

2008 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 61,000 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 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 2008 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

2008 was an active year for the Regional Center for Poison Control and Prevention Serving Massachusetts and Rhode Island.

- In 2008, the Poison Center managed over 61,978 poison exposure and general information calls, which translates to almost 175 calls every day.
- 11,373 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 75 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 2008, 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 2008, the Center managed a total of 61,978 incoming calls, including 52,340 exposure calls and 9,638 information calls.

Type of Call	2002	2003	2004	2005	2006	2007	2008
Information	25,209	15,859	12,705	12,179	11,096	10,416	9,638
Exposure to Poison	52,181	52,739	53,880	53,031	51,693	50,839	52,340
Total	77,390	68,598	66,585	65,210	62,789	61,255	61,978

The total population for the region served by the Center is 7,397,416 residents, according to the 2000 Census data. The population of Massachusetts is 6,349,097 (86%) and Rhode Island is 1,048,319 (14%).

Type of Call - Massachusetts	2002	2003	2004	2005	2006	2007	2008
Information	22,020	12,653	10,301	10,238	9,397	8,777	7,795
Exposure to Poison	42,340	48,874	45,106	44,687	43,292	42,231	43,230
Total	64,360	56,526	55,407	54,925	52,689	51,008	51,025

Type of Call - Rhode Island	2002	2003	2004	2005	2006	2007	2008
Information	2,768	2,954	2,159	1,774	1,455	1,252	1,311
Exposure to Poison	8,335	7,415	7,703	7,790	7,585	7,481	7,748

Total	11,103	10,369	9,862	9,564	9,040	8,733	9,059
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Where do poisonings happen?

Of the 52,340 exposure calls managed in 2008 by the Poison Center, 39,778 calls (76%) were exposures that took place in a home residence; the remaining 12,562 calls (24%) occurred in other locations including schools, workplaces and other public areas.

Where do our calls come from?

Of the 52,340 exposure calls managed in 2008 by the Poison Center, 40,121 (76%) of the total exposure calls came from a home residence, 8,946 (17%) came from health care facilities or medical professionals, and the remaining 3,273 (7%) come from various other sources such as public area schools or workplaces.

Residence Calls	76%
HCF Calls	17%
Other Calls	7%

Where are these poisonings managed?

In 2008, the majority of the poison exposure calls 39,536 (76%) were managed on-site and did not require treatment at a healthcare facility.

Management Site	2008
Onsite	39,536
HCF	12,150
Unknown	292
Refused	362

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	4,319	36%
Admitted: Critical	1,823	15%
Admitted: Non-critical	1,405	12%
Admitted: Psychiatric	900	7%
Lost to follow-up	3,703	30%

Who are the poisoned?

In 2008, as in previous years, calls were split equally between males and females. Of the exposure calls received, gender was recorded for 52,137 (99%) of calls in 2008.

Gender	2008	MA	RI	Other
Male Exposure	25,749	21,364	3,698	687
Female Exposure	26,388	21,699	4,037	652
Unknown	203	167	29	7
TOTAL	52,340	43,230	7,748	1,362

The general age of the caller was captured for 52,053 (99%) of cases. Over 52% (27,179) 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; 9,553 calls for this age group were received, representing over 18% of the exposure calls. Overall, the distribution of the age or gender has not changed in recent years.

AGE	TOTAL	MA	RI	Other
<1	2,755	2,310	347	98
1	7,541	6,278	1,043	220
2	9,553	8,056	1,248	249
3	4,220	3,530	583	1,071
4	1,901	1,592	261	48
5	1,209	984	203	22
6-12	3,631	3,045	507	79
13-19	3,818	3,175	552	91
20-29	3,628	2,894	617	117
30-39	2,832	2,310	456	66
40-49	3,459	2,741	657	61
50-59	2,121	1,724	348	49
60-70	1,226	983	319	24
70+	1,672	1,312	339	21
Unknown	287	179	45	63
Unknown Adult over 20	2,487	2,006	323	98

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	4,337	15%
Cleaning substances (household)	4,136	15%
Foreign bodies/toys/miscellaneous	3,232	12%
Alcohols	1,953	7%
Plants	1,698	6%
Other	12,708	45%
Total	28,064	

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

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

In 2008, exposure calls involving non-drug agents accounted for 28,064 of all substance calls. 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	6,758	21%
Sedative/hypnotics/antipsychotics	3,696	11%
Topical preparations	2,530	8%
Antidepressants	2,447	8%
Cold and cough preparations	1,775	6%
Other	14,827	46%
Total	32,033	

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 2008, drug substances were a reported agent in 32,033 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 2008 were recorded as unintentional. Of the 52,340 exposure calls, 7,381 (14%) that were classified as intentional poisonings; of those 5,037 (10%) were recorded as suspected suicides managed by the Center.

