

2022

ANNUAL REPORT

Georgia Poison Center

The Georgia Poison Center Overview

MISSION

The Georgia Poison Center (GPC) is committed to providing high quality poison center services to Georgia healthcare professionals and the residents of Georgia.

Our goal is to deliver prompt and accurate poison information to those who access our services.

OBJECTIVES

- Educate residents of Georgia in the areas of poison prevention and first aid
- Educate Georgia healthcare professionals in the areas of clinical toxicology, poisoning epidemiology, poisoning prevention, and toxicology/diagnosis and care
- Provide stable and continuous delivery of quality poison center services to Georgians.

The Georgia Poison Center is one of the busiest poison centers in the country and is the only center in Georgia.

We are staffed 24 hours a day, 365 days a year, by highly skilled pharmacist, nurses, physicians, and other poison experts, offering confidential advice on poison diagnosis, treatment, and information.

In 2022, the GPC managed

85,600

incoming calls involving human poison emergencies and information.

70,245

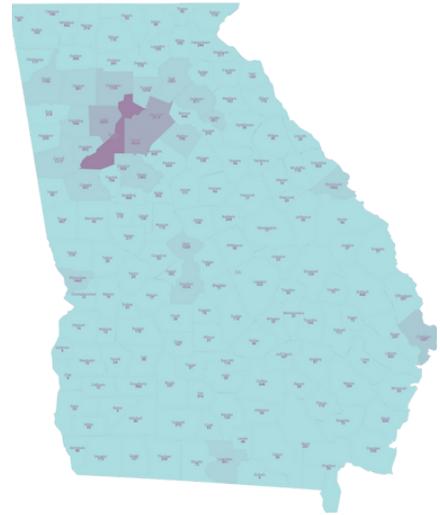
Human Exposures

2,893

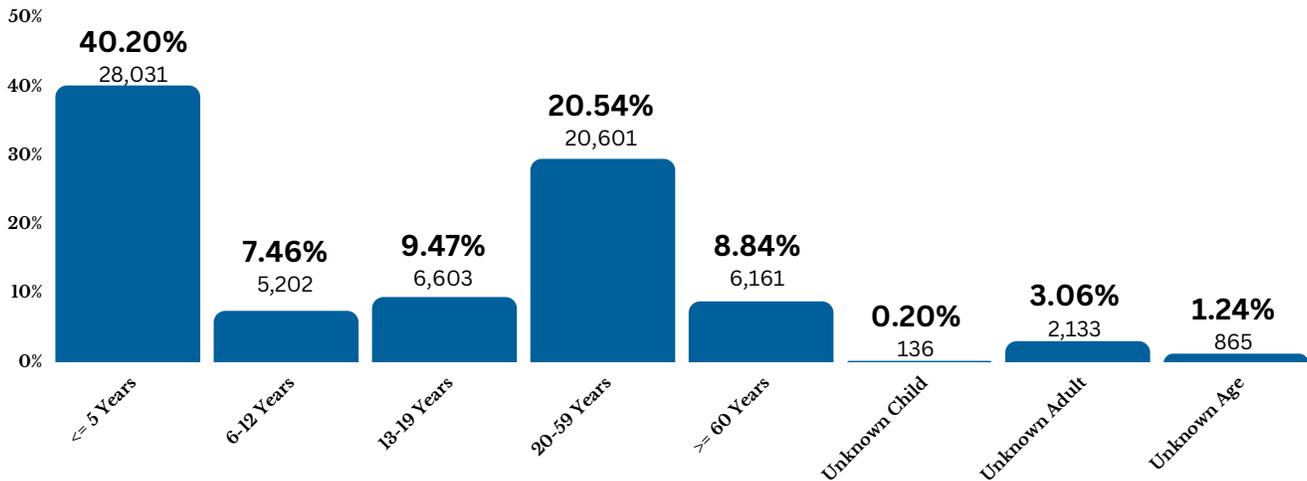
Animal Exposures

12,462

Information Calls



Distribution of Human Exposure Cases Who was exposed?



Of all of the human exposure cases, 53.83% were female, 45.31% were male, and 0.85% were unknown.

40%

of all human exposure cases were for children ages <= 5.

