



Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

2014 **Annual Report**

www.mdpoison.com

1-800-222-1222

From the Director

In 2015, we seem to be awash in data. People see data on just about everything...from information about how your favorite baseball player fared in last night's game to the number of daily steps taken documented by your Fit Bit®. People are used to and expect that there will be data on just about everything.

The Maryland Poison Center's (MPC) annual report is a terrific example of the power of data. The data that we collect on a daily basis shows trends such as changes in call volume over time, as well as a dramatic change in the makeup of those calls. No longer is MPC staff spending the majority of their time responding to calls about young children unintentionally getting into things in their environment. Most of the MPC staff time now involves managing cases involving intentional overdoses: individuals who are trying to harm themselves



or are abusing substances. These cases are much more challenging to manage and require far more attention, time, and work than typical unintentional calls. As a result, the MPC has added staff, adjusted the shifts the staff works, and changed the job duties for each shift.

As part of the process of caring for patients, we extensively document these cases and report in aggregate on patient outcomes to the state health department and other sources, such as the media, when requested. This reporting is done

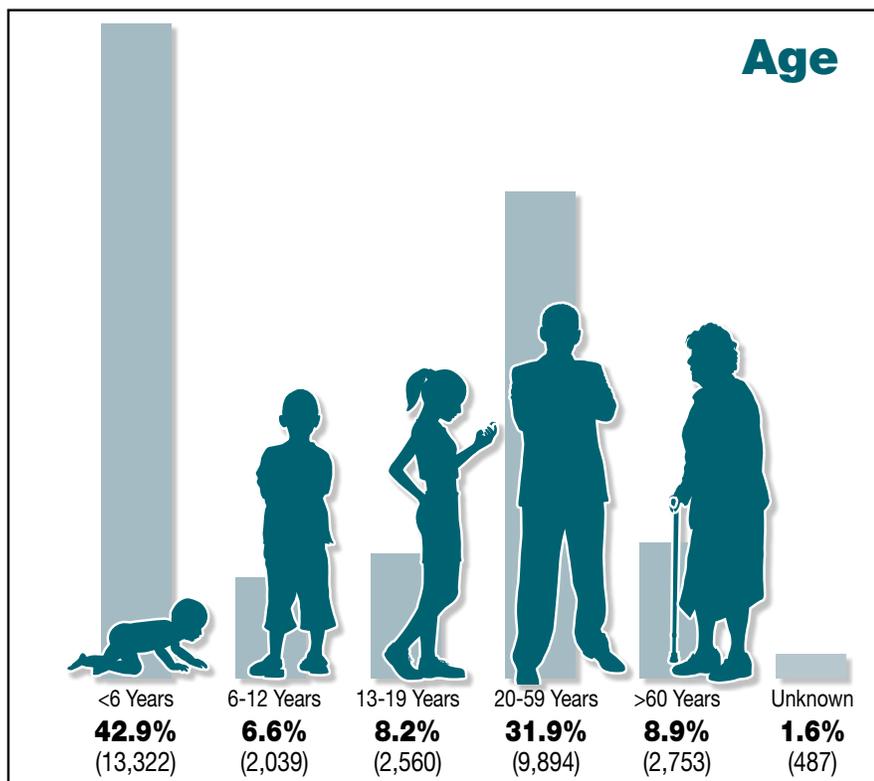
in near real time. We can identify potential public health problems quickly and share that information with public health officials immediately. Nationally, poison center data has been used to identify and address outbreaks from new drugs of abuse like synthetic cannabinoids (aka: synthetic marijuana) and "bath salts," awareness of the harm from liquid nicotine products, laundry packet exposures in young children, and much more. Recently, MPC staff has been working with the Maryland Department of Health and Mental Hygiene to help respond to the increase in prescription drug abuse and subsequent overdoses.

There are few data systems available that are sophisticated enough to document and report this type of information, and there are none that can do so in near real time. But the Maryland Poison Center can. However, we can only document and report on the calls we receive.

The bottom line? Just call! We can help provide information necessary to successfully manage poisoning and overdose cases. Even for cases that seem minor and straightforward, call anyway! We document those experiences and report on all possible poisoning and overdose cases. By doing this, we can play a vital role in improving public health in Maryland.

Bruce D. Anderson,
PharmD, DABAT

*Director of Operations
Maryland Poison Center
Associate Professor of Pharmacy
Practice and Science
University of Maryland
School of Pharmacy*



The **6** W's of the **Maryland Poison Center**

Who we are:

The **Maryland Poison Center** (aka “**Poison Control**”) is certified by the American Association of Poison Control Centers (AAPCC) as a regional poison center.

Who answers the phones:

Pharmacists and nurses who are certified as specialists in poison information by the AAPCC answer the 1-800-222-1222 number that can be dialed toll free from any location in Maryland. These health professionals have specialized training in managing poisonings and overdoses and have a combined 250 years of experience.

What we do:

The mission of the **Maryland Poison Center (MPC)** is to decrease the cost and complexity of poisoning and overdose care while maintaining and/or improving patient outcomes. We do this by providing treatment advice and information over the phone for poisonings and overdoses 24 hours a day, seven days a week, 365 days a year.

Where we are:

Located at the University of Maryland, Baltimore, the **MPC** has been a part of the University of Maryland School of Pharmacy since 1972.

