

DPICTIONS

Drug & Poison Center Information Center's Newsletter

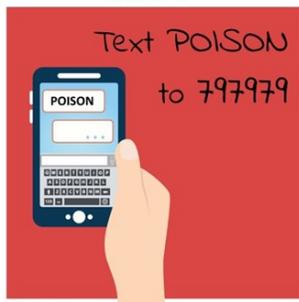
Summer 2018



In this issue

Be Prepared: TEXT. SAVE. SHARE.

STEP 1



STEP 2



STEP 3



BE PREPARED ANYTIME & ANYWHERE WITH #POISONHELP



- * Frequently Asked Questions about the Poison Control Center
- * Field Testing of Unknown Substances
- * The Kratom Differential
- * Kambo Ritual
- * Lucemyra Approved for Mitigation of Opiate Withdrawal Symptoms
- * Severe Illness Related to Tainted Synthetic Cannabinoids
- * Responding to the Heroin Epidemic
- * Drug and Poison Information Center: Tips for a Safe Summer
- * Safeguarding Infants & Young Children from Addictive Substances

Frequently Asked Questions about the Poison Control Center

Is there a charge for calling the Poison Control Center?

- No, calling Poison Center is a FREE service. Call anytime 1-800-222-1222.

Why should I call the Poison Center?

- If you have questions about a product or if someone has been exposed to something that may be dangerous, the Poison Center is here to help.
- The poison center has access to information on more than 300,000 poisonous substances, and our database is updated every three months.
- A physician toxicologist is on call at all times, and consultants in all areas of chemicals, drugs, plants, etc., are available when needed.
- Limiting the time between an exposure and treatment can often save lives and reduce symptoms.
- Some exposures do not cause immediate symptoms, but treatment is essential to prevent problems or save lives.

Why do they ask so many questions?

- Poison center staff need to get an accurate history of what happened to the person exposed to a poison or bite.
- The name and phone number of the person calling and the person exposed are needed so the poison center can call back if disconnected or to check on the situation.
- Treatment recommendations given by the poison center are determined by the following information: Age, Weight, Medical History, Pre-existing health conditions, past allergies, exact name of the product, strength of the medication, amount of product involved in the exposure, time of exposure, symptoms experienced, hospital the person exposed will go to if needed
- If the person exposed to a poison or bite is referred to the hospital, the poison center will call the hospital and give treatment recommendations.

Why would the Poison Center put me on hold?

- The poison center has several incoming lines and receives calls from all over the state.
- Sometimes it may be necessary to put a caller on hold to answer another line.
- Sometimes calls have to be answered in order of severity.
- The poison center staff make every effort to obtain the necessary information and complete calls as quickly as possible. You can help poison center staff by having as much information as possible about the situation so that we can help you quickly.

Field Testing of Unknown Substances

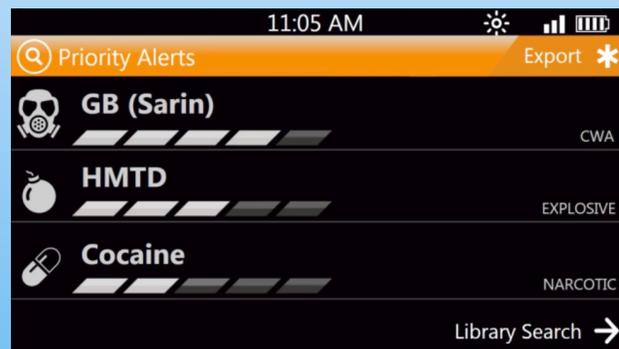
Sheila Goertemoeller PharmD, DABAT, ICPS

According to a PoliceOne survey, 65% of police officers routinely handle unidentified substances on the job. More than 90% of officers feared fentanyl exposure in the field and felt they lacked adequate testing tools. In light of growing terrorism threats as well as the opioid crisis, law enforcement and first responders want access to rapid testing to provide identification of unknown substances to protect themselves and the public.

Several handheld, portable devices have been designed to assist in identifying suspicious solids, pastes and liquids; the HazMatID Elite, IONSCAN 600, and the SABRE 5000. Time is of the essence during hazardous material encounters, and these devices are encrypted with wireless communication to transfer data to down range operations and central command centers.

