



2024

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1.800.222.1222



DIRECTORS' MESSAGE

Whether you are a medical professional, an educator, involved in public health, or simply interested in the services we provide at the Maryland Poison Center (MPC), we are excited to share our year in review with you.

One of the best things about writing this message is being able to pause and look back at where we were a year ago and realize how far we have come. For so many years, the MPC saw only minor changes from year to year. We saw little staff turnover, our call volume from the public and hospitals remained steady, and we had consistent funding. In the world of poison centers, those things alone are major accomplishments.

With the retirement of Dr. Bruce Anderson as our executive director, we spent the first months of 2024 evaluating our leadership and staffing needs and exploring new ideas. We hired several new poison specialists, which led to new energy, new professional experiences, and new ideas. We made plans to move from an electronic medical record system that we had been using for more than 20 years to a state-of-the-art tool, and we continued our search for a new telephone system. Life was stable and good.

In the fall of 2024, we learned of the possible closure of a neighboring poison center that might have implications for the Maryland Poison Center. What would this mean to our center? We weren't sure, but we knew that we were in for major changes.

And we were right. While the MPC's leadership stabilized, we had some staff turnover in early 2025. We launched our new electronic medical record system in March, and the neighboring poison center closed on March 31. As a result, we are now responsible for providing service to all of Maryland and Washington, DC - the MPC is currently serving more than one and a half times more people than we served in 2024. We have new populations for our public education team to reach. We have new groups of health professional trainees to educate, and new health departments to serve and develop partnerships with. And we aren't quite finished yet - we aim to upgrade our telephone system by the end of 2025.

Despite all these changes, our primary goal remained the same: providing excellent patient care to more than 37,000 patients in 2024, with even more receiving care in 2025.



ANGEL BIVENS,
BS Pharm, MBA, CSPI
Managing Director



JOSHUA KING,
MD, FACMT, FAACT
Medical Director

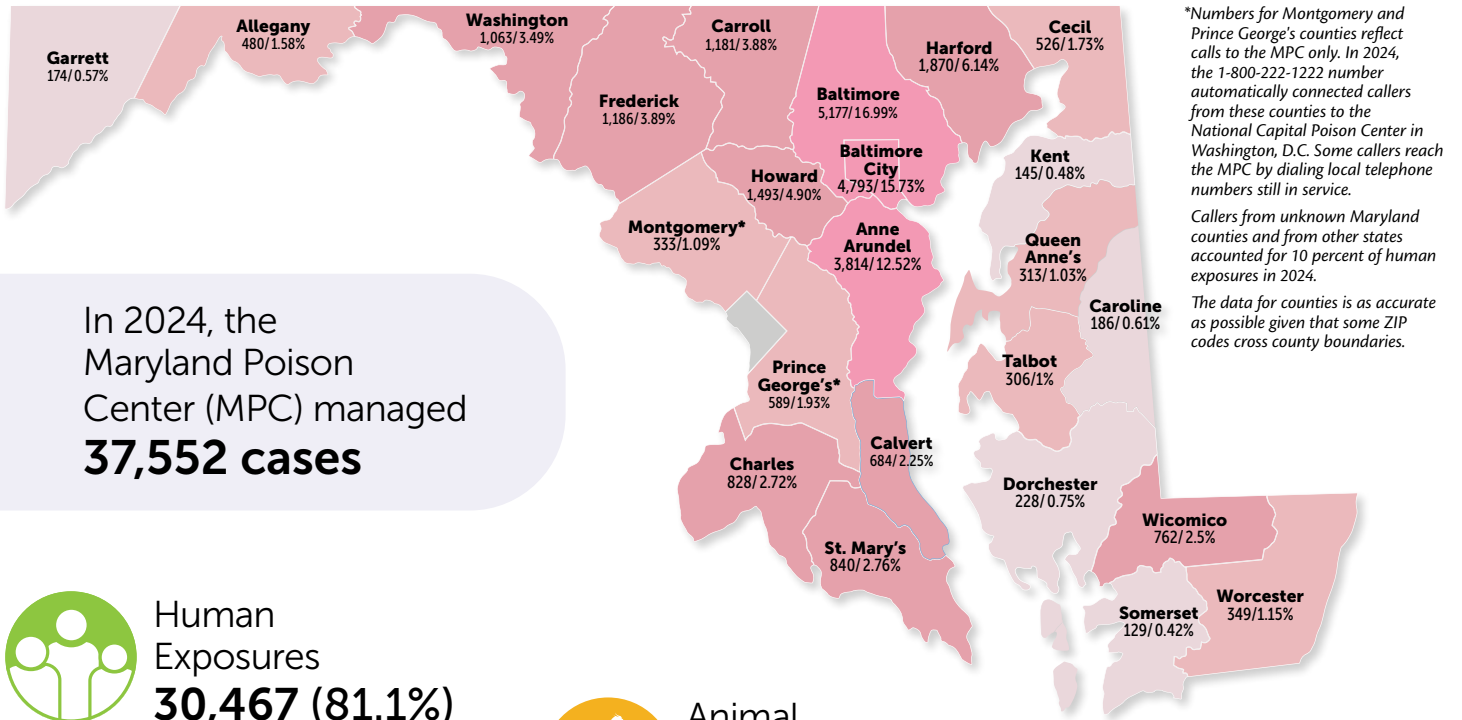
We certainly didn't do this alone. We have an incredibly dedicated Maryland Poison Center team and incredible support from the University of Maryland School of Pharmacy. With these in place, there is no limit to what the MPC can do.

We hope you find the following report illuminating and clarifying. With the Maryland Poison Center entering its 54th year of existence, we look forward to providing our services in the decades to come.



37,552 total cases managed by the Maryland Poison Center in 2024.