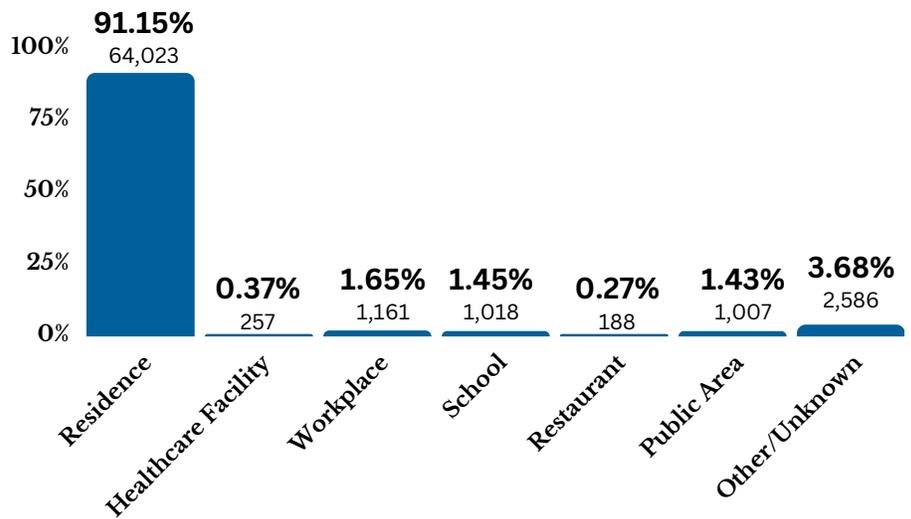
91%

of cases occurred in a residence

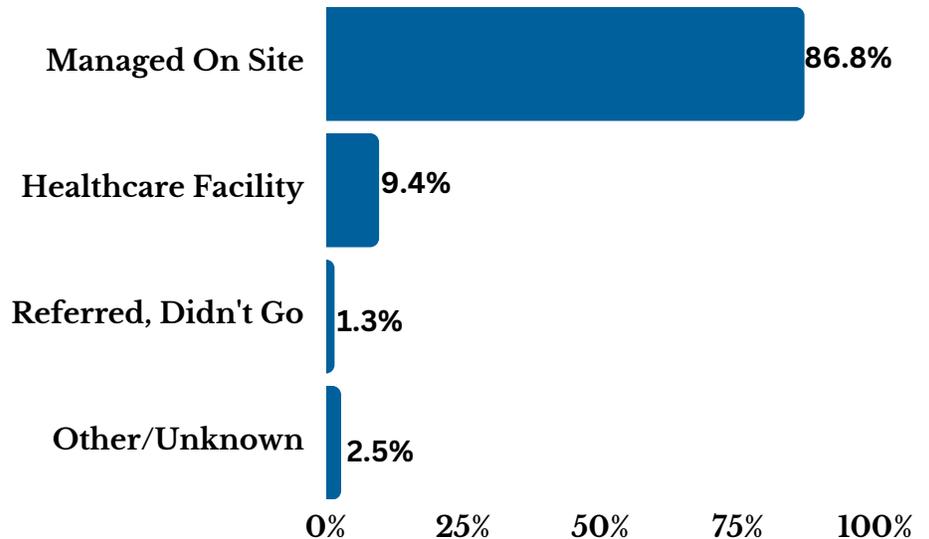
87%

of cases were managed at home/non-healthcare facility

Site of the Exposure



Management Site



Managing cases safely at home:

- Saves millions of dollars in unnecessary healthcare costs, as compared to managing patients in a healthcare facility.
- Allows more efficient and effective use of limited healthcare resources.

The most common route of exposure for calls to the GPC is through ingestion or by swallowing a substance.

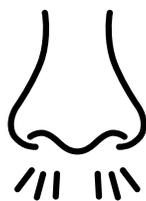
Route of the Exposure



**Ingestion
(Swallowed)**

76.24%

53,555



**Inhalation
(Breathed)**

6.38%

4,481



**Dermal
(Skin)**

6.90%

4,847



**Bite /
Sting**

5.32%

3,739



**Ocular
(Eye)**

2.80%

1,964



**Other /
Unknown**

1.31%

919

Reason to Call

	Number	%
Unintentional - General	28,699	40.86%
Unintentional - Therapeutic	11,555	16.45%
Unintentional - Misuse	5,868	8.35%
Unintentional - Bite / sting	3,719	5.29%
Unintentional - Environmental	1,813	2.58%
Unintentional - Occupational	805	1.15%
Unintentional - Food poisoning	689	0.98%
Unintentional - Unknown	120	0.17%
Total: Unintentional	53,268	75.83%
	Number	%
Intentional - Suspected suicide	9,983	14.21%
Intentional - Misuse	1,330	1.89%
Intentional - Abuse	1,720	2.45%
Intentional - Unknown	403	0.57%
Total: Intentional	13,436	19.12%
	Number	%
Adverse reaction - Drug	1,286	1.83%
Adverse reaction - Food	179	0.25%
Adverse reaction - Other	180	0.26%
Total: Adverse reaction	1,645	2.34%

