

Annual Report



FROM THE DIRECTOR

Greetings! Welcome to the Maryland Poison Center's 2012 Annual Report.



In 2012, we celebrated a major milestone: the 40th anniversary of the Maryland Poison Center (MPC) being a service program of the University of Maryland School of Pharmacy. The call volume of the MPC has gone from approximately 5,600 in 1972 to over 60,000 in 2012. In all, the MPC has helped more than 1 million callers in our

40 years. The service and practice of the Poison Center has changed dramatically over time. We have evolved from those early days of being a program focused on providing clinical advice to physicians, to becoming a service available to the public and health professionals alike. We have changed from having a staff of one with no clinical toxicology training, working 9 am – 5 pm Monday through Friday, to having a professional staff of 10 pharmacists and nurses 24 hours a day. And all are nationally certified as specialists in poison information. In those

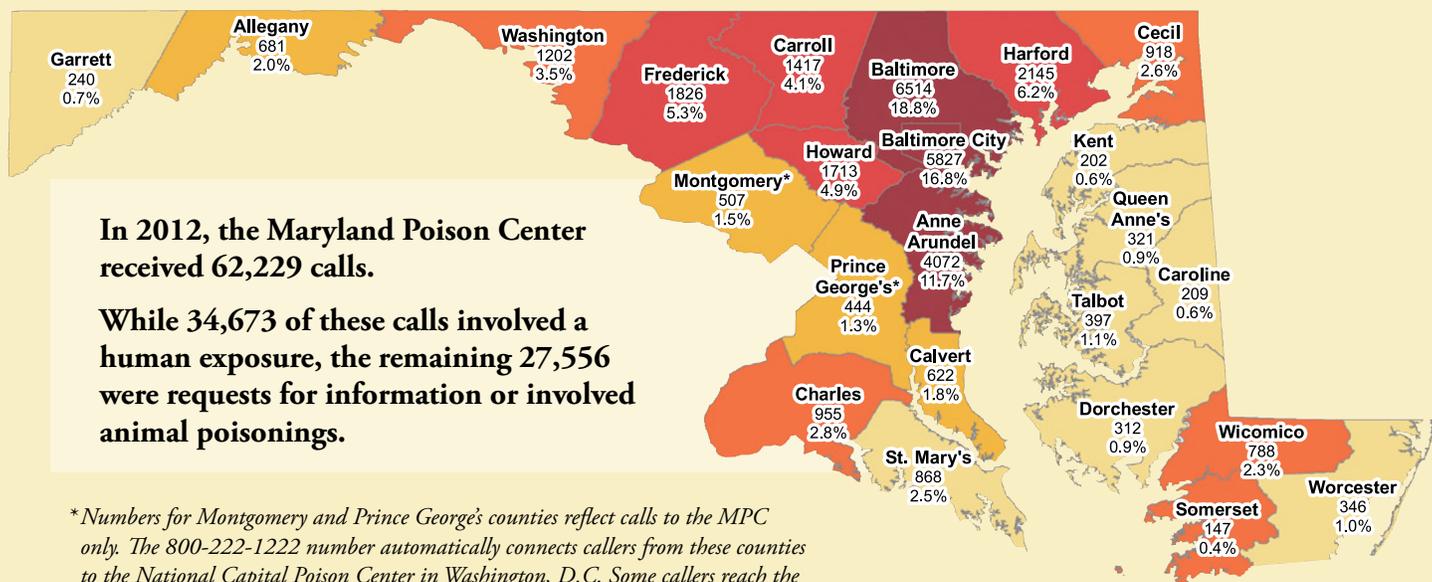
early days, we didn't have a board certified medical toxicologist because there was no such thing! We do now. The changes that have occurred over the past 40 years are remarkable. New drugs of abuse are available and are causing problems for Marylanders. In 2012 we saw an increase in the number of cases related to "bath salts" and synthetic cannabinoids. The demographics of our patients have changed as well. Now, fewer than half of MPC calls involve young children (age <6 years) with unintentional exposures. We are now receiving increasing numbers of calls about teens and adults, often trying to get high or trying to hurt themselves. Despite these major changes over time, the mission of the Maryland Poison Center remains the same: to decrease the costs and complexity of poisoning and overdose care while maintaining and/or improving patient outcomes.