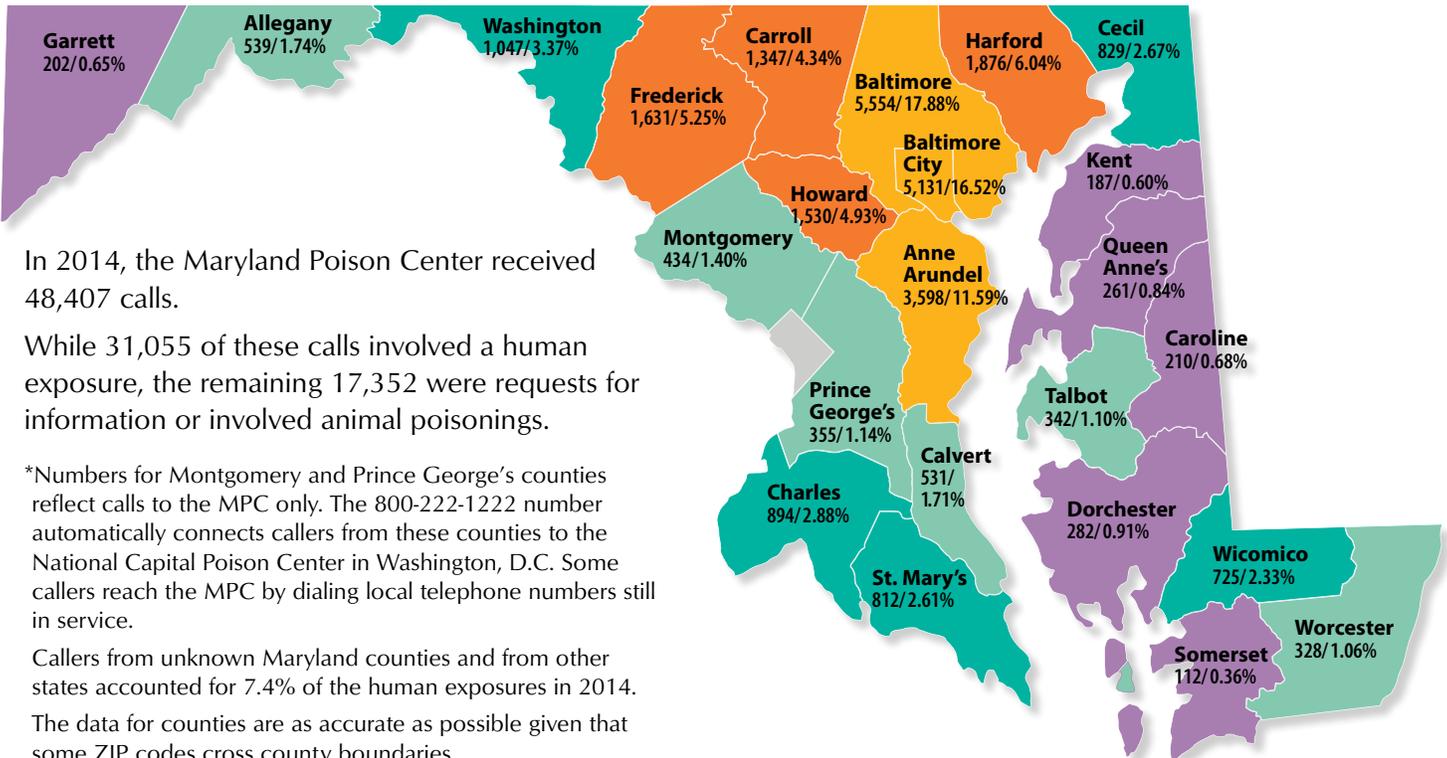
Why call us:

A call to the **MPC** is faster and a lot less expensive than a visit to the emergency room. About 65 percent of all cases reported to the **MPC** are managed safely at home. By reducing the number of unnecessary emergency room visits, the **MPC** saves an estimated \$15-30 million per year in health care costs.

When to call:

A call should be placed to the **MPC** as soon as you suspect that someone has been exposed to a poison or has had a medicine misadventure. Do not wait for symptoms to appear. Call any time day or night with questions about medicines, household products, personal care products, chemicals, plants, bites and stings, gases and fumes, food poisoning, and any other item that causes a person to have an unwanted or unexpected reaction.

Human Exposures



\$1

For Every
\$1 Spent
on Poison
Center Services
\$13 are Saved
in Health Care
Costs



48,407

Total Calls
Answered
by the
MPC



From the Medical Director

It is an honor to present the Maryland Poison Center's 2014 Annual Report. Over the last year, the Maryland



Poison Center (MPC) answered 48,407 calls, including 31,055 human exposures and 16,172 information requests. In 2014, we saw the following major public health toxicology issues that resulted in numerous calls to the MPC: single use laundry detergent packets, e-liquid nicotine, synthetic cannabinoids, bath salts, and the lethal mix of heroin and fentanyl among IV drug users. The epidemic of deaths from prescription opioid overdoses also continued. The Drug Enforcement Administration doubled its efforts in this area, adding Tramadol to its list of scheduled medications (Schedule IV) and changing Hydrocodone to Schedule II. The impact of these changes has not yet been fully assessed, but will likely result in changes in the types of overdoses occurring in our communities.

In 2014, the MPC continued to work with the Maryland Institute of Emergency Medical Services System, the Maryland chapter of the American College of Emergency Physicians (MD ACEP), the Department of Health and Mental Hygiene's Behavioral Health Administration, and the Office of the Chief Medical Examiner to focus on the important issues of heroin and opioid overdose deaths. The MPC expanded its collaboration with local health departments in the area of overdose prevention and fatality

review. Of note, the MPC is a vital component of the implementation of the state's Overdose Response Program, pioneering important work in naloxone distribution and bystander naloxone administration.

An example of our continued commitment to addressing opioid overdose deaths are the presentations on safe prescribing of opioids that MPC staff gave at the annual Maryland Chapter of the American College of Emergency Physicians meeting. Additionally, we published numerous scientific papers in peer-reviewed journals on nonmedical use of prescription medications, investigations of deaths from acetaminophen combination products, and a position statement on expansion of naloxone distribution. Some of these publications have received national attention.