76%

of cases were
unintentional

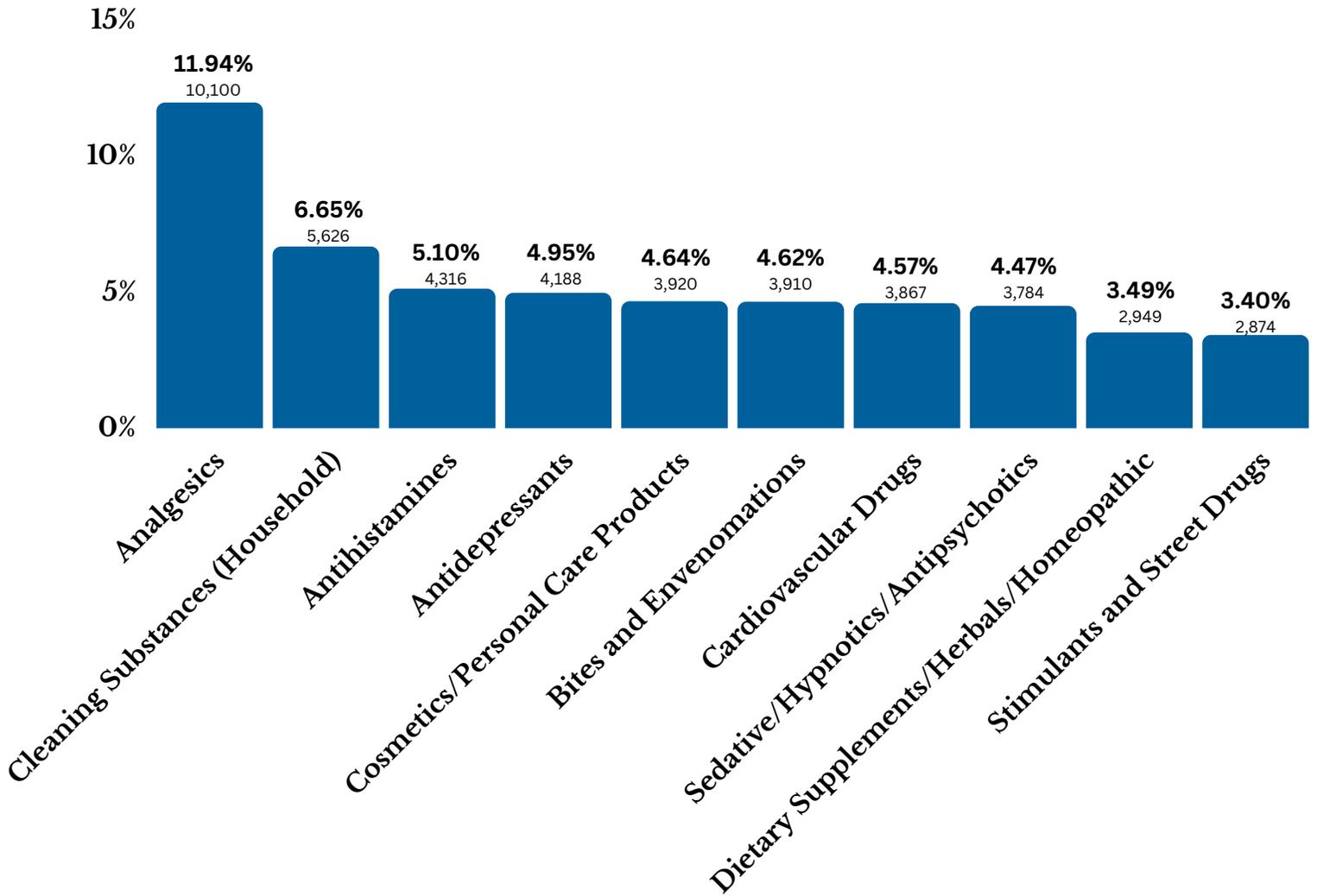
19%

of cases were
intentional

2%

of cases were
adverse reaction

Top 10 Substances: All Ages



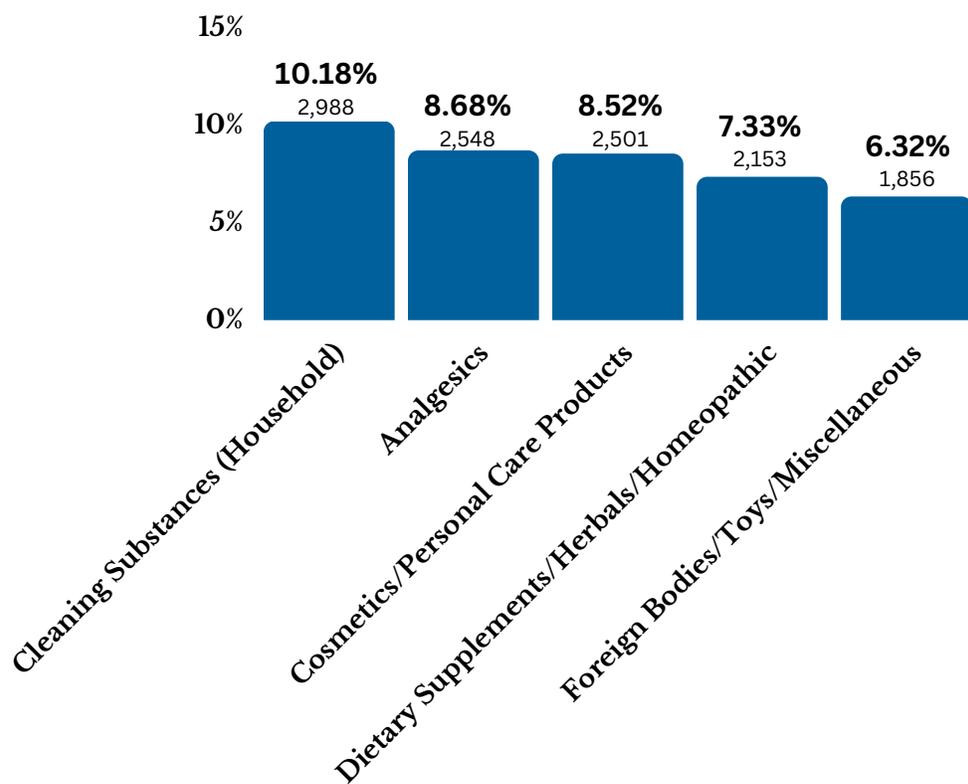
