

Regional Center for Poison Control and Prevention Serving Massachusetts and Rhode Island



Medical Director
Michele M. Burns M.D., MPH

300 Longwood Avenue
Boston, MA 02115
www.maripoisoncenter.org

24-Hour Poison Hotline:
1-800-222-1222
1-800-244-5313 (TTY)

Administrative Office
Phone 617-355-6609
Fax 617-730-0521



A message from the Medical Director

The Regional Center for Poison control and Prevention Serving Massachusetts and Rhode Island provides a critical public service – the management and treatment of poisoning exposures. This year we helped over 47,879 individuals and healthcare providers understand and treat poison exposures, ranging from the simple to the life-threatening.

Our services are confidential and we are focused on exceptional patient care and customer service. Highly trained poison specialists are available to help answer questions 24 hours a day, 7 days a week at no charge. Not only do we offer reassurance to parents of children who have gotten into too much toothpaste, or share our knowledge with elderly callers who have concerns about their medications, but we also offer our expertise in clinical consults to medical professionals throughout both states on complicated medical cases.

The Poison Center is also a cost saving mechanism for the treatment and triage of poison exposures. Over 70% of all cases in Massachusetts and Rhode Island are successfully treated at the site of the exposure – thereby eliminating the need for those callers to seek care at their local emergency department.

It is unknown who and when we will help next, but we do know that poisonings happen – and we are always committed and prepared to react appropriately. We are charged to meet the challenges of the year ahead as we grow stronger as an organization in our work to serve the public and healthcare professionals of Massachusetts and Rhode Island.

The Poison Center recognizes that poisonings are a preventable injury. In response, the Poison Center's public education committee continues its work to reduce both unintentional and intentional poisonings through prevention education and public awareness of the Center's services.

I hope you'll find our 2013 Annual Report useful, as a tool to better understand who we are, and what we are able to do for the people of our region.

Michele M. Burns, MD, MPH
Medical Director

2013 Executive Report

2013 was a dynamic year for the Regional Center for Poison Control and Prevention serving Massachusetts and Rhode Island.

- In 2013, the Poison Center managed 47,879 poison exposure and general information calls, which translates to 131 calls every day.
- 9,905 of the exposure calls, often from hospital healthcare professionals, required multiple follow ups 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.

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Whom do we serve and why do they call?

In 2013, the Center managed a total of 47,879 incoming calls, including 42,430 exposure calls and 5,449 information calls.

The total population for the region served by the Center is 7,744,335 residents, according to the 2013 Census data. The population of Massachusetts is 6,692,824 and Rhode Island is 1,051,511.

2013 Type of Call	Massachusetts	Totals
Information		4,403
Exposure to Poison		34,580
Total		38,983

2013 Type of Call	Rhode Island	Totals
Information		683
Exposure to Poison		5751
Total		6,434

**The remaining 2,462 calls, not noted in the above table, were received from states other than Massachusetts or Rhode Island.

Where do poisonings happen?

Of the 42,430 exposure calls managed in 2013 by the Poison Center, 40,738 calls were exposures that took place in a home residence; the remaining 1,692 calls occurred in other locations including schools, workplaces and other public areas.

Where do our calls come from?

Of the 42,430 exposure calls managed in 2013 by the Poison Center, 32,161 of the exposure calls came from a home residence, 8,965 came from health care facilities or medical professionals, and the remaining 1,304 come from various other sources such as public area schools or workplaces.

Where are these poisonings managed?

In 2013, the majority of exposure calls, 29,703 (70%), were managed on-site and did not require treatment at a healthcare facility.

2013 Management Site	Totals
Onsite	29,703
HCF	12,229
Unknown	22
Other	5,193

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.

2013 Managed at HCF	Totals
Treated and released	4,444
Admitted: Critical	1,688
Admitted: Non-critical	1,551
Admitted: Psychiatric	1,346
Patient declined care/AMA	3,200

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Who are the poisoned?

In 2013, as in previous years, exposure calls were split equally between males and females.

