Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY
40 YEARS OF SERVICE 1972-2012

2011 ANNUAL REPORT

THIS REPORT PROVIDES AN OVERVIEW OF THE MARYLAND POISON CENTER EXPERIENCE DURING 2011.

FROM THE DIRECTOR


Bruce Anderson

As we celebrate 40 years, it's pretty remarkable to think of the changes that have taken place and to recall what was happening in 1972 when the Maryland Poison Center (MPC) joined the University of Maryland School of Pharmacy.

When the MPC finally found a home at the School of Pharmacy, the Vietnam conflict was raging. Hewlett-Packard released the first scientific hand-held calculator, with a list price of $395. Richard M. Nixon became the first U.S. president to visit China. *The Godfather* was released in movie theaters and the first commercially successful video game, Pong, premiered. The Watergate break-in occurred. The Olympic Games were held in Munich, where Mark Spitz set world records and captured a then-record seven gold medals. The Games also were marked by violence as terrorists killed 11 Israeli athletes, coaches, and officials. 1972 was also the time of the final Apollo mission, and Gene Cernan became the last man to walk on the moon.

World events and technology weren't the only things drastically different in 1972. At that time, there were approximately 600 poison centers in the United States. Many of these "centers" consisted of one telephone that was available in an emergency department with no dedicated staff responsible for providing service. There were few information resources available … certainly no Internet or computerized references, but also few textbooks devoted to clinical toxicology. There was no such thing as a regional certified poison center. There was no such thing as a board-certified toxicologist. When the MPC arrived at the University of Maryland School of Pharmacy, the very essence of what a poison center was supposed to be was still evolving.

Initially, the MPC was staffed Monday through Friday from 8 a.m. to 5 p.m. by one person who had a master's degree in education. The rest of the time, the service was "staffed" by pharmacy and medical students. The medical director of the MPC was a psychiatrist. Initially, the service wasn't available for parents at home to call about children getting into toxic substances. The focus then was on providing overdose information to physicians.

Things changed in the mid-1970s. The service expanded to include home callers. A health educator was added to help increase awareness of the service. In the late 1970s, the MPC implemented a statewide 800 number to allow anyone to call without cost. However, budget challenges continued during this time. Health professional students supplemented the staffing until 1996 when we were finally fiscally able to field a staff of trained health professionals 24 hours a day.

Despite these very modest beginnings, the MPC has maintained exceptional service. Lisa Booze, PharmD, CSPI, our clinical coordinator, took an active role in setting the standard for the certification of poison specialists in the U.S. Lisa and others were asked by the American Association of Poison Control Centers (AAPCC) to pilot test a certification exam to ensure that it was a reasonable method for demonstrating expertise as a poison specialist. I only half-jokingly refer to Lisa as the specialist by whom all others are judged.

When the AAPCC developed the certification designation for poison centers, the MPC met the criteria and has maintained that distinction ever since. Currently, all of the pharmacists and nurses who manage the emergency hotline are certified as poison specialists. I am a fellowship trained and board-certified clinical toxicologist. Suzanne Doyon, MD, FACMT, our medical director, is a board-certified emergency physician who is also fellowship trained and board certified in medical toxicology. Wendy Klein-Schwartz, PharmD, MPH, coordinator of research and education, has been with the MPC since 1977, and holds a master's degree in public health in addition to her Doctor of Pharmacy degree. Through her research and voluminous publications, she has helped to advance the management of poisonings and overdoses.

