

# Georgia Poison Center

2021 Annual Report



*Stepping up to the plate and hitting it out of the park*



*W*  
WORLD SERIES  
CHAMPIONS



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. We continuously strive to:

- 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 pharmacists, nurses, physicians, and other poison experts, offering confidential advice on poison diagnosis, treatment, and information.

In 2021, the GPC managed 114,515 incoming calls involving human poison emergencies and information.



Human Exposures

**70,191**



Animal Exposures

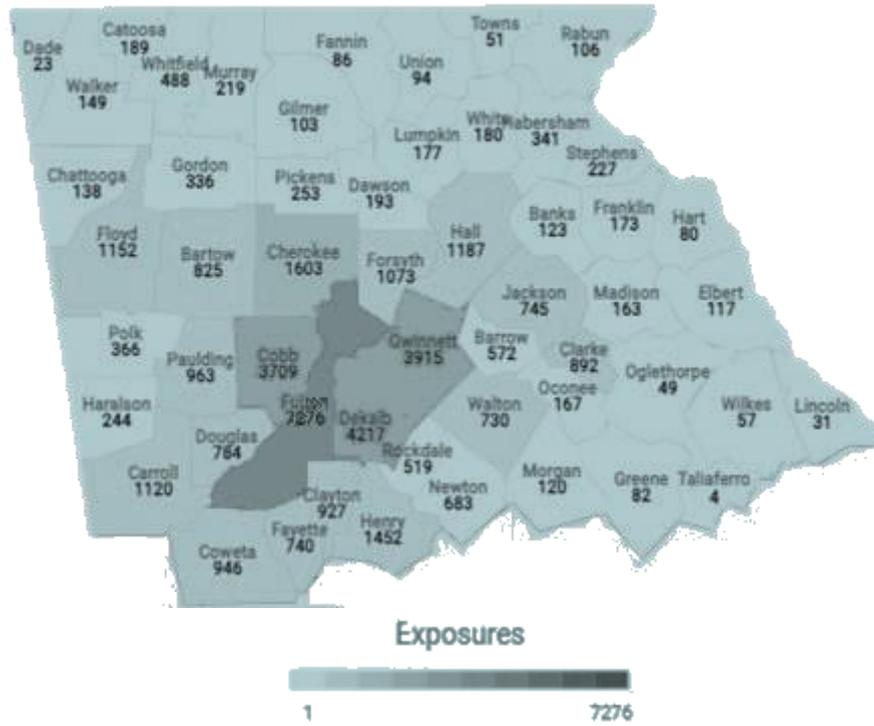
**3,110**



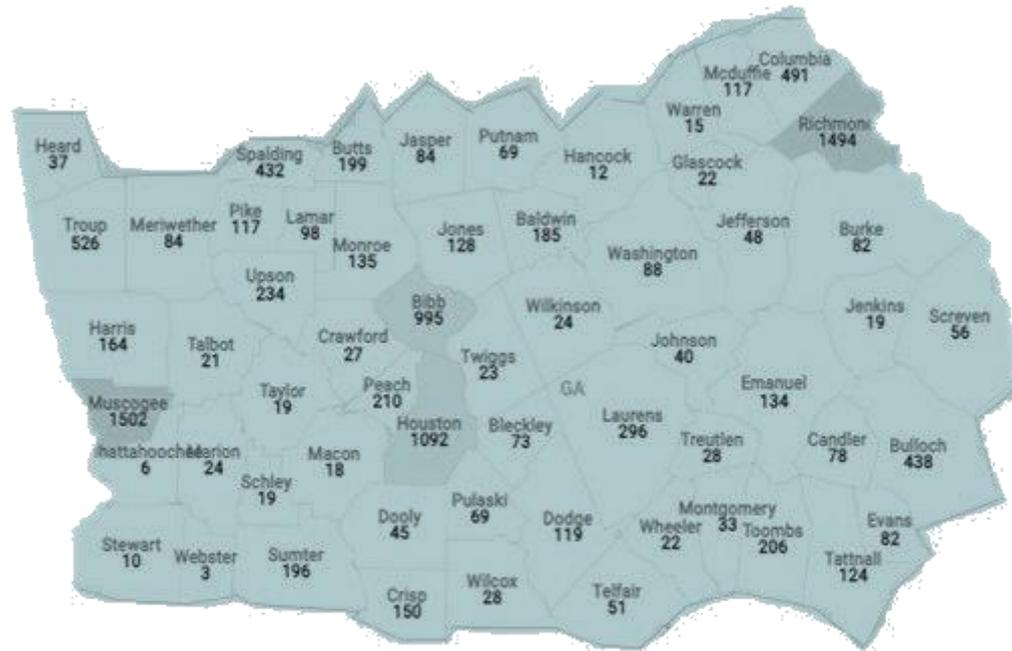
Information Calls

**41,214**

# ALL CALLS FOR 2021 – North Georgia



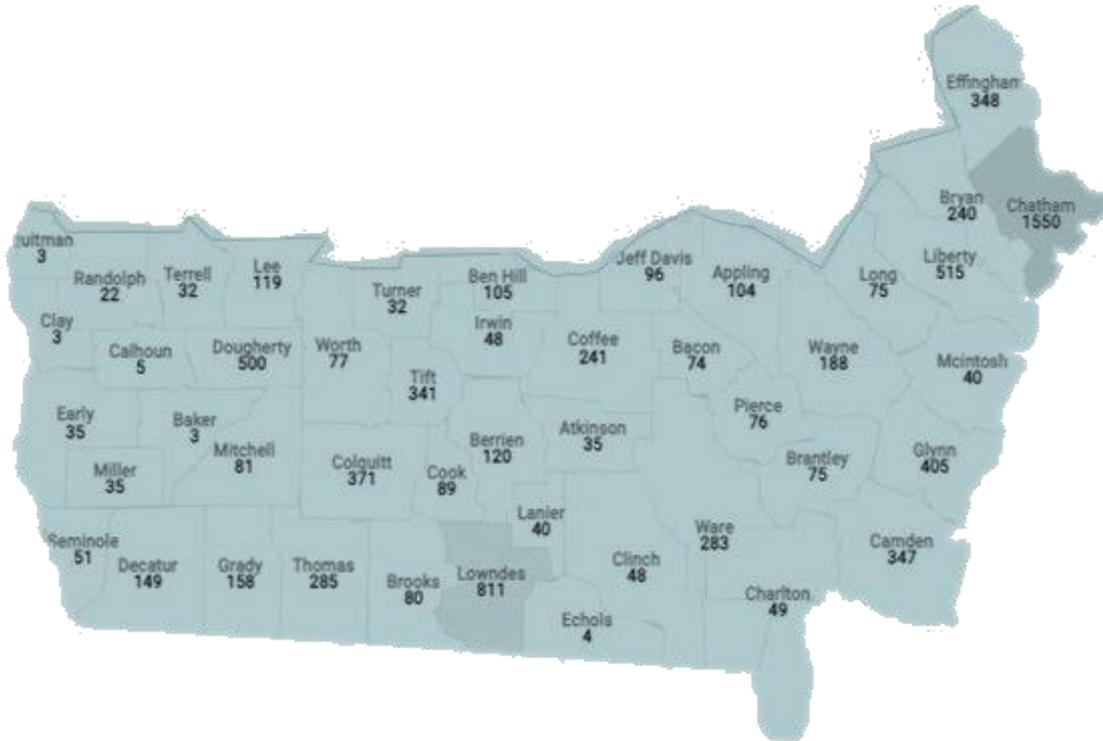
