Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

2022 ANNUAL REPORT

www.mdpoison.com

1.800.222.1222

Directors Message

Bruce D. Anderson
Executive Director

I started working at the University of Maryland School of Pharmacy and the Maryland Poison Center (MPC) in 1993. I was 30 at the time and signed on as a faculty member and the MPC's assistant director. In April, I turned 60. I've been at the MPC and School of Pharmacy for half of my life! But retirement is now here, an opportunity to reflect and remember.

So, why stay at the MPC for so long?

1. The job. Being the director of a poison center and full-time faculty member is one of the most amazing jobs in the world. Jobs at their core are about solving problems. This one requires the ability to solve all sorts of interesting and unique problems. I trained as a clinician, but then needed to figure out things like developing a computer network for the MPC. I don't really know a lot about computers and networks, but we needed something more than what we had, so I learned what I could. We then deployed our own network in 1995. The university originally provided our telephone service, but that system couldn't meet our needs. I had to figure out our needs and ways of communicating our needs to get a phone system that would work for us. That meant needing to learn about telephone systems. I didn't know anything about developing recorded educational content. But I thought there were opportunities to be able to develop materials that could be hosted and delivered online. So, I learned how to make this happen in the early 2000s. This job provides loads of problems in all sorts of areas that need to be solved.

2. The people. For folks who are unfamiliar with the world of toxicology, let me provide some perspective. People who go into poisoning patient care are generally more than a standard deviation from the norm. What do I mean? In most areas of clinical practice, there are large population studies that are used to help guide care. Usual cardiology or infectious disease or mental health studies typically have hundreds to thousands of patients and carefully matched controls. There are numerous studies with cool sounding acronyms that cost tens to hundreds of millions of dollars to run. We can't do that in toxicology. There isn't an NIH Center for toxicology. There isn't money at all for tox research. It's hard to get volunteers for poisoning research and REALLY hard to get IRB approval to poison people prospectively. All of which means that we often don't have large trials available to help guide patient care. We don't typically have a lot of trials, period. We have cases, case series, retrospective studies, and basic pharmacology and toxicology studies. People doing this sort of work for a living need to have good understanding of pharmacology, toxicology, pharmacokinetics, and physiology, plus good understanding of how to care for acutely ill patients. We need to apply these principles not only to individual patients, but also to populations of patients. And, the MPC experts do all of this without actually seeing patients.

This leads to individuals going into toxicology who are bright and who don't think like many other clinicians. We are professionals who are comfortable with uncertainty and who know stuff that many other people just don't know. In toxicology, it's all potentially helpful information. There are some fascinating characters and amazing individuals in our area of expertise.

We also get the opportunity to help teach and train others. It's been an absolute privilege to be able to work with, learn from, and learn with all the students, residents, and fellows who've been with us over the years. They often help us realize what we know and don't know. They ask questions that require thinking about problems in new ways.

There's also been incredible opportunities to work with the faculty and staff of the School of Pharmacy. It's been an amazing experience to work with so many bright, captivating individuals over the years. From serving on or leading various School committees, task forces, search committees, strategic planning committees, to School retreats, it's been awesome to get to know many of the faculty and staff over the years.

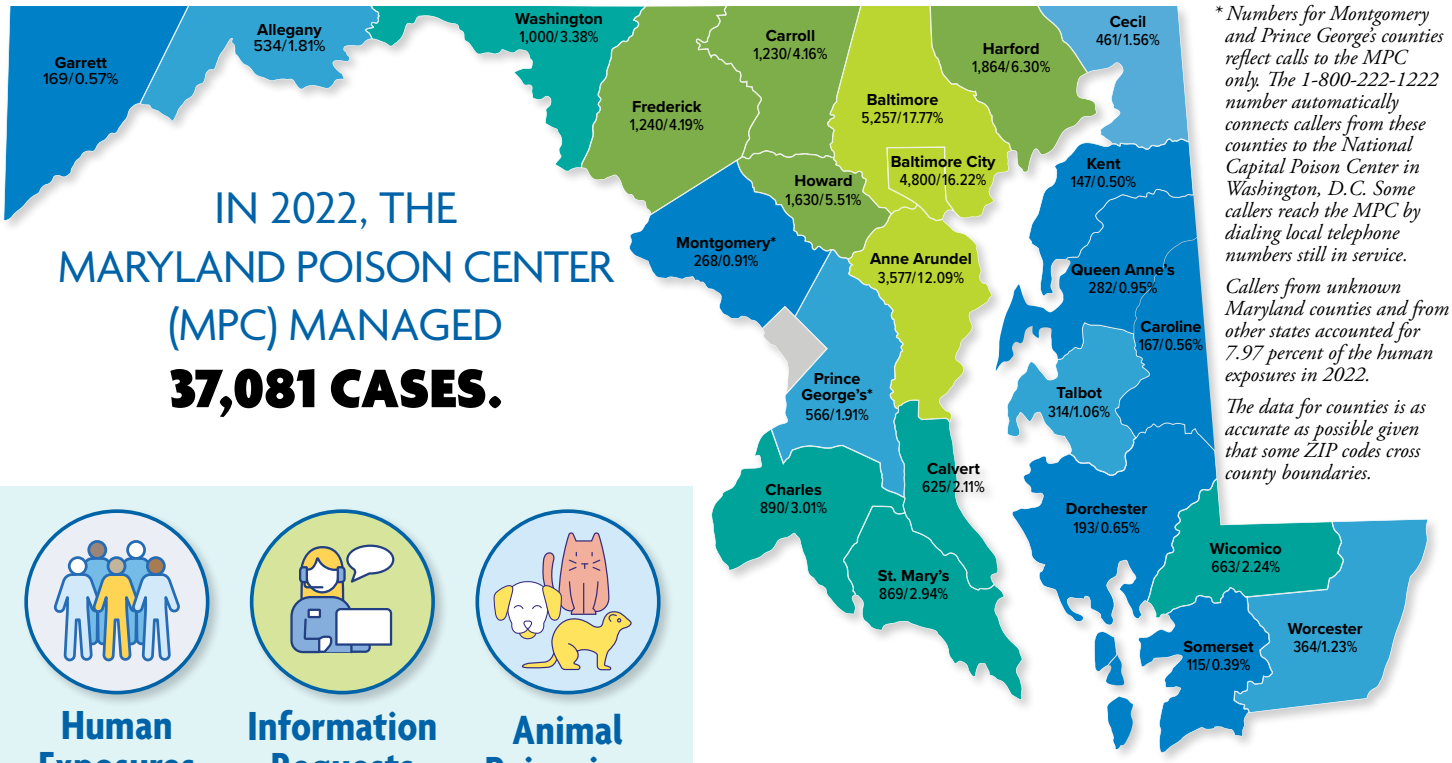
There are too many people to name everyone at the university who provided support and guidance over the decades. I'll just say a global, "Thank you!"

3. The team beyond the team. The MPC does not operate in a vacuum. We work with a wide range of individuals and groups outside the university to meet our mission. That includes working with professionals at every acute care hospital, each local health department, the state health department, the EMS community, the Office of the Chief Medical Examiner, local school districts, professional organizations representing nurses, pharmacists, and physicians of various backgrounds, organizations supporting and providing care for the elderly, the National Aquarium in Baltimore (yes, really!), and many more.

