

Executive Report

2011 was an active year for the Regional Center for Poison Control and Prevention Serving Massachusetts and Rhode Island.

- In 2011, the Poison Center managed 52,581 poison exposure and general information calls, which translates to almost 144 calls every day.
- 12,247 of the exposure calls, often from hospital healthcare professionals, required repeated follow up communication to provide the appropriate care and management of the patient.
- Over 82 physicians, nurses, and pharmacists were trained in the discipline of Toxicology and Pharmacology so that the care of future poisoned patients is ensured.

Mission:

The mission of the Regional Center for Poison Control and Prevention is to provide assistance and expertise in the medical diagnosis, management and prevention of poisonings involving the people of Massachusetts and Rhode Island.

By maintaining its excellent standard of care in both clinical research and professional development, the Center continually strives to improve the quality of medical care given to its patients.

In addition, the Center develops and implements public education and information campaigns to prevent injuries due to intentional and unintentional poisonings.

What is a poisoning?

A poisoning is caused by any substance that has a toxic, or damaging, effect to the tissues and/or systems of the body upon exposure. Exposures can occur through ingestion, inhalation or through dermal and ocular contact.

Any substance may become a poison if used incorrectly, or in the wrong amount, or by a person with a particular sensitivity to the product. Common poisons include household products, industrial and environmental chemicals, medications (prescription, over-the-counter, veterinary, herbal), illicit drugs, and bites and stings.

Whom do we serve and why do they call?

In 2011, the Center managed a total of 52,581 incoming calls, including 44,980 exposure calls and 7,585 information calls.

The total population for the region served by the Center is 7,600,196 residents, according to the 2010 Census data. The population of Massachusetts is 6,547,629 and Rhode Island is 1,052,567.

Type of Call - Massachusetts	2011
Information	6,147
Exposure to Poison	36,772
Total	42,919

Type of Call - Rhode Island	2011
Information	1,008
Exposure to Poison	6,823
Total	7,831

The remaining 1831 calls, not noted in the above table, were received from states other than Massachusetts or Rhode Island.

Where do poisonings happen?

Of the 44,980 exposure calls managed in 2011 by the Poison Center, 42,537 calls were exposures that took place in a home residence; the remaining 2,893 calls occurred in other locations including schools, workplaces and other public areas.

Where do our calls come from?

Of the 44,980 exposure calls managed in 2011 by the Poison Center, 33,506 of the total exposure calls came from a home residence, 9,297 came from health care facilities or medical professionals, and the remaining 2,177 come from various other sources such as public area schools or workplaces.

Residence Calls	75%
HCF Calls	21%
Other Calls	4%

Where are these poisonings managed?

In 2011, the majority of the poison exposure calls 32,212 (74%) were managed on-site and did not require treatment at a healthcare facility.

Management Site	2011
Onsite	32,212
HCF	12,248
Unknown	63
Other	457

Of interest are those calls that were managed at a health care facility but resulted in the patient being treated and released. While it is unclear whether a pre-hospital call could have prevented the trip to the emergency room, there is a clear potential cost savings that exists if the Poison Center is involved prior to the hospital.

Treated and released	4,627
Admitted: Critical	1,698

Admitted: Non-critical	1,405
Admitted: Psychiatric	1,162
Patient declined care/AMA	3,070

Who are the poisoned?

In 2011, as in previous years, exposure calls were split equally between males and females.

Gender	2011	MA	RI
Male Exposure	22,099	17,840	3,532
Female Exposure	22,724	18,799	3,277
Unknown	155	131	14
TOTAL	44,980	42,919	7,831

The general age of the caller was captured for 44,980 of cases. 23,689 of the exposure calls involved children 5 years of age and younger. Specifically, the greatest number of exposure calls in any single age category involved two-year-olds; 8,055 calls for this age group were received, representing over 34% of the exposure calls. Overall, the distribution of the age or gender has not changed in recent years.

AGE	TOTAL	MA	RI	Other
<1	3,716	3,085	482	149
1	5,745	4,716	796	233
2	8,055	6,772	1,008	275
3	3,587	2,992	478	117
4	1,576	1,282	242	52
5	1,010	872	117	21
6-12	3,247	2,710	469	68
13-19	3,227	2,702	473	52
20-29	3,068	2,546	414	108
30-39	2,114	1,742	310	62
40-49	2,255	1,858	364	33
50-59	1,829	1,526	266	37
60-70	1,097	924	152	21
70+	1,158	943	197	18
Unknown Child	44	39	1	4
Unknown Adult over 20	1,467	1,184	201	82

What are the most common agents of poisonings?

