

# Regional Center for Poison Control and Prevention

## Serving Massachusetts and Rhode Island



**Medical Director**  
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### 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 48,000 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, 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 2014 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**

## 2014 Executive Report

2014 was a dynamic year for the Regional Center for Poison Control and Prevention serving Massachusetts and Rhode Island.

- In 2014, the Poison Center managed 48,081 poison exposure and general information calls, which translates to 131 calls every day.
- 8,856 of the exposure calls, often from hospital healthcare professionals, required multiple follow ups to provide the appropriate care and management of the patient.
- Over 83 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.

## 2014 Executive Report

### Whom do we serve and why do they call?

In 2014, the Center managed a total of 48,081 incoming calls, including 42,412 exposure calls and 5,669 information calls.

The total population for the region served by the Center is 7,800,581 residents, according to the 2014 Census data. The population of Massachusetts is 6,745,408 and Rhode Island is 1,055,173.

2014 Type of Call	Massachusetts	Totals
Information		4,498
Exposure to Poison		34,572
Total		39,070

2014 Type of Call	Rhode Island	Totals
Information		575
Exposure to Poison		5,276
Total		5,851

\*\*The remaining 3,160 calls, not noted in the above table, were received from states other than Massachusetts or Rhode Island.

### Where do poisonings happen?

Of the 42,412 exposure calls managed in 2014 by the Poison Center, 40,457 calls were exposures that took place in a home residence; the remaining 1,955 calls occurred in other locations including schools, workplaces and other public areas.

### Where do our calls come from?

Of the 42,412 exposure calls managed in 2014 by the Poison Center, 31,505 of the exposure calls came from a home residence, 8,856 came from health care facilities or medical professionals, and the remaining 2,051 came from various other sources such as public area schools or workplaces.

### Where are these poisonings managed?

In 2014, the majority of exposure calls, 29,655 (70%), were managed on-site and did not require treatment at a healthcare facility.

2014 Management Site	Totals
Onsite	29,655
HCF	12,240
Refused Referral	478
Other	26
Unknown	13

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.

2014 Managed at HCF	Totals
Treated and released	4,067
Admitted: Critical	1,576
Admitted: Non-critical	1,671
Admitted: Psychiatric	1,552
Patient lost to follow-up/AMA	3,374

## 2014 Executive Report

### Who are the poisoned?

In 2014 exposure calls were split equally between males and females.

Gender	2014	MA	RI
Male Exposure	20,899	17,159	2,534
Female Exposure	21,438	17,356	2,731
Unknown/ N/A	74	57	11
<b>TOTAL</b>	<b>42,412</b>	<b>34,572</b>	<b>5,276</b>

Of the 42,412 exposure cases, 20,891 (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; 7,444 calls for this age group were received, representing over 17% of all exposure calls.

AGE	TOTAL	MA	RI	Other
<1	2,117	1,680	236	201
1	6,039	4,798	689	552
2	7,444	6,071	855	518
3	2,934	2,384	340	210
4	1,430	1,162	177	91
5	927	759	112	56
6-12	2,965	2,499	363	103
13-19	3,368	2,826	447	95
20-29	3,423	2,763	447	213
30-39	2,462	1,980	349	133
40-49	2,230	1,865	303	62
50-59	2,137	1,770	312	55
60-69	1,324	1,105	185	34
70+	1,516	1,265	208	43
Unknown Child	74	57	11	6
Unknown Adult over 20	1,934	1,519	231	184
Unknown age	88	69	11	8

### What are the most common agents of poisonings?

Products involved in poisonings are regularly divided into drug and non-drug categories.

Category: Drug	Exposure Calls	Percentage
Analgesics	5,150	10%
Sedative/hypnotics/antipsychotics	2,730	5%
Antidepressants	2,426	5%
Antihistamines	1,935	4%
Cardiovascular Drugs	1,814	4%
Topical preparations	1,794	4%
Anticonvulsants	1,303	3%
Vitamins	1,268	2%
Stimulants and Street Drugs	1,172	2%
Cold and Cough Preparations	1,043	2%
Other	6666	13%
<b>Total</b>	<b>27,301</b>	<b>55%</b>