It's been an honor and a privilege to be part of the University of Maryland School of Pharmacy and the Maryland Poison Center for 30 years. ***Thank you!***

Sincerely,
Bruce

HUMAN EXPOSURES



IN 2022, THE MARYLAND POISON CENTER (MPC) MANAGED **37,081 CASES.**

** Numbers for Montgomery and Prince George's counties reflect calls to the MPC only. The 1-800-222-1222 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 7.97 percent of the human exposures in 2022.

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

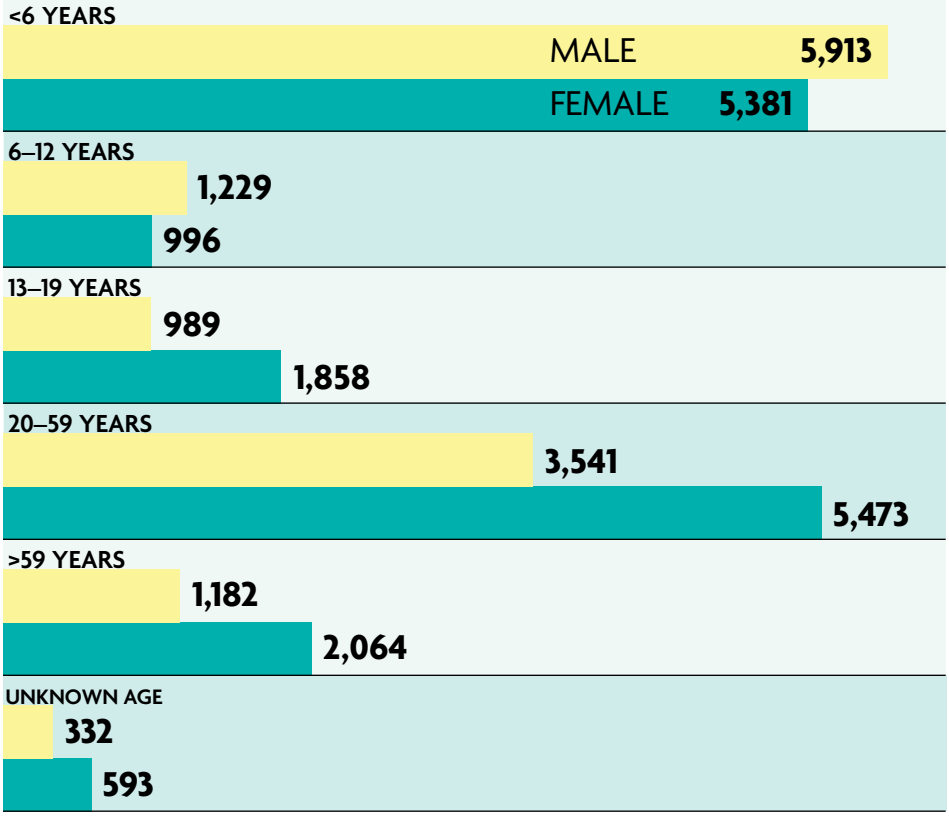
Human Exposures
29,584

Information Requests
6,783

Animal Poisonings
714

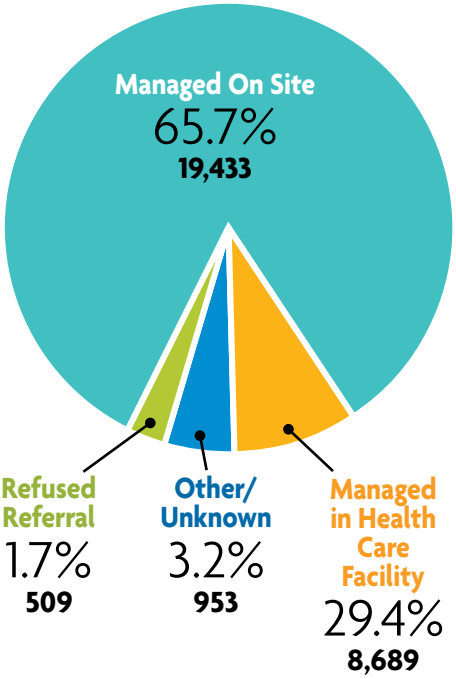
Males	Females	Unknown
45.4%	54.4%	0.2%

EXPOSURES BY GENDER



SITES

MANAGEMENT SITE



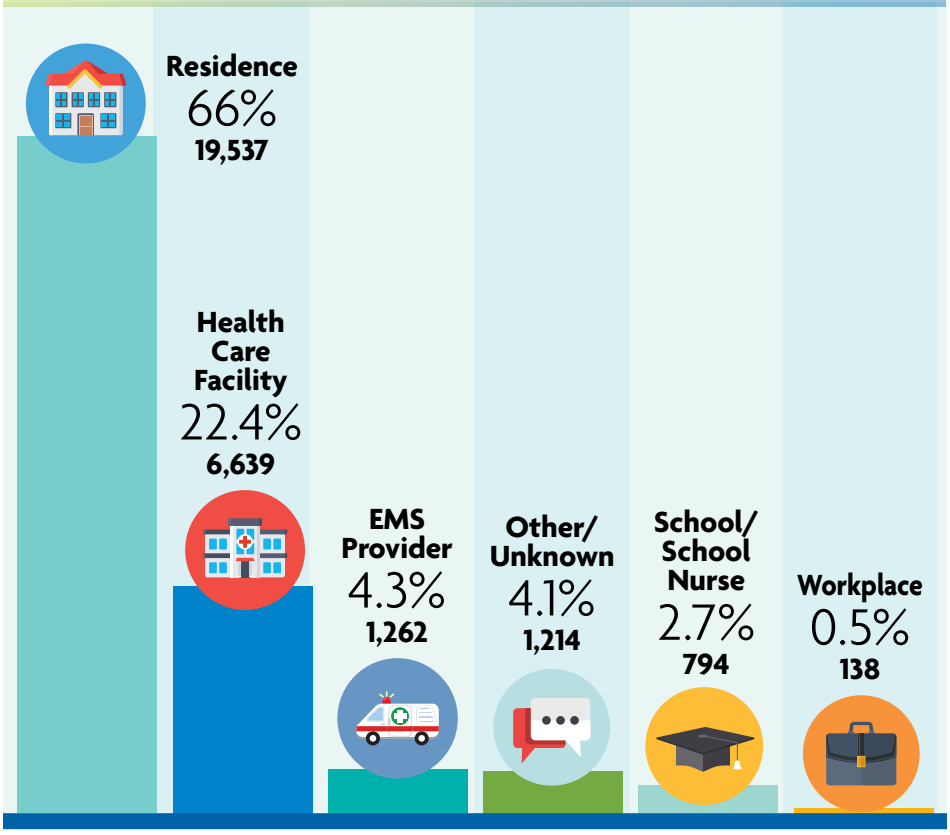
Managing cases safely at home:

- saves millions of dollars in unnecessary health care costs compared with managing patients in a health care facility (HCF)
- allows more efficient and effective use of limited health care resources

Of the cases managed in a health care facility, 60.1 percent were treated and released, 8.2 percent were admitted to a critical care unit, 11.3 percent were admitted to a non-critical care unit, 12.6 percent were admitted for psychiatric treatment, and 7.8 percent were lost to follow-up.