HUMAN EXPOSURES



*Numbers for Montgomery and Prince George's counties reflect calls to the MPC only. In 2024, the 1-800-222-1222 number automatically connected 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 10 percent of human exposures in 2024.

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

In 2024, the Maryland Poison Center (MPC) managed **37,552 cases**



Human Exposures
30,467 (81.1%)



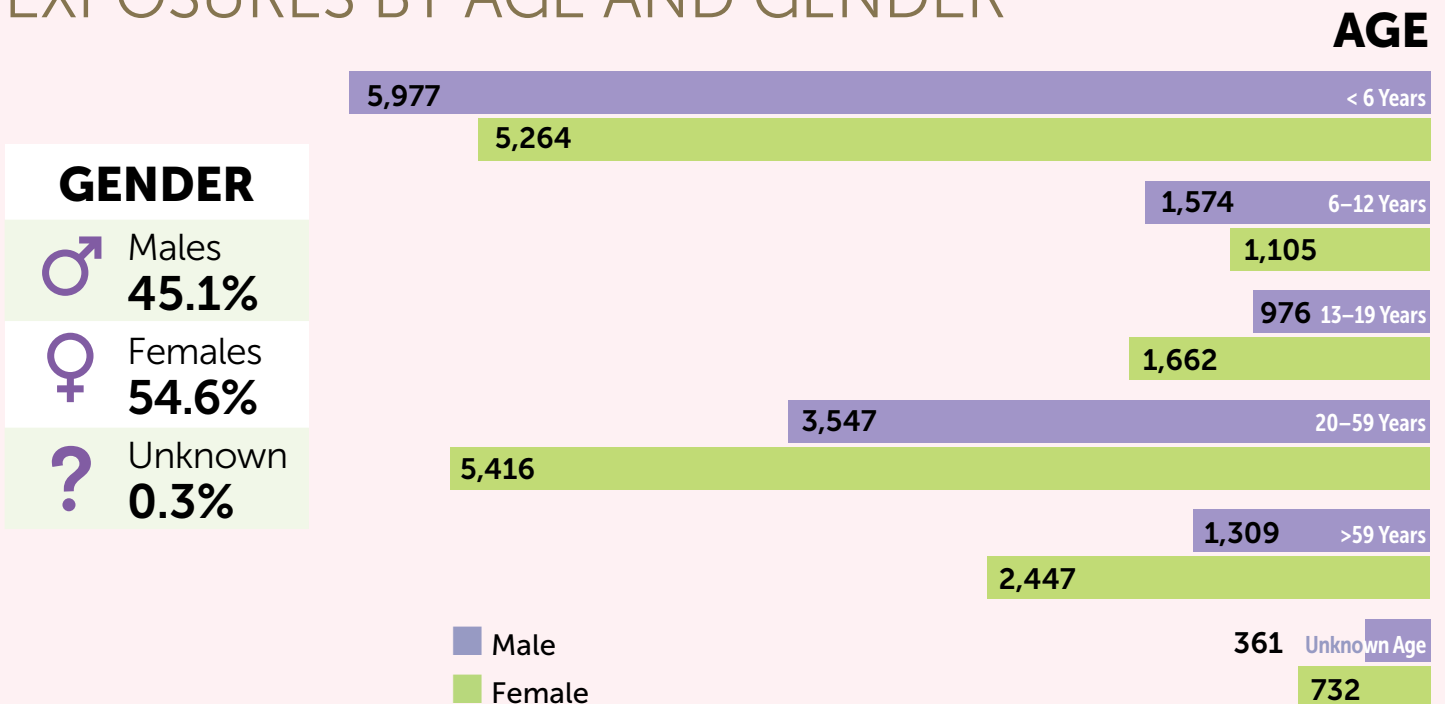
Information Requests
6,633 (17.7%)



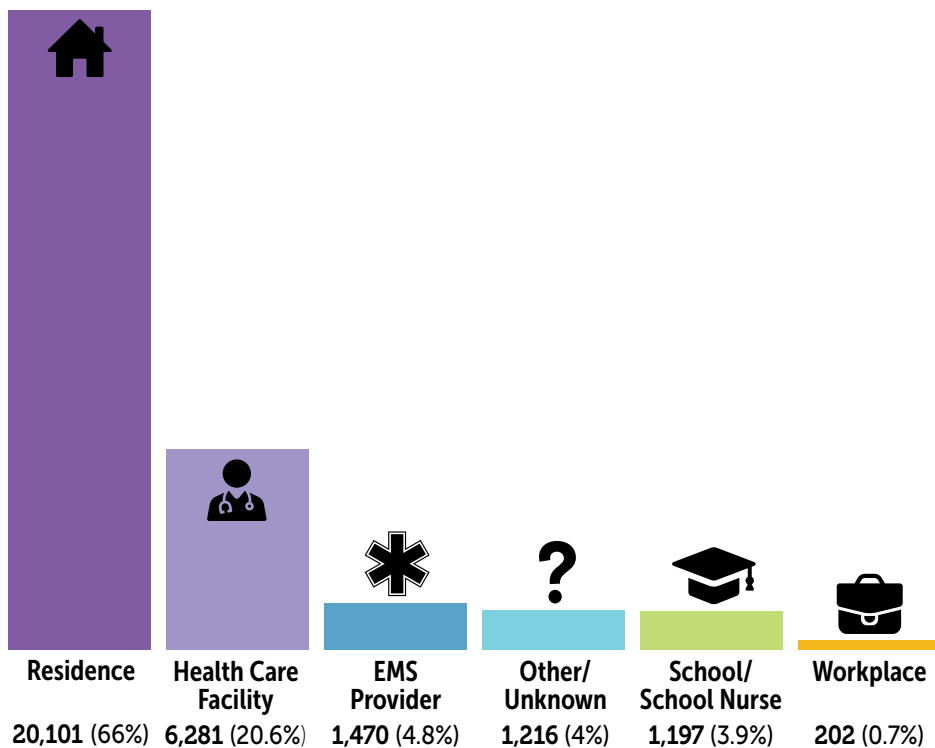
Animal Exposures
452 (1.2%)

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

EXPOSURES BY AGE AND GENDER



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, paramedics, first responders, and emergency medical dispatchers (911 dispatchers).

