



Maryland Poison Center

University of Maryland School of Pharmacy

2009 ANNUAL REPORT

This report provides an overview of the Maryland Poison Center experience during 2009.

FROM THE DIRECTOR



Bruce Anderson

The only constant in life is change. When the Maryland Poison Center (MPC) came to the University of Maryland School of Pharmacy in 1972, it was a totally different world. In 1972, the Dow Jones industrial average crested at a never before seen peak of 1,020 points. A gallon of gas cost 55 cents. The average cost of a new house was \$27,550. The major films that year were *The Godfather*, *Fiddler on the Roof*, and *A Clockwork Orange*. There

were no cell phones (though the first cell call was made in 1972), there was no Internet, and there was no PlayStation 3 or Wii. It was a very different time.

The MPC has changed with the times, though. Call volume has grown from less than 6,000 calls per year in 1972 to more than 65,000 in 2009. With only one clinical toxicology textbook (*Clinical Toxicology of Commercial Products*) and no online poison information databases, the poison specialists answered calls using their experience and their understanding of pharmacology and toxicology. The one specialized resource available to all poison centers at the time was a set of several dozen 5-by-8 index cards from the National Clearinghouse of Poison Control Centers.

The MPC now has specialized online resources available that provide information on everything from over-the-counter medicines, prescription products, and drugs of abuse, to occupational hazards, environmental toxins, snake and spider bites, mushrooms, and plants—you name it! We also have dozens of specialized textbooks available (including a two-volume set devoted solely to toxicology of the eye!), a plethora of specific toxicology and medical journals, and more. Despite all of these informational sources, our greatest asset is still the experienced poison center staff. Poison specialists must now be “certified” by passing a national exam. Furthermore, the average duration of service for MPC specialists is approximately 17 years. When you call the MPC and talk to one of our staff members, there isn’t much that they haven’t heard before.

Our data collection system has evolved from a manual, paper-based

system to a near real-time, online data collection and reporting system.

This online reporting system allows us to monitor call volume changes and patterns of calls that might be indicative of serious public health events (e.g., surreptitious anthrax release, cyanide exposures, etc.). We are part of a nationwide system of poison centers that uses one poison center telephone number. By dialing 1-800-222-1222, you reach the Maryland Poison Center when calling from most areas of Maryland and are automatically routed to the closest regional poison center when calling from other areas of the country. Knowing this one telephone number will always connect you to a poison center.

Even the types of calls that come into the MPC have changed. We’ve seen a big increase in callers requesting tablet and capsule identification (drug ID calls). How big? Drug ID calls have jumped from approximately 6,000 calls per year in 2000 to more than 18,000 calls in 2009.

The MPC is in the process of continuing to change to help meet the evolving needs of the people we serve. During the past several years, we’ve moved into new space on the University of Maryland, Baltimore campus—space that has allowed us to grow and develop. We’re in the process of rolling out a new interactive voice response system to help deal with the increasing numbers of drug ID calls. We’re adding substantial computing infrastructure to help meet our growing data collection and reporting requirements. We’ve hired new staff to manage that computing infrastructure and to help map and analyze calls that come to the MPC.

