# Maryland Poison Center

*University of Maryland School of Pharmacy*

# 2010 ANNUAL REPORT

This report provides an overview of the Maryland Poison Center experience during 2010.

## FROM THE DIRECTOR

**Bruce Anderson**

Greetings! Welcome to the Maryland Poison Center 2010 Annual Report.

This annual report represents the end of another decade of service for the Maryland Poison Center (MPC). It's interesting and instructive to look back at where you've been to figure out where you are and how far you've come. It is especially intriguing to review and compare what's happening now with the past when the year ends in a zero. So, I thought it would be worthwhile to compare the MPC's experiences in 2010 to 2000.

The year 2000 seems so quaint now, yet at the time it seemed sort of magical! People were worried that the computers we relied on would fail. The dot-com bubble was starting to burst, the U.S. presidential election introduced a new phrase into popular language ("hanging chad"), and people were getting concerned about rising gas prices (average cost in the U.S. was up to $ 1.70!). Things clearly have changed.

Change can be seen in the data from the MPC in 2000 and 2010

| | 2000 | 2010 | % change |
|---|---|---|---|
| Total call volume | 57,306 | 62,820 | 9.6 |
| Human exposures | 35,270 | 35,895 | 1.8 |
| Drug ID calls | 5,527 | 17,962 | 225 |

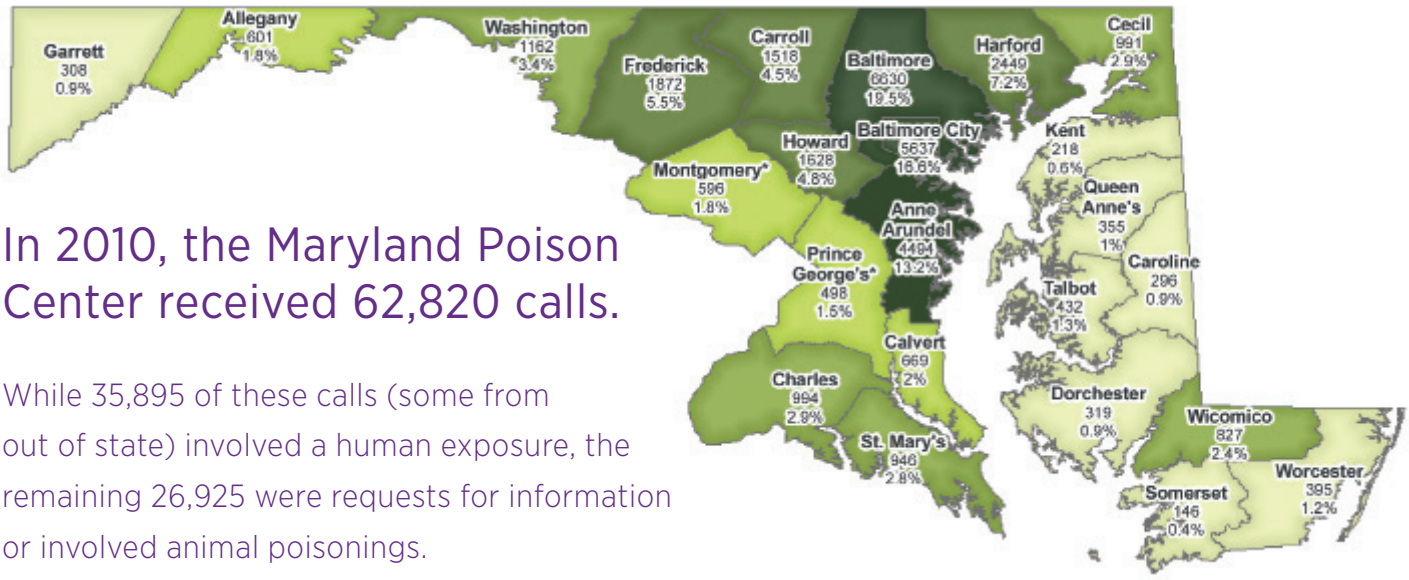
While human exposure call volume has remained about the same, there has been a dramatic increase in drug identification calls managed by the MPC. This increase in drug ID requests mirrors the increase in misuse and abuse of prescription medications in the United States. The problem of prescription drug abuse is staggering. According to the Centers for Disease Control and Prevention, there were 2,901 unintentional drug deaths involving opioid analgesics in 1999 compared to 11,499 in 2007. Additionally, there were nearly twice as many deaths in 2007 involving opioid analgesics than deaths involving cocaine, and more than five times as many as those involving heroin. And the problem is growing. Prescription medications are now the fourth most abused substances (behind tobacco, alcohol, and marijuana). The MPC can help provide information on specific substances identified and from where those calls are coming. This information can be used in targeting substance abuse awareness and prevention efforts.