# ALL CALLS FOR 2021 – Middle Georgia



Exposures



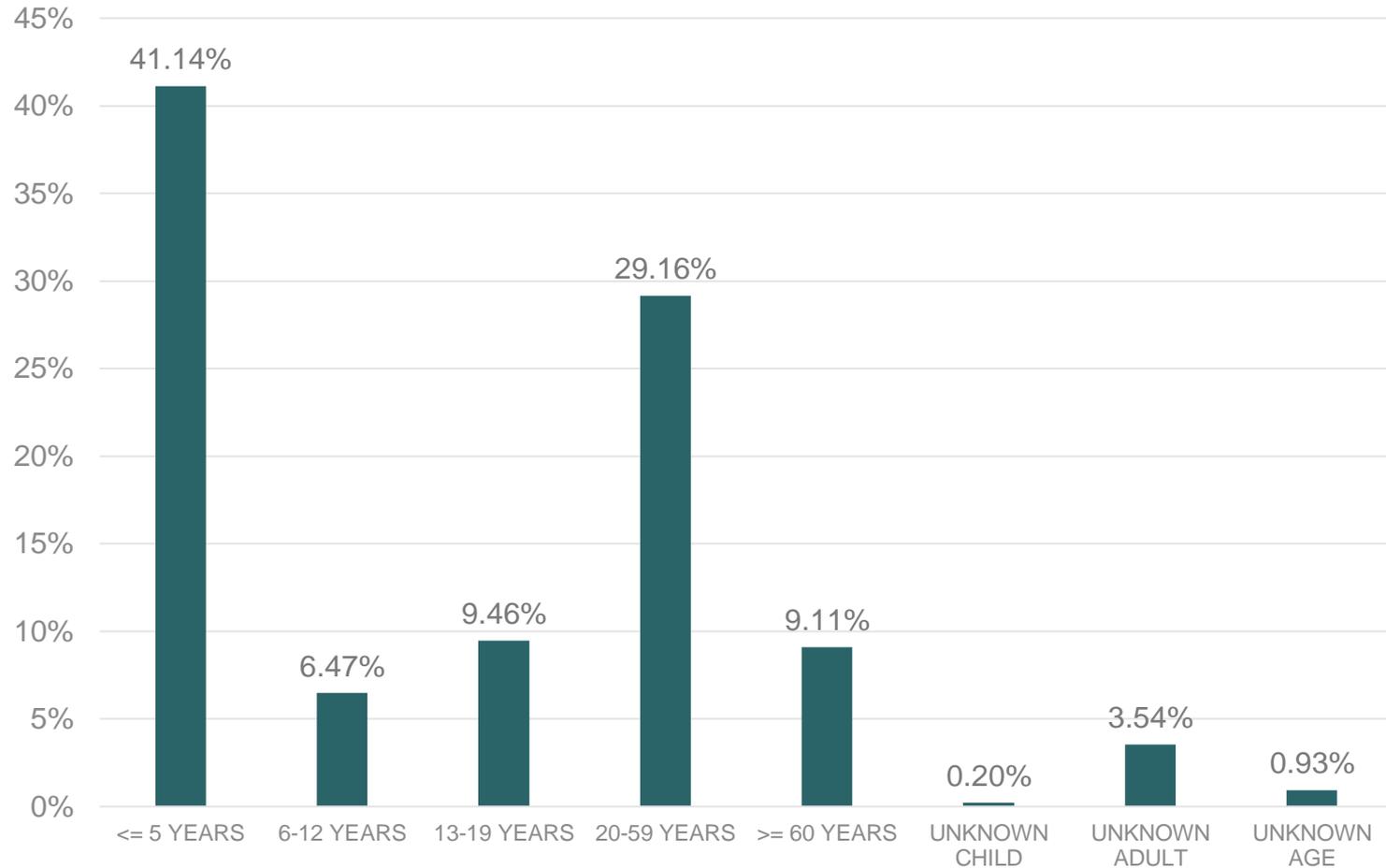
# ALL CALLS FOR 2021 – South Georgia



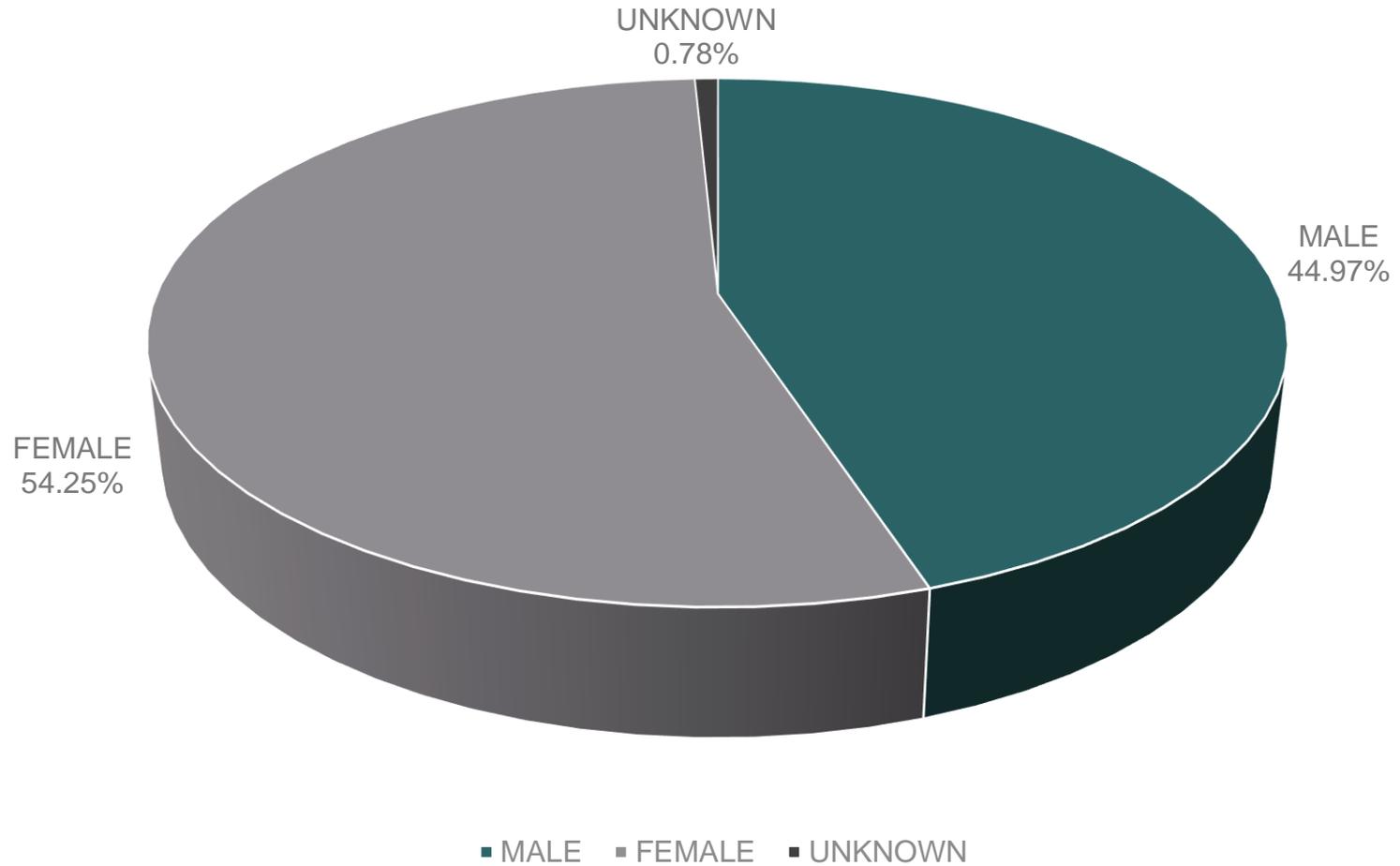
Exposures



# HUMAN EXPOSURES BY AGE



# HUMAN EXPOSURES BY GENDER



**Every call is handled by highly trained, experienced, and dedicated health professionals (pharmacists, nurses, physicians, and other poison specialists).**