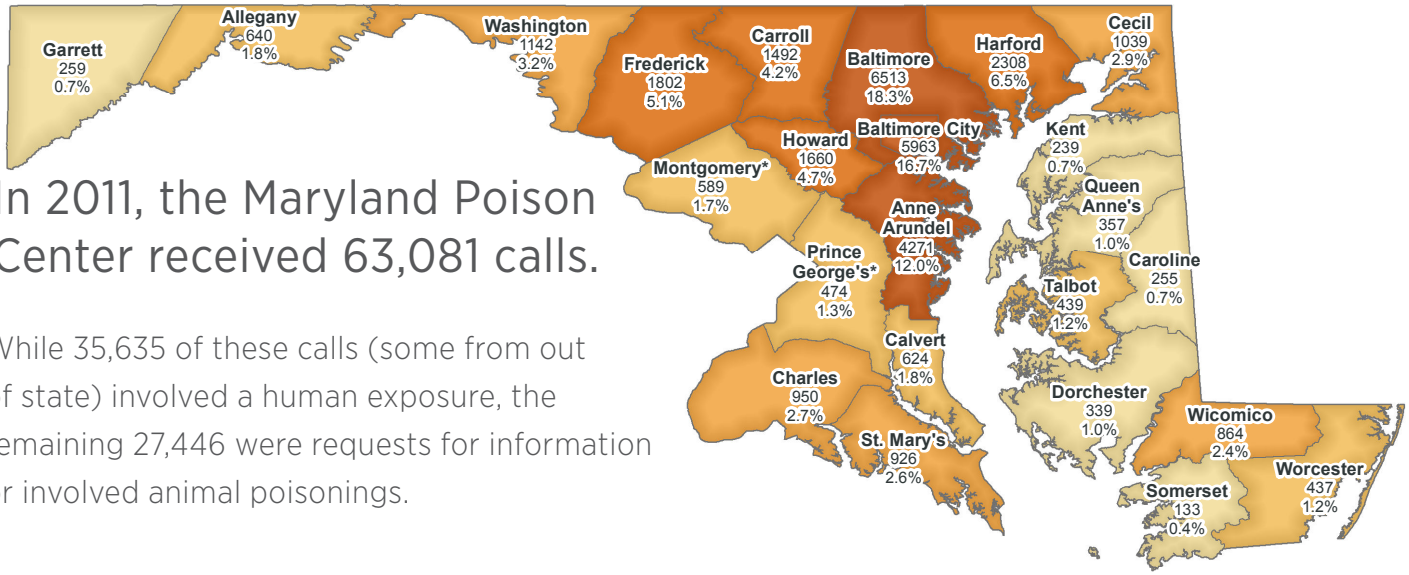
Just as video games today bear little resemblance to the original version of Pong, the MPC today bears little resemblance to its 1972 version. Despite the outward differences, our commitment to providing the most accurate and appropriate information to our callers is exactly the same today as it was in 1972. Happy 40th to the Maryland Poison Center and to all the people who have helped to make this service successful!

Bruce Anderson, PharmD, DABAT
Director of Operations, Maryland Poison Center
Associate Professor, Department of Pharmacy Practice and Science
University of Maryland School of Pharmacy

"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.

1-800-222-1222



In 2011, the Maryland Poison Center received 63,081 calls.

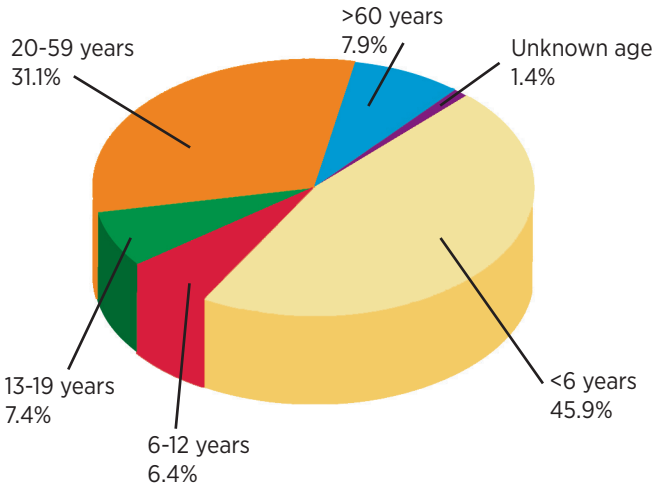
While 35,635 of these calls (some from out of state) involved a human exposure, the remaining 27,446 were requests for information or involved animal poisonings.

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

**Numbers for Montgomery and Prince George's counties reflect calls to the Maryland Poison Center (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 5.4 percent of the human exposures in 2011.*

AGE

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



GENDER

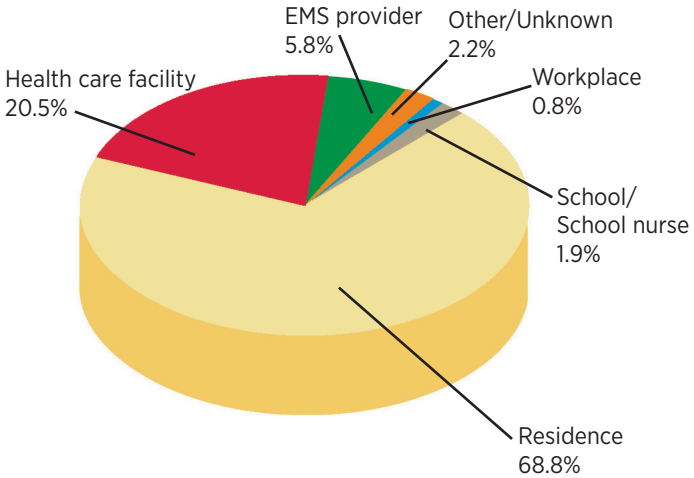
47.5 percent of exposures occurred in males, and 52.3 percent in females (0.2 percent unknown).