Our staff of pharmacists and nurses have more than 160 years combined experience managing poisoning and overdose cases and continually update their training to keep up with changes in the types of calls that come in to the MPC. In addition, our geographic information specialist and statistician enable us to analyze our data for research purposes and provide data to other partners throughout the state. Our educators reach out to health professionals and the public to keep them informed of changing trends and of the services we offer. The makeup of the types of calls may change over time, but the mission of the MPC stays the same: we save lives and save dollars by providing emergency triage and treatment information for all callers.

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.**




# In 2010, the Maryland Poison Center received 62,820 calls.

While 35,895 of these calls (some from out of state) involved a human exposure, the remaining 26,925 were requests for information or involved animal poisonings.

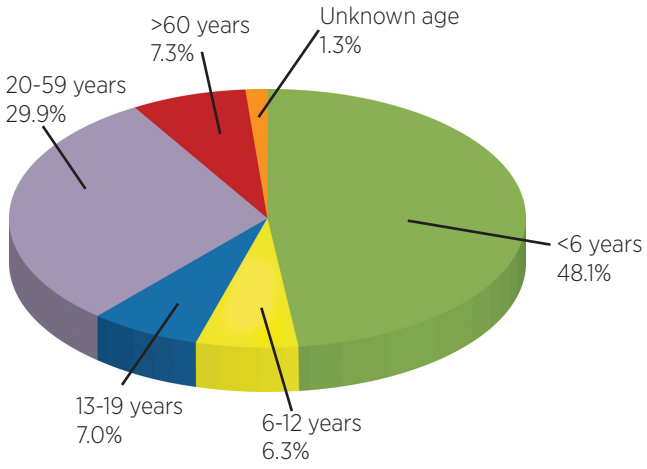
*The data for counties is as accurate as possible given that some zip codes cross county boundaries.*