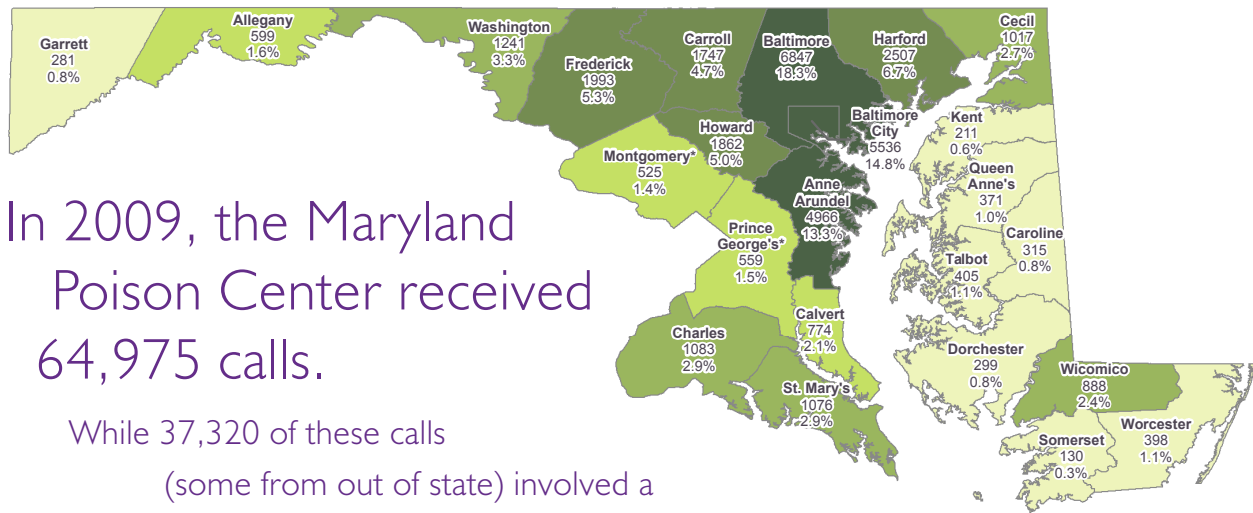
Yet despite those changes, the core mission of the MPC remains the same: We save lives and save dollars by providing emergency triage and treatment information for all callers. The service is staffed 24 hours a day by certified specialists in poison information (either pharmacists or nurses who have additional training in toxicology). Despite the changes in technology, price of gas, (and hairstyles!), the MPC continues to grow and change in order to provide outstanding service to the residents of Maryland.

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“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.



In 2009, the Maryland Poison Center received 64,975 calls.

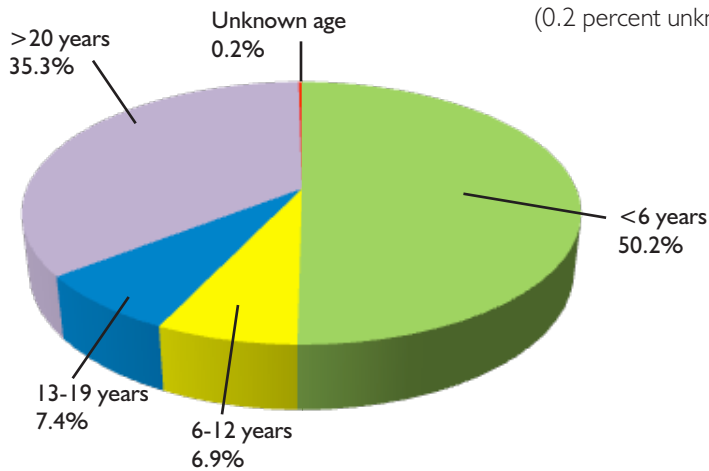
While 37,320 of these calls (some from out of state) involved a human exposure, the remaining 27,655 were requests for information or involved animal poisonings.

*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.

Callers from unknown Maryland counties and from other states accounted for 4.6 percent of the human exposures in 2009.

AGE

50.2 percent of poison exposures involved children under the age of 6 as shown in the diagram below.



GENDER

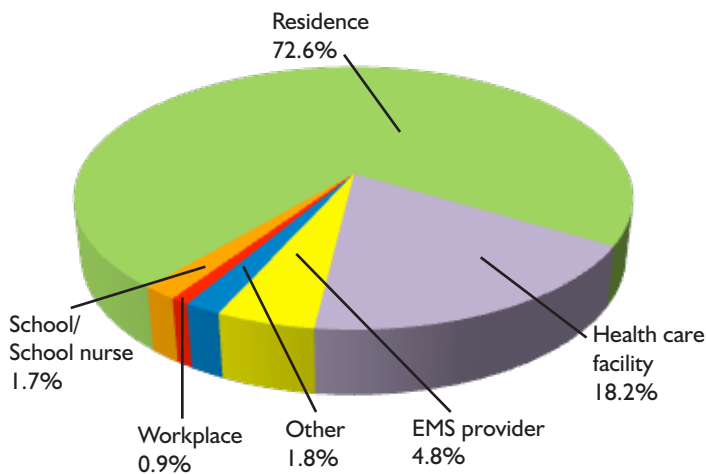
48.5 percent of exposures occurred in males, and 51.3 percent in females (0.2 percent unknown).