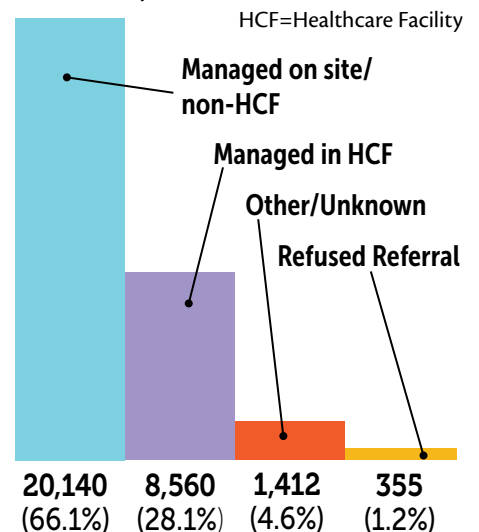
When EMS providers or 911 consulted with the MPC in 2024, **10 percent** of those patients were managed safely at home.

MANAGEMENT SITE

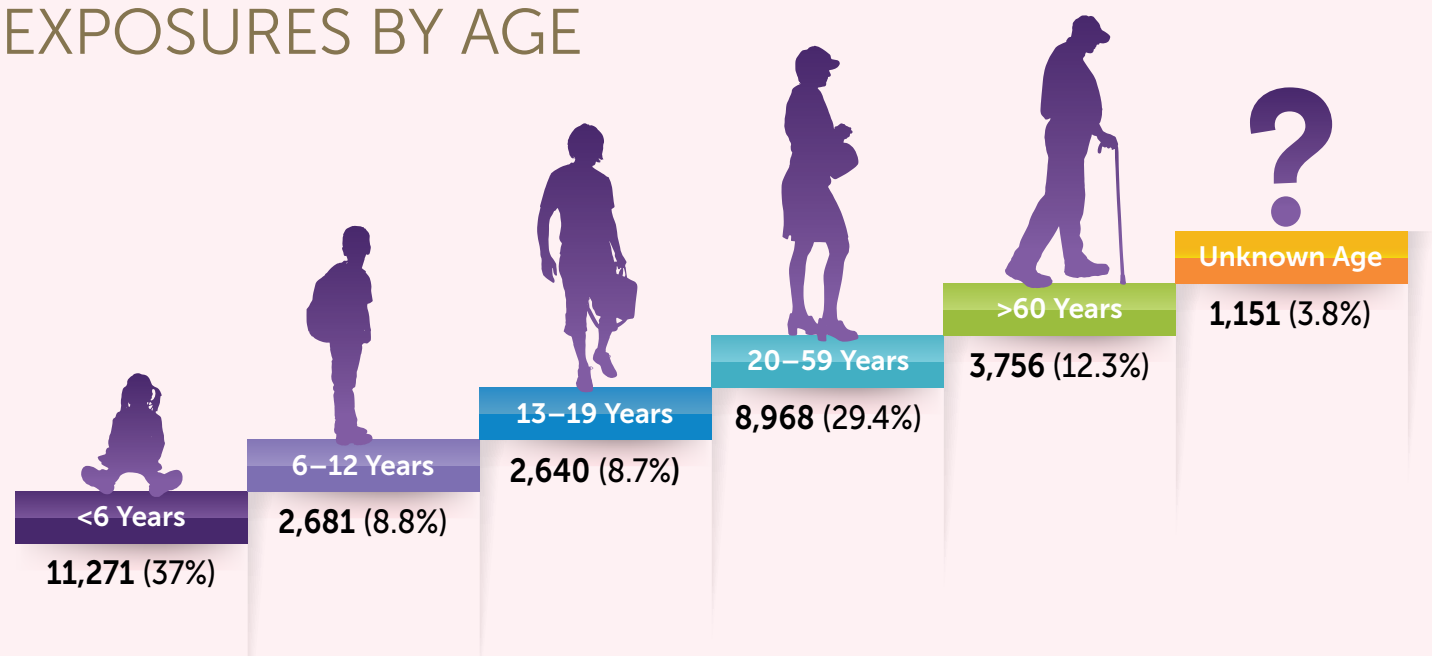
Managing cases safely at home:

- Saves millions of dollars in unnecessary health care costs compared with managing patients in a health care facility.
- Allows more efficient and effective use of limited health care resources.