**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 5.3 percent of the human exposures in 2010.*

## AGE

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

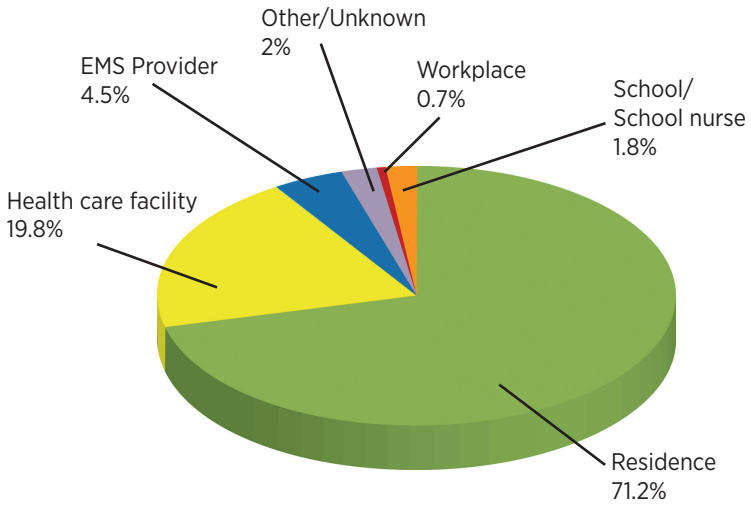



## GENDER

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

## SITE OF CALLER

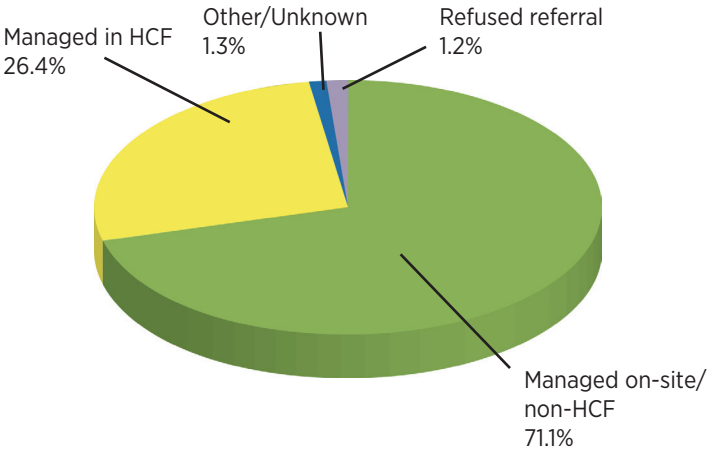
Most of the calls to the MPC came from the patient's residence or another residence (71.2 percent). Some 19.8 percent of the callers were health care providers (hospital, doctor's office, clinic, and others). In 4.5 percent of the cases, an emergency medical services provider (EMS, paramedics, first responders, emergency medical dispatcher) called the MPC for treatment information. Calls originating from teachers, students, and nurses in schools accounted for 1.8 percent of the calls in 2010.




## ANIMAL EXPOSURES

In 2010, a total of 1,981 potentially toxic exposures in animals were reported.

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.



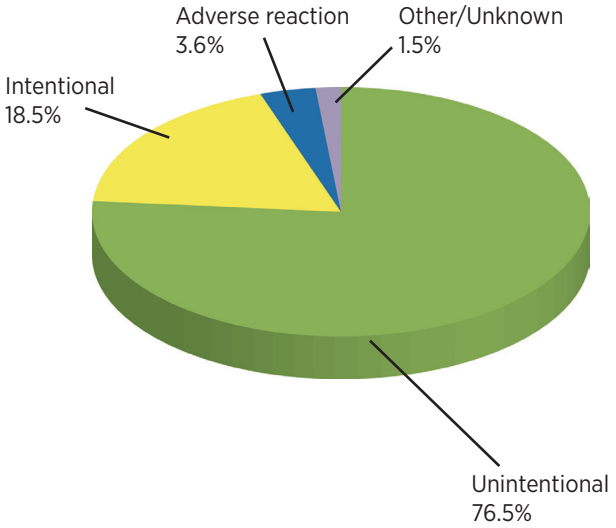

## MPC SAFELY MANAGES PATIENTS AT HOME

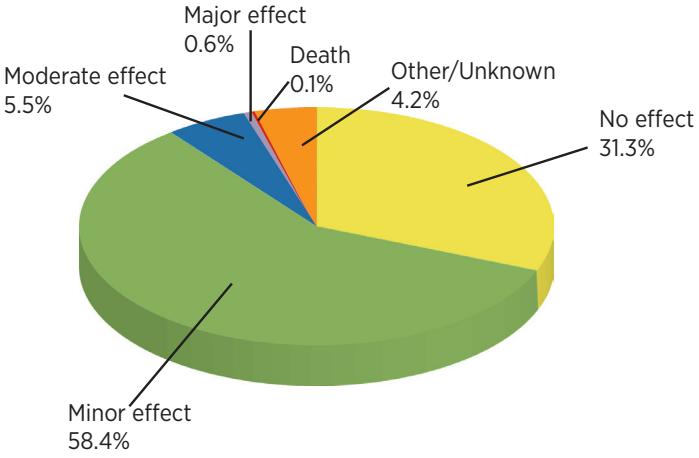
In 2010, 71.1 percent of all poisoning cases were safely managed at home (site of exposure), which saves millions of dollars in unnecessary health care costs compared with managing patients in a health care facility (HCF). It also allows more efficient and effective use of limited health care resources. 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 76.5 percent of total exposures. Therapeutic errors (double-doses, wrong medicines taken, etc.) alone accounted for 13.1 percent of total exposures.
- Intentional exposures, due to misuse, abuse or suicide attempts, accounted for 18.5 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 1.5 percent of total exposures.