Bruce D. Anderson, PharmD, DABAT

Director of Operations
Maryland Poison Center
Associate Professor of Pharmacy Practice
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HUMAN EXPOSURES



In 2012, the Maryland Poison Center received 62,229 calls.

While 34,673 of these calls involved a human exposure, the remaining 27,556 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 5.8% of the human exposures in 2012.

The data for counties are as accurate as possible given that some ZIP codes cross county boundaries.



FROM THE MEDICAL DIRECTOR

It is an honor to present the 2012 Annual Report. This year marked a special milestone as the Maryland Poison Center celebrated its 40th anniversary! It is hard to imagine that we have been providing uninterrupted, reliable, and cost-effective services for four decades. The anniversary was celebrated with an honorary breakfast and guest lecture.

The 2012 Annual Report outlines the impressive amount of work performed by our staff and our center's continued growth and commitment to fellow Marylanders. The Maryland Poison Center operated 24 hours per day, seven days a week and answered a total of 62,229 calls in 2012. Weather emergencies did not interrupt our operations. Services remained completely operational during the June 2012 derecho that resulted in millions of power outages across the state.

Over the last year, we worked with the Maryland Institute of Emergency Medical Services System, the Maryland chapter of the American College of Emergency Physicians (MD ACEP) and the Office of the Chief Medical Examiner (OCME) to deal with the important issues of nonmedical use of prescription medications and overdose deaths.

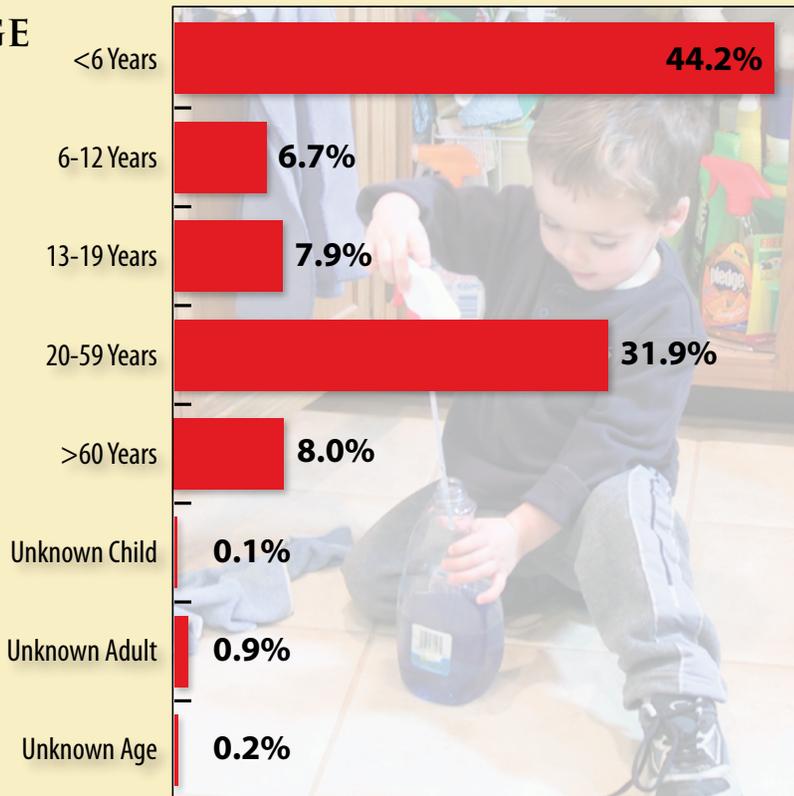
Other issues tackled in 2012 include pediatric ingestions of pod laundry detergents and new drugs of abuse such as "bath salts" and "2-C series" of compounds. The Poison Center has also served as a resource to help with antidote shortages, providing information regarding alternative doses and alternative drugs.



Thanks to the continued support of the University of Maryland School of Pharmacy, the Maryland Department of Health and Mental Hygiene, the state of Maryland and the U.S. Health Resources and Services Administration, we have been able to provide the best possible service to our fellow Marylanders and will continue to do so in the future.