ANIMAL EXPOSURES

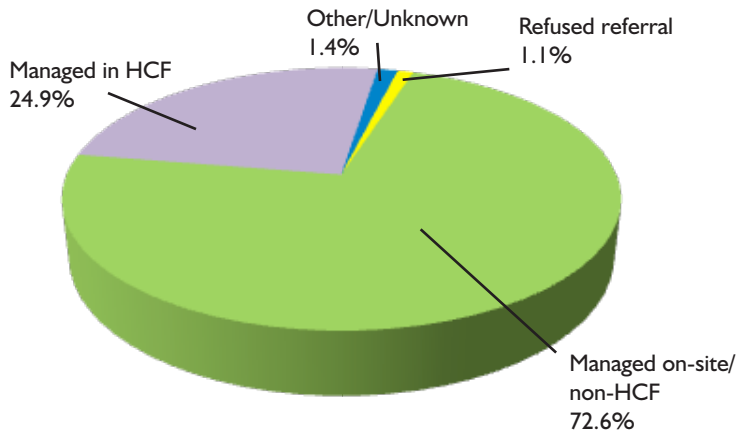
In 2009, a total of 2,180 potentially toxic exposures in animals were reported.

SITE OF CALLER

Most of the calls to the MPC came from the patient's residence or another residence (72.6 percent). Some 18.2 percent of the callers were at a health care facility (hospital, doctor's office, clinic, and others). In 4.8 percent of the cases, an emergency medical services provider (EMS, paramedics, first responders) called the MPC for treatment information. Calls originating from teachers, students, and nurses in schools accounted for 1.7 percent of the calls in 2009.



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.



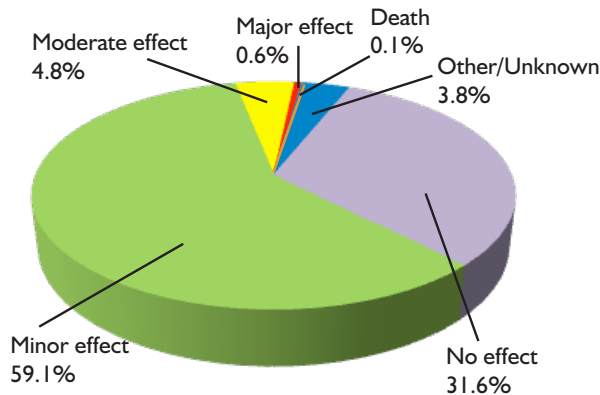
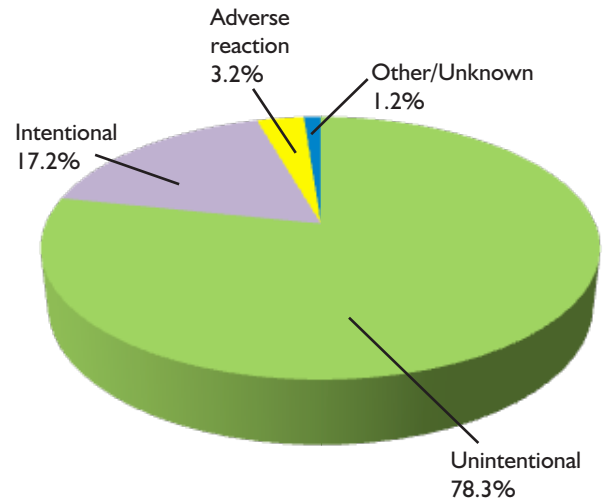
MPC SAFELY MANAGES PATIENTS AT HOME

In 2009, 72.6 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!

CIRCUMSTANCE

The people who contact the MPC do it for several reasons:

- Unintentional exposures in children and adults, occupational or environmental exposures, bites/stings, therapeutic errors, misuse of products, and food poisoning accounted for 78.3 percent of total exposures.
- Intentional exposures, due to misuse, abuse or suicide attempts, accounted for 17.2 percent of total exposures.
- Adverse reaction to drugs, food, and other substances accounted for 3.2 percent of total exposures.
- Other/unknown reasons, including malicious or contaminant/tampering, accounted for 1.2 percent of total exposures.

