



Maryland Poison Center

University of Maryland School of Pharmacy

2007 ANNUAL REPORT

This report provides an overview of the Maryland Poison Center experience during 2007.

“Saving lives,
saving dollars”
is a simple way of
stating what the
Maryland Poison Center
does every day.

The mission of the Maryland Poison Center is to decrease the cost and complexity of poisoning and overdose care while maintaining and/or improving patient outcomes. We are continuing to work toward this mission by conducting research on the management of poisoning and overdose patients, through public education to try to prevent poisonings from occurring, by training health professionals (pharmacists, nurses, physicians, and paramedics) in the management of poisoning and overdose care, and by working with the public health infrastructure in Maryland to help recognize poisoning challenges and working to respond to those challenges.

FROM THE DIRECTOR



Bruce Anderson

The times have definitely changed! 2007 marked the 35th anniversary of the Maryland Poison Center (MPC) at the University of Maryland School of Pharmacy. It's interesting and instructive to look

back at those early years to see exactly how far we've come.

From very modest beginnings in a small basement room in the University of Maryland School of Pharmacy, the MPC managed 5,600 calls in that first year of operations. Calls were handled by one pharmacist (who worked from 9 a.m. to 5 p.m. from Monday through Friday) and a patchwork of students who answered emergency calls from 5 p.m. to 9 a.m. during the week and all day and night on weekends. Cases were documented on single sheet paper forms that had to be transcribed separately for computer coding. That was the state of the art for poison centers in 1972!

What a difference 35 years makes: in 2007, the MPC managed a total of 65,804 calls of which 35,457 involved people who were exposed to a

potentially toxic substance; 2,154 were toxic exposures in animals; 19,553 were requests for tablet or capsule identification; and 8,640 were other poison information requests.

The MPC is now staffed 24 hours a day, seven days a week with pharmacists and nurses who have additional specialized training as poison specialists. All MPC poison specialists are certified by the American Association of Poison Control Centers (AAPCC). The MPC itself is certified by the AAPCC, meaning that we adhere to the highest standards for poison centers. Cases are entered into an online data collection system in real time. Poison center data is sent to a national poison center data collection system every 10 minutes. This data is regularly reviewed to look for indicators of terrorism or public health trends on a national and regional basis.

While much about the MPC has changed over time, our goals have not. We decrease the cost and complexity of care for poisoning patients while maintaining and improving patient outcomes. Here's to another 35 years!

Bruce Anderson, PharmD, DABAT
*Director of Operations, Maryland Poison Center
Associate Professor, Department of Pharmacy Practice
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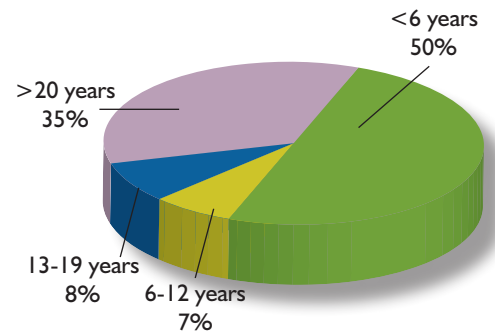
In 2007, the Maryland Poison Center received 65,804 calls.

While 35,457 of these calls involved a human exposure, the remaining 30,347 were requests for information or involved animal poisonings.

| COUNTY | HUMAN | % |
|------------------|---------------|---------------|
| Allegany | 557 | 1.6% |
| Anne Arundel | 4,651 | 13.1% |
| Baltimore | 6,376 | 18.0% |
| Baltimore City | 5,541 | 15.6% |
| Calvert | 751 | 2.1% |
| Caroline | 303 | 0.9% |
| Carroll | 1,590 | 4.5% |
| Cecil | 1,021 | 2.9% |
| Charles | 922 | 2.6% |
| Dorchester | 251 | 0.7% |
| Frederick | 1,892 | 5.3% |
| Garrett | 256 | 0.7% |
| Harford | 2,490 | 7.0% |
| Howard | 1,871 | 5.3% |
| Kent | 206 | 0.6% |
| Montgomery* | 518 | 1.5% |
| Prince George's* | 491 | 1.4% |
| Queen Anne's | 374 | 1.0% |
| St. Mary's | 1,015 | 2.9% |
| Somerset | 138 | 0.4% |
| Talbot | 395 | 1.1% |
| Washington | 1,166 | 3.3% |
| Wicomico | 815 | 2.3% |
| Worcester | 370 | 1.0% |
| Unknown/Other | 1,497 | 4.2% |
| Total | 35,457 | 100.0% |