ANIMAL EXPOSURES

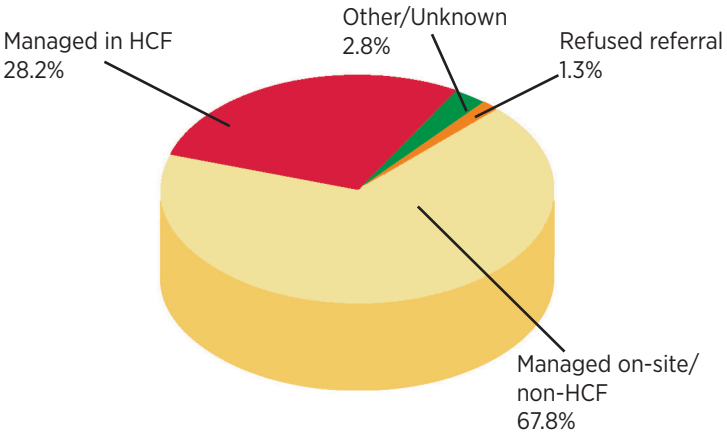
In 2011, a total of 1,665 potentially toxic exposures in animals were reported.

SITE OF CALLER

Most of the calls to the MPC came from the patient's residence or another residence (68.8 percent). Some 20.5 percent of the callers were at a health care facility (hospital, doctor's office, clinic, and others). In 5.8 percent of the cases, an emergency medical services provider (EMS, paramedic, first responder, emergency medical dispatcher) called the MPC for treatment information. Calls originating from teachers, students, and nurses in schools accounted for 1.9 percent of the calls in 2011.



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.



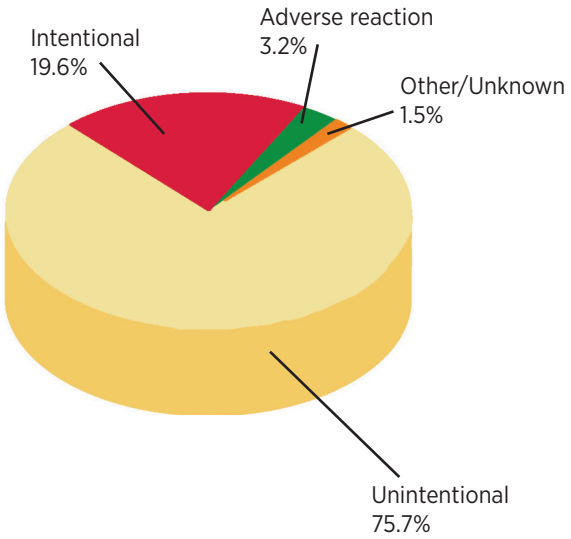
MPC SAFELY MANAGES PATIENTS AT HOME

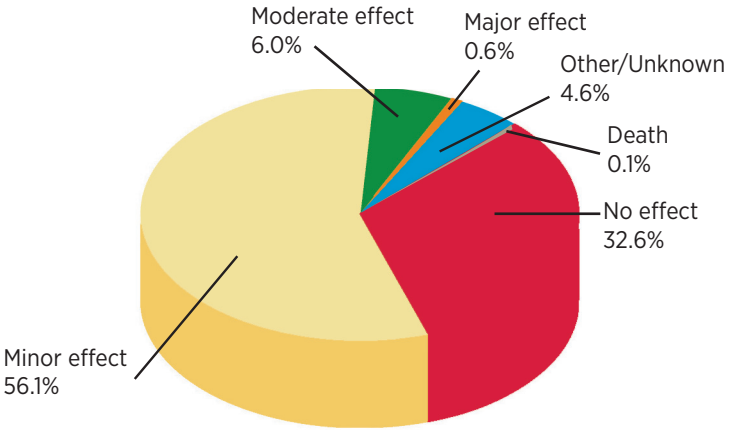
In 2011, 67.8 percent of all poisoning cases were safely managed at home (site of exposure), which saves millions of dollars in unnecessary health care costs compared with managing patients in a health care facility (HCF). It also allows more efficient and effective use of limited health care resources. 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 and misuse of products, and food poisoning accounted for 75.7 percent of total exposures. Therapeutic errors (double doses, wrong medicines taken, etc.) alone accounted for 14.3 percent of total exposures.
- Intentional exposures, due to misuse, abuse, or suicide attempts, accounted for 19.6 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 1.5 percent of total exposures.