The chart above shows the most common substances involved in poisonings and overdoses reported to the GPC in 2022.

61.57%

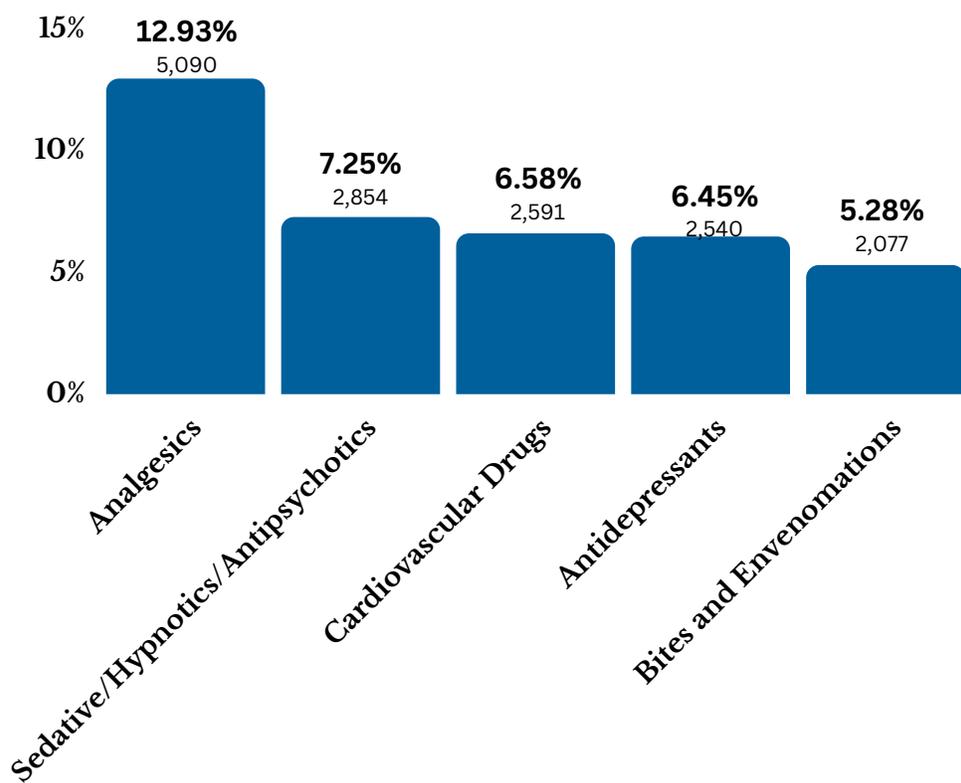
cases managed by the GPC involved a drug.