AGE

50 percent of poison exposures involve children under the age of 6 as shown in the diagram below.



GENDER

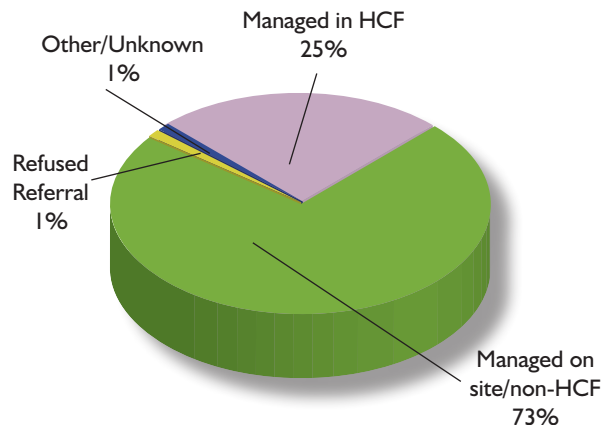
48.3 percent of exposures occurred in males, and 51.4 percent in females (0.3 percent unknown).

ANIMAL EXPOSURES

In 2007, a total of 2,154 potentially toxic exposures in animals were reported.

MPC SAFELY MANAGES PATIENTS AT HOME

In 2007, 73 percent of all poisoning cases were safely managed at home (site of exposure), which saves millions of dollars in unnecessary health care costs compared with managing patients in a health care facility (HCF). It also allows more efficient and effective use of limited health care resources. Calling the MPC helps to save lives and save dollars!

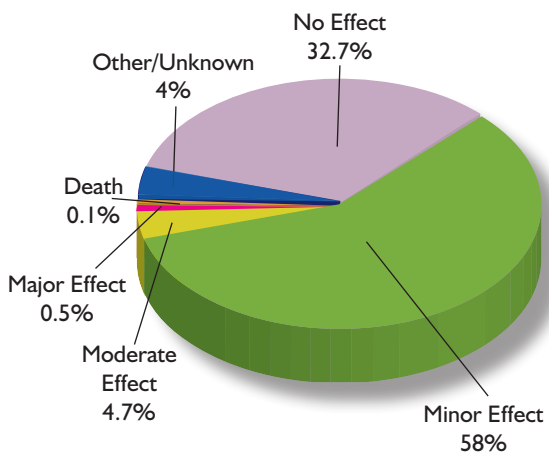
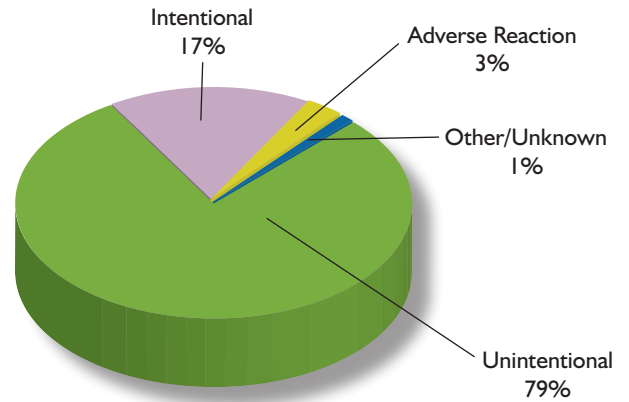


*Numbers for Montgomery and Prince George's counties reflect calls to the MPC only. The 800-222-1222 number automatically connects callers from these counties to the National Capital Poison Center in Washington, D.C. Some callers reach the MPC by dialing local telephone numbers still in service.