Suzanne Doyon, MD, FACEP, FACMT
Medical Director
Maryland Poison Center

AGE



GENDER

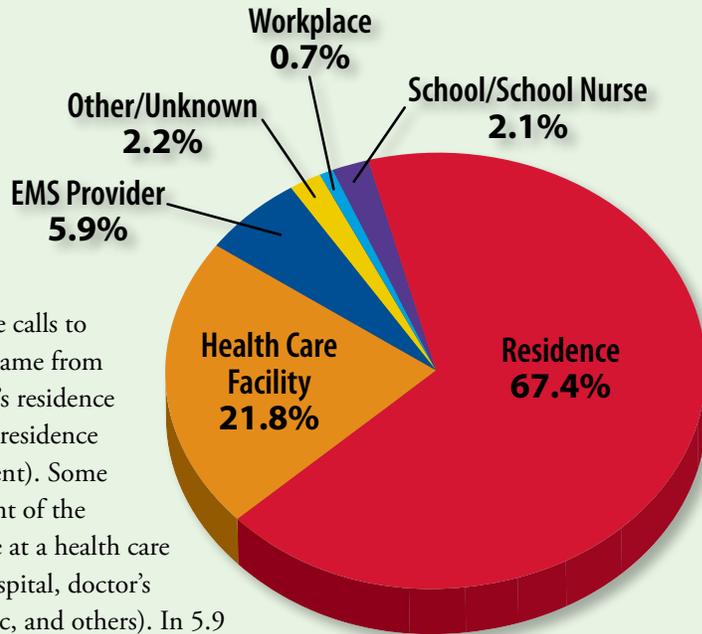
47.7 percent of exposures occurred in males, and 52.1 percent in females (0.2 percent unknown).

ANIMAL EXPOSURES

In 2012, a total of 1,432 potentially toxic exposures in animals were reported.