# SITE OF THE CALLER & EXPOSURE



Residence



Healthcare Facility



Workplace

Caller Site

67.3%

26.3%

0.9%

Exposure Site

91.47%

0.34%

1.56%



School



Restaurant



Public Area



Other/Unknown

Caller Site

0.40%

0.0%

0.3%

4.8%

Exposure Site

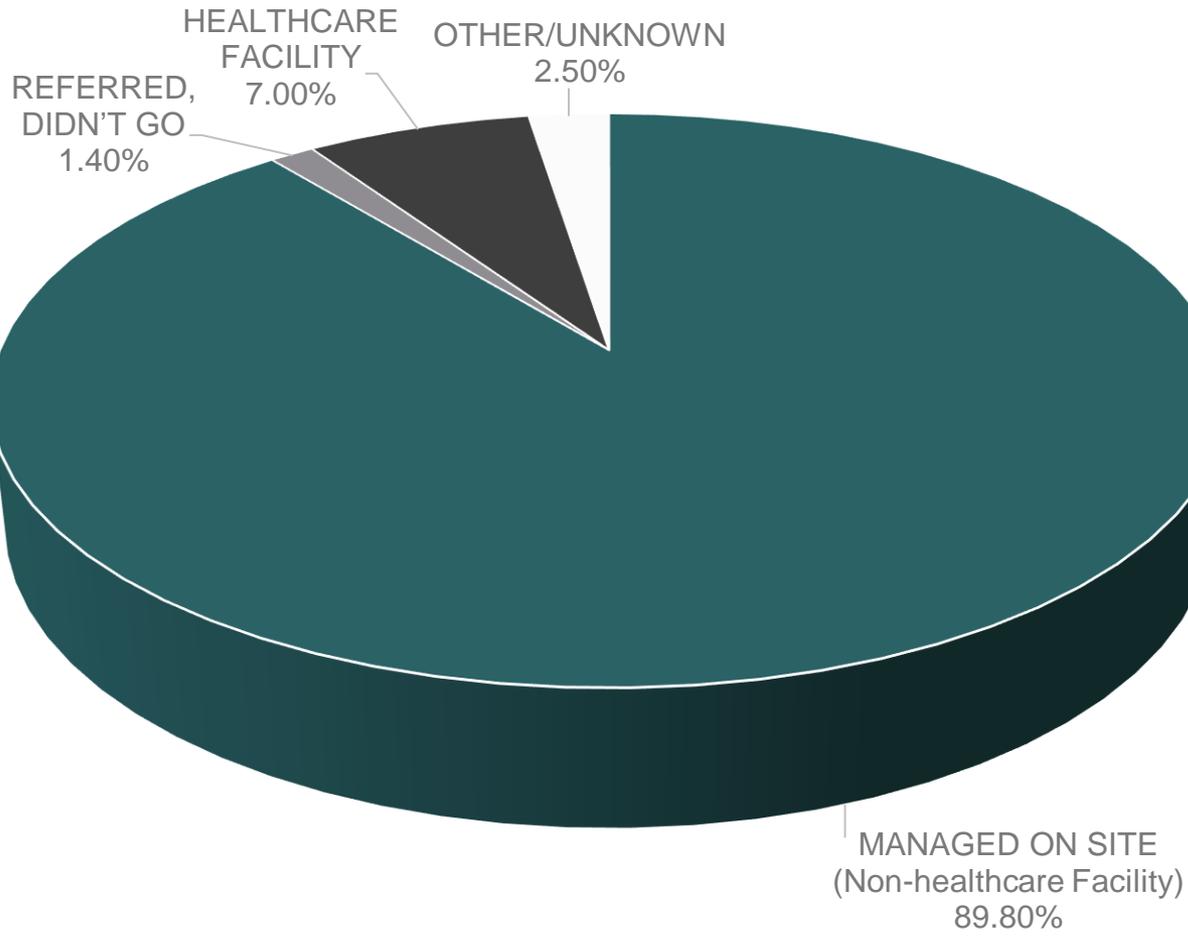
1.17%

0.25%

1.25%

3.96%

# MANAGEMENT SITE



**89.80%**

of cases were managed on site

*(without being seen at a hospital or doctor's office)*

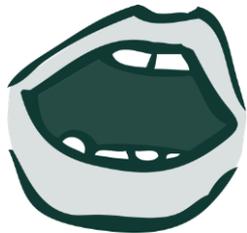
Managing cases safely at home:

- 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 health care resources

Of the 7% of cases managed in a healthcare facility whose outcome is known to us:

- 5.3% were treated and released
- 0.6% were admitted to a psychiatric facility
- 0.4% were admitted to a noncritical care unit, and
- 0.3% were admitted to a critical care unit

# ROUTE OF EXPOSURE



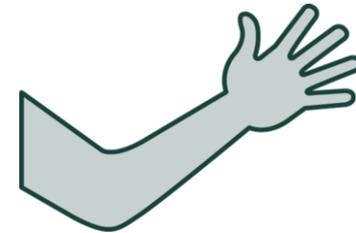
Ingestion  
(Swallowed)

**74.28%**



Inhalation  
(Breathed)

**6.99%**



Dermal  
(Skin)

**6.88%**



Bite/Sting

**4.43%**



Ocular (Eye)

**3.98%**



Other/Unknown

**2.27%**

# REASONS TO CALL THE POISON CENTER



## Unintentional Exposures:

- General
- Therapeutic error
- Misuse
- Bite/sting
- Environmental
- Food poisoning
- Occupational (workplace)