When EMS providers or 911 consulted with the MPC in 2022 about patients, **14 percent of those patients were managed safely at home.**

SITE OF CALLER

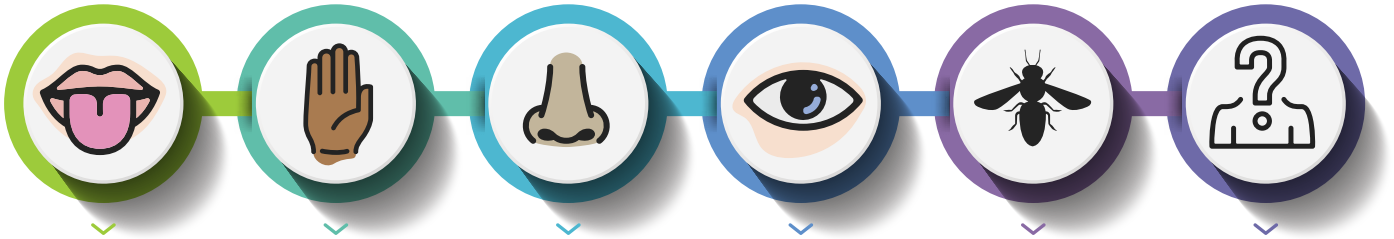


Residence can be the patient's residence or another residence. Health care facilities include hospitals, physician's offices, urgent care centers, clinics, and others. Emergency medical services providers include EMS, paramedic, first responder, and emergency medical dispatcher (911 dispatcher).

EXPOSURES BY AGE

<6 YEARS	6–12 YEARS	13–19 YEARS	20–59 YEARS	>60 YEARS	UNKNOWN AGE
38.2%	7.5%	9.6%	30.5%	11%	3.2%
11,302	2,227	2,848	9,016	3,246	945

ROUTE OF EXPOSURE*

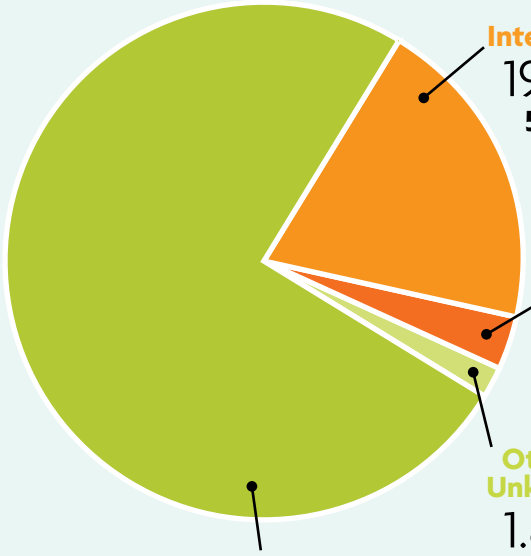


Ingestion	Dermal	Inhalation	Ocular	Bite/Sting	Other
83.9%	6.6%	6.4%	4.4%	0.7%	3.1%
24,831	**1,967**	**1,886**	**1,294**	**218**	**926**

**Some cases involved multiple routes of exposure. Percentages in the chart are based on the total number of human exposures.*

CIRCUMSTANCE

People who contact the MPC have many reasons for calling.



Intentional 19.9% **5,889**

Intentional exposures:
- misuse
- abuse
- suicide attempts

Adverse Reaction 3.2% **948**

Adverse reactions to:
- medicines
- food
- other substances

Other/ Unknown 1.8% **524**

Other/ unknown reasons:
- malicious
- contaminant/ tampering

Unintentional 75.1% **22,223**

Unintentional exposures:
- general misuse of products
- occupational (workplace)
- environmental
- bites/stings
- therapeutic errors
- food poisoning

Therapeutic errors

***(double-doses, wrong medicines taken, etc.)* accounted for 19 percent of total exposures.**

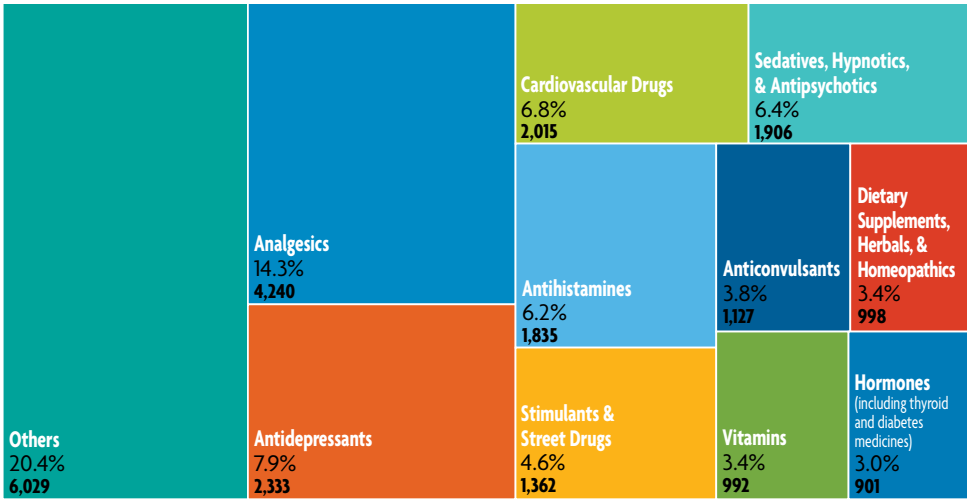
Reasons for poison exposures differ by age. In children under the age of 6, 99 percent of exposures were unintentional, while in teens (13-19 years), only 32 percent of exposures were unintentional. Exposures in adults (20-59 years) were 55 percent unintentional and 37 percent intentional (3 percent were unknown). In tweens (6-12 years) and older adults (60 years and older), most exposures were unintentional (87 percent and 74 percent respectively).

99% of exposures in children under 6 years were unintentional while only 32% of exposures in 13 to 19 years olds were unintentional.

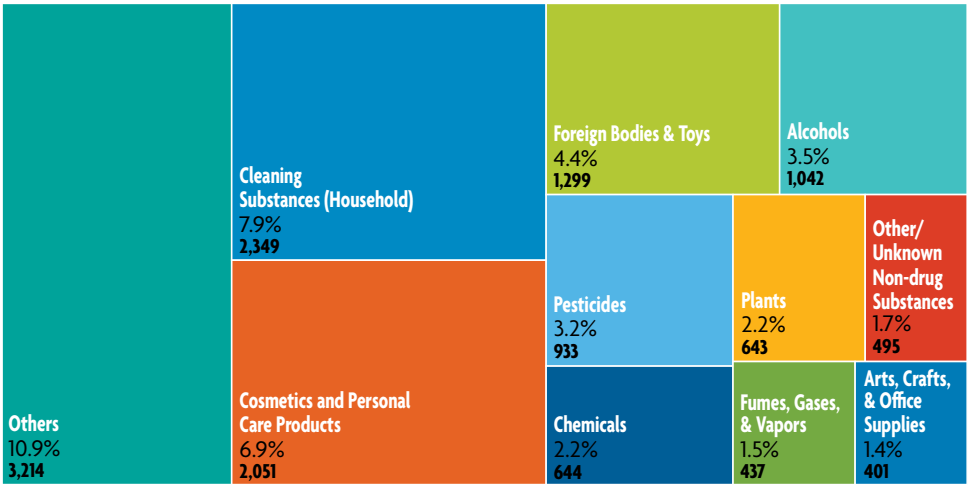
75% of exposure cases were unintentional.

SUBSTANCES INVOLVED IN POISONINGS

Top 10 Drug Substances



Top 10 Non-Drug Substances



Percentages in the tables are based on the total number of human exposures.