CIRCUMSTANCE

The people who contact the MPC have several different reasons for calling:

- **Unintentional** exposures in children and adults, occupational or environmental exposures, bites/stings, therapeutic errors and misuse of products and food poisoning accounted for 79 percent of total exposures. Therapeutic errors (double-doses, wrong medicines taken, etc) alone accounted for 11.7 percent of total exposures.
- **Intentional**, due to misuse, abuse, or suicide attempts, accounted for 17 percent of total exposures.
- **Adverse reaction** to drugs, food, and other substances accounted for 3 percent of total exposures.
- **Other/unknown** reasons, including malicious or contaminant/tampering accounted for 1 percent of total exposures.

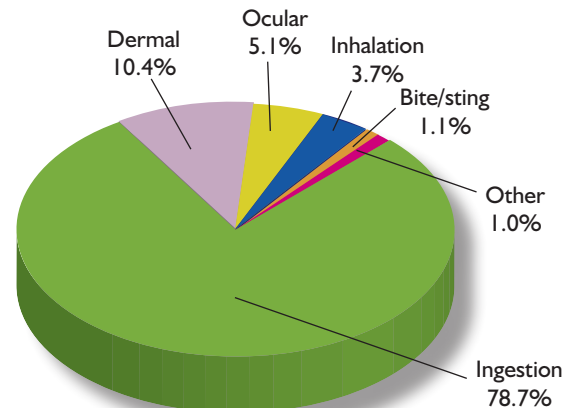


OUTCOMES

The true measure of the effectiveness of the MPC program is in patient outcomes. Although there were 31 cases reported to MPC that resulted in death (0.1 percent) in 2007, the impact of the MPC is obvious: few cases had poor outcomes. 90.7 percent of cases resulted in (or were expected to result in) no, or minor, effects. For all exposures, prompt attention is the best way to reduce the likelihood of developing severe toxicity.

ROUTE OF EXPOSURE

The most common way that patients in Maryland were exposed to toxins was by ingestion. This includes cases of children putting substances in their mouths, patients mistakenly ingesting someone else's medicines, people accidentally brushing their teeth with a product intended for topical use, etc. The dermal route was the next most common means of exposure.



Our mission is to decrease the cost and complexity of care while maintaining and/or improving patient outcomes. These data clearly show that we're meeting our mission.

SUBSTANCES INVOLVED IN POISONINGS

The tables below list the most common substances involved in poisonings and overdoses reported to the Maryland Poison Center in 2007. 67.1 percent of the poisoning and overdose calls to the Maryland Poison Center involved a drug, while 52.3 percent of calls involved a non-drug substance. A patient may be exposed to more than one substance in a poisoning or overdose case.

| DRUG SUBSTANCES | | | NON-DRUG SUBSTANCES | | |
|-----------------------------------|---------------|-------------|-----------------------------------|---------------|-------------|
| | # | % | | # | % |
| Analgesics | 5,016 | 14.1 | Cosmetics/Personal Care Products | 3,986 | 11.2 |
| Sedative/Hypnotics/Antipsychotics | 3,016 | 8.5 | Cleaning Substances (Household) | 2,935 | 8.3 |
| Antidepressants | 1,870 | 5.3 | Foreign Bodies/Toys/Miscellaneous | 2,016 | 5.7 |
| Cold and Cough Preparations | 1,517 | 4.3 | Alcohols | 1,472 | 4.2 |
| Topical Preparations | 1,499 | 4.2 | Pesticides | 1,109 | 3.1 |
| Cardiovascular Drugs | 1,430 | 4.0 | Plants | 773 | 2.2 |
| Antihistamines | 1,245 | 3.5 | Arts/Crafts/Office Supplies | 717 | 2.0 |
| Antimicrobials | 1,011 | 2.9 | Food Products/Food Poisoning | 717 | 2.0 |
| Vitamins | 854 | 2.4 | Hydrocarbons | 544 | 1.5 |
| Gastrointestinal Preparations | 813 | 2.3 | Bites and Envenomations | 472 | 1.3 |
| Others | 5,529 | 15.6 | Others | 3,815 | 10.8 |
| Total | 23,800 | 67.1 | Total | 18,556 | 52.3 |