Intentional	7,381	14%
Unintentional	44,732	85%
Other	227	1%
Total Exposures	52,340	
Suspected suicide	5,037	10%
Misuse	754	1.5%
Abuse	1,232	2%
Unknown	358	1%

What was the result of the poisoning?

Of the 52,340 exposure calls recoded in 2008, 41,941 (75%) 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. 2,574 (5%) cases could not be followed.

Cases Not Followed	N = 41,941
Minimal Effect	32,440
Judged Nontoxic	6,927
Unable to follow	2,574

In 2008, 10,345(20%) 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	2008
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.	3,071
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.	2,789
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.	814
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.	28
Unrelated Effect: Based upon all information available, the exposure was probably not responsible for the effect(s).	601
No effect: The patient developed no symptoms as a result of the exposure.	3,042

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	0	0	-
20-29	3	1	Cocaine, Oxycodone, Acetaminophen, Aspirin, ETOH, Diphenhydramine
30-39	3	1	Cocaine, Ethylene Glycol, Citalopran, Unknown Drug
40-49	6	5	Acetaminophen, Verapamil, Drain Cleaner/Ackal, Carbon Monoxide, Depakote, Benz Odirepine, Valproic Acid, Unknown Drug
50-59	4	1	Lopressor, Methadone, Heroin, Verapamil, Unknown Drug
60-69	0	3	Acetaminophen, Oxycodone, Tylenol, Venlafaxine
70-79	0	0	-
80-89	1	0	Unknown Drug
Total	17	11	

Category	%
Acetaminophen	29%
Antidepressant	5.8%
Toxic alcohol	3%
Cardiovascular	8.8%
Drugs of abuse	14.7%
Misc/Unknown	38.7%

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 2008

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.

Some poisoning cases involve multiple exposures. As a result, in 2008 there were 60,097 exposures to individual substances among the 52,340 exposure calls the Center received.

% of Calls for All Substances, Non Drug, Top 5	Total	Percentage
Cosmetics/personal care products		
Dental care products	858	3.05%
Hair care products	456	1.62%
Mouthwash	510	1.81%
Nail products	486	1.73%
Cleansing/Lotions/Deodorant	2,027	7.22%
Category TOTAL	4,349	15.45%
Cleaning substances (household)		
Dishwasher detergents	360	1.28%
Bleaches	613	2.18%
Household Cleansers	2,066	7.36%
Laundry	427	1.52%
Miscellaneous cleaners	670	2.38%
Category TOTAL	4,136	14.73%
Foreign bodies/toys/miscellaneous		
Desiccant	795	2.83%

	Glow product	606	2.15%
	Toy	242	0.86%
	Thermometers/Mercury	104	0.37%
	Other	1,485	5.29%
	Category TOTAL	3,232	11.51%
Alcohols			
	Ethanol: beverage	1,138	4.05%
	Ethanol: other	478	1.70%
	Isopropanol	188	0.66%
	Other	149	0.53%
	Category TOTAL	1,953	6.95%
Plants			
	Gastrointestinal irritant	273	0.97%
	Non-toxic	238	0.84%
	Toxic	664	2.36%
	Other	523	1.86%
	Category TOTAL	1,698	6%
	Other	12,708	45.2%
Total Drug		28,064	100.00%

% of Calls for All Substances, Drug, Top 5
Analgesics

	Acetaminophen	3,727	10.22%
	Aspirin	417	1.14%
	Opioids	1,175	3.22%
	Ibuprofen	2,096	5.74%
	Naproxen	279	0.76%
	Other	188	0.51%
	Category TOTAL	7,882	21.62%
Sedative/hypnotics/antipsychotics			
	Atypical antipsychotic	1,243	3.40%
	Benzodiazepine	2,250	6.17%
	Other	692	1.89%
	Category TOTAL	4,185	11.48%
Topical preparations			
	Diaper care/rash product	1,186	3.25%
	Topical steroid	249	0.68%
	Hydrogen Peroxide	242	0.66%
	Other	885	2.42%
	Category TOTAL	2,562	7.02%
Antidepressants			

	Amitriptyline	148	0.40%
	Lithium	201	0.68%
	Serotonin ReUptake Inhibitor	1063	2.91%
	Trazodone	453	1.24%
	Other	825	2.26%
	Category TOTAL	2,690	7.37%
Cold and cough preparations			
	Dextromethorphan	1,080	2.96%
	Without opioid	596	1.63%
	Other	167	0.45%
	Category TOTAL	1,843	5.05%
	Other	17,291	47.43%
Total Drug		34,147	100.00%