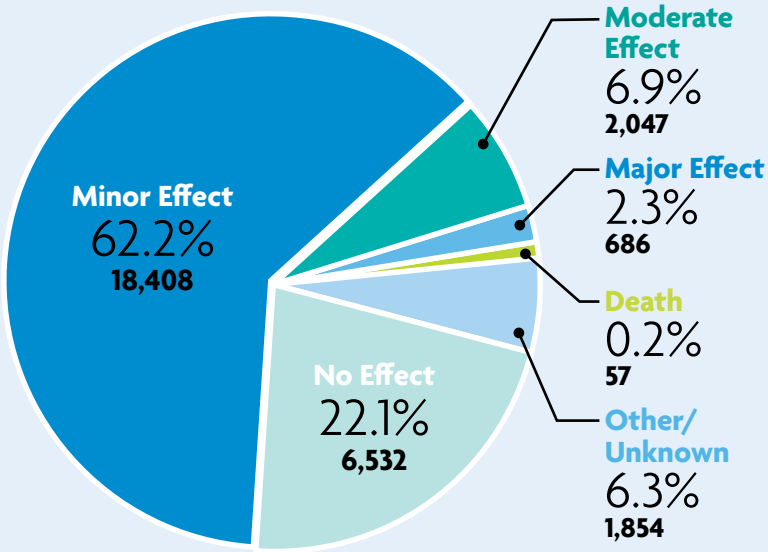
The diagrams on the left list the most common substances involved in poisonings and overdoses reported to the MPC in 2022. A patient may be exposed to more than one substance in a poisoning or overdose case.

80.2 percent of the poisoning and overdose cases managed by the MPC involved a drug,* while 45.7 percent of cases involved a non-drug substance.

**includes medicines and substances involved in abuse*

For every $1 spent on poison center services, **$13 is saved in health care costs.**

MEDICAL OUTCOMES



The true measure of the effectiveness of the MPC is patient outcomes. Although there were 57 cases reported to the MPC that resulted in death in 2022, the impact of the MPC is obvious: most cases had good outcomes.

Calling the MPC as soon as a poisoning or overdose is suspected 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.

EXPOSURE REASON BY AGE

<6 YEARS
Unintentional
99.3% **11,218**
Adverse Reaction
0.4% **51**
Other/Unknown
0.3% **33**

6–12 YEARS
Unintentional
87.1% **1,941**
Intentional
9.2% **204**
Adverse Reaction
1.7% **38**
Other/Unknown
2% **44**

13–19 YEARS
Unintentional
32% **910**
Intentional
63.6% **1,810**
Adverse Reaction
2.5% **75**
Other/Unknown
1.9% **53**

20–59 YEARS
Unintentional
55.3% **4,990**
Intentional
36.8% **3,316**
Adverse Reaction
5% **453**
Other/Unknown
2.9% **257**

>60 YEARS
Unintentional
74.4% **2,414**
Intentional
15.1% **492**
Adverse Reaction
7.5% **243**
Other/Unknown
3% **97**

ALL AGES
Unintentional
75.1% **22,223**
Intentional
19.9% **5,889**
Adverse Reaction
3.2% **948**
Other/Unknown
1.8% **524**

2,335 cases
involving older adults were about medicines.
This is 72% of the cases about older adults!

480 cases
Grandparents reporting about their grandchildren.

Top 5 Causes of Poisoning

1. Pain Relievers
2. Household Cleaning Products
3. Antidepressants
4. Cosmetics and Personal Care Products
5. Heart Medicines

SATISFIED CALLERS

In April 2022, an anonymous caller satisfaction survey respondent stated that, **"Mike*** was amazing, he was calm and reassuring, his instructions were clear in understandable terms. The follow up phone call was also reassuring as he told me that this would be over soon, just keep doing the interventions/following the plan. He truly made my day brighter."

***Mike Joines, RPH, CSPI**

In August 2022, Kali filled out a caller satisfaction survey stating, "Heather* was great! I was so happy to give a review on her services. This woman is kind and considerate and called back exactly 15 minutes later, just as she said she would. Thank you, Heather. Truly appreciated!"

***Heather Sellman, PharmD, CSPI**

In August 2022, Charlotte emailed the MPC stating, "I called the MPC completely frantic that my child had swallowed something. Your representative **Denise*** was absolutely outstanding. She remained totally calm and understanding as I had to repeatedly calm my crying child while trying to hear her, was kind while explaining why my child would be fine, and was again calm and called my child by name when calling back to check on us. I firmly believe that credit should be given to a job well done, and Denise did just that today. Thank you for everything that you and everyone at Poison Control does."

***Denise Couch, RN, CSPI**

In September 2022, Christa filled out a caller satisfaction survey stating, "I want to thank **Noelle*** for giving me peace of mind the evening I called. I was a worried mama, and I really appreciate her reassurance that I did all the right things to keep my toddler safe. She was professional and compassionate." Christa added, "My call rep Noelle was so kind and compassionate. She reassured me that I did all the right things and told me what to look for but that my child should be just fine. I'm so grateful for her."

***Noelle Etube, PharmD, SPI**

In July 2022, Andrew left a 5-star Google review, writing...

> I am so thankful for this service. The staff is very knowledgeable and carefully walks through the best course of action for your child. They even offered to call me back in an hour to check on my child. If you want fast and accurate help, call them.
>
> Google ★★★★★

In November 2022, Jacqueline emailed the MPC stating, "I wanted to just say thank you for all that you do. I've called poison control twice in my life, the second time being this evening, and I thought that maybe not enough people write to express their gratitude for your help. It's an invaluable resource to have a kind human being at the other end of the phone during a moment of panic. Thank you, truly, for being available at all hours and for being ready with all the answers!"

In November 2022, an anonymous caller satisfaction survey respondent stated, "We've only ever called poison control twice. The first time was last year after our puppy accidentally licked the wet boot of a pest control specialist doing a site survey at our home. The exact chemical on the boot was researched for us and our puppy's age and weight was calculated. We were advised that she should be fine. Had we not called the MPC, we would have taken her to our vet, stressed her out, and spent hundreds of dollars on unnecessary tests or assessment. The second time that we called the MPC was after accidentally mixing bleach and vinegar. I washed something with vinegar in our kitchen sink, washed some dishes with dish soap, and then without thinking used bleach to soak an item in the same sink. Our concern was dangerous gas. We were advised that with the amount of water to dilute the chemicals and the concentration of bleach in common household cleaners, the fumes would be minimally irritative to nonexistent. In both instances, MPC was 100% correct, and we were all 100% fine. Also, in both cases, MPC experts were kind, calm, reassuring, highly knowledgeable, and I felt confident in their guidance."

In November 2022, Brian filled out a caller satisfaction survey stating, "Elizabeth* was absolutely amazing. Her calm, professional, and caring attitude made my anxiety go away especially when she had answers for me very quickly. Thank you."

***Elizabeth Millwee, BSN, RN, CSPI**

In November 2022, an anonymous health professional caller satisfaction survey respondent wrote, "I am an ER nurse and have worked with MPC more times than I can remember. Especially on less-common ingestions (tricylcics, antifreeze, etc), your staff are knowledgeable, professional, and extremely helpful. The follow-up phone calls are timely and useful."

MEDIA

SOCIAL MEDIA & WEBSITE

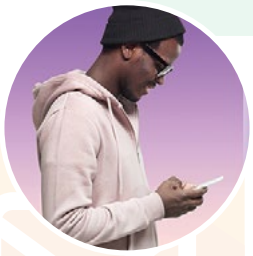
In an attempt to reach more Marylanders with our educational and awareness messages, the MPC continued to routinely update Facebook (@MarylandPoisonCenter), Twitter (@MDPoisonCtr), and Instagram (@MDPoison-Center) in 2022. Posts often directed followers to information on our website, blog, and YouTube channel.