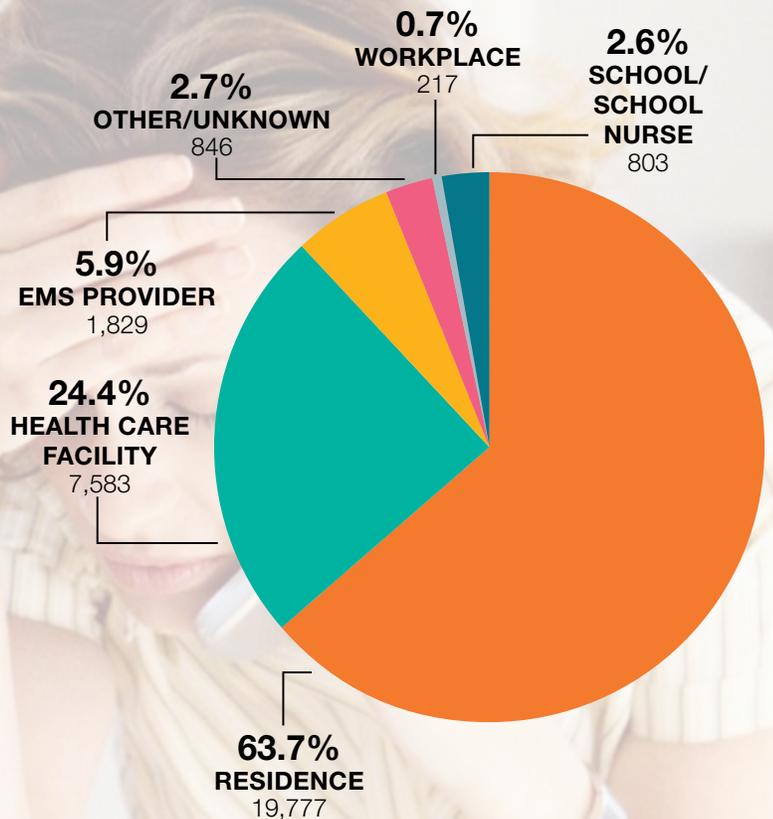
Thanks to the continued support of the University of Maryland School of Pharmacy, the Department of Health and Mental Hygiene, the state of Maryland, and the U.S. Health Resources and Services Administration, the MPC has been able to provide the best possible service to our fellow Marylanders, and we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

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



Site of Caller

Most of the calls to the MPC came from the caller's residence or another residence (63.7 percent). Some 24.4 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, paramedic, first responder, emergency medical dispatcher) called the MPC for treatment information. Calls originating from teachers, students, and nurses in schools accounted for 2.6 percent of the calls in 2014.



Treatment

The tables below list antidotal therapies and decontamination treatments used for poisonings in Maryland during 2014.

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

ANTIDOTAL THERAPIES

	No.
Naloxone	602
IV acetylcystiene	197
Alkalinization	161
Calcium	125
Oral acetylcysteine.....	57
Glucagon	50
Insulin	48
Atropine	40
Fomepizole.....	37
Vitamin K.....	25

DECONTAMINATION TECHNIQUES

	No.
Dilute/Irrigate/Wash	16,989
Food/Snack	2,999
Single-dose Activated Charcoal.....	1,550
Fresh Air.....	1,051
Other Emetic	239
Multi-dose Activated Charcoal	30
Whole Bowel Irrigation	26
Cathartic	22
Lavage	17
Ipecac	0

Gender

47.1 percent of exposures occurred in males and 52.3 percent in females (0.6 percent unknown).

Animal Exposures



In 2014, a total of **1,141** potentially toxic exposures in animals were reported.

Public and Professional Education 2014

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 Maryland Poison Center, 24/7, if a poisoning occurs.

In 2014, the MPC provided speakers and/or materials for 88 programs in 14 Maryland counties, Baltimore City, and Washington, D.C. The programs and events attended by the MPC staff reached approximately 4,500 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, and Head Start and Healthy Start programs. In all, approximately 54,000 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 63,000 additional materials were mailed to people and groups who requested them.

Sixteen county school systems and daycare centers used educational materials from the MPC in their classrooms. All told, more than 19,000 pieces of educational material were used in or handed out in schools throughout Maryland.

National Poison Prevention Week (March 16-22, 2014) activities included mailings to emergency departments throughout the state. The MPC also partnered with Safe Kids Baltimore, Safe Kids Carroll County, Safe Kids Washington County, and Cecil County Department of Emergency Services to offer Poison Prevention Week kits

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

The **MPC** led 107 education programs and events for public and health professional groups, attended by more than 17,000 people.

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

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

to elementary schools in their areas. Schools could choose from a list of activities to increase awareness of poison safety to students and their families. In all, 24 schools participated, reaching more than 9,500 students. Finally, daily Facebook posts were made providing poison safety tips.

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 also 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 clinicians better manage poisoning and overdose cases that end up in a health care facility. In 2014,

55 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 13,000 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 MPC started a Twitter account (@MPCToxTidbits) in 2014 as another tool to keep health professionals up-to-date with toxicology.

The Maryland Poison Center also provides on-site training for physicians, pharmacists, and EMS providers. Dozens of health professionals came to the MPC in 2014 to learn about the assessment and treatment of poisoned patients.

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

Awards

Bruce Anderson, PharmD, MPC's Director of Operations, received the 2014 University System of Maryland Board of Regents' Faculty Award for Public Service.