SITE OF CALLER

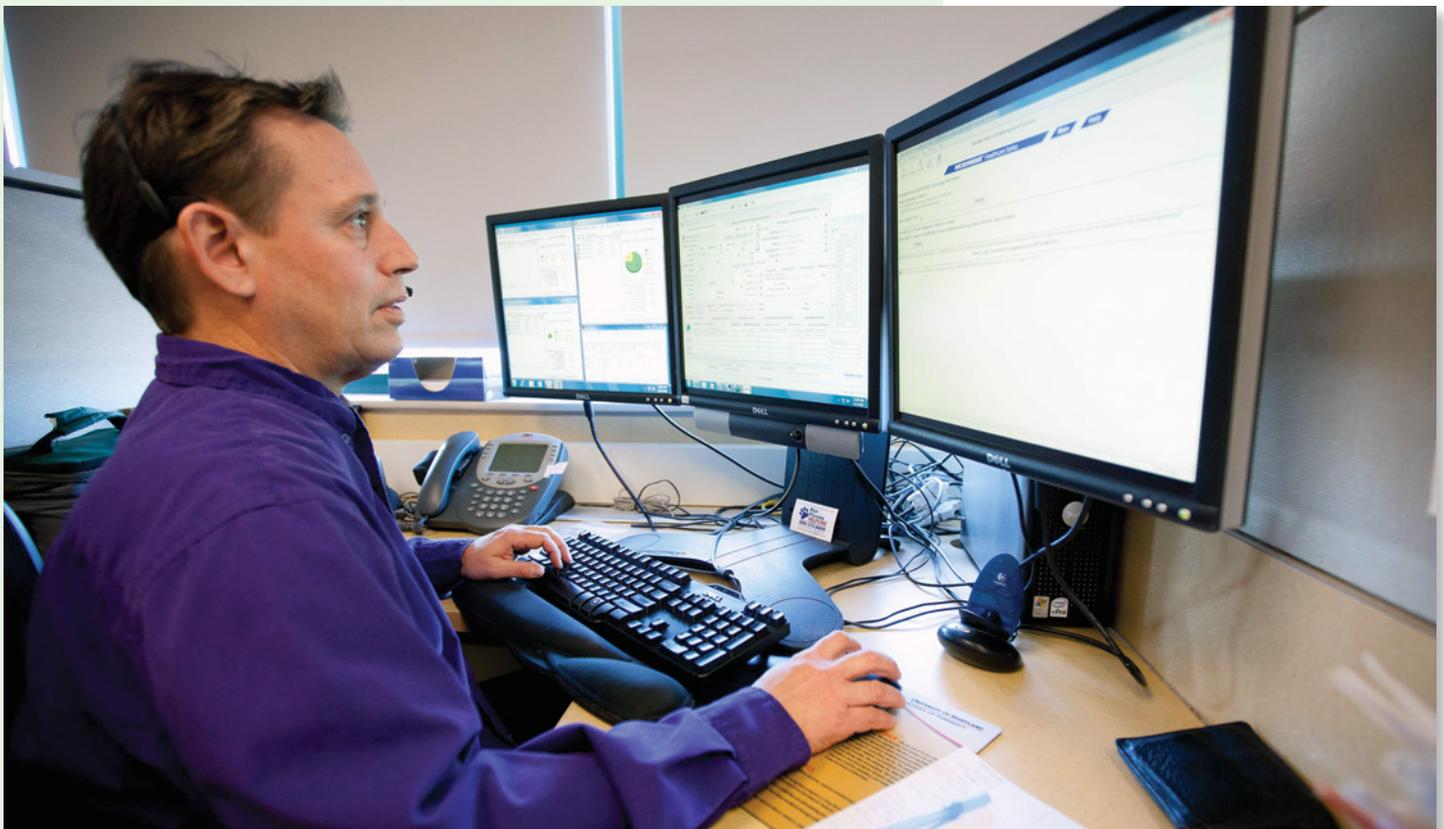


Most of the calls to the MPC came from the patient's residence or another residence (67.4 percent). Some 21.8 percent of the callers were at a health care facility (hospital, doctor's office, clinic, and others). In 5.9 percent of the cases, an emergency medical services provider (EMS, paramedics, first responders, emergency medical dispatcher) called the MPC for treatment information. Calls originating from teachers, students, and nurses in schools accounted for 2.1 percent of the calls in 2012.

MPC SAFELY MANAGES PATIENTS AT HOME

In 2012, 66 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!

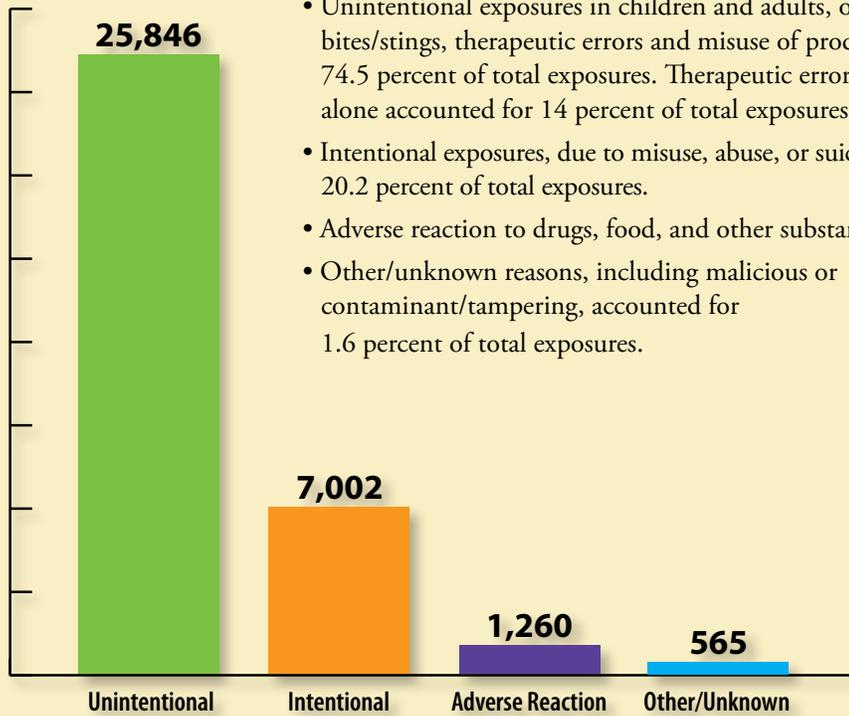
	NUMBER	PERCENT
Managed On Site/ Non-HCF	22,883	66.0%
Managed in HCF	10,282	29.7%
Other/Unknown	1,087	3.1%
Refused Referral	421	1.2%
TOTAL	34,673	100%



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 74.5 percent of total exposures. Therapeutic errors (double-doses, wrong medicines taken, etc) alone accounted for 14 percent of total exposures.
- Intentional exposures, due to misuse, abuse, or suicide attempts, accounted for 20.2 percent of total exposures.
- Adverse reaction to drugs, food, and other substances accounted for 3.6 percent of total exposures.
- Other/unknown reasons, including malicious or contaminant/tampering, accounted for 1.6 percent of total exposures.