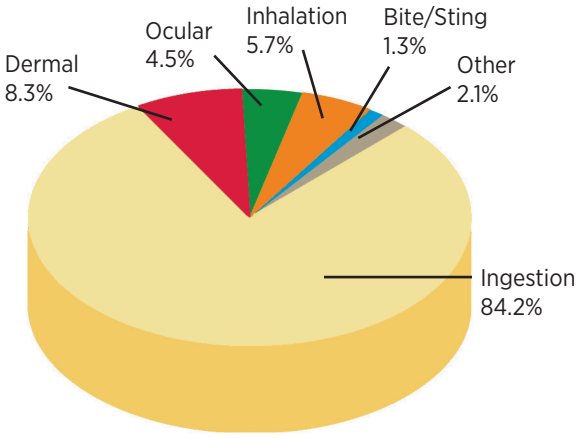
OUTCOMES

The true measure of the effectiveness of the MPC program is in patient outcomes. Although there were 42 cases reported to MPC that resulted in death (0.1 percent) in 2011, the impact of the MPC is obvious: few cases had poor outcomes. Some 88.7 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.

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 2011. Some 74.3 percent of the poisoning and overdose calls to the MPC involved a drug, while 47.8 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	#	%
Analgesics	5,497	15.4%
Sedatives/Hypnotics/Antispsychotics	3,694	10.4%
Antidepressants	2,087	5.9%
Cardiovascular Drugs	1,842	5.2%
Antihistamines	1,559	4.4%
Topical Preparations	1,265	3.5%
Antimicrobials	1,183	3.3%
Stimulants/Street Drugs	1,089	3.1%
Cold & Cough Medicines	1,072	3.0%
Vitamins	1,001	2.8%
Others	6,176	17.3%
TOTAL	26,465	74.3%
TOTAL HUMAN EXPOSURES	**35,635**	

NON-DRUG SUBSTANCES	#	%
Cosmetics/Personal Care Products	3,288	9.2%
Cleaning Substances (Household)	2,724	7.6%
Foreign Bodies/Toys/Miscellaneous	1,709	4.8%
Alcohols	1,525	4.3%
Pesticides	1,261	3.5%
Food Products/Food Poisoning	624	1.8%
Bites and Envenomations	603	1.7%
Plants	575	1.6%
Arts/Crafts/Office Supplies	569	1.6%
Fumes/Gases/Vapors	515	1.4%
Others	3,633	10.2%
TOTAL	17,026	47.8%
TOTAL HUMAN EXPOSURES	**35,635**	

TREATMENT

The tables below list antidotal therapies and decontamination treatments used for poisonings in Maryland during 2011. Most patients were managed conservatively with dilution (given something to eat or drink), irrigation, or washing.

ANTIDOTAL THERAPIES	#
Naloxone	660
IV acetylcysteine	269
Alkalinization	181
Oral acetylcysteine	100
Calcium	74
Fomepizole	62
Glucagon	45
Insulin	43
Atropine	40
Other Antidotes	110
TOTAL	**1,584**

DECONTAMINATION TECHNIQUES	#
Dilute/Irrigate/Wash	20,070
Single-dose Activated Charcoal	1,856
Food/Snack	3,581
Fresh Air	1,086
Other Emetic	209
Lavage	42
Whole Bowel Irrigation	36
Cathartic	33
Multi-dose Activated Charcoal	21
Ipecac	1
TOTAL	**26,935**

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

In 2011, the MPC led 117 education programs and events for public and health professional groups, attended by more than 14,700 people.

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

PUBLIC AND PROFESSIONAL EDUCATION 2011

The 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 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 2011, the MPC provided speakers and/or materials for 101 programs in 19 Maryland counties, Baltimore City, and Washington, D.C. The programs and events attended by the MPC staff reached more than 4,800 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 33,000 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 110,000 additional materials were mailed to people and groups who requested them.