Products involved in poisonings are regularly divided into drug and non-drug categories. The percentage of calls and products in each category has remained consistent over the past several years.

Category: Non Drug	Exposure Calls	%
Cosmetics/personal care products	4,916	8.08
Cleaning substances (household)	3,629	5.96
Foreign bodies/toys/miscellaneous	2,899	4.76
Alcohols	1,618	2.66

Plants	1,289	2.12
Other	9,898	76.42
Total	24,249	100

Top Five Substances Most Frequently in Non-Drug Related Poison Exposures - 2011

Substance	Most Common Products
Cosmetics/personal care products	Creams, lotions, make-up, toothpaste, deodorant, mouthwash, nail products, hair care products, perfume, soap
Cleaning substances (household)	Bleach, household cleaners, dishwasher/laundry detergents, disinfectants, ammonia
Foreign bodies/toys	Silica gel, bubbles, thermometers, glow products, toys
Alcohols	Alcoholic beverages, rubbing alcohol
Plants	Gastrointestinal irritants, Toxic/Non-toxic Species

The top five non-drug agents most commonly involved in poisonings are detailed below. Other common agents include alcohol, arts/crafts/office supplies, chemicals, food products, and hydrocarbons.

Category: Drug	Exposure Calls	%
Analgesics	6,448	10.59
Sedative/hypnotics/antipsychotics	3,630	5.96
Topical preparations	2,313	3.80
Antidepressants	2,555	4.2
Cold and cough preparations	1,315	2.13
Other	15,632	52.36
Total	31,873	100

Top Five Substances Most Frequently in Drug Related Poison Exposures - 2011

Substances	Most Common Products
Analgesics	Ibuprofen, Acetaminophen, Opioids, Aspirin, Naproxen
Sedative/hypnotics/antipsychotics	Benzodiazepines, Atypical Antipsychotics, Lithium
Topical preparations	Diaper Rash Products, Topical Steroids, Hydrogen Peroxide
Antidepressants	Serotonin ReUptake Inhibitors, Trazodone, Amitriptyline
Cold and cough preparations	Dextromethorphan, Non-Opioid Preparations

In 2011, drug substances were a reported agent in 31873 exposure calls. Analgesics, such as acetaminophen, continue to be the most commonly reported drug agent involved in poison exposures. Appendix C provides a more detailed analysis of the most common substances reported in exposure calls for both drug and non-drug categories.

Please note: The total of Non Drug and Drug exposure calls (60,873) is greater than the total call volume (52,581) due to the fact that many exposures involve more than one agent.

What was the intent related to the poisoning?

The majority of poison exposures in 2011 were recorded as unintentional. Of the 49,980 exposure calls, 7,000 that were classified as intentional poisonings; of those 4,749 were recorded as suspected suicides managed by the Center.

Suspected suicide	4,749
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Misuse	659
Abuse	1,224
Unknown	326

What was the result of the poisoning?

Of the 49,981 exposure calls recoded in 2011, 32,212 cases did not require follow-up by the Poison Center staff because the exposure was judged to cause only minimal effect or to be a non-toxic event. 2,985 cases could not be followed.

Cases Not Followed	
Minimal Effect	28,245
Judged Nontoxic	4,242
Unable to follow	2,985

In 2011, 9,466 poison exposures were followed to determine the medical outcome of the poisoning. Below are the results for those cases by category of medical outcome.

Definition of Medical Outcomes	2011
Minor Effect: The patient exhibited some symptoms as a result of the exposure, but they were minimally bothersome to the patient. The patient has returned to a pre-exposure state of well being and has no residual disability or disfigurement.	2,391
Moderate Effect: The patient exhibited symptoms as a result of the exposure that were more pronounced, more prolonged or more of a systemic nature than minor symptoms.	3,315
Major Effect: The patient exhibited symptoms as a result of the exposure. The symptoms were life-threatening or resulted in significant residual disability or disfigurement.	708
Death: The patient died as a result of the exposure or as a direct complication of the exposure which was unlikely to have occurred had the toxic exposure not preceded the complication. Only included are those deaths that are probably or undoubtedly related to the exposure.	22
Unrelated Effect: Based upon all information available, the exposure was probably not responsible for the effect(s).	433
No effect: The patient developed no symptoms as a result of the exposure.	2,597

Summary of death cases

The deaths listed below are those cases reported to the Poison Center by health care facilities for the management of a suspected poisoning that resulted in a fatal outcome. In those cases where several substances were ingested, the cause of death was determined by the substance deemed to have had the most toxic effect.