75.77%

## Intentional Exposures:

- Suspected suicide
- Misuse
- Abuse

19.01%

## Adverse Reaction to:

- Drug
- Other substances
- Food

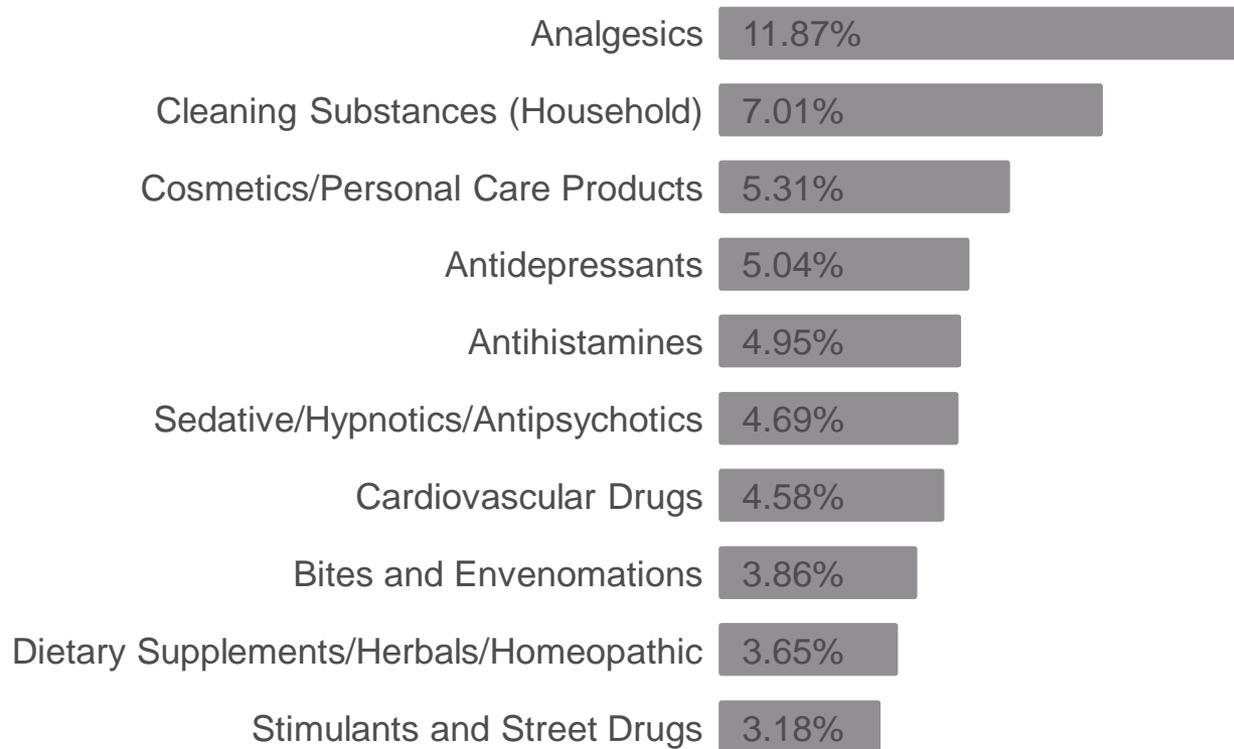
2.52%

## Other/Unknown reasons:

- Contaminant/tampering
- Malicious
- Withdrawal

2.70%

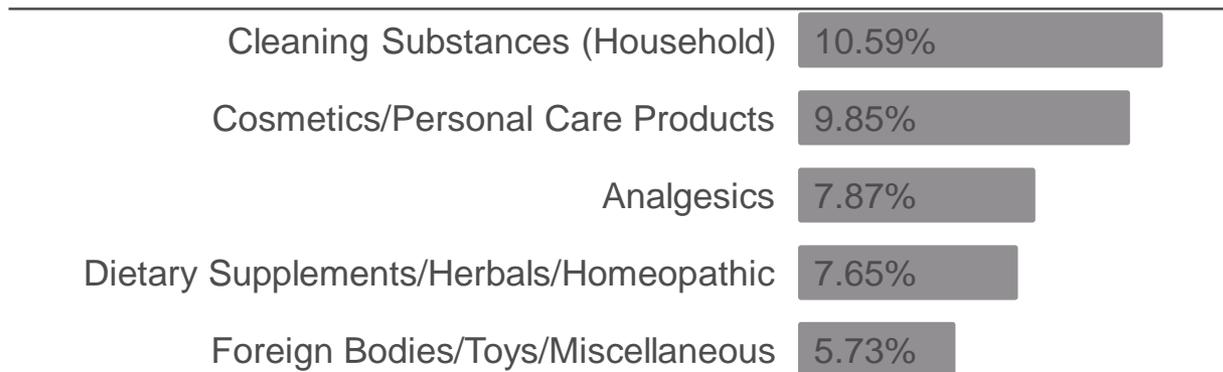
# TOP 10 SUBSTANCES: ALL AGES



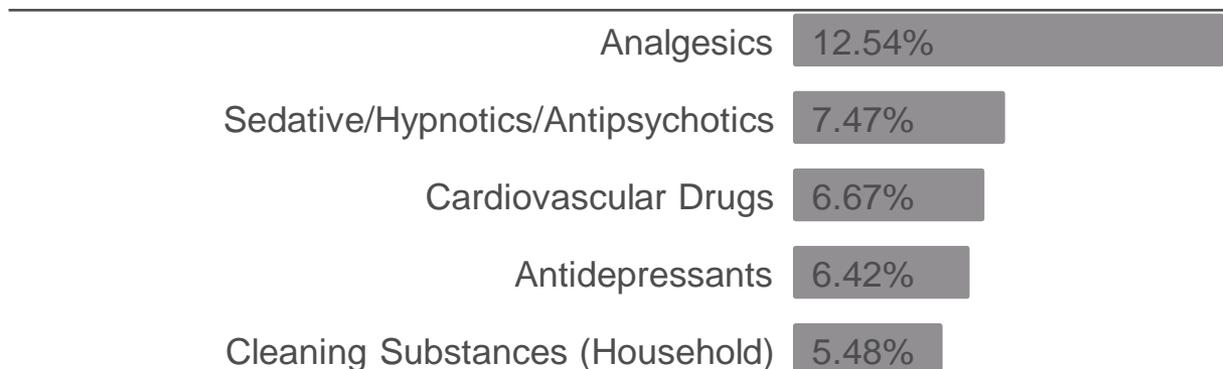
# TOP 5 SUBSTANCES: BY AGE



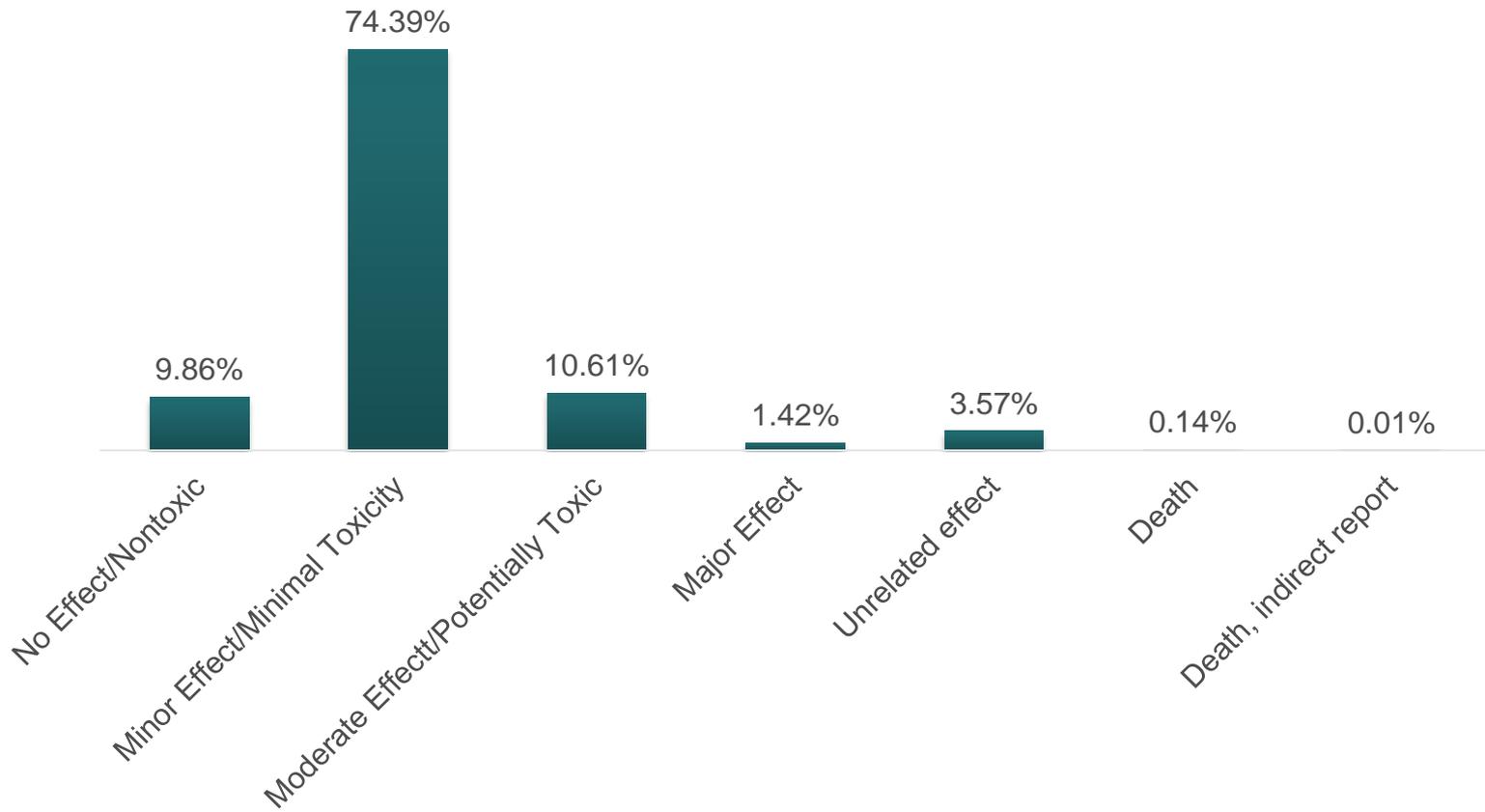
## ≤ 5 Years Old



## ≥ 20 Years Old



# MEDICAL OUTCOME



# PUBLIC EDUCATION



The Georgia Poison Center Education Department conducts outreach and educational events to:

- ❖ Increase awareness of poisons found around us
- ❖ Help prevent poisonings from occurring
- ❖ Highlight the expertise of the Georgia Poison Center staff
- ❖ Promote the Poison Helpline that is fast, free, and confidential

The Georgia Poison Center and partner organizations provided speakers and/or materials for over **200** events, reaching more than **19,500** people during 2021. 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.