TRADITIONAL MEDIA

In 2022, the MPC and/or staff appeared in the media at least13 times on television and in web articles. Topics included staying safe from snakes, cannabis gummies, and Delta-8 THC.

2.25% increase in Facebook followers.

70% of MPC Facebook followers are female.



169 Facebook posts reached more than **68,000 people** and generated an increase of **63 followers.**

169 tweets lead to more than 80,000 impressions and a **13 percent increase in followers.**

Approximately **5,000 visitors to our *eAntidote* blog,** yielding more than **7,400 page views.**

More than **3,000 views on our YouTube channel** for a total **watch time of more than 80 hours.**

More than **23,000 people visited the MPC website,** yielding approximately **46,000 page views.**

12.73% increase in MPC Twitter followers.

10.97% increase ToxTidbits Twitter followers.

By the end of 2022, **Facebook** had activity from followers in 18 of the 22 counties in our service area.

PUBLIC EDUCATION

Our focus:

- Increase awareness of the poisons found in every home, business, and school.
- Help prevent poisonings from occurring by encouraging safe storage and proper use of household products and medicines.
- Highlight the expertise of the MPC staff.
- Calling will result in fast, free, confidential help.

Caller Satisfaction, Guaranteed

100% rated their overall satisfaction with their call as extremely satisfied

100% will consult the MPC again

100% would recommend the MPC to others

Public Education Spotlight:

In recognition of our 50th anniversary, the MPC debuted its Instagram account in January 2022. In its first year, the account gained more than 200 followers with 112 posts. Instagram is another way for the MPC to meet people where they are with important information about the Poison Center, as well as information on how to prevent poisonings.

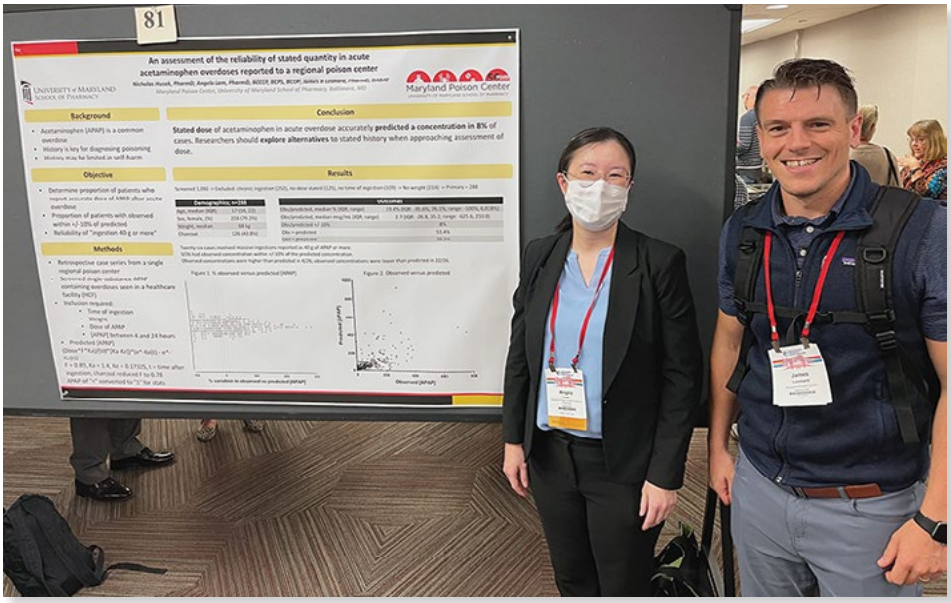
32 programs held in-person in eight counties and virtually statewide **attended by 2,711 people**

Some of our public education partners:

- State and local health departments
- Healthy Start programs
- State and local Safe Kids coalitions
- Head Start programs
- Fire/Police/EMS
- Schools and childcare providers
- Physicians and hospitals
- Health insurers
- Local health improvement coalitions

More than **151,000 pieces of educational materials** distributed

HEALTH PROFESSIONAL EDUCATION



Professional education is designed to help clinicians better manage the poisoning and overdose cases seen in health care facilities by providing on-site training for physicians, pharmacists, nurses, and EMS providers. Over the years, we have seen decreases in calls coming from homes and increases in calls coming from health care facilities and first responders. In 2022, just under one-third of calls to the MPC came from physicians, physician assistants, nurse practitioners, nurses, and emergency medical personnel.

The MPC's Twitter account for health care professionals (@MPCToxTidbits) posted clinical and medical toxicology content relevant for health care providers.

25% of cases were reported by a doctor, nurse, pharmacist, or paramedic seeking treatment advice relating to a poisoning or overdose.

25 programs and webinars reached more than **760 health care professionals.**

158 health professionals participated in virtual **MPC daily case conference rounds** to learn about the assessment and treatment of poisoned patients.

25 tweets lead to more than 27,000 impressions, more than **12,000 engagements,** and an **increase of 163 followers.**

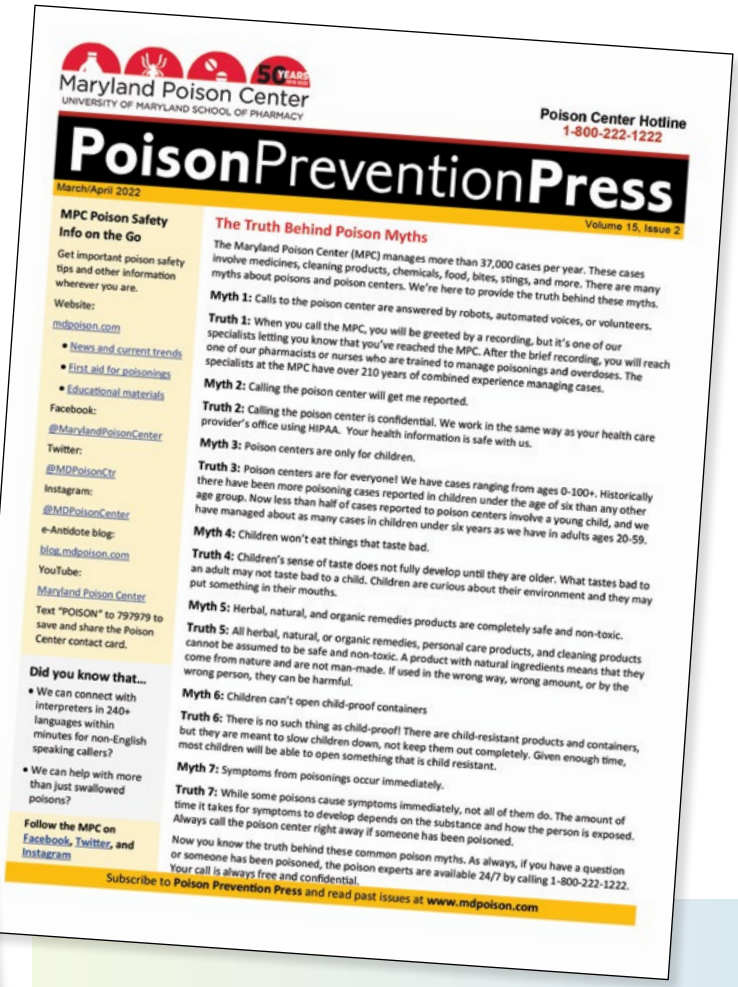
POISON PREVENTION PRESS AND TOXTIDBITS

The MPC publishes ***Poison Prevention Press,*** an e-newsletter for the public, every other month. The newsletter highlights poison safety topics for all ages. Topics presented in 2022 include:

- Maryland Poison Center's 50 Years of Expert Care
- The Truth Behind Poison Myths
- Herbicides
- Poison Hemlock
- Jimsonweed
- Poison Safety Tips While Traveling

Poison Prevention Press is sent to e-mail subscribers, who are encouraged to post and share the newsletter with others. In 2022, the contact list gained 132 new recipients.

