	1 408
Potentially toxic or lost call															
Lost call	18	2	11	2	2	1	1	4	4	0	1	4	33	9	92
Potentially toxic - Refusal of treatment	6	0	9	11	24	7	11	6	7	2	2	0	4	0	89
Potentially toxic - Unable to follow up	315	91	335	403	292	249	213	162	159	132	53	15	372	132	2 923
No effect or minor effect															
No effect	795	129	289	291	233	168	145	112	88	65	32	5	83	15	2 450
Possibility of minor clinical effect	6 079	813	878	1 631	1 482	1 008	851	681	542	426	167	159	802	266	15 785
Non-toxic or mild effect															
Mild effect	565	268	962	1 225	993	834	660	469	265	125	31	19	349	34	6 799
Non-toxic, no follow-up	7 163	1171	1 230	1 488	1 116	816	753	659	622	559	207	124	782	235	16 925
Unknown															
Potentially toxic - No follow-up criteria	228	57	443	509	383	336	340	186	173	102	46	1	93	44	2 941
End-of-life care	0	0	0	0	1	1	1	3	3	4	1	0	0	0	14
Death															
Death	0	0	1	4	4	1	12	6	2	1	1	0	0	1	33
Death ±related (indirect)	6	1	0	2	3	3	3	0	2	1	1	0	1	2	25
Moderate or severe effect															
Moderate effect	37	13	129	178	177	161	156	106	66	33	9	0	2	1	1068
Severe effect	7	4	15	32	42	38	47	22	10	5	0	0	1	0	223
Total	15 481	2 585	4 413	6 004	4 921	3 788	3 349	2 557	2 030	1 492	564	333	2 655	773	50 945

Summary

While a majority of cases were assessed as non-toxic or associated with only minimal or mild clinical effect, 44% of patients were symptomatic. However, 63,3 % of cases were monitored at home with the advice of the CAPQ, thus avoiding a visit to the hospital. Among the most symptomatic patients, 1,068 experienced moderate effects, 223 experienced a severe effect and 56 patients died. Despite the increase in the number of cases over the years, the number of deaths has remained relatively stable.

Of the patients who died, the majority were adults (with the exception of one adolescent and 7 children) including 15 patients aged between 50 and 59. More than half of the deaths were voluntary exposures (n=25). Analgesics were involved in 8 cases (6 acetaminophen cases), cardiovascular drugs in 8 cases and antidepressants in 7 cases.

ACTIVITIES INVOLVING THE CLINICAL MISSION

- ❖ Since early 2019, the CAPQ has had a new electronic system for patient records.
- ❖ Since June 2019, the CAPQ has had a new telephone system that has improved reporting on wait times and the number of lost calls. A special line dedicated to hospitals has been available since July 2020, allowing health care professionals to skip part of the welcome message, while giving priority to patients deemed unstable based on a triage and acuity scale for emergency departments.
- ❖ The CAPQ regularly reports to public health authorities incidents that might involve more than one person and responds to media requests on a variety of topics as a regular part of its activities.
- ❖ The CAPQ holds scientific meetings four times a year, where, among other things, cases of morbidity and mortality are reviewed and protocols are discussed as are ways to improve the care provided. Toxicologists, telephone response staff, pharmacist, residents on internships or in toxicological subspecialization, consulting pharmacists, partners such as the toxicology laboratories of the Centre hospitalier Sainte-Justine and the Centre de toxicologie du Québec are invited to attend.
- ❖ Telephone response staff receive 15 to 30 minutes of ongoing training every two weeks to ensure their level of expertise is always up to date.
- ❖ With funds from the Canadian Safety and Security Program, the CAPQ has produced the Canadian Emergency Toxicology Antidote Guide in partnership with other Canadian poison control centres (<https://www.ciusss-capitalenationale.gouv.qc.ca/antidotes>). The bilingual guide is available on the Web and as a free downloadable mobile application. It is updated on a regular basis.
- ❖ The CAPQ has also produced a bilingual poster providing guidance on resuscitation in toxicological emergencies. Health professionals can download the poster free of charge in an 8 ½" x 11" or 24" x 32" format from the CAPQ Web section dedicated to health professionals (<https://www.ciusss-capitalenationale.gouv.qc.ca/centreantipoison-du-quebec/capq-professionnels-sante>).