## 2014 Executive Report

<b>Top Five Substances Most Frequent in Drug Related Poison Exposures – 2014</b>	
<b>Substances</b>	<b>Most Common Products</b>
Analgesics	Acetaminophen only or in combination with other drugs, Ibuprofen, Naproxen, Aspirin alone or in combination with other drugs, Buprenorphine, Oxycodone, Tramadol
Sedative/hypnotics/antipsychotics	Atypical antipsychotic, Benzodiazepine
Antidepressants	Sertraline, Bupropion, Trazodone, Lithium, Citalopram, Fluoxetine, Amitriptyline, Venlafaxine, Mirtazapine
Antihistamines	Diphenhydramine, H2 receptor antagonist
Cardiovascular Drugs	Beta blocker, Clonidine, ACE inhibitor, Antihyperlipidemic, Calcium antagonist

In 2014, drug substances were a reported agent in 27,301 (55%) 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.

<b>Category: Non Drug</b>	<b>Exposure Calls</b>	<b>Percentage</b>
Cosmetics/personal care products	5,037	10%
Cleaning substances (household)	3,785	8%
Foreign bodies/toys/miscellaneous	2,451	5%
Alcohols	1,331	3%
Plants	1,220	3%
Pesticides	1,131	2%
Other	6,999	14%
<b>Total</b>	<b>21,954</b>	<b>45%</b>

<b>Top Five Substances Most Frequent in Non-Drug Related Poison Exposures – 2014</b>	
<b>Substance</b>	<b>Most Common Products</b>
Cosmetics/personal care products	Cream/lotion/make-up, Toothpaste, Hand sanitizers, Deodorant, Soap, Suntan/sunscreen
Cleaning substances (household)	Dishwater detergent, Bleaches, Disinfectants, Laundry detergents, Wall/floor/tile cleaners
Foreign bodies/toys	Desiccant, Glow products, Bubble blowing solution, Toys, Feces/Urine
Alcohols	Ethanol, Isopropanol
Plants	Gastrointestinal irritant, Dermatitis, Amygdalin/Cyanogenic glycoside, Oxalate

\*Please note: The total of Drug and Non Drug exposure calls (49,255) is greater than the total call volume (48,081) 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 2014 were recorded as unintentional. Of the 42,412 exposure calls, 6,560 were classified as intentional poisonings and of those 4,919 were recorded as suspected suicides.

<b>Intent</b>	<b>Total</b>
Suspected suicide	4,919
Intentional Misuse	390
Intentional Abuse	800
Unknown	451

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2014 Definition of Intent	
<b>Suspected Suicide:</b>	An exposure resulting from the inappropriate use of substance for reasons that suspected to be self-destructive or manipulative.
<b>Intentional Misuse:</b>	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.
<b>Intentional Abuse:</b>	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.
<b>Unknown:</b>	An exposure that is determined to be intentional, but the specific motive is unknown.

### What was the result of the poisoning?

Of the 42,412 exposure calls recorded in 2014, 28,926 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. 3,164 cases could not be followed.

Cases Not Followed	Total
Minimal Effect	26,026
Judged Nontoxic	2,900
Unable to follow	3,164

In 2014, 10,283 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
<b>Minor Effect:</b>	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.	2,164
<b>Moderate Effect:</b>	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.	3,158
<b>Major Effect:</b>	The patient exhibited symptoms as a result of the exposure. The symptoms were life-threatening or resulted in significant residual disability or disfigurement.	663
<b>Death:</b>	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.	19
<b>Unrelated Effect:</b>	Based upon all information available, the exposure was probably not responsible for the effect(s).	244
<b>No effect:</b>	The patient developed no symptoms as a result of the exposure.	4,035

### Summary of Fatalities

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.

## 2014 Executive Report

Age	Male	Female	Substances
6-12	1	0	Unknown Drug, Pyridostigmine
13-19	1	0	Lithium carbonate
20-29	0	1	Propranolol, Escitalopram
30-39	2	0	Nortriptyline, Propranolol, Cocaine
40-49	0	4	Brodifacoum, Alprazolam, Hydroxyzine, Tricyclic antidepressants, Benzodiazepines, Acetaminophen, Diphenhydramine
50-59	3	1	Atenolol, Alprazolam, Methanol, Quetiapine, Lithium, Ethanol, Unknown Drug, Unknown pesticide, Insecticide
60-69	0	3	Cyanide, Carbon Monoxide, Diltiazem, Carvedilol, Benzodiazepines
70+	1	2	Carbon Monoxide, Digoxin
<b>Total</b>	<b>8</b>	<b>11</b>	

Category	Percentage
Cardiovascular drugs	21%
Sedatives/hypnotics/antipsychotics	15%
Antidepressants	15%
Pesticides	9%
Antihistamine	6%
Alcohols	6%
Fumes/gases/vapors	6%
Unknown drug	6%
Analgesics	3%
Stimulants and street drugs	3%
Cyanide	3%
Miscellaneous drugs	3%
Automotive/aircraft/boat products	3%

2014 Deaths by State	Total
Massachusetts	17
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 2012, opioids were associated with 69% of these deaths.<sup>1</sup> 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.<sup>2</sup>

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.