## **Public Education Spotlight: Online Poison Prevention Training Program**

The Georgia Poison Center serves the entire state of Georgia, totaling over 10 million people. We have utilized trained educators throughout the state since 1996 to help spread the awareness of the GPC and poison prevention education. In July of 2015 we launched the online version and, to date, we have **trained over 3,375 individuals**. This training is designed to equip individuals with the knowledge and resources needed to plan and implement poison prevention activities for people of all ages. In addition, the GPC online poison prevention training program has been adopted by 13 U.S. Poison Control Centers.

# QUARTERLY NEWSLETTER



The Georgia Poison Center quarterly newsletter keeps community members and healthcare professionals up-to-date on poison-related topics. The quarterly newsletter is sent to email subscribers, community partners, and our online poison prevention training participants.

The newsletter highlights various poison safety topics for all ages. Topics presented in 2021 included:

- Carbon Monoxide
- Inducing Emesis
- Venomous Georgia Snakes
- Bupropion Antidepressants
- Beware of Bottom Feeders: ciguatera poisoning
- Guidance of the use of Ivermectin for COVID-19
- Delta-8 THC
- Ivermectin
- DEET

**Georgia***Poison***Center**

# SOCIAL MEDIA & WEBSITE OUTREACH



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). Our website and YouTube channel provides general poison information, videos, and recorded presentations.



162 posts on Facebook reaching more than 17,000 people.



More than 35,087 users visited the GPC website, yielding approximately 55,287 page views.



153 tweets leading to more than 45,500 impressions.



14 new YouTube videos, 2,355 views leading to 32,209 impressions and a total watch time of 113.5 hours.



142 posts on Instagram leading to more than 435 impressions.



In 2021, the GPC and/or staff appeared in the media at least 26 times.

# HEALTHCARE PROFESSIONAL EDUCATION



The Georgia Poison Center 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); and Radiological Preparedness and Emergency Response (RPER).

The Georgia Poison Center is also 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



## Journals

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)*. 2021 Apr 29;1-5. doi: 10.1080/15563650.2021.1917595. Epub ahead of print. PMID: 33913398.

Carpenter JE, Murray BP, Moran TP, Dunkley CA, Layer MR, Geller RJ. Poisonings due to storage in a secondary container reported to the National Poison Data System, 2007-2017. *Clin Toxicol (Phila)*. 2021 Jun;59(6):521-527. doi: 10.1080/15563650.2020.1833026. Epub 2020 Oct 20. PMID: 33078985.

De Olano J, Wang JJ, Villeneuve E, Gosselin S, Biary R, Su MK, Hoffman RS. Current fatality rate of suspected cyclopeptide mushroom poisoning in the United States. *Clin Toxicol (Phila)*. 2021 Jan;59(1):24-27. doi: 10.1080/15563650.2020.1747624. Epub 2020 Apr 2. PMID: 32237919.

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*. 2021 Aug 24;archdischild-2021-322012. doi: 10.1136/archdischild-2021-322012. Epub ahead of print. PMID: 34429329.

El Zahran T, Mostafa H, Hamade H, Hitti E, Morgan BW, Kazzi Z. Toxicological exposures among the pediatric patients at a tertiary care center in Lebanon: the case for establishing a national poison center. *Clin Toxicol (Phila)*. 2021 Sep;59(9):780-785. doi: 10.1080/15563650.2021.1874404. Epub 2021 Feb 8. PMID: 33555968.

El Zahran T, Mostafa H, Hamade H, Mneimneh Z, Kazzi Z, El Sayed MJ. Riot-related injuries managed at a hospital in Beirut, Lebanon. *Am J Emerg Med*. 2021 Apr;42:55-59. doi: 10.1016/j.ajem.2020.12.084. Epub 2021 Jan 5. PMID: 33453616.

Giordano NA, Seilern Und Aspang J, Baker J, Rice CW, Barrell B, Kirk L, Ortega E, Wallace M, Steck A, Schenker ML. The effect of a Life Care Specialist on pain management and opioid-related outcomes among patients with orthopedic trauma: study protocol for a randomized controlled trial. *Trials*. 2021 Nov 27;22(1):858. doi: 10.1186/s13063-021-05841-1. PMID: 34838101; PMCID: PMC8626911.

# RESEARCH PUBLICATIONS & PRESENTATIONS



## Journals

Goldman RH, Zajac L, Geller RJ, Miller MD. Developing and implementing core competencies in children's environmental health for students, trainees and healthcare providers: a narrative review. *BMC Med Educ.* 2021 Sep 24;21(1):503. doi: 10.1186/s12909-021-02921-3. PMID: 34560874; PMCID: PMC8464086.

Hamade H, Sahin A, Sukhn C, El Tawil C, Rizk J, Kazzi Z, El Zahran T. Human Zinc Phosphide Exposure in Lebanon: A Case Report and Review of the Literature. *Clin Pract Cases Emerg Med.* 2021 Feb;5(1):50-57. doi: 10.5811/cpcem.2020.10.47397. PMID: 33560952; PMCID: PMC7872605.

Hitti E, El Zahran T, Hamade H, Morgan BW, Kazzi Z. Telephonic Medical Toxicology Service in a Low-Resource Setting: Setup, Challenges, and Opportunities. *West J Emerg Med.* 2021 Feb 15;22(2):450-453. doi: 10.5811/westjem.2020.10.48534. PMID: 33856338; PMCID: PMC7972382.