ROUTE OF EXPOSURE

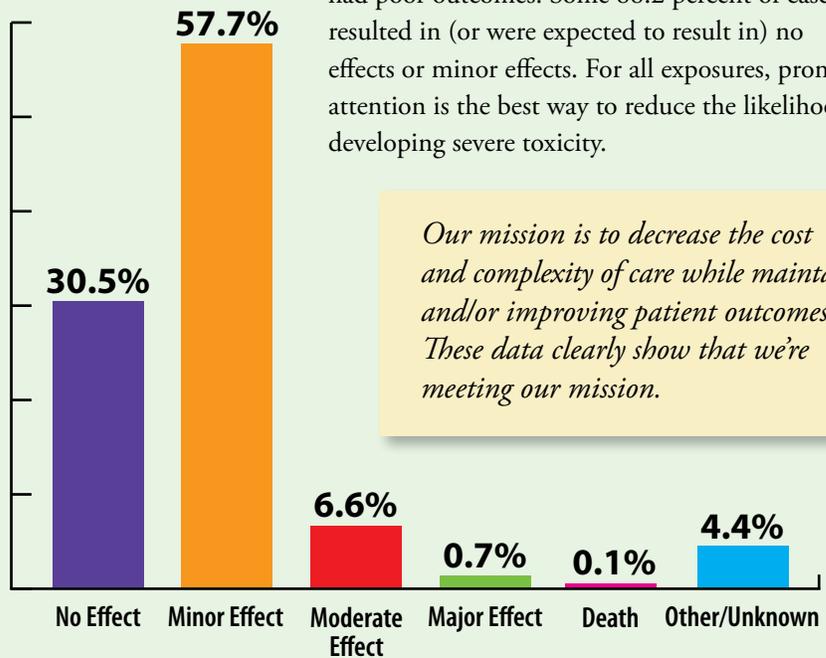
	NUMBER	PERCENT
Ingestion	29,180	84.2%
Dermal	2,937	8.5%
Inhalation	1,997	5.8%
Ocular	1,649	4.8%
Bite/Sting	442	1.3%
Other	735	2.1%
*TOTAL	36,940	

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.

OUTCOMES

The true measure of the effectiveness of the MPC program is in patient outcomes. Although there were 36 cases reported to the MPC that resulted in death (0.1 percent) in 2012, the impact of the MPC is obvious: few cases had poor outcomes. Some 88.2 percent of cases resulted in (or were expected to result in) no effects or minor effects. For all exposures, prompt attention is the best way to reduce the likelihood of developing severe toxicity.



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 2012. Some 75.6 percent of the poisoning and overdose calls to the Maryland Poison Center involved a drug, while 49.5 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

	NUMBER	PERCENT
Analgesics	5,398	15.6%
Sedatives/Hypnotics/Antipsychotics	3,433	9.9%
Antidepressants	2,133	6.2%
Cardiovascular Drugs	1,888	5.4%
Antihistamines	1,689	4.9%
Stimulants/Street Drugs	1,295	3.7%
Topical Preparations	1,227	3.5%
Antimicrobials	1,067	3.1%
Cold & Cough Medicines	1,035	3.0%
Anticonvulsants	964	2.8%
Others	6,088	17.6%
TOTAL	26,217	75.6%
TOTAL HUMAN EXPOSURES	34,673	

NON-DRUG SUBSTANCES

	NUMBER	PERCENT
Cosmetics/Personal Care Products	3,562	10.3%
Cleaning Substances(Household)	2,683	7.7%
Foreign Bodies/Toys/Miscellaneous	1,704	4.9%
Alcohols	1,517	4.4%
Pesticides	1,169	3.4%
Plants	692	2.0%
Food Products/Food Poisoning	689	2.0%
Arts/Crafts/Office Supplies	578	1.7%
Bites and Envenomations	559	1.6%
Hydrocarbons	450	1.3%
Others	3,568	10.3%
TOTAL	17,171	49.5%
TOTAL HUMAN EXPOSURES	34,673	

TREATMENT

The tables below list antidotal therapies and decontamination treatments used for poisonings in Maryland during 2012.

Most patients were managed conservatively with dilution (given something to eat or drink), irrigation, or washing.