TREATMENT

The tables below list antidotal therapies and decontamination treatments used for poisonings in Maryland during 2007. Most patients were managed conservatively with dilution (given something to eat or drink), irrigation, or washing.

| ANTIDOTAL THERAPIES | | DECONTAMINATION TECHNIQUES | |
|---------------------|--------------|--------------------------------|---------------|
| | # | | # |
| Naloxone | 443 | Dilute/Irrigate/Wash | 22,559 |
| IV acetylcysteine | 257 | Single-dose Activated Charcoal | 2,746 |
| Alkalinization | 163 | Food/Snack | 1,174 |
| Oral acetylcysteine | 156 | Fresh Air | 856 |
| Calcium | 50 | Other Emetic | 179 |
| Fomepizole | 41 | Cathartic | 121 |
| Flumazenil | 30 | Lavage | 105 |
| Atropine | 21 | Whole Bowel Irrigation | 40 |
| Glucagon | 19 | Multi-dose Activated Charcoal | 35 |
| Other Antidotes | 56 | Ipecac | 22 |
| TOTALS | 1,236 | TOTALS | 27,837 |



Public education coordinator Angel Bivens talks to families at the Frederick Children's Festival.

Outreach, education, and research are key elements of the MPC's services.

In 2007, the MPC led 169 education programs for public and health professional groups, reaching over 10,400 people.

PUBLIC AND PROFESSIONAL EDUCATION 2007

The Maryland Poison Center (MPC) is well known for being an emergency telephone service that helps those who have been poisoned, including unintentional poisonings in small children, exposures to household products, occupational exposures, and intentional overdoses. But did you know that the MPC also educates thousands of people each year about poisonings and overdoses?

Our public education efforts are intended to help increase the awareness of the poisons that are found in every home, business, and school, and to help prevent poisonings from occurring. The MPC also strives to make sure that everyone knows that they can quickly and easily get information by contacting the MPC, 24/7, if a poisoning occurs.

In 2007, the MPC provided speakers and/or materials for 116 programs in 15 Maryland counties and Baltimore City. Public Education Coordinator Angel Bivens, RPh, MBA, CSPI, led classes that were attended by over 8,200 people. Several organizations partnered with the MPC to provide education to their patients, customers, clients, and students. These organizations included fire departments, police departments, hospitals, health departments, schools, police departments, childcare agencies, pharmacies, hospital perinatal education programs, CPR instructors, parish nurses, Red Cross, and Head Start and Healthy Start programs. In all, more than 50,000 pieces of educational

materials (brochures, magnets, telephone stickers, Mr. Yuk stickers, teacher's kits, and other pieces) were distributed at these programs and by these organizations. More than 120,000 additional materials were mailed to people and groups who requested them.

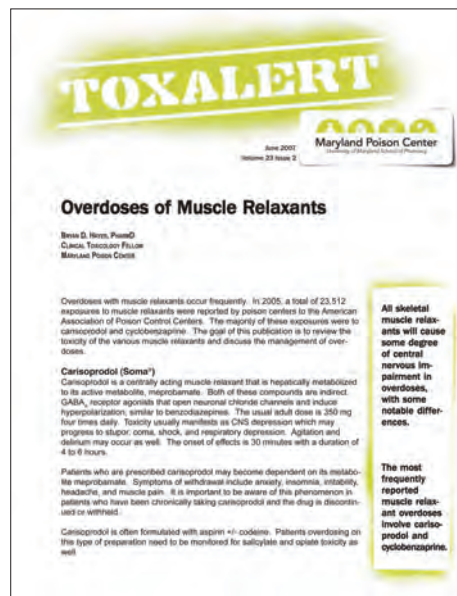
National Poison Prevention Week (March 18-24, 2007) activities included a week-long bus tour in Baltimore County and Baltimore City sponsored by AMERIGROUP. Seven presentations by MPC staff reached 45 parents and 550 children. A Poison Prevention Week poster contest co-sponsored by the MPC and Safe Kids Baltimore was held throughout the Baltimore City Public School System.