The Regents' Faculty Awards publicly recognize distinguished performance on the part of faculty members. This award is the highest honor presented by the Board of Regents to exemplary faculty members. The Public Service Award includes any activity that benefits the citizens of Maryland and of the nation or humanity in general.



74%

of
Exposure
Calls
were
"Unintentional"



90%

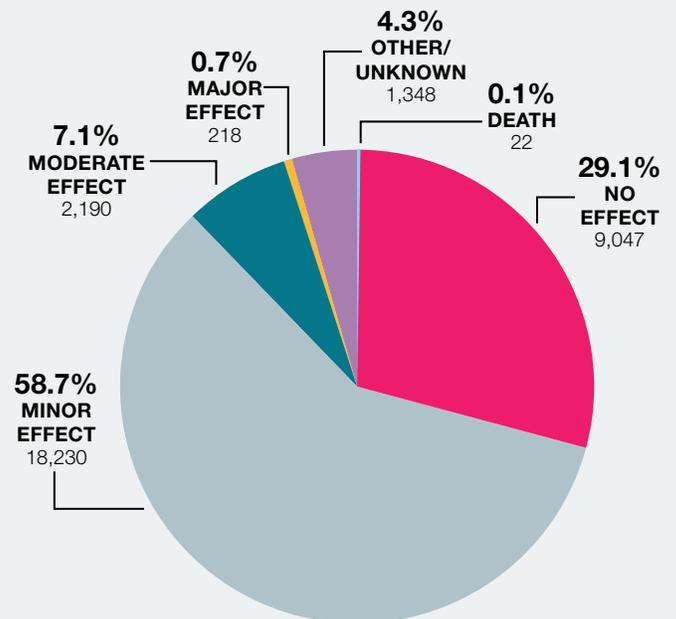
of
All Calls
from the
Public were
Managed
at Home





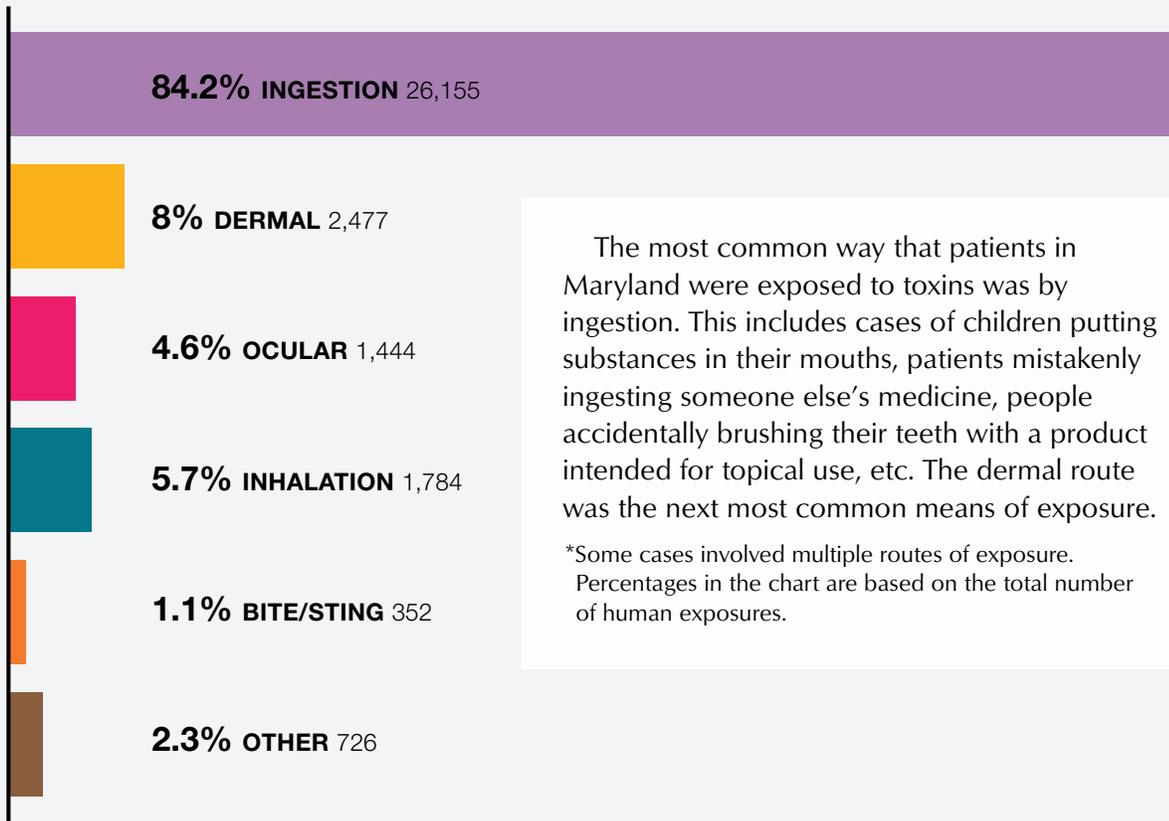
Outcomes

The true measure of the effectiveness of the MPC program is in patient outcomes. Although there were 22 cases reported to the MPC that resulted in death (0.1 percent) in 2014, the impact of the MPC is obvious: few cases had poor outcomes. Some 87.8 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 fulfilling our mission.

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 adjacent tables list the most common substances involved in poisonings and overdoses reported to the MPC in 2014. Some 72.7 percent of the poisoning and overdose calls to the MPC involved a drug, while 49.1 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.