ANTIDOTAL THERAPIES

	NUMBER
Naloxone	692
IV acetylcystiene	222
Alkalinization	177
Calcium	131
Oral acetylcysteine	106
Insulin	54
Glucagon	52
Fomepizole	49
Atropine	36
Other Antidotes	124
TOTAL	1,643

DECONTAMINATION TECHNIQUES

	NUMBER
Dilute/Irrigate/Wash	19,582
Food/Snack	3,248
Single-dose Activated Charcoal	1,819
Fresh Air	1,029
Other Emetic	222
Cathartic	35
Lavage	34
Whole Bowel Irrigation	31
Multi-dose Activated Charcoal	23
Ipecac	5
TOTAL	26,028





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

The MPC led 144 education programs and events for public and health professional groups, attended by over 12,700 people.

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

PUBLIC AND PROFESSIONAL EDUCATION 2012

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?

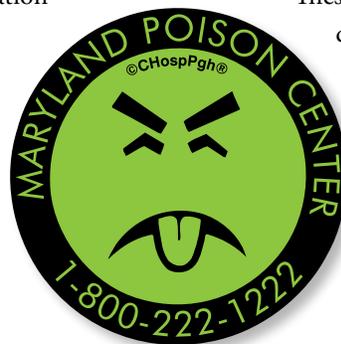
Our **public education** efforts are intended to help increase the awareness of the poisons that are found in every home, business, and school, and to help prevent poisonings from occurring. The MPC also strives to make sure that

everyone knows that they can quickly and easily get information by contacting the Maryland Poison Center, 24/7, if a poisoning occurs.

In 2012, the MPC provided speakers and/or materials for 78 programs in 15 Maryland counties, Baltimore City and Washington DC. The programs and events attended by the MPC staff reached over 3,500 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, pharmacies, hospital perinatal education programs, CPR instructors, parish nurses, Red Cross, Head Start, and Healthy Start programs. In all, more than 41,000 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. Approximately 102,000 additional materials were mailed to people and groups who requested them.



Fifteen county school systems and daycare centers used educational materials from the MPC in their classrooms. All told, more than 17,000 pieces of educational material were used in or handed out in schools throughout Maryland. The MPC also partnered with the Frederick County Health Department and Frederick County Public Schools to conduct a Pharmacist Adopt-A-School program, in which local volunteer pharmacists are trained to present a poison and medicine safety program to first grade students. In the spring of 2012, 11 Frederick County elementary schools participated in the

program, reaching over 1,000 first grade students and their families. The program was also conducted in Carroll County through a partnership with Carroll County Health Department and Carroll County Public Schools. The pharmacist volunteers visited nine schools reaching over 700 first grade students. In both counties, all children received educational materials to take home and share with their families.

National Poison Prevention Week (March 18-24, 2012) activities included mailings to emergency departments throughout the state. A Poison Prevention Week poster contest for



public schools in Baltimore City was co-sponsored by the MPC and SafeKids Baltimore. 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 members are often interviewed by television, radio, and print media for their expertise in poison-related stories. The MPC is using Facebook as a means of connecting to the community. Notifications of newsletters, noteworthy toxicology information in the news, and other important tips are shared on a regular basis.

Professional education is targeted towards 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 2012, 66 programs were conducted by MPC staff at hospitals, fire departments, colleges, professional conferences (state, regional, and national) and on the Internet as webinars. These programs were attended by more than 9,200 physicians, nurses, EMS providers, pharmacists, physician assistants, and others. Podcasts were recorded for broadcast on two websites devoted to continuing education for health care providers: *MedicCast.com* and *NursingShow.com*.

The Maryland Poison Center also provides on-site training for physicians, pharmacists, and EMS providers. More than 70 health professionals came to the MPC in 2012 to learn about the assessment and treatment of poisoned patients.

The MPC educates thousands of people each year about poisonings and overdoses.

TOXTIDBITS AND POISON PREVENTION PRESS



ToxTidbits and Poison Prevention Press keep health care providers and community members up-to-date on poison-related topics.

The MPC publishes **Poison Prevention Press**, an e-newsletter for the general public. Published every-other-month, the newsletter highlights various poison safety topics for all ages. Some topics presented in 2012 include “Spring Poison Safety,” “Laundry Products,” “Calling the MPC,” and “Skin Patch Medicines.” **Poison Prevention Press** is sent to e-mail subscribers who are encouraged to post and share the newsletter with others.