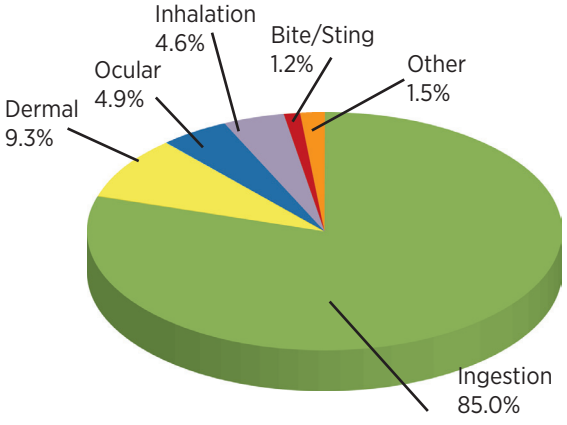

## OUTCOMES

The true measure of the effectiveness of the MPC program is in patient outcomes. Although there were 35 cases reported to MPC that resulted in death (0.1 percent) in 2010, the impact of the MPC is obvious: few cases had poor outcomes. Some 89.7 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 2010. Some 71.8 percent of the poisoning and overdose calls to the MPC involved a drug, while 50.0 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 | 5,519 | 15.4% |
| Sedatives/Hypnotics/Antipsychotics | 3,532 | 9.8% |
| Antidepressants | 1,938 | 5.4% |
| Cardiovascular Drugs | 1,717 | 4.8% |
| Antihistamines | 1,631 | 4.5% |
| Topical Preparations | 1,409 | 3.9% |
| Cold and Cough Preparations | 1,119 | 3.1% |
| Antimicrobials | 1,006 | 2.8% |
| Vitamins | 987 | 2.7% |
| Hormones & Homone Antagonists | 939 | 2.6% |
| Others | 5,990 | 16.7% |
| TOTAL | 25,787 | 71.8% |
| TOTAL HUMAN EXPOSURES | 35,895 | |

| NON-DRUG SUBSTANCES | # | % |
|---|---|---|
| Cosmetics/Personal Care Products | 3,762 | 10.5% |
| Cleaning Substances (Household) | 2,633 | 7.3% |
| Foreign Bodies/Toys/Miscellaneous | 1,827 | 5.1% |
| Alcohols | 1,676 | 4.7% |
| Pesticides | 1,220 | 3.4% |
| Food Products/Food Poisoning | 734 | 2.0% |
| Plants | 701 | 2.0% |
| Arts/Crafts/Office Supplies | 645 | 1.8% |
| Bites and Envenomations | 548 | 1.5% |
| Hydrocarbons | 500 | 1.4% |
| Others | 3,713 | 10.3% |
| TOTAL | 17,959 | 50.0% |
| TOTAL HUMAN EXPOSURES | 35,895 | |

# TREATMENT

The tables below list antidotal therapies and decontamination treatments used for poisonings in Maryland during 2010. Most patients were managed conservatively with dilution (given something to drink), irrigation or washing.

| ANTIDOTAL THERAPIES | # |
|---|---|
| Naloxone | 607 |
| IV acetylcysteine | 209 |
| Alkalinization | 162 |
| Oral acetylcysteine | 131 |
| Calcium | 46 |
| Atropine | 36 |
| Fomepizole | 43 |
| Glucagon | 38 |
| Insulin | 37 |
| Other Antidotes | 106 |
| TOTAL | 1,415 |

| DECONTAMINATION TECHNIQUES | # |
|---|---|
| Dilute/Irrigate/Wash | 20,031 |
| Single-Dose Activated Charcoal | 2,081 |
| Food/Snack | 1,779 |
| Fresh Air | 961 |
| Other Emetic | 244 |
| Lavage | 50 |
| Cathartic | 51 |
| Whole Bowel Irrigation | 28 |
| Multi-Dose Activated Charcoal | 36 |
| Ipecac | 8 |
| TOTAL | 25,269 |

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


In 2010, the MPC led 127 education programs and events for public and health professional groups, attended by more than 10,100 people.

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

## PUBLIC AND PROFESSIONAL EDUCATION 2010

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 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 2010, the MPC provided speakers and/or materials for 103 programs in 18 Maryland counties, Baltimore City, and Washington, D.C. The programs and events staffed by the MPC were attended by more than 5,800 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, 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 58,000 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 135,000 additional materials were mailed to people and groups who requested them.

The MPC provided training for 135 school nurses in Cecil and Frederick counties in 2010. 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 21-27, 2010) activities included mailings to emergency departments and pharmacies throughout the state. A Poison Prevention Week poster contest for public schools in Washington County was co-sponsored by the MPC and SafeKids Washington County. 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 ixn a health care facility. In 2010, 68 programs were conducted by MPC staff at hospitals, fire departments, colleges, professional conferences (state, regional, and national) and through webinars. These programs were attended by more than 4,300 physicians, nurses, EMS providers, pharmacists, physician assistants, and others.

In 2010, 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 238,566 downloads of the podcasts, averaging 4,500 downloads per episode.