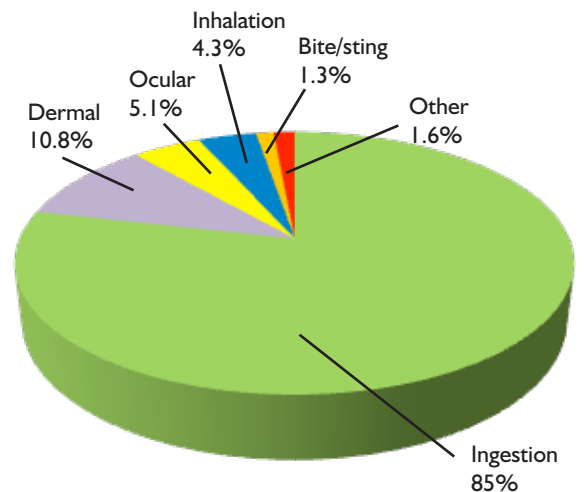


OUTCOMES

The true measure of the effectiveness of the MPC program is in patient outcomes. Although there were 32 cases reported to MPC that resulted in death (0.1 percent) in 2009, the impact of the MPC is obvious: few cases had poor outcomes. Some 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 medicine, people accidentally brushing their teeth with a product intended for topical use, etc. The dermal route was the next most common means of exposure. Some cases involved multiple routes of exposure. Percentages in the chart are based on the total number of human exposures.



SUBSTANCES INVOLVED IN POISONINGS

The tables below list the most common substances involved in poisonings and overdoses reported to the MPC in 2009. Some 69.8 percent of the poisoning and overdose calls to the MPC involved a drug, while 50.7 percent of calls involved a non-drug substance. A patient may be exposed to more than one substance in a poisoning or overdose case. Percentages in the tables are based on the total number of human exposures.

DRUG SUBSTANCES	#	%	NON-DRUG SUBSTANCES	#	%
Analgesics	5,735	15.4%	Cosmetics/Personal Care Products	3,902	10.5%
Sedatives/Hypnotics/Antipsychotics	3,467	9.3%	Cleaning Substances (Household)	2,951	7.9%
Antidepressants	1,925	5.2%	Foreign Bodies/Toys/Miscellaneous	1,937	5.2%
Cardiovascular Drugs	1,652	4.4%	Alcohols	1,808	4.8%
Antihistamines	1,567	4.2%	Pesticides	1,314	3.5%
Topical Preparations	1,489	4.0%	Arts/Crafts/Office Supplies	724	1.9%
Cold and Cough Preparations	1,240	3.3%	Plants	709	1.9%
Antimicrobials	1,129	3.0%	Food Products/Food Poisoning	673	1.8%
Vitamins	1,001	2.7%	Hydrocarbons	596	1.6%
Hormones & Hormone Antagonists	860	2.3%	Bites and Envenomations	558	1.5%
Others	5,959	16.0%	Others	3,778	10.1%
TOTAL	26,024	69.8%	TOTAL	18,950	50.7%

TREATMENT

The tables below list antidotal therapies and decontamination treatments used for poisonings in Maryland during 2009. Most patients were managed conservatively with dilution (given something to eat or drink), irrigation or washing.

ANTIDOTAL THERAPIES	#	DECONTAMINATION TECHNIQUES	#
Naloxone	547	Dilute/Irrigate/Wash	21,581
IV acetylcystiene	265	Single-Dose Activated Charcoal	2,370
Alkalinization	164	Food/Snack	1,936
Oral acetylcysteine	164	Fresh Air	965
Calcium	86	Other Emetic	239
Atropine	35	Lavage	60
Fomepizole	31	Cathartic	50
Glucagon	29	Whole Bowel Irrigation	40
Insulin	28	Multi-Dose Activated Charcoal	32
Other Antidotes	117	Ipecac	4
TOTAL	1,466	TOTAL	27,277

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

In 2009, the MPC led 107 education programs and events for public and health professional groups, reaching more than 9,500 people.

Educational materials were distributed throughout Maryland at programs, health fairs, and by community organizations.



Lisa Booze and Angel Bivens represent the MPC during Healthy Homes Day at the Howard County Fair.