Top 5 Substances: ≤ 5 Years Old



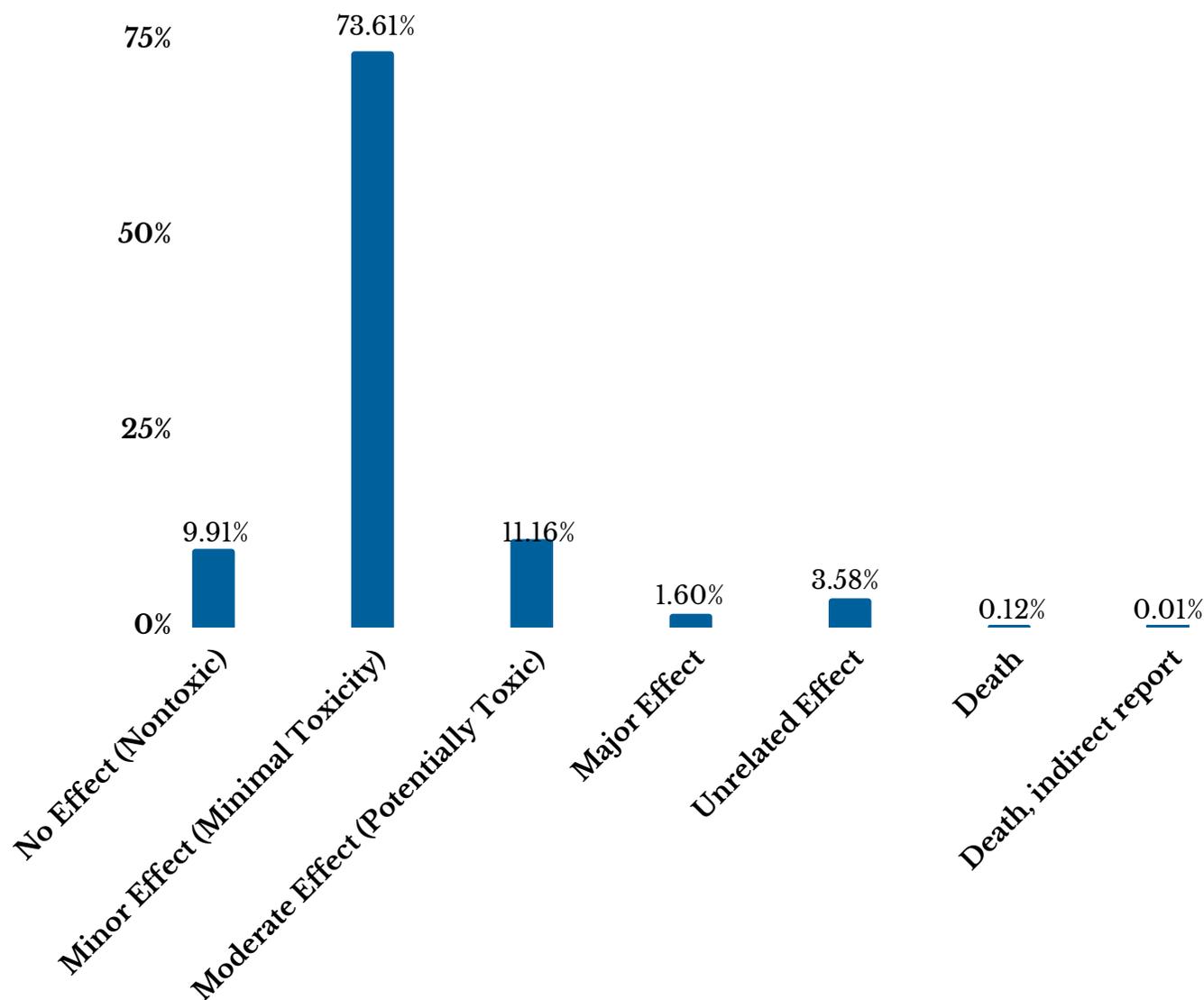
Top 5 Substances: ≥ 20 Years Old



Calling the Georgia Poison Center as soon as a poisoning or overdose is suspected is the best way to reduce the likelihood of developing severe toxicity.

The true measure of the effectiveness of the GPC is in patient outcomes. Majority of the cases had good outcomes.

Medical Outcome



Public Education Outreach

GOALS:

- Increase awareness of poisons found around us
- Help prevent poisonings from occurring
- Highlight the expertise of the GPC staff
- Promote the Poison Help line

SPOTLIGHT:

Online Poison Prevention Training Program

- This program is designed to equip individuals with the knowledge and resources needed to plan and implement poison prevention activities for people of all ages.
- We have trained over **3,500** individuals since July 2015.
- Additionally, this program has been adopted by **13** other U.S. Poison Centers.

Quarterly Newsletters

- Help keep the community and healthcare professionals up to date on poison-related topics.
- Topics included spring safety, one pill can kill, summer safety, and holiday safety.

In 2022, the GPC participated in over

115

events, programs, and/or presentations, reaching more than

32,000

individuals during 2022.

Some of our public education partners include health departments, Safe Kids coalitions, GA Dept. of Early Care and Learning, Fire/Police/EMS, schools and childcare providers, hospitals, and other health coalitions



FACEBOOK

154 posts on Facebook, reaching more than 8,400 people.