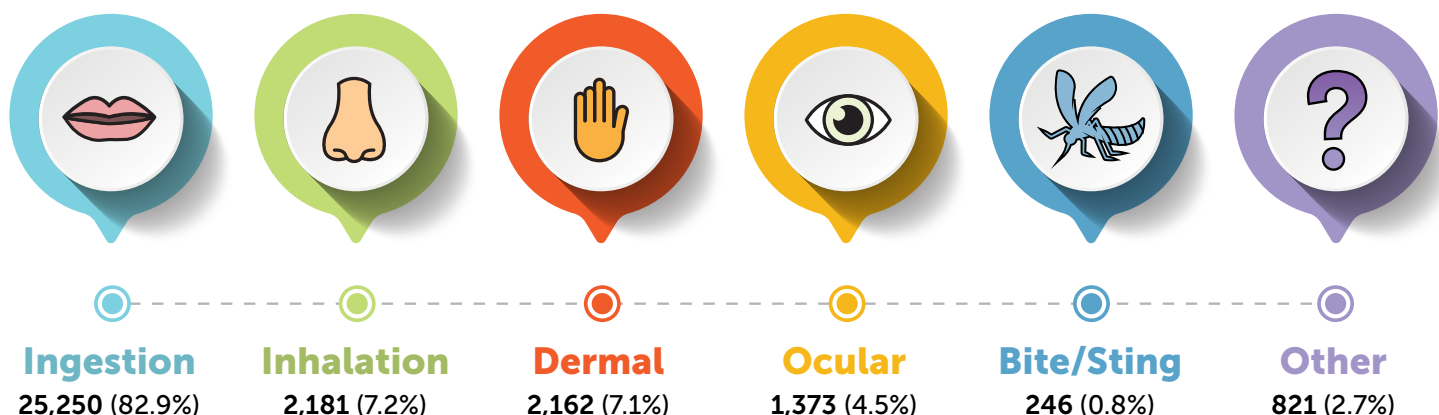
Of the cases managed in a health care facility, 60.7 percent were treated and released, 6.9 percent were admitted to a critical care unit, 10.1 percent were admitted to a non-critical care unit, 15.3 percent were admitted for psychiatric treatment, and 7 percent were lost to follow-up.



EXPOSURES BY AGE



ROUTE OF EXPOSURE*



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

CIRCUMSTANCE

People who contact the MPC call for many reasons.

Unintentional exposures

- General misuse of products
- Occupational (workplace)
- Environmental
- Bites/stings
- Therapeutic errors
- Food poisoning

Unintentional
23,564 (77.3%)

Reasons for poison exposures differ by age. In children under the age of six, 99 percent of exposures were unintentional, while in teens (13-19 years), only 36 percent of exposures were unintentional. Exposures in adults (20-59 years) were 59 percent unintentional and 33 percent intentional. In tweens (6-12 years) and older adults (60 years and older), most exposures were unintentional (88 percent and 77 percent respectively).

Intentional exposures

- Misuse
- Abuse
- Suicide attempts

Intentional
5,427 (17.8%)

Therapeutic errors (double-doses, wrong medicines taken, etc.) accounted for 21 percent of total exposures.

Adverse reactions to

- Medicines
- Food
- Other substances

Adverse Reaction
961 (3.2%)

Other/unknown reasons

- Malicious
- Contaminant/tampering

Other/Unknown
515 (1.7%)

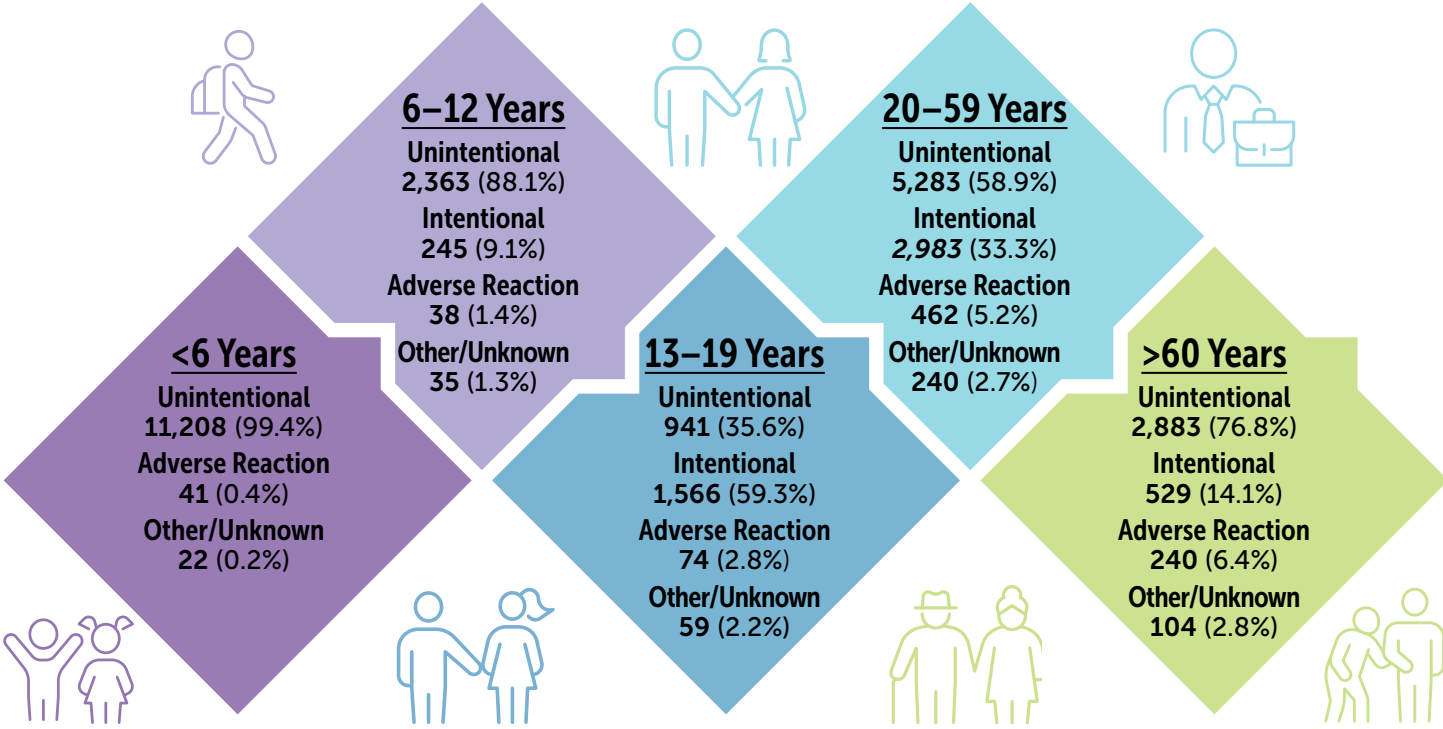
77% of exposure cases were **unintentional**.