The MPC provided training for 15 school nurses in Caroline County in 2011. Overall, 15 county school systems/day care centers used educational materials from the MPC in their classrooms. All told, more than 34,000 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 where local volunteer pharmacists are trained to present a poison and medicine safety program to first-grade students. In the spring of 2011, 22 Frederick County elementary schools participated in the program, reaching more than 1,900 first-graders and their families.

National Poison Prevention Week (March 20-26, 2011) activities included mailings to emergency departments and pharmacies throughout the state. A Poison Prevention Week poster contest for public schools in Carroll County was co-sponsored by the MPC and Safe Kids Carroll County. The grand-prize winning poster has been used throughout the state to promote poison safety.

The MPC also is 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 2011, 58 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 9,900 physicians, nurses, EMS providers, pharmacists, physician assistants, and others. Monthly podcasts were recorded for broadcast on two websites devoted to continuing education for health care providers: *MedicCast.com* and *NursingShow.com*.

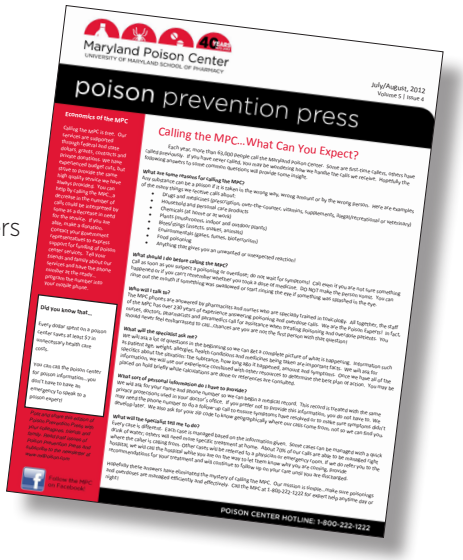
The MPC also provides on-site training for physicians, pharmacists, and paramedics. More than 85 health professionals came to the MPC in 2011 to learn about the assessment and treatment of poisoned patients.

TOXTIDBITS AND *POISON PREVENTION PRESS*

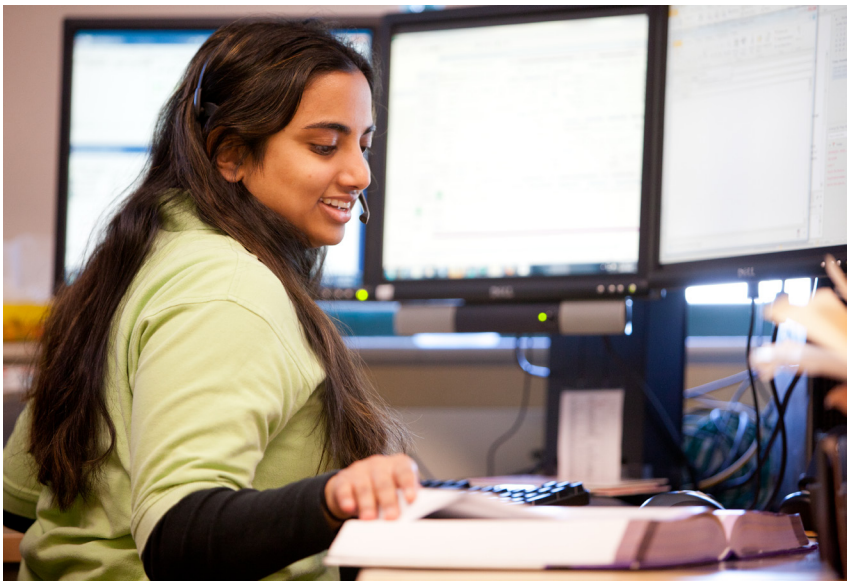

Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY
August 2012
toxtidbits
THE MARYLAND POISON CENTER'S MONTHLY UPDATE: NEWS. ADVANCES. INFORMATION.
Ondansetron and QT Interval Prolongation
Did you know?
The following medications also cause QT interval prolongation:
POISON CENTER HOTLINE: 1-800-222-1222

The MPC publishes *ToxTidbits*, a monthly newsletter for health professionals that contains important toxicology information, updates, and news. Some of the topics addressed in 2011 included "Bath Salts," "Unintentional Insulin Errors," "Chlorine Inhalation," and "Acute Metformin Overdose." *ToxTidbits* is sent to email subscribers and faxed to every emergency department in our service area. Current and past issues of ToxTidbits are on our website at *www.mdpoison.com/publications/toxtidbit_archive.html*. An antidote list with recommendations on which antidotes and how much of each should be available in hospitals is on our website. The list is linked to *ToxTidbits*: *Antidote Facts*, short reviews of antidotes written by MPC staff and students.