TOP 10 DRUG SUBSTANCES

	No.	%
Analgesics	4,932	15.9%
Sedatives/Hypnotics/ Antipsychotics	3,090	10.0%
Cardiovascular Drugs	1,824	5.9%
Antihistamines	1,623	5.2%
Stimulants/Street Drugs	1,127	3.6%
Topical Preparations	944	3.0%
Anticonvulsants	944	3.0%
Antimicrobials	922	3.0%
Cold and Cough Medicines	903	2.9%
Hormones (including diabetes and thyroid medicines)	875	2.8%
Others	5,378	17.3%
TOTAL	22,562	72.7%

TOTAL HUMAN EXPOSURES.....31,055

TOP 10 NON-DRUG SUBSTANCES

	No.	%
Cosmetics/ Personal Care Products	2,962	9.5%
Cleaning Substances (Household).....	2,682	8.6%
Alcohols.....	1,419	4.6%
Foreign Bodies/ Toys/Miscellaneous.....	1,334	4.3%
Pesticides	1,019	3.3%
Plants	596	1.9%
Hydrocarbons.....	521	1.7%
Arts/Crafts/Office Supplies	515	1.7%
Chemicals.....	437	1.4%
Food Products/ Food Poisoning	434	1.4%
Others.....	3,344	10.8%
TOTAL	15,263	49.1%

TOTAL HUMAN EXPOSURES.....31,055

ToxTidbits and Poison Prevention Press

ToxTidbits
Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY
Poison Center Hotline: 1-800-222-1222
July 2014
The Maryland Poison Center's Monthly Update: News, Advances, Information

Caffeine: No longer just a mild stimulant!

Caffeine is the most popular stimulant worldwide and its use is growing among adolescents and young adults. It is commonly used as a performance enhancer and is gaining popularity in body building. Deaths directly associated with caffeine are rare but with an increase in availability of caffeine in a variety of easy-to-consume and highly concentrated formulations, overdose cases are occurring more frequently. Energy drink, concentrated formulations increased by 369% from 2010-2011. In 2013, poison centers received 3,032 reports of exposures to energy drinks; 60% involved children and teens. A recent fatality in a teen following the ingestion of bulk powder pure caffeine for body building has resulted in a FDA warning to avoid powdered pure caffeine. (<http://www.fda.gov/food/ recalls/alerts/emergencies/safety/alerts/adviseuseof/ucm405787.htm>)

1 teaspoon of caffeine powder = the amount of caffeine in 25 cups of coffee

Did you know?
Deaths due to fentanyl and acetylfentanyl have been reported in Maryland.

The Maryland Office of the Chief Medical Examiner has reported recent cases of acetylfentanyl-associated deaths in Montgomery and Prince George's Counties, as well as cases of fentanyl-associated deaths throughout the state. Both of these potent opioids are being mixed with heroin or substituted for heroin. For more information on fentanyl and acetylfentanyl, read our July 2013 ToxTidbits at <http://mdpoison.com/publications/toxtidbits/2013/July%202013%20toxTidbits.pdf>.

Paul Starr, PharmD, DABAT
Subscribe to ToxTidbits and read past issues at www.mdpoison.com

Poison Prevention Press
Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY
Poison Center Hotline: 1-800-222-1222
March/April 2014
Volume 7, Issue 2

Preventing Medicine Misadventures

Follow these medicine safety tips:

- Keep an up-to-date list of medicines, including prescription, over-the-counter (OTC), herbal and vitamins
- Review medicine list with doctors and pharmacists
- Ask pharmacists for help when choosing OTC medicines to avoid drug interactions
- Read the label every time a medicine is taken
- Follow directions exactly and never stop taking a medicine without talking to the doctor first
- Use daily pill reminders or charts to help keep track of medicine doses
- Never take someone else's medicine
- Discard unused and expired medicine

Did you know that...

- Nationwide, seniors account for 7.8% of calls to poison center, but 20% of deaths?
- Of the 2,800 calls to the MPC about patients 60 years and older, 66% were about women?

Follow the MPC on Facebook!

Subscribe to Poison Prevention Press and read past issues at www.mdpoison.com

MPC Top 10 Exposures in Seniors

Often when people think about using the services of the Maryland Poison Center (MPC), they picture small children getting into household products and medicine. But young children only account for 44% of calls to the top 10 substances that people 60 years and older were exposed to before calling the MPC.

- 10. Antimicrobials** Antibiotics and antifungal medicines taken by mouth, as well as ointments and drops for the skin, eyes and ears, are included in this category. And while usually these exposures are not a problem, seniors should know to call the poison center just to make sure.
- 9. Anticholinergic medicines** This broad category includes medicines that can be used for Parkinson's Disease, relief of cramps or spasms of the stomach, intestines and bladder, and some eye and leg conditions. Symptoms from dosing errors are possible, so the poison center should be called right away to determine what, if any, treatment is needed.
- 8. Anticonvulsants** These are medicines used to treat seizures. Sometimes the poison center is called because of dosing errors. Other times, we are called because the medicine level has built up in the blood leading to side effects. The poison center should also be called if the patient can't remember if they took their medicine. Poison experts will help decide if the dose should be skipped or taken.
- 7. Gastrointestinal medicines** Medicine in this category could be used to prevent stomach symptoms or effects will not be seen with overdoses of medicine in this category.
- 6. Household cleaning products** Everyone has cleaning products in their home. Exposures can be from skin contact, breathing the fumes, having the product splash in the eye or mistaking it for a beverage. It is important to never mix multiple household cleaners together. Dangerous fumes can be formed. If possible, household cleaners should be stored away from food to avoid mistaking a cleaner for food or drink.
- 5. Cosmetics and personal care products** Hydrogen peroxide, denture cleaners, mouthwash, creams and lotions and soap are at the top of the list for exposures in this category. Some exposures result from seniors not putting on their glasses. Others are because the product is mistakenly swallowed rather than spit out. Most calls regarding these products are handled at home.
- 4. Hormones** This category includes diabetes and thyroid medicines. Dosing errors with these medicines are very common. Poison specialists can help with insulin errors by helping a patient track their blood sugar. The poison center should be called right away if a dosing error is suspected. Some medicines in this category can lead to serious symptoms when taken in overdose, so even a double dose should be reported to the poison center.
- 3. Sedatives and antipsychotic medicines** These medicines are a common reason for calling the poison center, as well as a common cause of falls in seniors. Dosing errors should be managed with the assistance of the poison specialists.
- 2. Analgesics (pain relievers)** It is important to read over-the-counter medicine labels carefully to make sure the proper dose is taken and to make sure multiple products with the same ingredients are not taken at the same time. The same precautions should be taken with prescription pain medicines.
- 1. Heart medicines** There are many different types of heart medicines. The one thing most of them have in common is that medicine errors should be managed right away with the help of the experts at the poison center. With some heart medicines, even a double dose would need to be treated in the hospital.