21% of cases were **therapeutic errors** (medicine dosing errors).

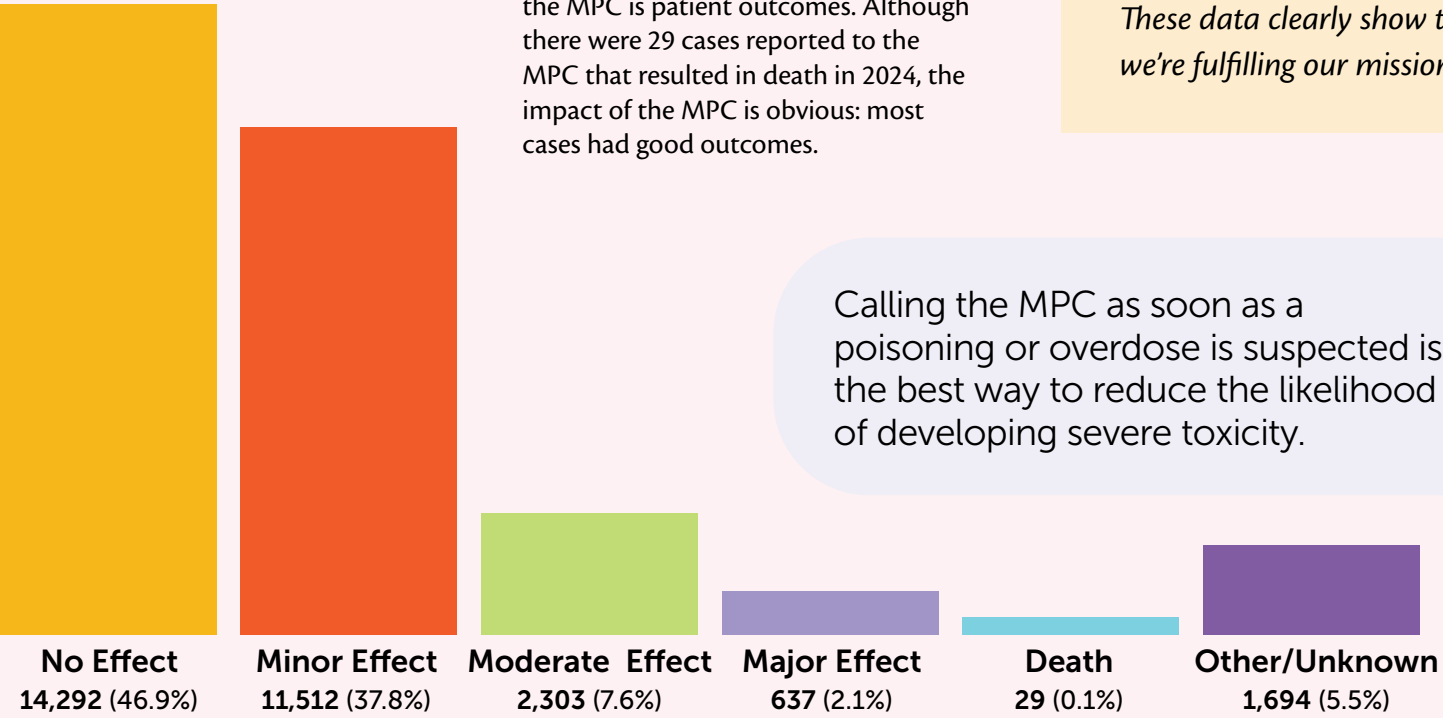
99% of exposures in children under 6 years old were **unintentional**, while only

35% of exposures in 13–19-year-olds were **unintentional**.