PUBLIC AND PROFESSIONAL EDUCATION 2009

The Maryland Poison Center 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 2009, the MPC provided speakers and/or materials for 108 programs in 17 Maryland counties, Baltimore City, and Washington, D.C. The programs and events led by MPC staff were attended by more than 8,000 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, child-care agencies, pharmacies, hospital perinatal education programs, CPR instructors, parish nurses, Red Cross, and Head Start and Healthy Start programs. In all, more than 40,000 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 135,000 additional materials were mailed to people and groups who requested them.

The MPC provided training for 130 school nurses in Anne Arundel and Wicomico counties in 2009. Overall, 16 county school systems and day care centers used educational materials from the MPC in their classrooms. All told, more than 24,000 pieces of educational materials were used in or handed out in schools throughout Maryland.

National Poison Prevention Week (March 15-21, 2009) activities included mailings to emergency departments and pharmacies throughout the state. A Poison Prevention Week poster contest for public schools in Wicomico County was co-sponsored by the MPC and SafeKids Lower Shore. The grand prize-winning poster has been used throughout the state to promote poison safety.

The MPC is also an important resource for the media. Poison center staff are often interviewed by television, radio, and print media for their expertise in poison-related stories.

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. In 2009, 51 programs were conducted at hospitals, fire departments, colleges, and professional conferences (state, regional, and national) by MPC staff. These programs were attended by more than 1,300 physicians, nurses, EMS providers, pharmacists, physician assistants, and others.

In 2009, monthly podcasts were recorded for broadcast on two websites devoted to continuing education for health care providers: MedicCast.com and NursingShow.com. In all, there were 101,124 downloads of the podcasts worldwide, more than twice that of the previous year.

The MPC also provides on-site training for physicians, pharmacists, and paramedics. More than 100 health professionals came to the MPC in 2009 to learn about the assessment and treatment of poisoned patients.

TOXTIDBITS AND POISON PREVENTION PRESS



The MPC publishes a newsletter for health professionals: *ToxTidbits*, a monthly toxicology update. The newsletter is faxed to every Maryland emergency department and reaches more than 4,000 health professionals by e-mail. View all issues of *ToxTidbits* on the MPC's website: www.mdpoison.com. To receive *ToxTidbits* by e-mail, visit our website or send an e-mail to mpcnewsletter-subscribe@lists.rx.umaryland.edu.

The MPC also publishes a newsletter aimed at the general public. *Poison Prevention Press* is a bimonthly newsletter highlighting various poison prevention topics. Since its launch in 2008, *Poison Prevention Press* has gained more than 80 subscribers. To receive *Poison Prevention Press*, visit our website and click on "Publications." All previous issues are archived on the MPC website.



ToxTidbits and *Poison Prevention Press* reach more than 4,000 health care providers and community members.

AWARDS

Connie Mitchell received the 2008-2009 University System of Maryland Board of Regents' Staff Award for Extraordinary Public Service to the University or the Greater Community. Mitchell also was honored by the University of Maryland, Baltimore with the Public Servant of the Year award for 2009.

Lisa Booze, PharmD, CSPI, received a Top Terp Excellence in Education Award from the University of Maryland and Lowe's in January 2009.

Darren Stokes received a University of Maryland School of Pharmacy Spirit Award in 2009.



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RESEARCH PUBLICATIONS AND PRESENTATIONS

Bivens A, Johnson J, Green L. Teaching Pre-School Children About Poison Prevention as a Means of Educating Parents. North American Congress of Clinical Toxicology, San Antonio, Texas, Sept. 24, 2009.

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ACKNOWLEDGMENTS

The following organizations deserve special thanks for their continued support of the Maryland Poison Center:

- University of Maryland School of Pharmacy
- University System of Maryland
- Maryland Department of Health and Mental Hygiene
- U.S. Department of Health and Human Services, Health Resources and Services Administration
- Maryland Institute for Emergency Medical Services Systems (MIEMSS)
- Safe Kids Maryland State and Local Coalitions
- PharmCon, Inc.

Call 410-706-7604 or visit

www.mdpoison.com

to see how you can support the Maryland Poison Center.





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