ACTIVITIES INVOLVING THE TEACHING MISSION

- ❖ In 2021, the CAPQ welcomed 41 resident physicians for a one-month internship in clinical toxicology. They came from universities across the province, whether in specialized emergency medicine, complementary emergency medicine training, intensive care (adult or pediatric), pediatrics, internal medicine, family medicine or public health.
- ❖ Two resident pharmacists were accepted by the CAPQ for a one-month internship in clinical toxicology in 2021. They came from Laval University and are candidates to the Master's degree in Advanced Pharmacotherapy, which is the necessary education to become a hospital pharmacist.
- ❖ Furthermore, the CAPQ is involved in specific projects, such as the organization of an event on intoxication prevention held at the National Assembly (https://www.facebook.com/AssnatQc/videos/982331235684148/?extid=NS-UNK-UNK-UNK-IOG_K0T-GK1C&ref=sharing), the production of articles for the *Ordre des infirmiers et infirmières du Québec* journal and the magazine *Le Médecin du Québec*, and the recording of mock calls (<https://www.ciuss-capitalenationale.gouv.qc.ca/antipoison/a-propos-de-nous/appels-fictifs>), for example.
- ❖ The medical toxicologists and pharmacist of the CAPQ give lectures at professional conferences on a regular basis.
- ❖ The CAPQ has made available to health professionals 16 hours of newly updated free webinars about toxicology as well as simulated cases that can be used for continuing education credits (<https://www.ciuss-capitalenationale.gouv.qc.ca/antipoison/professionnels-de-la-sante/webinaires>).
- ❖ For the general public, the CAPQ website (www.antipoison.ca) has been revamped and offers relevant information on first aid in case of poisoning, prevention tips, educational material and links to other resources and our partners.

ACTIVITIES INVOLVING THE RESEARCH MISSION

- ❖ The CAPQ works with several public health authorities (regional and provincial) on studies involving opioids, cannabis and the surveillance of new synthetic drugs being introduced on the market.
- ❖ The CAPQ works with Health Canada and other Canadian poison control centres on a national toxico-vigilance initiative.
- ❖ Several research projects of residents in medicine are supervised by the CAPQ (e.g.: a needs analysis of the population of Quebec, a systematic review on the management of battery ingestions, a systematic review on digoxin intoxication, etc.)
- ❖ The CAPQ participates in several other “ad hoc” projects such as the toxicity related to the ingestion of red-coated acetaminophen tablets. Some of its toxicologists are also involved in international collaborative projects such as the Clinical Toxicology Recommendations Collaborative, which issues evidence-based toxicology management recommendations. Dr Sophie Gosselin is the chair of the Collaborative.
- ❖ The Medical Director is working on two research projects endorsed by the CAPQ: (1) “Activated CHARcoal in Poisoned Patients” and (2) “CARE for Indigenous Poisoned Patients” with the participation of a PhD student from Université Laval.

CONCLUSION

In conclusion, the CAPQ is hard at work accomplishing its clinical, teaching and research missions. In 2022, CAPQ will focus on promoting its services to the public while updating its guides. It is also planning to recruit additional response personnel, as well as trained toxicologists. A full-time pharmacist position has been filled in early 2022. The CAPQ will continue to be a teaching environment for medical and pharmacy residents. It will begin accepting nursing students in early 2022. The research mission is also continuing and will be facilitated by the implementation of the new computerized patient record system.

For any non-urgent questions not involving patient management, please contact us on the administrative phone line: 418 654-2731.

The CAPQ remains available 24/7 for both the public and the private sector for health professionals at 1 800 463-5060.

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