

2010 Annual Data Report

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 58,000 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, but we also offer our expertise in clinical consults to medical professionals throughout both states on complicated medical cases.

The Poison Center is an also a cost saving mechanism for the treatment and triage of poison exposures. Over 75% of all cases in Massachusetts 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 2010 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 Burns Ewald, MD
Medical Director

Executive Report

2010 was an active year for the Regional Center for Poison Control and Prevention Serving Massachusetts and Rhode Island.

- In 2010, the Poison Center managed 52,882 poison exposure and general information calls, which translates to almost 145 calls every day.
- 11,707 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 95 Physicians, nurses, and pharmacists were trained in the discipline of Toxicology and Pharmacology so that the care of future poisoned patients is ensured.

The Poison Center remains an important element in both the public safety and health systems of Massachusetts and Rhode Island by reducing the number, severity and frequency of both intentional and unintentional poisoning exposures. The Center works closely with the Departments of Health in both states to educate and inform the public with targeted direct education and outreach regarding the preventability of poisonings, with various media campaigns, and other advertising opportunities. Every month between 15,000 and 25,000 educational materials are distributed to the public including such items as phone stickers, magnets, and informational brochures advertising the toll-free emergency hotline phone number, **(800) 222-1222**.

The Center continues to be a resource to federal, state and local officials in the identification and management of biological as well as chemical exposures. In addition, the Center participates in local and nationwide toxicology surveillance systems targeting the early identification of a potential toxic exposure. In tandem with the Massachusetts Department of Public Health and the Rhode Island Department of Health, we are continuously working to define and increase our capabilities and technologies. As such, the MA & RI Regional Center for Poison Control and Prevention is prepared to play a vital role in any potential large or small scale emergency. The Center's staff is committed to continually enhancing their knowledge base with subsequent growth and presence in the emergency preparedness arena.

As national security continues to be of foremost concern, the Center's resources remain a vital part of the public health response to chemical and biological terrorism threats as well as health outbreak management. Accordingly, all segments of the population, including the general public, law enforcement, legislative bodies, first responders, health care providers, and public health specialists have utilized the poison control center as an emergency preparedness resource. The Center participates in Epi-X, and the National Poison Data System, both of which are monitored by the CDC for potential early detection of a mass toxic exposure or bioterrorism response.

Locally, the Center provides its resources for regional exercises that test emergency protocols and identify gaps in preparedness. We remain committed to maintaining a level of excellence in emergency preparedness and continually train our health care professionals in such areas of pandemic medication management and biological warfare issues so that they can function as a knowledge base resource in a time of need.

This report provides information on the demographics and substances involved in poisonings as reported to the Center during 2010, as well as the treatments and outcomes of these cases.

Services:

- Emergency Hotline for Public # **(800) 222-1222**
- Telephone Consult Service for Health Care Facilities
- Children's Hospital Boston In-Patient Toxicology Service
- Beth Israel Deaconess Medical Center Consult Toxicology Service
- Harvard Medical Toxicology Fellowship

- Public Education and Outreach
- Professional Education
- Data Analysis
- Clinical Research

Please visit our website at www.maripoisoncenter.org for additional information.

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 2010, the Center managed a total of 52,882 incoming calls, including 44,974 exposure calls and 7,908 information calls.

The total population for the region served by the Center is 7,600,916 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	
	2010
Information	6,399
Exposure to Poison	37,244
Total	43,643

Type of Call - Rhode Island	
	2010
Information	1,011
Exposure to Poison	6,391
Total	7,402

Where do poisonings happen?

Of the 44,978 exposure calls managed in 2010 by the Poison Center, 42,696 calls (80%) were exposures that took place in a home residence; the remaining 10,522 calls (20%) occurred in other locations including schools, workplaces and other public areas.

Where do our calls come from?

Of the 44,978 exposure calls managed in 2010 by the Poison Center, 33,284 (74%) of the total exposure calls came from a home residence, 8,995 (20%) came from health care facilities or medical professionals, and the remaining 2,697 (6%) come from various other sources such as public area schools or workplaces.

Residence Calls	74%
HCF Calls	20%
Other Calls	6%

Where are these poisonings managed?

In 2010, the majority of the poison exposure calls 33,196 (74%) were managed on-site and did not require treatment at a healthcare facility.

Management Site	2010
Onsite	33,196
HCF	11,707
Unknown	109
Refused	162

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	4,943	42%
Admitted: Critical	1,843	16%
Admitted: Non-critical	1,495	13%
Admitted: Psychiatric	884	8%
Lost to follow-up	2542	21%

Who are the poisoned?

In 2010, as in previous years, calls were split equally between males and females.

Gender	2010	MA	RI	Other
Male Exposure	26,058	21,584	3,573	901
Female Exposure	26,687	21,953	3,806	928
Unknown	137	125	12	
TOTAL	52,882	43,662	7,391	1829

The general age of the caller was captured for 43,807 of cases. Over 51% (22,237) 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; 8,175 calls for this age group were received, representing over 18% if the exposure calls. Overall, the distribution of the age or gender has not changed in recent years.