TWITTER

126 tweets leading to more than 17,661 impressions.



INSTAGRAM

125 posts on Instagram, reaching more than 8,000 people.



YOUTUBE

9 new YouTube videos, 7,041 views, 155,454 impressions, and a total watch time of 296.5 hours.



MEDIA

The GPC staff appeared in the media at least 9 times.



WEBSITE

More than 39,400 users visited the GPC website, yielding approximately 59,530 page views.

To reach more Georgians with our education messaging, the GPC continues to expand its social media and traditional media presence. We post regularly on Facebook, Twitter, and Instagram ([@PoisonCenterGA](https://www.instagram.com/PoisonCenterGA)). Our website and YouTube channel provides general poison information, videos, and recorded presentations.

The GPC provides emergency preparedness classes to healthcare professionals throughout the state. Classes offered include:

- ACMT's Agents of Opportunity for Terrorism
- Advanced Hazmat Life Support (AHLS)
- AgriTox
- Toxicology for Farming Communities
- Chemical, Biological, Radiological, Nuclear Explosive (CBRNE)
- Chemical Warfare Agents
- Explosion and Blast Injuries
- Nuclear Plant Emergency Response (NPER)
- A Practical Approach to Opioid Use Disorders (PrAOUD)
- Radiological Preparedness and Emergency Response (RPER)

Healthcare Professional Education

The Georgia Poison Center is a training site for health care professionals.

Emergency medicine and pediatric residents from Emory University School of Medicine train at the Georgia Poison Center on an ongoing basis.

During their training, these residents have the opportunity to see how a poison center operates, become familiar with the resources that are available in the center, and assist in consulting on poisoned patients admitted to local health care facilities.

Fourth year pharmacy students from PCOM, Mercer University, and the University of the South are also trained here.

Students are introduced to the topic of clinical toxicology through one-on-one tutorials and hands-on activities with the guidance of toxicologists and certified specialists in poison information.

Research Publications & Presentations

ABSTRACTS

- Alexa Steverson, Tammy Noble, Wendy Stephan, **Britni Overall** and Jacqueline Kakos. *Are poison control center educators incorporating suicide prevention messaging into their outreach? Assessing educators' perceptions and beliefs across poison centers nationwide.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.
- **Amanda Hammond, Stephanie Hon, Patrick Filkins and Robert Geller.** *Review of recommendations for the use of renal replacement therapy (RRT) in poisoned patients.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.
- Chiemela Ubani, Molly Stott, Dawn Sollee, Jay Schauben, Alexandra Derr, **Amanda Hammond**, Colleen Cowdery, Lindsay Schaack Rothstein, Ashton Federico, Gerard Garvan and Sophia Sheikh. *Characterization of eastern coral snake exposures managed by the Florida Poison Information Center Network.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.
- **Crystal Proshok, Patrick Filkins and Stephanie Hon.** *Emesis nemesis: descriptive analysis of pediatric ondansetron ingestions.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.

Research Publications & Presentations

- **Crystal Proshok, Stephanie Lynn Hon, Patrick Filkins and Robert Geller.** *Don't make it a double?: a 20-year review of supratherapeutic amlodipine ingestions while on chronic therapy.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.
- Jared Cavanaugh and **Stephanie Hon.** *Watch for high tides, but maybe at home: GLP-1 receptor agonist exposures reported to NPDS.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.
- **Rita Farah, Joseph Carpenter, Stephanie Hon, Robert Geller and Brent Morgan.** *Clinical Preparation and management of oral potassium poisoning: a retrospective review of the national poison data system 2010-2021.* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.
- **Thao-phuong Hallett and Emily Kiernan.** *Locked up: freeing OGs from p-resins (polymerized-resins).* (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.