The take home message is that nobody is too old to be poisoned. Seniors should be aware that poison centers are not just for young children. The pharmacists and nurses at the Maryland Poison Center are available 24/7 by calling 1-800-222-1222 to help with drug information, as well as poison emergencies.

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 2014 include "A Day in the Life of a Poison Center," "Top 10 Exposures in Seniors," "Summertime Poison Hazards," "Back-to-School Poison Safety," "Essential Oils," and "Holiday Hazards." *Poison Prevention Press* is sent to e-mail subscribers who are encouraged to post and share the

newsletter with others.

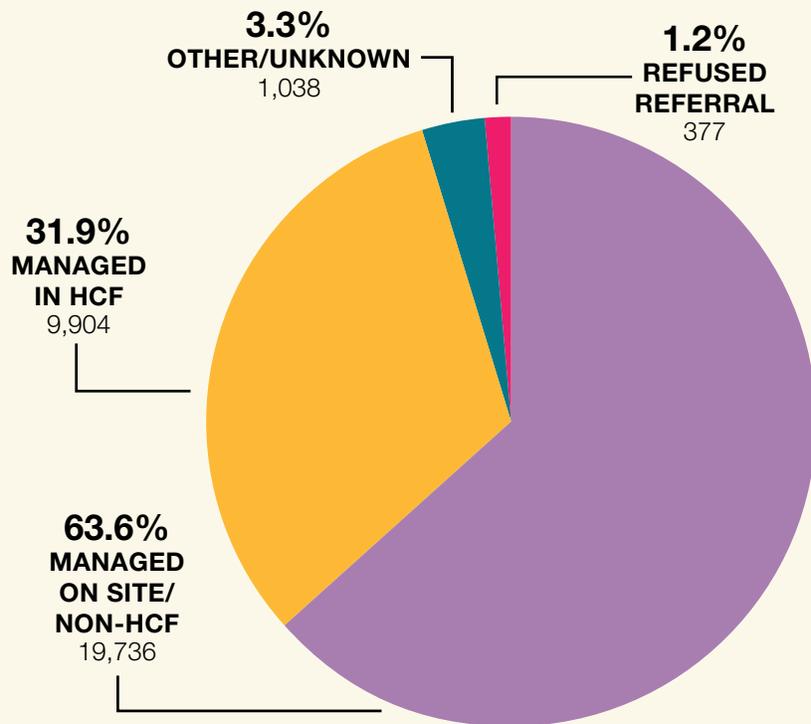
ToxTidbits is a monthly newsletter for health professionals containing important toxicology information, updates, and news. Some of the topics addressed in 2014 include "Expanding Access to Naloxone in Maryland," "Caffeine-No Longer Just A Mild Stimulant!," "E-Cigarettes and E-Liquid Nicotine," and "Hydrogen Peroxide Ingestions." *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.

MPC Safely Manages Patients at Home

In 2014, 63.6 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. In fact, when EMS providers or 911 consult with the MPC about patients, 20.4 percent of those patients are not taken to a health care facility based on poison center advice because they can be managed safely at home. Calling the MPC helps to save lives and save dollars!



20.4%
of patients seen by EMS or who called 911 were not taken to a health care facility based on poison center advice. They were managed safely at home.

20.4%

The Top 5 Reasons to Call the MPC

1 Your call will be answered by an expert – a pharmacist or nurse specially trained to manage poisonings and overdoses.

2 The call is faster than going to the hospital or doctor. It is even faster than searching for the answer on the internet because you won't have to decide which site is providing reliable information.

3 The call is free. You won't be asked for your insurance information or your credit card. The MPC is primarily supported through state higher education dollars, as well as federal grants and private contracts. We also accept donations.

4 Your call is confidential. The MPC does not report calls to any social service or government agencies. We keep your information private the same way your physician's office does.

5 Health care professionals call us. The MPC is a resource for paramedics, physicians, nurses, and pharmacists. They rely on our expert advice when treating poisonings and overdose patients. If you call a physician because you've been exposed to something, they often will refer you to the MPC!

More than 800 Calls from Grandparents

More than 800 Calls from Schools or School Nurses

15% of Calls were Therapeutic Errors (Medicine Dosing Errors)

67% of Calls Involving Seniors were About Medicines

29% of Calls were made by a Doctor, Nurse, Pharmacist, Paramedic, or other Health Care Provider Seeking Treatment Advice



Research Presentations and Publications

Doyon S, Welsh C, Tra Y, Juffer-Phipps R, Levine B, Fowler D. Analysis of Overdose Deaths involving Methadone and Cytochrome P450 Inhibitors. *Clin Toxicol* 2014; 52:377.