Land ME, Wetzel M, Geller RJ, Steck AR, Grunwell JR. Adult opioid poisonings by drug, intent, and resource use from the United States National Poison Data System from 2005-2018. *Clin Toxicol (Phila).* 2021 Feb;59(2):142-151. doi: 10.1080/15563650.2020.1781150. Epub 2020 Jul 16. PMID: 32673123.

Murray BP, Carpenter JE, Sayers J, Yeh M, Beau J, Kiernan EA, Wolf MJ, Bolton TA, Kazzi Z. Two Cases of Serotonin Syndrome After Bupropion Overdose Treated With Cyproheptadine. *J Emerg Med.* 2021 Apr;60(4):e67-e71. doi: 10.1016/j.jemermed.2020.10.039. Epub 2020 Dec 8. PMID: 33308914.

Murray BP, Kim E, Ralston SA, Moran TP, Iddins C, Kazzi Z. Radiation Emergency Readiness Among US Medical Toxicologists: A Survey. *Disaster Med Public Health Prep.* 2021 Jun;15(3):292-297. doi: 10.1017/dmp.2019.147. Epub 2020 Jan 20. PMID: 31955717.

Spyres MB, Aldy K, Farrugia LA, Kang AM, Love JS, Campleman SL, Li S, Amaducci A, Schwarz E, Wax PM, Brent J; Toxicology Investigators Consortium Study Group. The Toxicology Investigators Consortium 2020 Annual Report. *J Med Toxicol.* 2021 Oct;17(4):333-362. doi: 10.1007/s13181-021-00854-3. Epub 2021 Sep 17. PMID: 34535889; PMCID: PMC8447896.

# RESEARCH PUBLICATIONS & PRESENTATIONS



## Abstracts

Colin Therriault, Daniel Noguee, Jeanne Ruff, Devin Raman, Matthew Hudson, Richard Wang and Arthur Chang. **Outbreak of hepatitis of unknown etiology associated with bottled alkaline water ingestion.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

Connor Walsh, Stephanie Hon and Robert Geller. **Characterization of intravenous sodium bicarbonate use for prolonged QRS intervals in poisoned patients reported to a regional poison center.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

Kyle Suen, Andres Guzman-Soto, Daniel Noguee, Alex Krotulski and Joseph Carpenter. **Pharm to table: designer benzodiazepine use on the rise.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

Patrick Filkins, Connor Walsh and Emily Kiernan. **An atypical use of MDAC: enhanced elimination of quetiapine in a massive overdose.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

Patrick Filkins, Stephanie Hon and Robert Geller. **This is the way?: Practice patterns in the management of serotonin syndrome and utilization of cyproheptadine.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

Rita Farah, Chiamaka Onuigbo, Sam Sheikali, Ziad Kazzi and Manasi Tannu. **Severe cognitive dysfunction and muscle stiffness in the setting of chronic alcohol abuse: a case report of marchiafava-bignami disease.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

Sam Sheikali, Ziad Kazzi, Huseyin Cetin Ketenci, Osman Yesilbas and Aynur Sahin. **Multiple organ failure in a child after ingesting seeds of Colchicum autumnale.** (2021) North American Congress of Clinical Toxicology (NACCT) Abstracts 2021, Clinical Toxicology, 59:11, 1037-1193, DOI: 10.1080/15563650.2021.1960683.

# RESEARCH PUBLICATIONS & PRESENTATIONS



## Conference Presentations

### Colin Therriault, MD

Platform Abstract: Outbreak of hepatitis of unknown etiology associated with bottled alkaline water ingestion; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

### Emily Kiernan, DO

AACT Radiation Special Interest Section Symposium: Emergency Triage Update and medical Countermeasures for Acute Radiation Syndrome Update; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

### Gaylord Lopez, PharmD

ABAT Scientific Symposium: Lactate, Medicate, Litigate: Keeping abreast of recent drugs in breast milk literature; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

### Patrick Filkins, PharmD

AACT Fellow/Trainee Research Platform; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

### Stephanie Hon, PharmD

AAPCC Scientific Symposium: NAC for APAP Poisonings managed by poison centers: What is the best dosing and administration approach?; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

### Ziad Kazzi, MD

AACT Radiation Special Interest Section Symposium: Emergency Triage Update and medical Countermeasures for Acute Radiation Syndrome Update; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

ACMT Fellows-in-Training Roundtable: The Role of Social Media in Developing Your Medial Toxicology Career; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

MENTAOX Scientific Symposium; North American Congress of Clinical Toxicology. Atlanta, GA (Virtual). October 2021.

# GEORGIA POISON CENTER STAFF



## **Executive Director**

Gaylord P. Lopez, PharmD, DABAT

## **Director**

Stephanie L. Hon, PharmD, DABAT, FAACT

## **Medical Director**

Robert J. Geller, MD, FAAP, FAACT, FACMT

## **Associate Medical Director**

Brent W. Morgan, MD, FACMT, FACEP, FAAEM

## **Assistant Medical Directors**

Melissa Gittinger, DO, FACMT

Ziad N. Kazzi, MD, FAAEM, FACEP, FACMT, FAACT

## **Medical Toxicologists**

Alaina Steck, MD

Emily Kiernan, DO

Joseph Carpenter, MD

Jonathan De Olano, MD

## **Medical Toxicologists**

## **Toxicology & PharmD Fellows**

## **Specialists in Poison Information (SPIs)**

## **Information Technology Staff**

## **Data Manager**

## **Education Supervisor**

## **Public Health Professionals**

## **Administrative Assistants**