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



Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

Poison Center Hotline
1-800-222-1222

PoisonPreventionPress

March/April 2022 — Volume 15, Issue 2

MPC Poison Safety Info on the Go

Get important poison safety tips and other information wherever you are.

Website:
mdpoison.com
- News and current trends
- First aid for poisonings
- Educational materials

Facebook:
@MarylandPoisonCenter

Twitter:
@MDPoisonCtr

Instagram:
@MDPoisonCenter

e-Antidote blog:
blog.mdpoison.com

YouTube:
Maryland Poison Center

Text "POISON" to 797979 to save and share the Poison Center contact card.

Did you know that...

- We can connect with interpreters in 240+ languages within minutes for non-English speaking callers?
- We can help with more than just swallowed poisons?

Follow the MPC on Facebook, Twitter, and Instagram

The Truth Behind Poison Myths

The Maryland Poison Center (MPC) manages more than 37,000 cases per year. These cases involve medicines, cleaning products, chemicals, food, bites, stings, and more. There are many myths about poisons and poison centers. We're here to provide the truth behind these myths.

Myth 1: Calls to the poison center are answered by robots, automated voices, or volunteers.

Truth 1: When you call the MPC, you will be greeted by a recording, but it's one of our specialists letting you know that you've reached the MPC. After the brief recording, you will reach one of our pharmacists or nurses who are trained to manage poisonings and overdoses. The specialists at the MPC have over 210 years of combined experience managing cases.

Myth 2: Calling the poison center will get me reported.

Truth 2: Calling the poison center is confidential. We work in the same way as your health care provider's office using HIPAA. Your health information is safe with us.

Myth 3: Poison centers are only for children.

Truth 3: Poison centers are for everyone! We have cases ranging from ages 0-100+. Historically there have been more poisoning cases reported in children under the age of six than any other age group. Now less than half of cases reported to poison centers involve a young child, and we have managed about as many cases in children under six years as we have in adults ages 20-59.

Myth 4: Children won't eat things that taste bad.

Truth 4: Children's sense of taste does not fully develop until they are older. What tastes bad to an adult may not taste bad to a child. Children are curious about their environment and they may put something in their mouths.

Myth 5: Herbal, natural, and organic remedies products are completely safe and non-toxic.

Truth 5: All herbal, natural, or organic remedies, personal care products, and cleaning products cannot be assumed to be safe and non-toxic. A product with natural ingredients means that they come from nature and are not man-made. If used in the wrong way, wrong amount, or by the wrong person, they can be harmful.

Myth 6: Children can't open child-proof containers

Truth 6: There is no such thing as child-proof! There are child-resistant products and containers, but they are meant to slow children down, not keep them out completely. Given enough time, most children will be able to open something that is child resistant.

Myth 7: Symptoms from poisonings occur immediately.

Truth 7: While some poisons cause symptoms immediately, not all of them do. The amount of time it takes for symptoms to develop depends on the substance and how the person is exposed. Always call the poison center right away if someone has been poisoned.

Now you know the truth behind these common poison myths. As always, if you have a question or someone has been poisoned, the poison experts are available 24/7 by calling 1-800-222-1222. Your call is always free and confidential.

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

ToxTidbits

Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

Poison Center Hotline: 1-800-222-1222

June 2022

The Maryland Poison Center's Monthly Update: News, Advances, Information

Senna Associated Dermatitis

A mother called the Maryland Poison Center about her 13-month-old son who developed severe diaper rash and blistering overnight. The day before, the mother had found an open package of chocolate coated stimulant laxatives, the mother was initially unsure if the child ingested any of the laxatives or the dog had ingested them.

Constipation is one of the most common reasons for healthcare visits. Treatment of constipation includes dietary modification and laxatives. Over the counter (OTC) laxatives include senna, docusate, polyethylene glycol 3350, and bisacodyl. Senna is a readily available stimulant laxative available in multiple dosage forms including tablets, liquid, and chocolates. Children commonly ingest laxatives in exploratory ingestions and almost 10,000 exposures are reported to US poison centers every year.

Senna is derived from the *Cassia acutifolia Delile* plant which contains multiple sennosides. Sennosides are anthraquinone laxatives that are not absorbed in the upper gastrointestinal (GI) tract. Bacteria in the lower GI tract cleave sennosides into rhein, which cause stimulation of peristalsis in the colon *(Front Pharmacol. 2021;12:714586)*. Because this medication is used for constipation, it can cause diarrhea, especially when taken in larger than recommended doses.

Ingestion of laxatives in people without constipation understandably leads to diarrhea. This has historically been considered the most severe effect and is generally managed by maintaining hydration. In 1999, the US Food and Drug Administration ordered companies to remove phenolphthalein from OTC laxatives and it was subsequently replaced with senna. Since then, several cases of senna associated dermatitis have been reported in the medical literature. Injuries are often a diamond-shaped lesion on the buttocks, have borders that align with diaper edges, and spare perianal tissues and the gluteal cleft *(Arch Dermatol. 2012;148(3):402)*.

In 2003, six poison centers conducted a prospective observational study of children 5 years and younger who ingested senna-containing laxatives. They included children who experienced diarrhea and were followed for at least 24 hours. One hundred and eleven exposures were reported over the 9-month period and 88 included. Severe diaper rash occurred in 29/88 (33%) and blisters occurred in 10/88 (11%). Time to onset of diarrhea ranged from 1 to 12.5 hours and time to onset of blisters was 6 to 24 hours. Skin breakdown lasted for 36 to 96 hours. Continued use of diapers was associated with skin breakdown *(Ann Pharmacother. 2003;37(5):636)*. These cases occurred despite recommendations to protect the perianal area with cleaning and a barrier ointment.

Prevention of burns includes frequent diaper changing, cleaning, and barrier ointments like zinc oxide-based diaper cream. In children with severe burns and excoriation, good wound care is important. This reaction is not thought to be allergic and should not preclude subsequent use later in life *(Pediatr Dermatol. 2017;34(2):e85)*. Call your local poison center at 1-800-222-1222 for patient specific treatment and monitoring recommendations.

Senna flower

Did you know?

This reaction is not documented with other over the counter laxatives.

There are multiple over the counter laxatives approved for use in adults and children. These include bisacodyl, docusate, polyethylene glycol, magnesium hydroxide, glycerin suppositories, and senna. Each has side effects, but dermatitis is most reported with senna. Hydration and frequent cleaning should be performed with use of any laxative. Healthcare providers need to counsel caregivers on appropriate dose and duration, along with how to mitigate expected adverse effects.

Jimmy (James) Leonard, PharmD, DABAT

@MPCToxTidbits

Subscribe to ToxTidbits and read past issues at www.mdpoison.com

ToxTidbits is a monthly newsletter for health professionals containing important toxicology information, updates, and news. Some of the topics addressed in 2022 include:

- Aromatic Ammonia Inhalants
- Euphoria from PyrethROIDS?
- Euglycemic DKA from SGLT2 Inhibitors
- Sodium Nitrite Poisoning
- Dialysis of Gabapentin and Pregabalin
- Local Anesthetic Systemic Toxicity

ToxTidbits is sent to email subscribers and faxed to every emergency department in our service area. In 2022, the contact list gained 103 new recipients.