Welsh C, **Doyon S.** A Case of Heroin Overdose Reversed by Sublingually-administered Buprenorphine/Naloxone Film (Suboxone). *Clin Toxicol* 2014;52:378.

Doyon S. A Performance Improvement Guideline Reduces Opioid Prescriptions for Emergency Department Dental Patients. *Ann Emerg Med* 2014;63:371.

Lee S, Klein-Schwartz W, Doyon S, Welsh C. Comparison of Toxicity Associated with Nonmedical use of Benzodiazepines with Buprenorphine or Methadone. *Drug Alcohol Depend* 2014;1:118-123.

Doyon S, Aks S, Schaeffer S. Expanding Access to Naloxone in the United States. *Clin Toxicol* 2014;52: 989-992.

Doyon S, Aks S, Schaeffer S. Expanding Access to Naloxone in the United States. *J Med Toxicol* 2014; 10:431-434.

Doyon S. Antiepileptics. In Goldfrank LR, Flomenbaum N, Lewin NA, Howland MA and Hoffman RS (eds): *Goldfrank's Toxicological Emergencies*. Tenth Edition. Appleton & Lange, Norwalk, CT 2014.

Mowry JB, Spyker DA, Cantilena LR, McMillan N, and Ford M. (contributor: **Doyon S**). 2013 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 31st Annual Report. *Clin Toxicol* 2014; 52:1032-283.

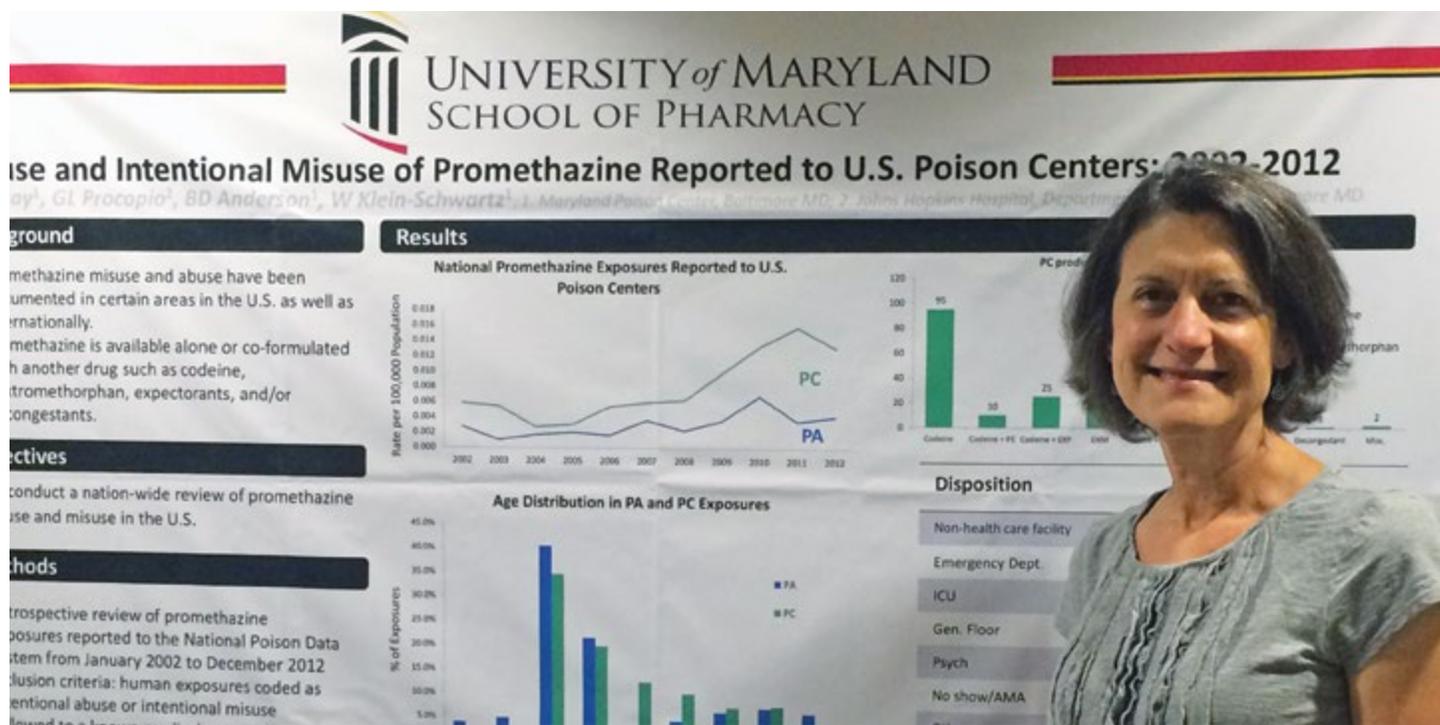
Tsay ME, Klein-Schwartz W, Anderson BD. A Comparison of Lisdexamfetamine and Dextroamphetamine Exposures Reported to U.S. Poison Centers. *North American Congress of Clinical Toxicology*. Poster. October 21, 2014.

Tsay ME, Procopio GL, Anderson BD, Klein-Schwartz W. Abuse and Intentional Misuse of Promethazine Reported to U.S. Poison Centers: 2002-2012. *North American Congress of Clinical Toxicology*. Poster. October 19, 2014.

Tsay ME, Klein-Schwartz W, Anderson BD. Toxicity and Clinical Outcomes of Paliperidone Exposures Reported to U.S. Poison Centers. *Clin Toxicol*, 2014;52:207-213.

Klein-Schwartz W, Schwartz EK, Anderson BD. Evaluation of Quetiapine Abuse and Misuse Reported to Poison Centers. *Journal of Addiction Medicine*. 2014;8:195-198.