Research Publications & Presentations

JOURNALS

- Al-Sulaimani S, Titelbaum NV, Ward RE, Zahran TE, Chalhoub S, **Kazzi Z**. *Case Report of Tetrodotoxin Poisoning from Lagocephalus sceleratus in Lebanon*. Int J Environ Res Public Health. 2022 Nov 8;19(22):14648. doi: 10.3390/ijerph192214648. PMID: 36429360; PMCID: PMC9690907.
- Alhatali B, Al Lawatia S, Khamis F, Kantur S, Al-Abri S, Kapil V, Thomas J, Johnson R, Hamelin EI, Coleman RM, **Kazzi Z**. *A cluster of tetrodotoxin poisoning in Oman*. Clin Toxicol (Phila). 2022 Feb;60(2):262-266. doi: 10.1080/15563650.2021.1917595. Epub 2021 Apr 29. PMID: 33913398.
- Calello DP, **Kazzi Z**, Stolbach A. *American College of Medical Toxicology (ACMT) Cautions Against Off-Label Prescribing of Ivermectin for the Prevention or Treatment of COVID-19*. J Med Toxicol. 2022 Jan;18(1):69-70. doi: 10.1007/s13181-021-00866-z. Epub 2022 Jan 10. PMID: 35006547; PMCID: PMC8744041.
- Cohen N, Mathew M, Davis A, Brent J, Wax P, Schuh S, Freedman SB, Froberg B, Schwarz E, Canning J, Tortora L, Hoyte C, Koons AL, Burns MM, McFalls J, Wiegand TJ, Hendrickson RG, Judge B, Quang LS, Hodgman M, Chenoweth JA, Algren DA, Carey J, Caravati EM, Akpunonu P, Geib AJ, Seifert SA, **Kazzi Z**, Othong R, Greene SC, Holstege C, Tweet MS, Vearrier D, Pizon AF, Campleman SL, Li S, Aldy K, Finkelstein Y; ToxIC Pediatric Opioid Exposure Study Group. *Predictors of severe outcome following opioid intoxication in children*. Clin Toxicol (Phila). 2022 Jun;60(6):702-707. doi: 10.1080/15563650.2022.2038188. Epub 2022 Mar 25. PMID: 35333145.

Research Publications & Presentations

- El Zahran T, Kanaan E, Kobeissi L, Bouassi J, Sarieedine A, **Carpenter J, Kazzi Z**, Hitti E. Benzodiazepine use disorder: *A cross-sectional study at a tertiary care center in Lebanon*. *Medicine (Baltimore)*. 2022 Sep 23;101(38):e30762. doi: 10.1097/MD.00000000000030762. PMID: 36197240; PMCID: PMC9509078.
- El Zahran T, Mostafa H, Hamade H, Al Hariri M, Saab A, Tamim H, Tohme R, Al Hamod DA, Sinno D, Sawaya RD, **Kazzi Z**. *Lead screening in children presenting to three hospitals in Lebanon*. *Arch Dis Child*. 2022 Mar;107(3):251-256. doi: 10.1136/archdischild-2021-322012. Epub 2021 Aug 24. PMID: 34429329.
- **Farah R, Kazzi Z**, Brent J, Burkhart K, Wax P, Aldy K; Toxicology Investigators Consortium FACT Study Group. *Ivermectin associated adverse events in the treatment and prevention of COVID-19 reported to the FACT pharmacovigilance project*. *Clin Toxicol (Phila)*. 2022 Aug;60(8):942-946. doi: 10.1080/15563650.2022.2070187. Epub 2022 May 10. PMID: 35535587.
- Giordano NA, Seilern Und Aspang J, Baker J, Medline A, Rice CW, Barrell B, Kirk L, Ortega E, Wallace M, **Steck A**, Schenker ML. *Integration of Life Care Specialists Into Orthopaedic Trauma Care to Improve Postoperative Outcomes: A Pilot Study*. *Pain Manag Nurs*. 2022 Oct;23(5):608-615. doi: 10.1016/j.pmn.2022.03.010. Epub 2022 Apr 25. PMID: 35477669.
- Goldfine C, Lung D, Beauchamp G, O'Connor A, Stolbach A, Kao L, Judge B, Wax P, Patwari R, **Kazzi Z**. *Consensus Development of a Core Content for a Standardized Medical Toxicology Curriculum for Medical Students*. *J Med Toxicol*. 2022 Apr;18(2):139-144. doi: 10.1007/s13181-021-00874-z. Epub 2022 Jan 28. PMID: 35089533; PMCID: PMC8796743.

Research Publications & Presentations

- Heiman E, Lanh S, Moran TP, **Steck A, Carpenter J**. *Electronic Advisories Increase Naloxone Prescribing Across Health Care Settings*. J Gen Intern Med. 2022 Nov 14;1-8. doi: 10.1007/s11606-022-07876-9. Epub ahead of print. PMID: 36376626; PMCID: PMC9663180.
- Kao L, Burns M, Murphy C, Schwarz E; **ACMT Fellowship Directors Committee**. *Opening Doors to Training Medical Toxicology Fellows from All Residency Backgrounds*. J Med Toxicol. 2022 Jan;18(1):1-3. doi: 10.1007/s13181-021-00870-3. Epub 2022 Jan 10. Erratum in: J Med Toxicol. 2022 Apr;18(2):180. PMID: 35006545; PMCID: PMC8758839.
- **Kiernan EA, Carpenter JE, Dunkley CA**, Moran TP, Rothstein LS, Silver E, Salehi M, Koch DD, **Morgan BW**, Murray BP. *Elevated methemoglobin levels in patients treated with hydroxocobalamin: a case series and in-vitro analysis*. Clin Toxicol (Phila). 2022 Sep;60(9):1012-1018. doi: 10.1080/15563650.2022.2072315. Epub 2022 May 12. PMID: 35549585.
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- McQuilkin JA, **Kiernan EA**. *Woman with abdominal distension and cardiac arrest*. J Am Coll Emerg Physicians Open. 2022 Apr 11;3(2):e12724. doi: 10.1002/emp2.12724. PMID: 35434711; PMCID: PMC9000155.