EXPOSURE REASON BY AGE

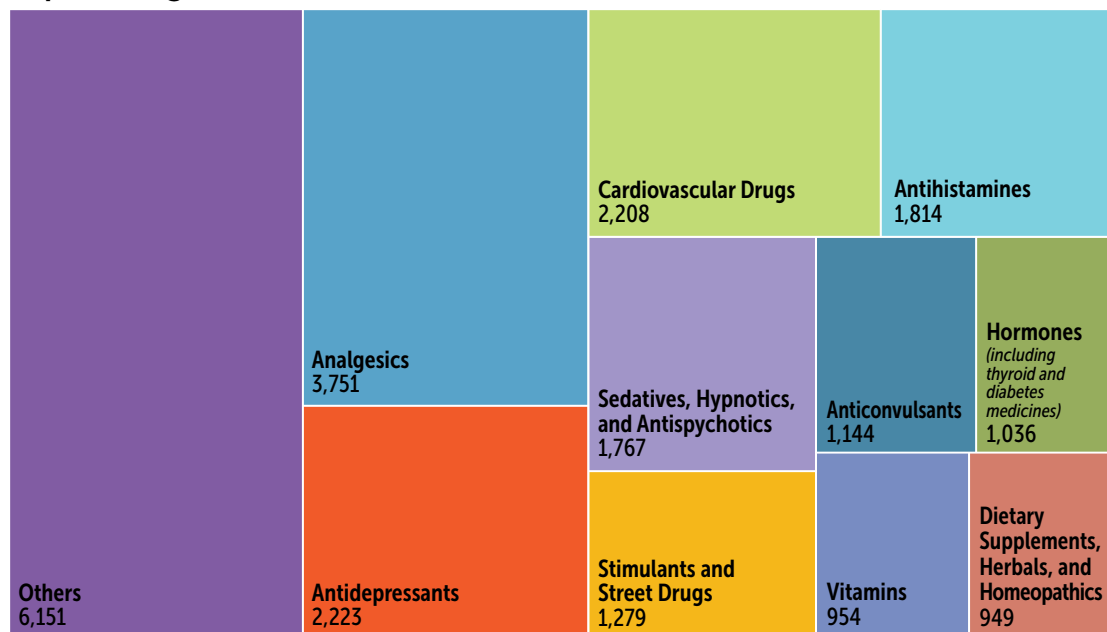


MEDICAL OUTCOMES



SUBSTANCES INVOLVED IN POISONINGS

Top 10 Drug Substances



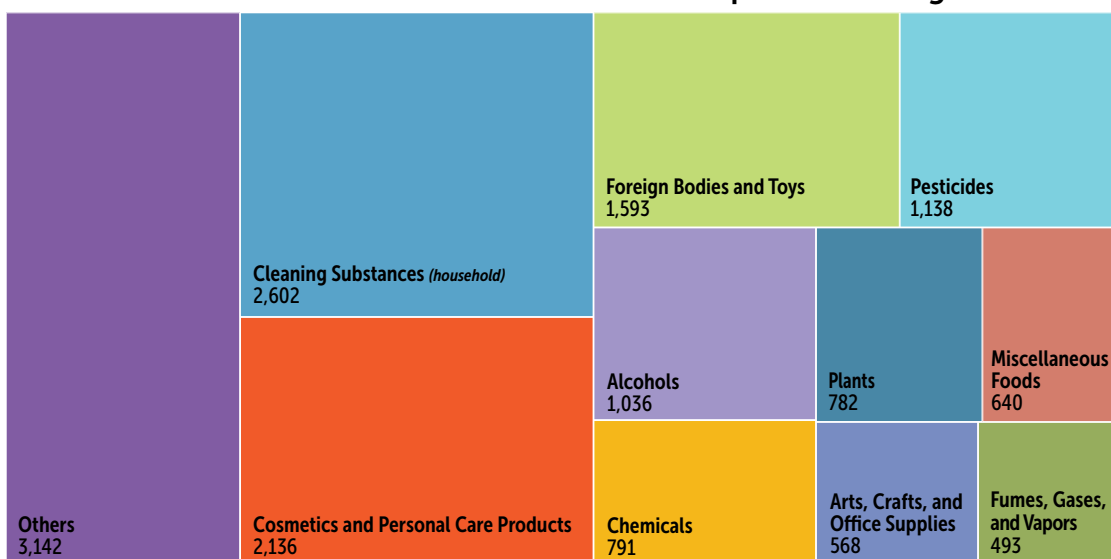
55.8 percent of the poisoning and overdose cases managed by the MPC involved a **drug***, while 47 percent of cases involved a **non-drug substance**.

*includes medicines and substances involved in abuse

The diagrams on this page list the most common substances involved in poisonings and overdoses reported to the MPC in 2024. A patient may be exposed to more than one substance in a poisoning or overdose case.

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

Top 10 Non-Drug Substances



Top Five Causes of Poisoning

1. Pain relievers
2. Household cleaning products
3. Antidepressants
4. Heart medicines
5. Cosmetics and personal care products

SATISFIED CALLERS

- In January 2024, an anonymous caller satisfaction survey respondent stated, ***"I appreciated how kind and informative Elizabeth* was. She saved me a lot of worry."***



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

- In February 2024, Jazzmine left a 5-star Google review and wrote, ***"Very reassuring. Don't hesitate to call! Simple and confidential. This could save a life - call if needed."***



- In May 2024, Nancy left a 5-star Google review and wrote, ***"I have called the poison center multiple times, and they have always been so helpful. I'm 70 years old and have wondered if I have taken two pills or one. So I call, and they are able to tell me if this is a problem or if I will be okay. They have been a blessing, and I do appreciate them being here."***



- In July 2024, John posted on Facebook stating ***"Thank you Maryland Poison Center for taking calls about what Coleman (our dog) drank as seriously as you would about what a child ate! Thanks for putting my mind at ease."***

- In October 2024, an anonymous caller satisfaction survey respondent stated, ***"It was so reassuring to have someone knowledgeable to research and provide informed direction. They were kind and so helpful, and it was awesome to be able to call back and follow up with the same person during their shift with questions and concerns. I'm really grateful for this service. So grateful to have remembered the poison center. They picked up right away. The specialist I spoke with was calm and knowledgeable, and it was reassuring to have a professional give me guidance, whether it was stay home, go to the hospital or call 911 and tell me what symptoms I should look out for. She shared her availability through her shift that night, and I was able to easily call back and ask a question without having to explain everything again. I am so appreciative of this service and for Heather* who answered my call."***



**Heather Sellman, PharmD, CSPI*

- In November 2024, Matt and Sharita left a 5-star Google review and wrote, ***"Very helpful and put our minds at ease. They didn't direct us to the ER with worst possible diagnosis but gave reasonable help. Thank you!"***



Caller satisfaction, guaranteed.

100% of callers were extremely satisfied.

100% will consult the MPC again.

100% would recommend the MPC to others

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.
- Provide fast, free, confidential help.

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 **124,000** pieces of educational materials distributed in 2024.

Public Education Spotlight:

In 2024, the Maryland Poison Center restarted its Student Ambassador Program. This program allows second- and third-year student pharmacists from the University of Maryland School of Pharmacy to be trained about the MPC and to deliver an evidence-based program called Older Adult Medicine Safety. For the 2024-2025 cohort, 23 programs were hosted at senior centers and senior apartments, reaching more than 160 older adults.



62 programs held in-person in 14 counties and virtually statewide attended by **4,041 people.**



SOCIAL MEDIA AND WEBSITE

In an attempt to reach more Marylanders with our educational and awareness messages, the MPC continued to routinely update Facebook (@MarylandPoisonCenter), X (@MD-PoisonCtr), and Instagram (@MDPoisonCenter) in 2024. Posts often directed followers to information on our website, blog, and YouTube channel.