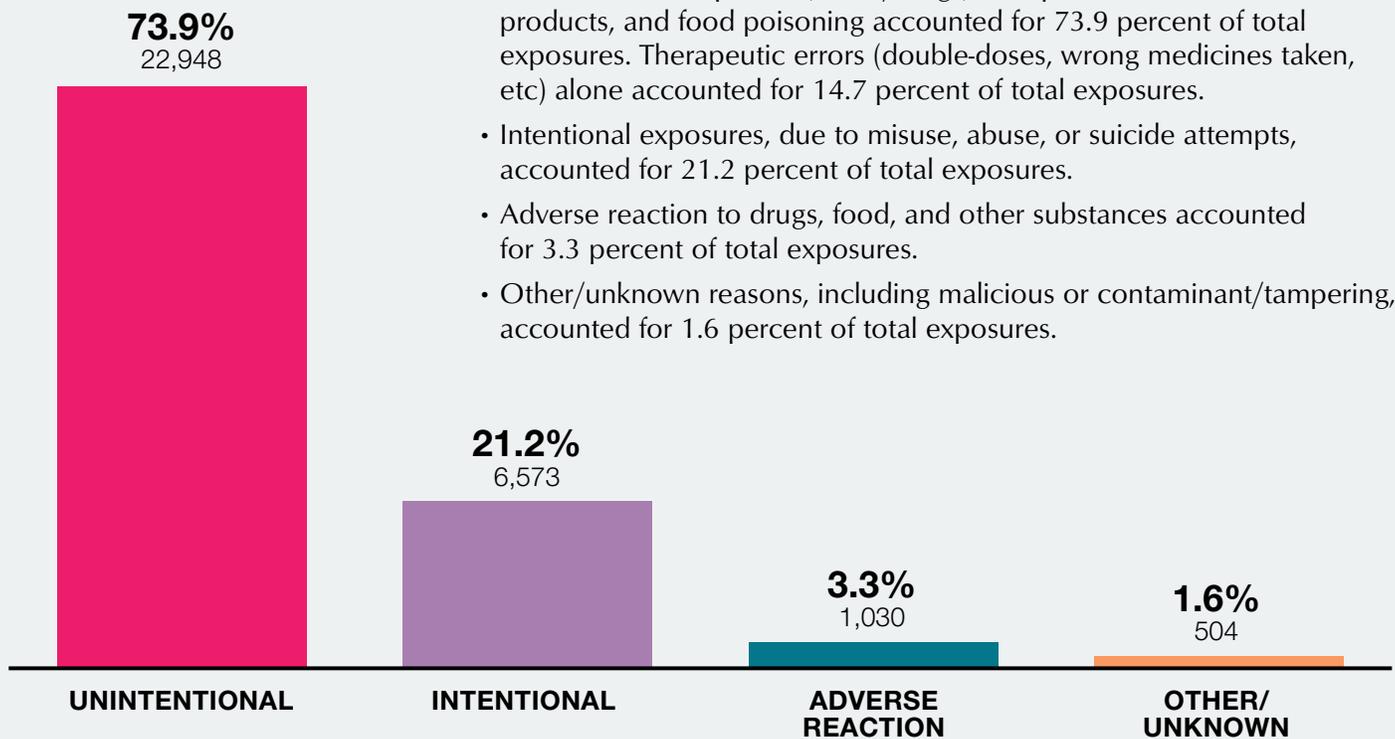
Bentur Y, Lurie Y, Cahana A, Kovler N, Bloom-Drasik A, Gurevych B, **Klein-Schwartz W.** Poisoning in Israel: Annual Report of the Israel Poison Information Center, 2012. *Israel Medical Association Journal*, (November) 2014;16:686-692.



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 73.9 percent of total exposures. Therapeutic errors (double-doses, wrong medicines taken, etc) alone accounted for 14.7 percent of total exposures.
- Intentional exposures, due to misuse, abuse, or suicide attempts, accounted for 21.2 percent of total exposures.
- Adverse reaction to drugs, food, and other substances accounted for 3.3 percent of total exposures.
- Other/unknown reasons, including malicious or contaminant/tampering, accounted for 1.6 percent of total exposures.



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 & 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.

Maryland Poison Center Staff 2014

Director of Operations

Bruce D. Anderson, PharmD, DABAT

Medical Director

Suzanne Doyon, MD, FACMT

Coordinator of Research and Education

Wendy Klein-Schwartz, PharmD, MPH

Clinical Toxicology Fellow

Mingzohn Ellen Tsay, PharmD

Gina Stassinis, PharmD

Clinical Coordinator

Lisa Booze, PharmD, CSPI

Public Education Coordinator

Angel Bivens, BS Pharm, MBA, CSPI

Senior IT Specialist

Larry Gonzales, BS

LAN Administrator

Pedro Gamez

Statistician

Yolande Tra, PhD

Quality Assurance Specialist

Lyn Goodrich, BSN, RN, CSPI

Specialists in Poison Information

Lisa Aukland, PharmD, CSPI

Denise Couch, BSN, RN, CSPI

Randy Goldberg, RN, CSPI

Michael Hiotis, PharmD, CSPI

Michael Joines, BS Pharm, CSPI

Jennifer Malloy, PharmD, MPH, CSPI

Eric Schuetz, BS Pharm, CSPI

Kevin Simmons, BSN, RN, CSPI

Paul Starr, PharmD, DABAT

Jeanne Wunderer, BS Pharm, CSPI

Program Administrative Specialist

Connie Mitchell

Office Assistants

Nicole Dorsey

Darren Stokes



Maryland Poison Center

UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

220 Arch Street, Baltimore, Maryland 21201

1-800-222-1222

www.mdpoison.com