Research Publications & Presentations

- Medline A, Wham R, Kim G, Staley C, **Steck A**, Boissonneault A, Schenker ML. *Opioid Prescribing Behavior in the Emergency Department During Routine Orthopedic Manipulations*. *Am Surg*. 2022 May 6:31348221091957. doi: 10.1177/00031348221091957. Epub ahead of print. PMID: 35522851.
- Meisel EM, **Morgan B**, Schwartz M, **Kazzi Z**, Cetin H, Sahin A. *Two Cases of Severe Amanita Muscaria Poisoning Including a Fatality*. *Wilderness Environ Med*. 2022 Dec;33(4):412-416. doi: 10.1016/j.wem.2022.06.002. Epub 2022 Oct 6. PMID: 36210279.
- P. Palungwachira, M. Yeh, B. Whitworth, W. Rushton and **Z. Kazzi**. *Clinical Characteristics of Kratom Exposures Reported to the Georgia and Alabama Poison Control Centers from 2016-2020: A Retrospective Review*. *Journal of Drug and Alcohol Research*. 2022;11(2). doi: 10.4303/jdar/236162.
- Razavi SA, Stewart CM, **Nogee DP, Geller RJ**, Seiler JG 3rd. *Upper Extremity Crotalid Envenomation: A Review of Incidence and Recent Trends in Management of Snakebites*. *J Hand Surg Am*. 2022 Jun 17:S0363-5023(22)00264-7. doi: 10.1016/j.jhsa.2022.04.016. Epub ahead of print. PMID: 35725686.
- Seale JT, **Carpenter JE, Eisenstat MD, Kiernan EA, Morgan BW, Nogee DP**, Pu X, **Therriault CA, Yeh M**, McDougal OM. *Veratrum parviflorum poisoning: identification of steroidal alkaloids in patient blood and breast milk*. *Clin Toxicol (Phila)*. 2022 Dec;60(12):1309-1317. doi: 10.1080/15563650.2022.2132166. Epub 2022 Oct 27. PMID: 36301078; PMCID: PMC9822863.

Research Publications & Presentations

- Tabbara F, Abdul Nabi SS, Sadek R, **Kazzi Z**, El Zahran T. *A Case Report of a Lebanon Viper (Montivipera bornmuelleri) Envenomation in a Child*. Clin Pract Cases Emerg Med. 2022 Nov;6(4):318-322. doi: 10.5811/cpcem.2022.2.56176. PMID: 36427039; PMCID: PMC9697889.
- Veenema TG, Moran TP, **Kazzi Z**, Schneider-Firestone S, Case C, Aldrich J. *Radiation Injury Treatment Network Medical and Nursing Workforce Radiation: Knowledge and Attitude Assessment*. Disaster Med Public Health Prep. 2022 Feb;16(1):170-176. doi: 10.1017/dmp.2020.253. Epub 2020 Sep 22. PMID: 32958096.
- **Zachary Illg, Nicholas Titelbaum, Thao-phuong Hallett and Joseph Carpenter.** *Intravenous buprenorphine microinduction: a case report*. (2022) North American Congress of Clinical Toxicology (NACCT) Abstracts 2022, Clinical Toxicology, 60:sup2, 1-162, DOI: 10.1080/15563650.2022.2107776.

Research Publications & Presentations

CONFERENCE PRESENTATIONS

Emily Kiernan, DO

- *ACMT 23rd Annual Clinical Pathological Case (CPC) Presentation Competition.* North American Congress of Clinical Toxicology. San Francisco, CA. October 2022.

Joseph Carpenter, MD

- *AACT special Section: "Quick! Silver oozing from the wound!" - Mercury Toxicity from a Wound Contaminated with Mercury Requiring Chelation and Surgical Excision: Practical Considerations, Multidisciplinary Collaboration, and Lessons Learned.* North American Congress of Clinical Toxicology. San Francisco, CA. October 2022.

Salman Ahsan, MD

- *ACMT 23rd Annual Clinical Pathological Case (CPC) Presentation Competition.* North American Congress of Clinical Toxicology. San Francisco, CA. October 2022.

Ziad Kazzi, FAACT, FACMT, MD

- *Clinical Toxicology and Poison Centers in Countries Belonging to the World Health Organization's Regional Office of the Eastern Mediterranean (EMRO).* North American Congress of Clinical Toxicology. San Francisco, CA. October 2022.

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2022

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