The MPC is also an important resource for the media. In 2007, MPC staff did 17 television, 15 newspaper, and one radio interview on various poison-related topics.

Professional education is targeted toward the special needs of health professionals. Programs and materials are designed to help the clinician better manage poisoning and overdose cases that end up in a health care facility. The professional education program is coordinated by Lisa Booze, PharmD, CSPI. In 2007, 53 programs were conducted at hospitals, fire departments, colleges, and state, regional, and national conferences by MPC staff. These programs were attended by more than 2,200 physicians, nurses, EMS providers, pharmacists, physicians assistants, and others.

The Maryland Poison Center also provides on-site training for physicians, pharmacists and paramedics. More than 100 health professionals came to the MPC in 2007 to learn about the assessment and treatment of poisoned patients.

ToxTidbits and ToxAlert reach more than 4,000 health care providers.



TOXTIDBITS AND TOXALERT

The MPC publishes two newsletters for health professionals: *ToxTidbits*, a monthly toxicology update, and *ToxAlert*. Both newsletters are faxed to every Maryland emergency department and e-mailed to over 3,600 health professionals. View all issues of *ToxAlert* and *ToxTidbits* on the MPC's Web site: www.mdpoison.com.

To receive *ToxAlert* and *ToxTidbits* by e-mail, visit our Web site or send an e-mail to mpcnewsletter-subscribe@lists.rx.umaryland.edu.

RESEARCH PUBLICATIONS AND PRESENTATIONS

Research publications and presentations by the faculty and staff of the MPC in 2007 are listed below:

Klein-Schwartz W, Lofton AL, Benson BE, Spiller HA, Crouch BI. Prospective Observational Multi-Poison Center Study of Ziprasidone Exposures. *Clinical Toxicology*. 2007;45(7):782-786.

Hayes BD, Klein-Schwartz W, Barrueto F. Polypharmacy and the Geriatric Patient. *Clinics in Geriatric Medicine*. 2007;23:371-390.

Klein-Schwartz W. Toxicologic Issues in the Geriatric Patient. *Clinical Management of Poisoning and Drug Overdose*, 4th edition, Shannon MW, Borron SW, Burns MJ, eds. Philadelphia: Saunders Elsevier, 2007;377-382.

Klein-Schwartz W, Doyon S. Acetylcysteine for Early Presenting Overdoses of Acetaminophen Combination Products. EAPCCT XXVII International Congress. Athens, Greece. May 2, 2007.

Hayes BD, Klein-Schwartz W, Doyon S. A Three-Year-Review of Buprenorphine Exposures in Pediatric Patients. University of Maryland School of Pharmacy Research Day. Baltimore, Md. May 8, 2007; Eastern States Residency Conference. Baltimore, Md. May 10, 2007.

Starr PE, Klein-Schwartz W, Spiller HA, Smolinski SC, Ekleberry SE. Incidence and Onset of Delayed Seizures Following Overdoses of Bupropion (XL). North American Congress of Clinical Toxicology. New Orleans, La., Oct. 24, 2007.



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- Maryland Institute for Emergency Medical Services Systems (MIEMSS)
- Safe Kids Maryland State and Local Coalitions
- AMERIGROUP Maryland, Inc.

Call 410-706-7604 or visit

www.mdpoison.com

to see how you can support
the Maryland Poison Center.



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