Gender	2013	MA	RI
Male Exposure	20,808	17,072	2,696
Female Exposure	21,527	17,438	3,039
Unknown/ N/A	95	70	16
TOTAL	42,430	34,580	5,751

Of the 42,430 exposure cases, 20,956 (49%) of the 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; 7,852 calls for this age group were received, representing over 18% of all exposure calls. Overall, the distribution of the age or gender has not changed in recent years.

AGE	TOTAL	MA	RI	Other
<1	1,984	1,641	229	141
1	5,721	4,601	719	401
2	7,852	6,406	973	473
3	2,943	2,396	369	178
4	1,491	1,231	174	86
5	965	782	129	54
6-12	2,927	2,472	360	95
13-19	3,320	2,771	468	81
20-29	3,422	2,766	462	194
30-39	2,480	1,973	405	102
40-49	2,348	1,865	414	69
50-59	2,100	1,727	331	48
60-69	1,298	1,072	195	31
70+	1,499	1,206	267	26
Unknown Child	92	77	10	5
Unknown Adult over 20	2,148	1,735	269	144
Unknown age	5,289	4,289	660	340

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: Drug	Exposure Calls	Percentage
Analgesics	5,618	13%
Sedative/hypnotics/antipsychotics	2,938	7%
Topical preparations	1,908	4%
Antidepressants	2,347	5%
Antihistamines	1,083	2%
Other	13,613	32%
Total	27,507	64%

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Top Five Substances Most Frequent in Drug Related Poison Exposures – 2013	
Substances	Most Common Products
Analgesics	Ibuprofen, acetaminophen, opioids, aspirin, naproxen
Sedative/hypnotics/antipsychotics	Benzodiazepines, atypical antipsychotics
Antidepressants	Serotonin Re-Uptake Inhibitors, trazodone, amitriptyline
Topical preparations	Diaper rash products, topical steroids
Antihistamines	Diphenhydramine, other antihistamines

In 2013, drug substances were a reported agent in 27,507 (64%) 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.

Category: Non Drug	Exposure Calls	Percentage
Cosmetics/personal care products	4,946	12%
Cleaning substances (household)	3,805	9%
Foreign bodies/toys/miscellaneous	2,425	6%
Alcohols	1,383	3%
Plants	1,220	3%
Other	8,054	19%
Total	21,833	51%

Top Five Substances Most Frequent in Non-Drug Related Poison Exposures – 2013	
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.

*Please note: The total of Drug and Non Drug exposure calls (49,340) is greater than the total call volume (47,879) 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 managed by the Center in 2013 were recorded as unintentional. Of the 42,430 exposure calls, 6,720 were classified as intentional poisonings of those 4,914 were recorded as suspected suicides.

Intent	Total
Suspected suicide	4,914
Intentional Misuse	498
Intentional Abuse	873
Unknown	435

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2013 Definition of Intent	
Suspected Suicide:	An exposure resulting from the inappropriate use of substance for reasons that suspected to be self-destructive or manipulative.
Intentional Misuse:	An exposure resulting from the intentional improper or incorrect use of a substance for reasons other than the pursuit of a psychotropic or euphoric effect.
Intentional Abuse:	An exposure resulting from the intentional improper or incorrect use of a substance where the victim was likely attempting to achieve a euphoric or psychotropic effect. All recreational use of substances for any effect is included.
Unknown:	An exposure that is determined to be intentional, but the specific motive is unknown.

What was the result of the poisoning?

Of the 42,430 exposure calls recoded in 2013, 29,299 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. 3,158 cases could not be followed.

Cases Not Followed	Total
Minimal Effect	26,676
Judged Nontoxic	2,623
Unable to follow	3,158

In 2013, 9,945 poison exposures were followed to determine the medical outcome of the poisoning. Below are the results for those cases by category of medical outcome.

2013 Definition of Medical Outcomes		Total
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.	2,273
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.	3,114
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.	648
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.	21
Unrelated Effect:	Based upon all information available, the exposure was probably not responsible for the effect(s).	296
No effect:	The patient developed no symptoms as a result of the exposure.	3,598

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.