Age	Male	Female	Substances
0-5	0	0	-
6-12	0	0	-
13-19	1	0	Methadone

20-29	3	2	Ethylene glycol, Calcium Channell blocker, Heroin, Acetaminophen, Caffeine
30-39	1	3	Household cleaner, Hydrogen Sulfide, Acetaminophen, Diphenhydramine
40-49	2	3	Acetaminophen, Calcium Channell blocker, Cocaine
50-59	1	0	Antidepressent
60-69	0	1	Unknown
70-79	0	2	Acetaminophen, Aspirin, Caffeine, Diphenhydramine, Calcium Channell blocker
80-100	0	2	Digoxin
Total	9	13	

Category	%
ApAp	18
Antidepresecant	5
Toxic Alcohol	9
Cardiovascular	27
Drugs of Abuse	14
Other agent	18
Unknown	9
Total	100

2011 Deaths by State	%
Massachusetts	82
Rhode Island	14
Maine (patient transferred to Massachusetts)	4

The relatively small number of deaths reported to the Poison Center does not accurately represent the true significance of poisonings as a cause of acute injury and death in the region. In fact, poisonings are the leading cause of injury death in Massachusetts, surpassing motor vehicle occupant deaths by a factor of 2 to 3. In 2008, there were over 900 poisoning deaths among Massachusetts residents.

Many cases of poison fatalities are never reported to the poison center. Law enforcement, first responders, medical examiners, or other health care professionals who have initial contact with poisoned patients, may not call the center to report the poisoning when treatment advice is not required or when the patient is determined to be dead on arrival.

Most Common Substances by Category 2011

The following tables describe the incidence of the most common exposures reported to the Center, divided by pharmaceutical (drug) and non-pharmaceutical (non-drug) substances and by frequency of the most common substances within each category. For each substance listed, both the number of cases in which it was involved and the percentage of all substance exposures are listed.

Calls for All Substances, Non Drug, Top 5		Total
Cosmetics/personal care products		
Dental care products		588
Hair care products		508
Mouthwash		408
Nail products		478
Cleansing/Lotions/Deodorant		2,098
Category TOTAL		4,080
Cleaning substances (household)		
Dishwasher detergents		226
Bleaches		497
Household Cleansers		2,626
Laundry		362
Miscellaneous cleaners		608
Category TOTAL		4,319
Foreign bodies/toys/miscellaneous		
Desiccant		595
Glow product		722
Toy		178
Thermometers/Mercury		106
Other		1,298
Category TOTAL		2,899
Alcohols		
Ethanol: beverage		1,176
Ethanol: other		143
Non consumable alcohols		299
Category TOTAL		1,618
Plants		
Gastrointestinal irritant		239
Non-toxic		178
Toxic		484
Unknown		317
Category TOTAL		1,218
Total Top 5 Categories		14,134
Total Non Drug		27,178

Calls for All Substances, Drug, Top 5	
Analgesics	
Acetaminophen	1,693
Acetaminophen with atleast one	1,496

	other ingredient	
	Aspirin	374
	Opioids	234
	Opioids with atleast one other ingredient	1,765
	Ibuprofen	1,868
	Naproxen	203
	Other Antiinflammatory	66
	Category TOTAL	6,448
Sedative/hypnotics/antipsychotics		
	Atypical antipsychotic	1,124
	Benzodiazepine	1,851
	Other	655
	Category TOTAL	3,630
Topical preparations		
	Diaper care/rash product	1,006
	Topical steroid	281
	Hydrogen Peroxide	268
	Other	758
	Category TOTAL	2,313
Antidepressants		
	Cyclic	321
	Lithium	201
	Selective and Nonselective Serotonin ReUptake Inhibitors	1472
	Other	561
	Category TOTAL	2,555
Cold and cough preparations		
	Dextromethorphan	786
	Without opioid	346
	Other	163
	Category TOTAL	1,295
Total Top 5 Categories		16,241
Total Drug		31,873