The MPC also provides on-site training for physicians, pharmacists, and paramedics. More than 100 health professionals came to the MPC in 2010 to learn about the assessment and treatment of poisoned patients.


toxtidbits
1-800-222-1222
the maryland poison center's monthly update. news. advances. information.
July 2010
Levamisole—a Cocaine Contaminant
DID YOU KNOW THAT... poison centers have received more than 600 calls about K2 this year?
Maryland Poison Center

# *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 email.

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 120 subscribers.

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
1-800-222-1222
Poison Prevention Press
November/December 2010
Volume 3, Issue 6
Nonmedical Use of Prescription Medicines
Proper Disposal of Medicine
Did you know that...

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

# MARYLAND POISON CENTER STAFF 2010

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# RESEARCH PUBLICATIONS AND PRESENTATIONS

**Dougherty PP, Klein-Schwartz W.** Comparison of Octreotide and Dextrose Only for Treatment of Sulfonylurea Overdose in Children. University of Maryland School of Pharmacy Research Showcase, Baltimore, Md., April 13, 2010.

**Klein-Schwartz W, Doyon S, Dowling T.** Evaluation of a Novel Charcoal Cookie Formulation for Drug Adsorption. American College of Clinical Pharmacy Spring Practice and Research Forum, Charlotte, N.C., April 26, 2010.

**Doyon S, Klein-Schwartz W.** Ingestions of Prescription Cough and Cold Medications in Children Under 2 Years Reported to Poison Centers. North American Congress of Clinical Toxicology, Denver, Colo., Oct. 11, 2010.

**Klein-Schwartz W, Doyon S, Dowling T.** Evaluation of a Novel Charcoal Cookie Formulation for Drug Adsorption. *Pharmacotherapy*, 2010; 30(9):888-894.

**Klein-Schwartz W, Sorkin J, Doyon S.** Impact of the Voluntary Withdrawal of Over-the-Counter Cough and Cold Medications on Pediatric Ingestions Reported to Poison Centers. *Pharmacoepidemiology and Drug Safety*, 2010; 19:819-824.

**Klein-Schwartz W, Doyon S.** Intravenous Acetylcysteine for the Treatment of Acetaminophen Overdose. *Expert Opinion in Pharmacotherapy*, 2010; Dec. 2 [Epub ahead of print].

**Hayes BD, Klein-Schwartz W.** Consistency Between Code Poison Center Data and Fatality Abstract Narratives for Therapeutic Error Deaths in Older Adults. *Clinical Toxicology*, 2010; 48(1):68-71.

**Dougherty PP, Klein-Schwartz W.** Octreotide's Role in the Management of Sulfonylurea-Induced Hypoglycemia. *Journal of Medical Toxicology*, 2010 (June); 6(2):199-206.

**Anderson B, Ke X, Klein-Schwartz W.** Potential for Erroneous Interpretation of Poisoning Outcomes Due to Changes in National Poison Data System Reporting. *Clinical Toxicology*, 2010; 48(7):745-749.

**Benson BE, Farooqi MF, Klein-Schwartz W, Litovitz T, Webb AN, Borys DJ, Lung D, Rose SR, Aleguas A, Sollee DR, Seifert SA.** Diphenhydramine Dose-Response: A Novel Approach to Determine Triage Thresholds. *Clinical Toxicology*, 2010; 48(8):820-831.

**Doyon S, Ripple M, Ali Z, Fowler D.** Death Initially Wrongly Attributed to Buprenorphine. *Clinical Toxicology*, 2010; 6(48): 633. (poster)

**Doyon S.** "Opoids." *Emergency Medicine: A Comprehensive Guide*. Tintinalli JE, Kelen GD, and Stapczyski JS, Eds., 7th edition, McGraw-Hill: New York, 2010.

**Doyon S.** "Anticonvulsants." *Goldfrank's Toxicological Emergencies*. Goldfrank LR, Flomenbaum N, Lewin NA, Howland MA, and Hoffman RS, Eds., 9th Edition, Appleton & Lange: Norwalk, Conn., 2011.

**Bronstein AC, Spyker DA, Cantilena LR, Green JL, Rumack BH, Heard SE (contributor: Doyon S)**. 2009 Annual Report of the American Association of Poison Control Centers' National Poison Data System: 27th Annual Report. *Clinical Toxicology*, 2010; 46:927-1057.

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- 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.

# Maryland Poison Center

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