<sup>1</sup> Registry of Vital Records and Statistics, MDPH - 2012

<sup>2</sup> Rhode Island's Health Assessment and Improvement Plan 2014

## 2014 Executive Report

### 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.

<b>Exposure Calls for All Substances, Top 5 Drug Categories</b>	
<b>Analgesics</b>	
Acetaminophen and Acetaminophen with at least one other ingredient	2,117
Aspirin and Aspirin with at least one other ingredient	328
Opioids	648
Other nonsteroidal anti-inflammatory drugs	2,057
<b>Category TOTAL</b>	<b>5,150</b>
<b>Sedative/hypnotics/antipsychotics</b>	
Atypical antipsychotic	885
Benzodiazepine	1,370
Other	475
<b>Category TOTAL</b>	<b>2,730</b>
<b>Antidepressants</b>	
Lithium	210
Selective Serotonin Reuptake Inhibitors (SSRI)	963
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)	196
Tetracyclic antidepressants	111
Tricyclic antidepressants (TCA)	244
Bupropion	300
Trazodone	388
Others	14
<b>Category TOTAL</b>	<b>2,426</b>
<b>Antihistamines</b>	
Diphenhydramine	846
H2 receptor antagonist	157
Other	932
<b>Category TOTAL</b>	<b>1,935</b>
<b>Cardiovascular Drugs</b>	
Beta blocker	417
Clonidine	371
ACE inhibitor	240
Antihyperlipidemic	203
Calcium antagonist	180
Angiotensin receptor blocker	89
Alpha blocker	88
Antihypertensive	94
Other	132
<b>Category TOTAL</b>	<b>1,814</b>
<b>Total Top 5 Drug</b>	<b>14,055</b>
<b>Total Drug Overall</b> (includes drug categories not listed)	<b>27,301</b>

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<b>Exposure Calls for All Substances, Top 5 Non-Drug Categories</b>		<b>Total</b>
<b>Cosmetics/personal care products</b>		
	Cream/lotion/make-up	740
	Dental care products	663
	Deodorant	431
	Hair care products	326
	Hand sanitizers	551
	Lipstick/balm	155
	Mouthwash	381
	Nail Products	397
	Soap	422
	Suntan/sunscreen	342
	Perfume/cologne/aftershave	208
	Others	421
	<b>Category TOTAL</b>	<b>5,037</b>
<b>Cleaning substances (household)</b>		
	Dishwasher detergent	313
	Bleaches	822
	Disinfectants	224
	Hand dishwashing	197
	Laundry detergents	384
	Miscellaneous cleaners	619
	Wall/floor/tile cleaners	509
	Others	717
	<b>Category TOTAL</b>	<b>3,785</b>
<b>Foreign bodies/toys/miscellaneous</b>		
	Desiccant	506
	Glow Product	545
	Bubble blowing solution	123
	Toys	152
	Feces/Urine	124
	Glass	108
	Others	893
	<b>Category TOTAL</b>	<b>2,451</b>
<b>Alcohols</b>		
	Ethanol: beverage	891
	Ethanol: other	142
	Rubbing alcohol	152
	Other	146
	<b>Category TOTAL</b>	<b>1,331</b>
<b>Plants</b>		
	Gastrointestinal irritant	209
	Dermatitis	95
	Oxalate	84
	Amygdalin/cyanogenic glycoside	81
	Cardiac Glycoside	56
	Others	695
	<b>Category TOTAL</b>	<b>1,220</b>
<b>Total Non-Drug Top 5</b>		<b>13,824</b>
<b>Total Non-Drug Overall</b> (includes non-drug categories not listed)		<b>21,954</b>

## **2014 Executive Report**

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](http://www.maripoisoncenter.org).