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Age	Male	Female	Substances
0-5	0	1	Diphenhydramine
6-12	1	0	Carbon Monoxide
13-19	1	0	Dinitrophenol
20-29	1	1	Xyrem, Venlafaxine, Metoprolol, Abilify, Zoloft, Clonazepam, Heroin, Unknown Drug
30-39	1	2	Clonazepam, Fluoxetine, Cocaine, Benzotropine, Marijuana, Caffeine, Diphenhydramine, Propranolol, Lyrica, Adderall, Gabapentin
40-49	1	1	Acetaminophen, Methanol
50-59	1	5	Acetaminophen, Aspirin, Lorazepam, Oxycodone, cocaine, Colchicine, Spirinolactone, Bisoprolol, Gabapentin, Unknown Drug
60-69	0	1	Amlodipine, Atenolol, Isosorbide, Aspirin, Lithium, Unknown Drug
70-79	1	1	Cardiac Glycosides, Metformin, Glipizide, Lisinopril
80-100	0	2	Tramadol, Pentobarbital
Total	7	14	

Category	Percentage
Acetaminophen	27
Antidepressant	4
Aspirin	9
Cardiovascular	27
Drug Ethanol	9
Opiates	4
Drugs of Abuse	22
Other	4
Unknown Agent	13

2013 Deaths by State	Total
Massachusetts	19
Rhode Island	2

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, and in 2010, opioids, which include heroin, oxycodone, morphine, and other opium-like agents, were associated with 66% of these deaths; cocaine was associated with 20% of these deaths.¹ Rhode Island ranks 13th in the nation for overdose deaths and is one of 20 states where unintentional drug overdose is responsible for the most unintentional, injury-related deaths.²

¹ Massachusetts Health and Human Services 2010

² Rhode Island's Health Assessment and Improvement Plan 2014

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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 or if the patient is determined to be dead on arrival.

Most Common Substances by Category

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.

Exposure Calls for All Substances, Top 5 Drug Categories	
Analgesics	
Acetaminophen	1,616
Acetaminophen with at least one other ingredient	1,073
Aspirin	398
Opioids and Opioids with at least one other ingredient	1,089
Ibuprofen	1,838
Naproxen	161
Other Anti-inflammatory	111
Category TOTAL	6,286
Sedative/hypnotics/antipsychotics	
Atypical antipsychotic	883
Benzodiazepine	1,531
Other	524
Category TOTAL	2,938
Topical preparations	
Diaper care/rash product	769
Topical steroid	272
Hydrogen Peroxide	161
Other	706
Category TOTAL	1,908
Antidepressants	
Cyclic	314
Lithium	190
Selective and Nonselective Serotonin ReUptake Inhibitors	933
Other	910
Category TOTAL	2,347
Stimulants and Street Drugs	
Amphetamine	311
Caffeine	42
Cocaine	152
Hallucinogenic Amphetamines	66
Methylphenidate	255
Cannabinoids and Cannabinoid Analogues	126
Other	277
Category TOTAL	1,229
Total Top 5 Drug	14,708
Total Drug Overall (includes drug categories not listed)	27,507

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Exposure Calls for All Substances, Top 5 Non-Drug Categories		Total
Cosmetics/personal care products		
	Dental care products	652
	Hair care products	348
	Mouthwash	387
	Nail products	437
	Cleansing/Lotions/Deodorant	3,122
	Category TOTAL	4,946
Cleaning substances (household)		
	Dishwasher detergents	307
	Bleaches	901
	Household Cleansers	1,443
	Laundry	513
	Miscellaneous cleaners	641
	Category TOTAL	3,805
Foreign bodies/toys/miscellaneous		
	Desiccant	559
	Glow product	660
	Toy	160
	Thermometers/Mercury	41
	Other	1,005
	Category TOTAL	2,425
Alcohols		
	Ethanol: beverage	972
	Ethanol: other	143
	Non consumable alcohols	268
	Category TOTAL	1,383
Plants		
	Gastrointestinal irritant	198
	Non-toxic	121
	Toxic	470
	Unknown	431
	Category TOTAL	1,220
Total Non-Drug Top 5		13,779
Total Non-Drug Overall (includes non-drug categories not listed)		21,833

Thank you for reading our Annual Report. If you are interested in more information about the Regional Center for Poison Control and Prevention please contact us at 1-800-222-1222 or visit our website www.maripoisoncenter.org.