To receive *ToxTidbits* or *Poison Prevention Press,* visit www.mdpoison.com and click on Receive Newsletter. Current and previous issues of both newsletters can be read and downloaded from the MPC website.

RESEARCH PUBLICATIONS AND PRESENTATIONS

JOURNALS

Laudone TW, **Leonard JB, Hines EQ,** Seung H, **Klein-Schwartz W.** Changes in Unintentional Cannabis Exposures in Children 6 Months to 5 Years Reported to United States Poison Centers during the First Nine Months of the Coronavirus-19 Pandemic. *Clinical Toxicology* 2022;60(9):1029-1031; DOI: 10.1080/15563650.2022.2064867

Husak N, Leonard JB, Seung H, **Klein-Schwartz W.** Single-substance Trazodone Exposures Reported to US Poison Centers from 2000 to 2019. *Clinical Toxicology* 2022;60(9):1032-1038; DOI: 10.1080/15563650.2022.2068423

Ross JA, Borek HA, Holstege CP, **King JD.** Toxic Alcohol Poisoning. *Emergency Medicine Clinics of North America* 2022;40(2):327-341; DOI: 10.1016/j.emc.2022.01.012

Berland NG, **Leonard J,** Calello DP. Should the Dosage Cap Be Used in Patients Greater than 100 kg Receiving N-acetylcysteine for Acetaminophen Toxicity? *Journal of Medical Toxicology* 2022;18(1):65- 66; DOI: 10.1007/s13181-021-00871-2

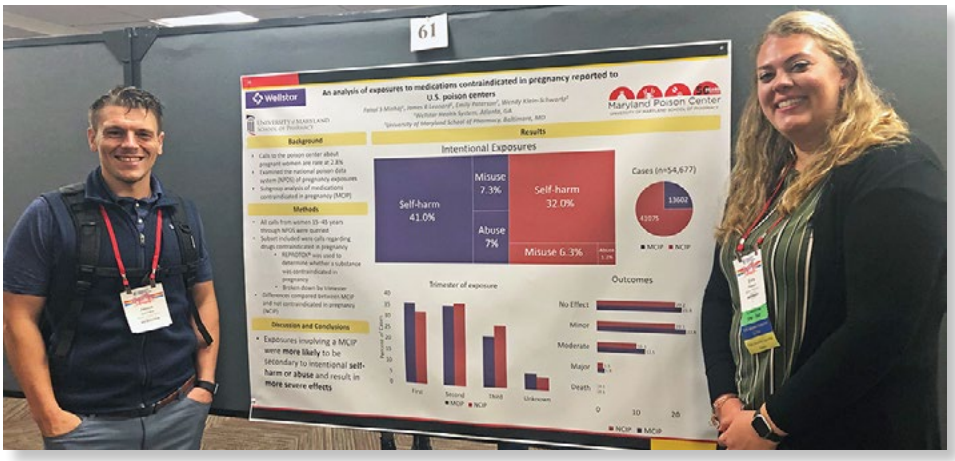
Holstege CP, **King JD.** The Expanding Complexity of Poisonings Encountered in Emergency Medicine. *Emergency Medicine Clinics of North America* 2022 May;40(2):xv-xvi; DOI: 10.1016/j.emc.2022.03.002

Lam AH, Leonard JB, Klein-Schwartz W. Adolescent Occupational Exposures Reported to United States Poison Centers, 2011-2020. *Journal of Occupational and Environmental Medicine* 2022;64(10):869-873; DOI: 10.1097/JOM.0000000000002593

Leonard JB, Laudone T, **Hines EQ, Klein-Schwartz W.** Critical Care Interventions in Children Aged 6 Months to 12 Years Admitted to the Pediatric Intensive Care Unit After Unintentional Cannabis Exposures. *Clinical Toxicology* 2022;60(8):960-965; DOI: 10.1080/15563650.2022.2059497

Leonard JB, Minhaj FS, **Paterson E, Klein-Schwartz W.** Exposures in Pregnant Patients Reported to United States Poison Centers. *Clinical Toxicology* 2022;60(3):356-361; DOI: 10.1080/15563650.2021.1968420

Minhaj FS, **Leonard JB,** Seung H, **Anderson BD, Klein-Schwartz W, King JD.** *In Vitro* Analysis of n-acetylcysteine (NAC) Interference with the International Normalized Ratio (INR). *Clinical Toxicology* 2022;60(4):489-492; DOI: 10.1080/15563650.2021.1979232



Berland NG, **Leonard J,** Calello DP. Should the Dosage Cap be Used in Patients Greater than 100 kg Receiving N-acetylcysteine for Acetaminophen Toxicity? *Journal of Medical Toxicology* 2022;18(1):65-66; DOI: 10.1007/s13181-021-00871-2.

Posters

Paterson E, Eskridge J, Teemant K, Morehouse L, Carhuaz F. Knowledge and Perceptions of Health Literacy Among Clinical Poison Control Center Staff. North American Congress of Clinical Toxicology, San Francisco, Calif. Sept. 16-18, 2022.

Minhaj FS, **Leonard JB, Paterson E, Klein-Schwartz W.** An Analysis of Exposures to Medications Contraindicated in Pregnancy Reported to U.S. Poison Centers. North American Congress of Clinical Toxicology, San Francisco, Calif. Sept. 16-18, 2022.

Husak N, Leonard JB, Lam A. An Assessment of the Reliability of Stated Quantity in Acute Acetaminophen Overdoses Reported to a Regional Poison Center. North American Congress of Clinical Toxicology, San Francisco, Calif. Sept. 16-18, 2022.

Minhaj FS, **Leonard JB, Hines EQ, Anderson BD, Klein-Schwartz W.** Pediatric Edible Cannabis Exposures Before and After Statewide Packaging Legislation. North American Congress of Clinical Toxicology, San Francisco, Calif. Sept. 16-18, 2022.

Lam A, Leonard JB, Anderson BD. Teeth Whitening Product Exposures Reported to US Poison Centers, 2001-2020. North American Congress of Clinical Toxicology, San Francisco, Calif. Sept. 16-18, 2022.

Erickson K, **Leonard JB,** Minhaj FS, **King JS.** Huh, Yeah, What Is It Used For: An Analysis of US Poison Center Data on Fomepizole Use Over 12 Years. North American Congress of Clinical Toxicology, San Francisco, Calif. Sept. 16-18, 2022.

Alshihri SA, **Leonard JB, Lam AH, Husak N, King JD.** Baclofen Poisoning in a Patient with AKI. American Society of Nephrology, Orlando, Fla. Nov. 3-6, 2022.

Moody TR, **Leonard JB, Lam AH, Husak N, King JD.** Valacyclovir Neurotoxicity in a Patient on Peritoneal Dialysis. American Society of Nephrology, Orlando, Fla. Nov. 3-6, 2022.

Presentations

King JD. Poisoning, Metabolic Acidosis, and Extracorporeal Treatment: Some Thoughts from a Nephrologist-Toxicologist. University of Ottawa Nephrology Grand Rounds, Virtual. Jan. 6, 2022.

Paterson, E. Prescription for Healthier Communication. Poison Center Leadership Meeting 2022, Virtual. Feb. 24, 2022

King JD. Toxicology for Nephrologists (Short Version). Harvard Nephrology Fellowship, Virtual. April 6, 2022.

