

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



Medical Director
Michele Burns M.D

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 52,000 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 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 2012 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

2012 Executive Report

2012 was a dynamic year for the Regional Center for Poison Control and Prevention serving Massachusetts and Rhode Island.

- In 2012, the Poison Center managed 52,434 poison exposure and general information calls, which translates to almost 143 calls every day.
- 13,124 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.

Whom do we serve and why do they call?

In 2012, the Center managed a total of 52,434 incoming calls, including 45,924 exposure calls and 6,510 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.

| 2012 Type of Call | Massachusetts | Totals |
|--------------------|---------------|--------|
| Information | | 5,057 |
| Exposure to Poison | | 35,937 |
| Total | | 40,944 |

| 2012 Type of Call | Rhode Island | Totals |
|--------------------|--------------|--------|
| Information | | 1,090 |
| Exposure to Poison | | 8,283 |
| Total | | 9,373 |

**The remaining 2,117 calls, not noted in the above table, were received from states other than Massachusetts or Rhode Island.

Where do poisonings happen?

Of the 52,434 calls managed in 2012 by the Poison Center, 43,429 calls were exposures that took place in a home residence; the remaining 9,005 calls occurred in other locations including schools, workplaces and other public areas.

Where do our calls come from?

Of the 52,434 calls managed in 2012 by the Poison Center, 43,429 of the exposure calls came from a home residence, 9,928 came from health care facilities or medical professionals, and the remaining 7,852 come from various other sources such as public area schools or workplaces.

Where are these poisonings managed?

In 2012, the majority of the calls, 32,409, were managed on-site and did not require treatment at a healthcare facility.

| 2012 Management Site | Totals |
|----------------------|--------|
| Onsite | 32,409 |
| HCF | 13,124 |
| Unknown | 25 |
| Other | 6,510 |

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.

| 2012 Managed at HCF | Totals |
|---------------------------|--------|
| Treated and released | 4,864 |
| Admitted: Critical | 1,726 |
| Admitted: Non-critical | 1,660 |
| Admitted: Psychiatric | 1,210 |
| Patient declined care/AMA | 3,193 |

Who are the poisoned?

In 2012, as in previous years, exposure calls were split equally between males and females.

| Gender | 2012 | MA | RI |
|-----------------|---------------|---------------|--------------|
| Male Exposure | 22,991 | 18,000 | 3,976 |
| Female Exposure | 22,789 | 17,821 | 4,291 |
| Unknown/ N/A | 6,512 | 5,058 | 1,091 |
| TOTAL | 44,980 | 42,919 | 7,831 |

The general age of the caller was captured for 52,484 of cases. 22,048 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; 7,699 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 | 2,215 | 1,691 | 376 | 148 |
| 1 | 6,121 | 4,753 | 1,011 | 357 |
| 2 | 7,699 | 6,144 | 1,232 | 323 |
| 3 | 3,299 | 2,594 | 545 | 160 |
| 4 | 1,592 | 1,274 | 261 | 57 |
| 5 | 1,091 | 886 | 172 | 33 |
| 6-12 | 3,263 | 2,644 | 543 | 76 |
| 13-19 | 3,435 | 2,788 | 571 | 76 |
| 20-29 | 3,740 | 2,947 | 633 | 160 |
| 30-39 | 2,903 | 2,182 | 629 | 92 |
| 40-49 | 2,999 | 2,219 | 736 | 44 |
| 50-59 | 2,375 | 1,870 | 466 | 39 |
| 60-69 | 1,438 | 1,120 | 284 | 34 |
| 70+ | 1,845 | 1,236 | 579 | 30 |
| Unknown Child | 71 | 59 | 8 | 4 |
| Unknown Adult over 20 | 2,028 | 1,647 | 268 | 113 |

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 | 6,360 | 12% |
| Sedative/hypnotics/antipsychotics | 3,552 | 7% |
| Topical preparations | 2,127 | 4% |
| Antidepressants | 2,729 | 5% |
| Cold and cough preparations | 1,175 | 2% |
| Other | 15,767 | 30% |
| Total | 31,710 | 60% |

| Top Five Substances Most Frequent in Drug Related Poison Exposures – 2012 | |
|--|---|
| 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 Re-Uptake Inhibitors, trazodone, amitriptyline |
| Cold and cough preparations | Dextromethorphan, non-opioid preparations |

In 2012, drug substances were a reported agent in 31,710 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 | 5,214 | 10% |
| Cleaning substances (household) | 3,829 | 7% |
| Foreign bodies/toys/miscellaneous | 2,780 | 5% |
| Alcohols | 1,635 | 3% |
| Plants | 1,275 | 2% |
| Other | 9,851 | 19% |
| Total | 24,750 | 46% |

| Top Five Substances Most Frequent in Non-Drug Related Poison Exposures – 2012 | |
|--|--|
| 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 (56,460) is greater than the total call volume (52,434) 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 2012 were recorded as unintentional. Of the 52,434 exposure calls, 7,330 were classified as intentional poisonings of those 5,058 were recorded as suspected suicides.