105 Facebook posts reached more than **24,000 people.**



95 X posts lead to more than **10,000 impressions.**



87 Instagram posts reached more than **500 users.**

Approximately 20,800 visitors to our eAntidote blog, yielding more than **18,000 page views.**



More than 3,000 views on our YouTube channel for a total watch time of more than **77 hours.**



More than 16,000 people visited the MPC website, yielding approximately **65,000 page views.**



74% of MPC Facebook followers are female.



Our 26 YouTube videos were viewed 3,400 times with a total watch time of 77 hours.

TRADITIONAL MEDIA

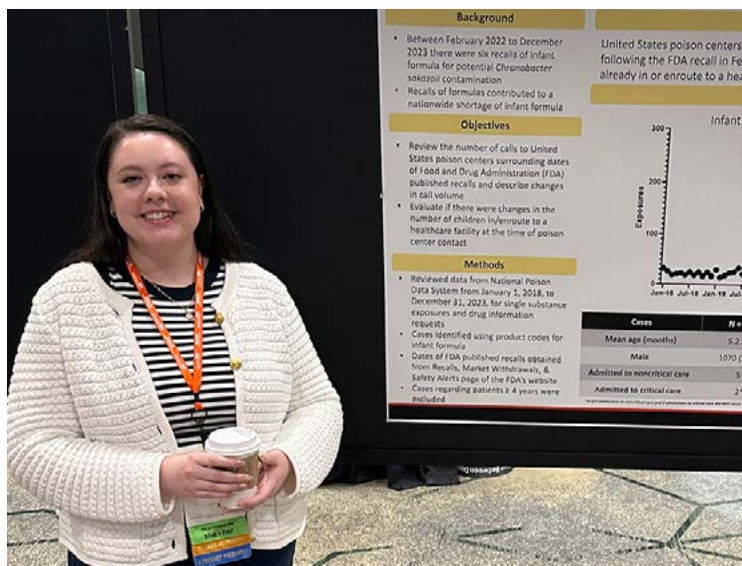
In 2024, the MPC and/or its staff appeared at least 49 times on television, radio, and in web articles. Topics included bleach, water beads, tianeptine, diphenhydramine and fluoxetine, cannabis, Ozempic, and snake bites.

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, the MPC has seen decreases in calls from private residences and increases in calls from health care facilities and first responders. In 2024, approximately one-quarter of cases managed by the MPC

were from physicians, physician assistants, nurse practitioners, nurses, and emergency medical personnel.

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



15 programs and webinars reached more than 400 health care professionals.

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



92% of cases reported by the public were managed at home.

86% of cases involving children <5 years old were managed at home.

10% of patients seen by EMS or who call 911 were managed safely at home based on Maryland Poison Center advice.

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 2024 include:

- Poison Safety for Caregivers of Adults and Older Adults
- Antidepressants
- Gummies: Sweet but Potentially Dangerous
- Pool Product Safety
- Will Kids Really Eat That? Part 2
- A Wrapped Gift – Holiday Poison Safety

Poison Prevention Press is sent to e-mail subscribers, who are encouraged to post and share the newsletter with others. In 2024, the distribution list gained 57 new recipients.

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

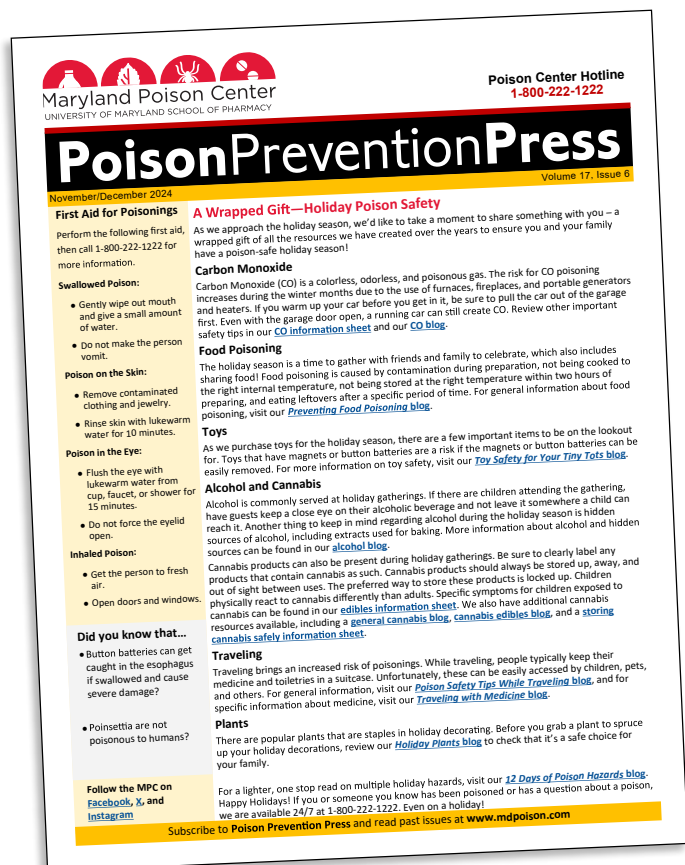
ToxTidbits is a monthly newsletter for health professionals containing important toxicology information, updates, and news.

Some of the topics addressed in 2024 include:

- Tianeptine in the United States
- Phenibut
- Diamond Shrooms
- Updates to Digoxin Toxicity Management
- Urine Arsenic Testing and Seafood

ToxTidbits is sent to email subscribers and faxed to every emergency department in our service area.