King JD. Toxicology for Nephrologists (Long Version). Harvard Nephrology Fellowship, Virtual. May 11, 2022.

King JD. Apheresis, Toxicology, and Envenomations. Harvard Medical Toxicology Group, Virtual. May 24, 2022.

Paterson, E. Getting Involved in Poison Center Research. North American Congress of Clinical Toxicology 2022, San Francisco, Calif. Sept. 16, 2022.

Leonard JB, King JD. 50 Years of the Maryland Poison Center: Exploring the Roles, Value, and Challenges of Poison Centers in 2022. Francis S. Balassone Memorial Lecture, Baltimore, Md. Oct. 19, 2022.

THE MARYLAND POISON CENTER CELEBRATED 50 YEARS OF EXPERT CARE INV2022

Since 1972, it has been the mission of the Maryland Poison Center (MPC) to save lives and dollars by providing emergency triage, treatment, and prevention information to Maryland's citizens and health professionals. Over the past 50 years, the MPC has answered approximately 2.5 million calls from Marylanders dealing with a poisoning emergency.

The MPC has been a public service through the University of Maryland School of Pharmacy since 1972 and has continued to grow over the years. During its first year, the center managed 5,600 cases and kept paper records. In 2022, the MPC managed more than 37,000 cases, with more than 80 percent of those cases involving human exposure, using a sophisticated electronic system to track and manage calls.

During its 50th anniversary, the MPC celebrated in many ways.

- The MPC shared it's history of the first 50 years in a news story, blog, and *Poison Prevention Press* newsletter.
- The MPC hosted a quarterly virtual webinar series with sessions for all audiences and sessions for health care professionals. The series had 80 attendees.

- The MPC's anniversary was highlighted in multiple University of Maryland, Baltimore (UMB) publications, including **an** article in the *Catalyst* magazine, a feature on UMB's Pulse Podcast, and an additional news story by the University of Maryland School of Pharmacy.
- The MPC received citations in recognition of its 50 years of service from then-Maryland Governor Larry Hogan, US Senator Ben Cardin, US Senator Chris Van Hollen, and Baltimore Mayor Brandon Scott.
- The MPC held a 50th Anniversary Celebration in October 2022 at the School of Pharmacy (SOP). The day began with the SOP's Francis S. Balassone Memorial Lecture on ***"50 Years of the Maryland Poison Center: Exploring the Roles, Value, and Challenges of Poison Centers in 2022"*** featuring the MPC's assistant director and medical director as the speakers. Later in the day, a celebration reception included remarks from SOP and UMB leadership, community partners, the MPC's executive director, and two individuals who lead the MPC when it began 50 years ago. Attendees of the celebration included current and past staff of the MPC, SOP faculty and staff, community partners, and other supporting organizations of the MPC. A video recap of the celebration is available.

The Maryland Poison Center thanks everyone who has supported us over the past 50 years. We look forward to serving Marylanders for the next 50+ years!

MPC's assistant director Jimmy (James) Leonard, PharmD, DABAT, and medical director Joshua D King, MD.

MARYLAND POISON CENTER

STAFF

Executive Director
Bruce D. Anderson, PharmD, DABAT, FAACT

Assistant Director, Operations and Public Education
Angel Bivens, BS Pharm, MBA, CSPI

Assistant Director
James Leonard, PharmD, DABAT

Medical Director
Joshua D. King, MD

Professor Emeritus
Wendy Klein-Schwartz, PharmD, MPH, FAACT

Clinical Toxicology Fellows
Nicholas Husak, PharmD
Angela Lam, PharmD
Masha Yemets, PharmD

Coordinator of Health Professional Education
Eric Schuetz, BS Pharm, CSPI

Public Education and Communication Specialist
Emily Paterson, MPH, CHES®

LAN Administrator
Pedro Gamez

Quality Assurance Specialist
Lyn Goodrich, BSN, RN, CSPI

Specialists in Poison Information
Rama Arvind, PharmD
Lisa Aukland, PharmD, CSPI
Lisa Booze, PharmD, CSPI
Denise Couch, BSN, RN, CSPI
Josh Dennis, PharmD, CSPI
Noelle Etube, PharmD
Amber Ferrell, PharmD, CSPI
Laura Hignutt, PharmD, BCPS, CSPI
Michael Joines, BS Pharm, CSPI
Jennifer Malloy, PharmD, MPH, CSPI
Rebecca Mestas, PharmD, CSPI
Heather Mialki, PharmD, CSPI
Elizabeth Millwee, BSN, RN, CSPI
Heather Sellman, PharmD, CSPI
Chris Wolff, PharmD, CSPI
Jeanne Wunderer, BS Pharm, CSPI

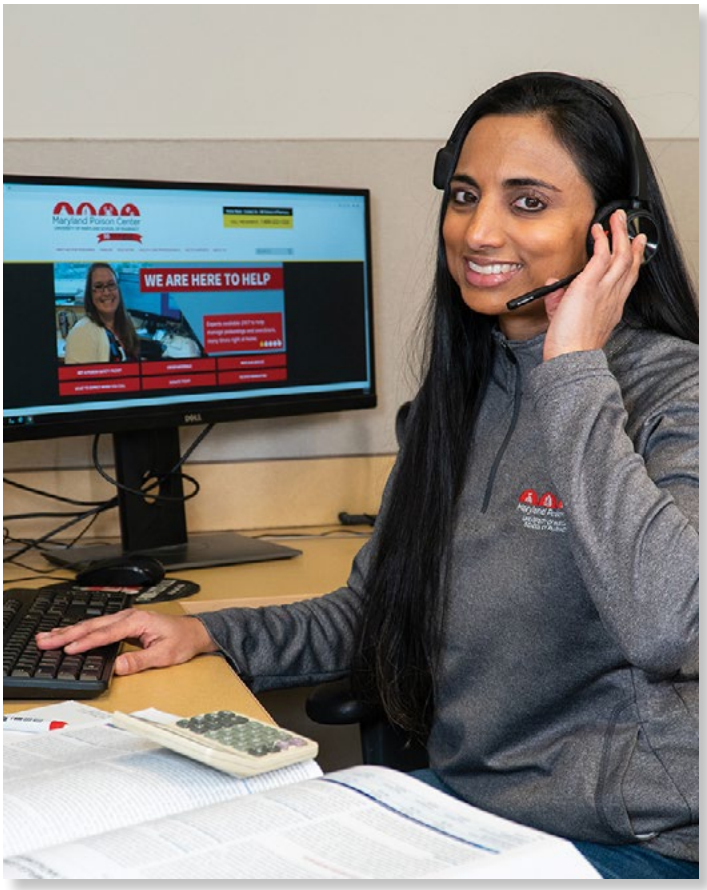
Program Management Specialist
Nicole Dorsey

Office Assistant
Patricia Campbell

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
- U.S. Department of Health and Human Services, Health Resources and Services Administration
- Maryland Institute for Emergency Medical Services Systems
- Priority Partners Managed Care Organization
- Safe Kids Maryland State and Local Coalitions
- PharmCon, Inc.
- Baltimore County Department of Aging
- Partnership for a Safer Maryland



Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

CALL **410-706-7604**
OR VISIT **www.mdpoison.com**
to see how you can support
the Maryland Poison Center.

SCAN QR code to...

Donate to the **MPC**

Save **Poison Help**
as a contact
in your mobile phone