AGE	TOTAL	MA	RI	Other
<1	2,084	1,716	285	83
1	6,139	5,052	845	242

2	8,175	6,855	1,064	256
3	3,425	2,885	430	110
4	1,478	148	211	49
5	936	791	123	22
6-12	3,269	2,817	387	65
13-19	3,332	2,835	452	45
20-29	3,477	2,818	519	140
30-39	2,592	2,088	437	70
40-49	2,903	2,357	478	68
50-59	2,142	1,738	354	50
60-70	1,338	1,096	216	26
70+	1,653	1,303	326	24
Unknown Child	91	74	13	4
Unknown Adult over 20	1,773	1,465	230	4

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	%
Cosmetics/personal care products	9.2%
Cleaning substances (household)	6.74%
Foreign bodies/toys/miscellaneous	5.19%
Alcohols	3.7%
Plants	2.7%
Other	72.5%
Total	100

Top Five Substances Most Frequently in Non-Drug Related Poison Exposures - 2010

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	6,056	11.4
Sedative/hypnotics/antipsychotics	3,474	6.6
Topical preparations	2,300	4.3

Antidepressants	2,492	4.7
Cold and cough preparations	1,230	2.3
Other	14,047	70.7
Total	29,599	55.9

Top Five Substances Most Frequently in Drug Related Poison Exposures - 2008

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 2010, drug substances were a reported agent in 29,599 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.

What was the intent related to the poisoning?

The majority of poison exposures in 2010 were recorded as unintentional. Of the 52,882 exposure calls, 6,892 (13%) that were classified as intentional poisonings; of those 4,495 (65%) were recorded as suspected suicides managed by the Center.

Suspected suicide	4,495
Misuse	720
Abuse	1,159
Unknown	518

What was the result of the poisoning?

Of the 52,882 exposure calls recoded in 2010, 32,969 (76%) 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.

Cases Not Followed

Minimal Effect	27,088
Judged Nontoxic	4,605
Unable to follow	1,276

In 2010, 9,560 (18%) 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	2010
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.	2,731
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.	3,214
Major Effect: The patient exhibited symptoms as a result of the exposure. The symptoms were life-threatening or resulted in significant	629

Death	residual disability or disfigurement. 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.	36
Unrelated Effect	Based upon all information available, the exposure was probably not responsible for the effect(s).	374
No effect	The patient developed no symptoms as a result of the exposure.	2,576

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	2	0	Cyanide
20-29	2	2	Heroin, Clonidine, acetaminophen, unknown drug
30-39	3	2	Chloral hydrate, venlafaxine, buprenorphine, lamotrigine, hydrocodone, acetaminophen, unknown drug, bupropion, trazadone
40-49	7	4	Acetaminophen, oxycodone, colchicine, unknown drug, calcium channel blocker, valproic acid, aspirin
50-59	1	4	Acetaminophen, hydrocodone, hydroxyzine, nortriptyline, diltiazem, toxic alcohol
60-69	3	4	Acetaminophen, aspirin, hydrocodone, trazadone, quetiapine, benzodiazepine, calcium channel blocker, malathion
70-79	0	0	-
80-100	1	1	Citalopram
Total	19	17	

Category	%
Acetaminophen	14%
Antidepressant	24%
Aspirin	6%
Cardiovascular	8%
Misc/Unknown	48%

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 2010

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.

Calls for All Substances, Non Drug, Top 5	Total
Cosmetics/personal care products	
Dental care products	651
Hair care products	361
Mouthwash	428
Nail products	443
Cleansing/Lotions/Deodorant/Perfume	2,731
Category TOTAL	4,614
Cleaning substances (household)	
Dishwasher detergents	262
Bleaches	486
Household Cleansers	1,741
Laundry	391
Miscellaneous cleaners	690
Category TOTAL	3,570
Foreign bodies/toys/miscellaneous	
Desiccant	599
Glow product	741
Toy	147
Thermometers/Mercury	56
Other	1,208
Category TOTAL	2,751
Alcohols	
Ethanol: beverage	1,170
Ethanol: other	457
Isopropanol	162
Other	168
Category TOTAL	1,957
Plants	
Gastrointestinal irritant	238
Non-toxic	199
Toxic	508

Other	264
Category TOTAL	1,309
Other	9,146
Total Non Drug	23,347

Calls for All Substances, Drug, Top 5

Analgesics

Acetaminophen	2,196
Aspirin	377
Opioids	1,392
Ibuprofen	1,742
Naproxen	185
Other	154
Category TOTAL	6,046

Sedative/hypnotics/antipsychotics

Atypical antipsychotic	1,089
Benzodiazepine	1,769
Other	613
Category TOTAL	3,471

Topical preparations

Diaper care/rash product	1,019
Topical steroid	276
Hydrogen Peroxide	258
Other	744
Category TOTAL	2,297

Antidepressants

Amitriptyline	139
Lithium	193
Serotonin ReUptake Inhibitor	1,017
Trazodone	423
Other	716
Category TOTAL	2,488

Cold and cough preparations

Dextromethorphan	752
Without opioid	330
Other	146
Category TOTAL	1,228
Other	14,034

Total Drug	29,564
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