ToxTidbits is a monthly newsletter for health professionals containing important toxicology information, updates, and news. Some of the topics addressed in 2012 include “Baclofen Overdoses,” “Intranasal Naloxone,” “CroFab,” and “Treatment of Warfarin Over-anticoagulation.” **ToxTidbits** is sent to email subscribers and faxed to every emergency department in our service area. **ToxTidbits: Antidote Facts** are short reviews of antidotes written by

MPC staff and students. We also provide a list of recommended antidotes and stock levels for hospital pharmacies.

To receive **ToxTidbits** or **Poison Prevention Press** by email, visit our website (www.mdpoison.com) and click on “Receive Newsletter.” Current and previous issues of both newsletters can be read and downloaded from the MPC website as well.

AWARDS AND ACCOMPLISHMENTS

Suzanne Doyon, MD (MPC Medical Director) along with Mary Ripple, MD and David Fowler, MD (State of Maryland Office of the Chief Medical Examiner) won the Best Platform Award at the 2012 North American Congress of Clinical Toxicology for their research presentation, “Comparison of Exposure Fatalities from the Medical Examiner’s Office and the Poison Center.”

Suzanne Doyon, MD took the top prize in the 2012 Maryland Health Data

Innovations Contest for her submission of “Improving the Reporting of Fatal and Non-Fatal Drug Overdoses.” The competition was sponsored by the Maryland Department of Health and Mental Hygiene, the Chesapeake Regional Information System for Our Patients (CRISP), and the Abell Foundation to identify innovative and practical ideas for using clinical information on a patient population to advance public health.



Suzanne Doyon, MD

RESEARCH PRESENTATIONS AND PUBLICATIONS

Klein-Schwartz W, Gonzales L, Lee SC, Doyon S. Comparison of toxicity from exposures to buprenorphine or methadone with and without benzodiazepines. European Association of Poison Control Centres and Clinical Toxicologists, London. Poster. June 1, 2012.

Anderson BD, Schwartz EK, Tra Y, Klein-Schwartz W. Atypical antipsychotic exposures in young children. North American Congress of Clinical Toxicology, Las Vegas. Poster. October 3, 2012.

Lee SC, Klein-Schwartz W, Beuhler MC, Doyon S. Fatalities from acetaminophen combination products reported to poison centers. North American Congress of Clinical Toxicology, Las Vegas. Poster. October 4, 2012.

Lee SC, Klein-Schwartz W, Gonzales L, Doyon S. Comparison of concurrent nonmedical use of benzodiazepines and methadone or buprenorphine. North American Congress of Clinical Toxicology, Las Vegas. Poster. October 4, 2012.

Doyon S, Ripple MT, Fowler D. Comparison of exposure fatalities from the medical examiner's office and the poison center. North American Congress of Clinical Toxicology, Las Vegas. Platform. October 5, 2012.

Anderson BD, Schwartz EK, Tra Y, Klein-Schwartz W. Review of intentional abuse of quetiapine exposures. North American Congress of Clinical Toxicology, Las Vegas. Poster. October 6, 2012.

Dougherty PP, **Klein-Schwartz W.** Unexpected late rise in plasma acetaminophen concentrations in acute acetaminophen overdose. *The Journal of Emergency Medicine*; 2012;43:58-63.

Doyon S, Tra Y, Klein-Schwartz W. Decrease in therapeutic errors involving prescription cough and cold medications in young children. *Journal of Pediatric Pharmacology and Therapeutics*; 2012;17:84-7.

Doyon S, Ripple MT, Fowler D. Comparison of exposure fatalities from the medical examiner's office and the poison center. *Clinical Toxicology* 2012; 50:645.

Bronstein AC, Spyker DA, Cantilena LR, Green JL, Rumack BH and Heard SE (contributor: **Doyon S**): 2011 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 29th Annual Report. *Clinical Toxicology* 2012;50:911-1164.

Klein-Schwartz W, Benson BE, Lee SC, Litovitz T. Comparison of citalopram and other selective serotonin reuptake inhibitor ingestions in children. *Clinical Toxicology*; 2012;50:418-23.

Klein-Schwartz W, Crouch BI. Poisoning. In: *Handbook of Nonprescription Drugs*, Krinsky DL, Berardi RR, Ferreri SP, Hume AL, et al (editors), 17th edition, Washington: American Pharmaceutical Association, 2012, 341-352.



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- University System of Maryland
- Maryland Department of Health & 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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