The MPC also publishes a newsletter aimed at the general public. *Poison Prevention Press* is a bimonthly newsletter highlighting various poison prevention topics. To receive *ToxTidbits* or *Poison Prevention Press* by email, visit our website (*www.mdpoison.com*) and click on "Publications." Read and download all previous issues of both newsletters from the MPC website.


Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY
July/August, 2012
poison prevention press
Economics of the MPC
Calling the MPC...What Can You Expect?
What are some rhymes for calling the MPC?
What should I do before calling the MPC?
Who will I talk to?
What will the specialist ask me?
What will the specialist tell me to do?
What sort of grossly hallucinogenic do I have to memorize?
Did you know that...
POISON CENTER HOTLINE: 1-800-222-1222

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



AWARDS AND ACCOMPLISHMENTS

Wendy Klein-Schwartz, PharmD, MPH and Suzanne Doyon, MD, FACMT, of the MPC, along with John Sorkin, MD, PhD, of the University of Maryland School of Medicine received the Ronald D. Mann Best Article award for manuscripts published in 2010 in the journal *Pharmacoepidemiology and Drug Safety*. Their article, "Impact of the Voluntary Withdrawal of Over-the-Counter Cough and Cold Medications on Pediatric Ingestions Reported to Poison Centers," was published in the August 2010 issue of the journal.

Wendy Klein-Schwartz, PharmD, MPH, and Patrick Dougherty, PharmD, a former MPC toxicology fellow, won the Best Platform Award at the 2011 North American Congress of Clinical Toxicology for their research presentation "Comparison of Octreotide and Dextrose Only for Treatment of Sulfonylurea Overdose in Children."

The Maryland Poison Center was named a finalist in the *Daily Record*'s 2011 Health Care Heroes Awards in the community outreach category.

The Maryland Poison Center earned recertification for the next five years from the American Association of Poison Control Centers. Certification is designed to ensure that every poison center in the country adheres to the same high standards. The recertification process involves a comprehensive assessment of the center and includes a review of center policies and procedures, staff, consultants, medical direction, education and outreach, and more.

RESEARCH PUBLICATIONS AND PRESENTATIONS

Lee S, Doyon S, Klein-Schwartz W. Comparison of Toxicity of Nonmedical Use of Buprenorphine and Methadone. North American Congress of Clinical Toxicology, Washington, D.C. Poster and Trainees Research Symposium Platform. Sept. 23, 2011.

Klein-Schwartz W, Benson B, Litovitz T, **Lee S**. Comparison of Citalopram and Other Selective Serotonin Re-uptake Inhibitors (SSRI) Overdoses in Children. North American Congress of Clinical Toxicology, Washington, D.C. Platform. Sept. 24, 2011.

Dougherty P, Lung D, **Lee S, Klein-Schwartz W**. Comparison of Octreotide and Dextrose Only for Treatment of Sulfonylurea Overdose in Children. North American Congress of Clinical Toxicology, Washington, D.C. Platform. Sept. 24, 2011.

Doyon S, Ripple M, Noranbrock C, Fowler D. The Poison Center as a Reporting Agency to the Medical Examiner. North American Congress of Clinical Toxicology, Washington, D.C. Poster. Sept. 24, 2011.

Dougherty P, **Klein-Schwartz W**. Non-toxic to Toxic Risk Stratification Changes After Acute Acetaminophen Overdose. *Journal of Emergency Medicine*; 2011:41:1-6. (doi:10.1016/j.jemermed.2011.05.023)

Klein-Schwartz W, Doyon S. Intravenous Acetylcysteine for the Treatment of Acetaminophen Overdose. *Expert Opinion in Pharmacotherapy*; 2011;12(1):119-130. (doi:10.1517/14656566.2011.537261)

ACKNOWLEDGMENTS

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- 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.

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www.mdpoison.com
to see how you can support the Maryland Poison Center.

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1-800-222-1222

www.mdpoison.com

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