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

Leonard J.B., Minhaj F.S., Erickson K., **King J.D.** Fomepizole Use Reported to United States Poison Centers from 2010 to 2021. *Clinical Toxicology*. 2024;62(2): 120-125. doi: 10.1080/15563650.2024.2319863

Lam A.H., **King J.D.** Toxin-Induced Liver Injury and Extracorporeal Treatment of Liver Failure. *Advances in Kidney Disease and Health*. 2024;31(2):157-165. doi: 10.1053/j.akdh.2024.03.001

Posters

Macdonald V., Leonard J.B. The Scope of Esophageal Injury in Intentional Bleach Ingestion Reported to a Regional Poison Center. North American Congress of Clinical Toxicology, Denver, Colo. Sept. 21-23, 2024.

Macdonald V., Leonard J.B. Recalls Lead to More Calls: The Impact of Infant Formula Recalls on Poison Center Inquiries. North American Congress of Clinical Toxicology, Denver, Colo. Sept. 21-23, 2024.

Yemets M., Wong M., Leonard J.B., **King J.D.** Follow the Snakebite all the Way Home: Description of Snake Envenomation Home Follow-ups after Discharge. North American Congress of Clinical Toxicology, Denver, Colo. Sept. 21-23, 2024.

Yemets M., Leonard J.B., Twist A. Not Much of a Fungi: Analysis of US Poison Center Consultations due to *Amanita muscaria* Edibles. North American Congress of Clinical Toxicology, Denver, Colo. Sept. 21-23, 2024.

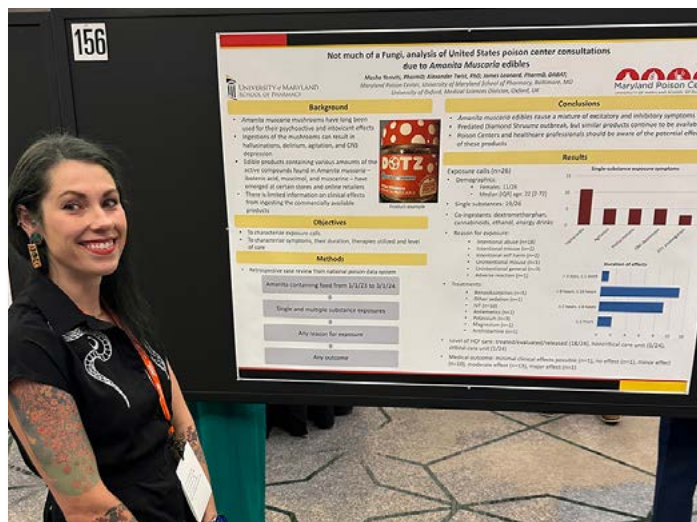
Oakland C., Kouri A., **King J.D.,** Olives T., Cole J. Extracorporeal Treatments for Blood Purification in Poisoned Children: Analysis of the National Poison Data System from 2019 to 2023. North American Congress of Clinical Toxicology, Denver, Colo. Sept. 21-23, 2024.

Presentations

Yemets M. Phenobarbital Use in Benzodiazepine and Z-drug Detoxification: A Single-center 15-year Observational Retrospective Study in Clinical Practice. Mid-Atlantic Academic Toxicology Education Journal Club. Virtual. Jan. 23, 2024.

Yemets M. Malignant Hyperthermia Case Presentation. American College of Medical Toxicology Case Conference and Mid-Atlantic Academic Toxicology Education Case Conference. Virtual. Feb. 9, 2024.

Yemets M. Dose Titration with the Glucagon-like Peptide-1 Agonist, Liraglutide, Reduces Cue- and Drug-induced Heroin Seeking in High Drug-taking Rats. Mid-Atlantic Academic Toxicology Education Journal Club. Virtual. Feb. 27, 2024.



Leonard J.B., Sera L. It's Pot, It's Hot, but Sometimes Not. Maryland Society of Health-System Pharmacy Spring Seminar. Hanover, Md. April 19, 2024.

Leonard J.B., King J.D. United States Poison Centers' Experiences with Glucagon-like Peptide 1 Receptor Agonists. NIDA IRP Addiction Grand Rounds. Hybrid. May 2, 2024.

Yemets M. Freon Case Presentation. Mid-Atlantic Academic Toxicology Education Case Conference. Virtual. May 14, 2024.

Yemets M. Pulmonary and Vesicant Agents. US Army Medical Research Institute of Chemical Defense. Australian Department of Defense Advanced Chemical Medical Countermeasures Course. Virtual. Aug. 6, 2024.

Yemets M. Pulmonary and Vesicant Agents. US Army Medical Research Institute of Chemical Defense. Aberdeen, Md. Aug. 26, 2024.

Yemets M. Ibogaine Poisoning Case Presentation. American College of Medical Toxicology Clinical Pathological Case Presentation Competition at North American Congress of Clinical Toxicology. Denver, Colo. Sept. 20, 2024.

Macdonald V. The Scope of Esophageal Injury in Intentional Bleach Ingestion Reported to a Regional Poison Center. North American Congress of Clinical Toxicology. Denver, Colo. Sept. 23, 2024.

Paterson E., Millwee E. High Alert - An Overview of Cannabis-Related Cases Reported in Maryland by the Maryland and National Capital Poison Centers. Maryland Cannabis Public Health Advisory Council. Virtual. Oct. 16, 2024.

Paterson E. The Intersection of Poison Control and Suicide Prevention. Maryland Department of Health Office of Integrated Prevention & Wellness. Virtual. Nov. 21, 2024.

MARYLAND POISON CENTER 2024

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* Until May 10, 2024

** Effective May 11, 2024

Acknowledgements

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- University of Maryland School of Pharmacy
- University System of Maryland
- Maryland Department of Health
- Maryland Cannabis Administration
- U.S. Department of Health and Human Services, Health Resources and Services Administration
- Maryland Institute for Emergency Medical Services Systems (MIEMSS)
- Priority Partners MCO
- Safe Kids Maryland State and Local Coalitions
- Baltimore County Department of Aging
- Partnership for a Safer Maryland
- Maryland Emergency Preparedness Network

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