| Intent | Total |
|--------------------|--------------|
| Suspected suicide | 5,058 |
| Intentional Misuse | 611 |
| Intentional Abuse | 1,178 |
| Unknown | 483 |

| 2012 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 52,434 exposure calls recoded in 2012, 28,877 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. 3,179 cases could not be followed.

| Cases Not Followed | Total |
|---------------------------|--------------|
| Minimal Effect | 28,877 |
| Judged Nontoxic | 3,179 |
| Unable to follow | 3,179 |

In 2012, 10,071 poison exposures were followed to determine the medical outcome of the poisoning. Below are the results for those cases by category of medical outcome.

| 2012 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. | 2,664 |
| 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. | 3,390 |
| 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. | 627 |
| 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). | 422 |
| No effect: | The patient developed no symptoms as a result of the exposure. | 2,946 |

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 | Bath Salts(Synthetic Cathinone), Diphenhydramine |
| 20-29 | 2 | 1 | Aspirin, Acetaminophen, Bath Salts(Synthetic Cathinone), Methadone, Gabapentin |
| 30-39 | 0 | 1 | Verapamil |
| 40-49 | 3 | 3 | Acetaminophen, Ethanol, Verapamil, Unknown Drug |
| 50-59 | 4 | 2 | Antidepressant, Acetaminophen, Aspirin, Colchicine, Amiodarone, Unknown Drug, |
| 60-69 | 0 | 2 | Calcium Channel Blocker, Acetaminophen |
| 70-79 | 0 | 1 | Calcium Channel Blocker |
| 80-100 | 0 | 1 | Digoxin, Metoprolol |
| Total | 14 | 8 | |

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

| 2012 Deaths by State | Total |
|----------------------|-------|
| Massachusetts | 21 |
| Rhode Island | 1 |

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.¹

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.

¹ (Bureau of Health Information, 2010)

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, Drug, Top 5 | |
|--|---------------|
| Analgesics | |
| Acetaminophen | 1,753 |
| Acetaminophen with at least one other ingredient | 1,043 |
| Aspirin | 328 |
| Opioids and Opioids with at least one other ingredient | 1,765 |
| Ibuprofen | 1,855 |
| Naproxen | 231 |
| Other Anti-inflammatory | 94 |
| Category TOTAL | 6,140 |
| Sedative/hypnotics/antipsychotics | |
| Atypical antipsychotic | 1,010 |
| Benzodiazepine | 1,763 |
| Other | 663 |
| Category TOTAL | 3,436 |
| Topical preparations | |
| Diaper care/rash product | 855 |
| Topical steroid | 309 |
| Hydrogen Peroxide | 237 |
| Other | 709 |
| Category TOTAL | 2,110 |
| Antidepressants | |
| Cyclic | 744 |
| Lithium | 166 |
| Selective and Nonselective Serotonin ReUptake Inhibitors | 1,108 |
| Other | 648 |
| Category TOTAL | 2,666 |
| Stimulants and Street Drugs | |
| Amphetamine | 358 |
| Caffeine | 54 |
| Cocaine | 204 |
| Hallucinogenic Amphetamines | 140 |
| Methylphenidate | 256 |
| Cannabinoids and Cannabinoid Analogues | 150 |
| Category TOTAL | 1,409 |
| Total Top 5 Drug | 15,761 |
| Total Drug Overall | 31,710 |

| Exposure Calls for All Substances, Non Drug, Top 5 | | Total |
|---|-----------------------------|---------------|
| Cosmetics/personal care products | | |
| | Dental care products | 653 |
| | Hair care products | 388 |
| | Mouthwash | 430 |
| | Nail products | 504 |
| | Cleansing/Lotions/Deodorant | 3,149 |
| | Category TOTAL | 5,124 |
| Cleaning substances (household) | | |
| | Dishwasher detergents | 285 |
| | Bleaches | 831 |
| | Household Cleansers | 1,679 |
| | Laundry | 467 |
| | Miscellaneous cleaners | 623 |
| | Category TOTAL | 3,885 |
| Foreign bodies/toys/miscellaneous | | |
| | Desiccant | 617 |
| | Glow product | 685 |
| | Toy | 188 |
| | Thermometers/Mercury | 64 |
| | Other | 1,226 |
| | Category TOTAL | 2,940 |
| Alcohols | | |
| | Ethanol: beverage | 1,196 |
| | Ethanol: other | 116 |
| | Non consumable alcohols | 323 |
| | Category TOTAL | 1,635 |
| Plants | | |
| | Gastrointestinal irritant | 243 |
| | Non-toxic | 153 |
| | Toxic | 532 |
| | Unknown | 347 |
| | Category TOTAL | 1,275 |
| Total Non-Drug Top 5 | | 14,859 |
| Total Non-Drug Overall | | 24,750 |

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.