In May 2018, the Hamilton County Board of County Commissioners passed a resolution approving the purchase of one HazMatID Elite device for use in the field. Introduced on the market in July 2012, the HazMatID Elite has infrared spectroscopy technology for rapid identification of chemical warfare agents, explosives, drugs, toxic industrial chemicals, and narcotics. The pattern of infrared light absorption is unique to each chemical and a spectra of 10,000 different substances may be identified in less than a minute. Analysis is performed by placing the unknown substance onto a sensor on the HazMatID Elite. The functionality includes direct touch-to-sample capability, and it is optimized for quick operation in personal protective gear. Chemists, spectroscopists, technicians, and engineers provide 24/7 hotline assistance for field officers. The HazMatID Elite was not designed to identify ionic salts (sodium chloride), metals (iron), overly dilute solutions (< 10% concentration) and biological agents (proteins).

While the HazMatID Elite is an expensive purchase, costing Hamilton County \$55,151, it is a useful device to rapidly identify unknown substances encountered in the field by our first responders.



<https://www.homelandsecurity-technology.com/projects/hazmatid-elite-chemical-identifier/>

https://smithsdetection-snrbcclix3ecg6vsro.netdna-ssl.com/wp-content/uploads/2017/08/HazMatID-Elite_Technical-Datasheet.pdf

References:

HazMatID Elite hotzone handheld FTIR chemical identifier. (2013, September 16). Retrieved from https://smithsdetection-snrbcclix3ecg6vsro.netdna-ssl.com/wp-content/uploads/2017/08/HazMatID-Elite_Technical-Datasheet.pdf

Three ways to improve opioid detection and testing in the field. (2018, April 13). Retrieved from <https://www.smithsdetection.com/insight/article/three-ways-to-improve-opioid-detection-and-testing-in-the-field/>

How does your department's narcotics field testing measure up? (Infographic). (2018, March 5). Retrieved from <https://www.policeone.com/police-products/Narcotics-Identification/articles/471865006-How-does-your-departments-narcotics-field-testing-measure-up-infographic/>

In Smiths detection online retrieved from <https://www.smithsdetection.com/prodcat/explosives-narcotics-trace-detection/>

In Hamilton County Board of County Commissioners. (2018, May 2). Retrieved from <http://www.hamiltontn.gov/pdf/agenda/data/5-2-18%20Passed%20Agenda.pdf>

In HazMatID Chemical Identifier training course. (2004, November 3). Retrieved from http://www.chagrinhazmat.com/PDF%20Documents/RestrictedFiles/PDF%20Files/Smiths%20HazMatID%20Training11_03_04.pdf

The Kratom Differential

Regina Tarantino BSN, RN, CSPI

With the continuing opioid epidemic on our heels, Health Care Professionals should be versed in the possible adverse effects of Kratom. National Poison Control Center (PCC) calls related to Kratom have continued to increase. There were 26 reported Kratom calls in 2010 and 263 in 2015. The Kratom PCC calls between 2010 and 2015 totaled 660 (Diep et al., 2018). Kratom, *Mitragyna speciosa* is a tropical tree (from the coffee tree family) that is indigenous to Southeast Asia and Africa. The leaves have been used for centuries by farmers and laborers for its stimulant / euphoric effects when taken in small amounts. More substantial quantities of Kratom can also be used for the analgesic, opioid life effects. In 1946, Kratom was made illegal in Thailand, and in 2005 by Australia, but remains unscheduled in the United States. Kratom is an economic opioid replacement alternative and can be obtained easily over the Internet without a prescription (Babu, McCurdy, & Boyer, 2008). Mitragynine shows in vitro activity at both supraspinal opioid mu- and delta- receptors. This activity accounts for the analgesia, euphoria, respiratory depression, and the diminution of opiate withdrawal symptoms. Another alkaloid, 7-hydroxymitragynine, demonstrates more potency than morphine, even in oral ingestion. Similar to other opioids, Kratom provides antitussive, antinociceptive, and antidiarrheal properties. Also, chronic users build up a tolerance and are subject to experiencing abstinence withdrawal signs and symptoms. A case series of twelve Kratom exposure cases illustrated: "Kratom is being used for recreation, analgesia, treatment of opioid addiction and withdrawal prevention, performance enhancement and as a suicidal agent. There was a combination of opioid effects, seizures, tachycardia, and withdrawal. Elevated bilirubin was seen after chronic use in one patient. None of the patients required intensive care when using kratom alone" (p. 167). The authors also found Kratom was associated with neonatal abstinence syndrome in 2 patients. In addition, an athlete using Kratom experienced mild rhabdomyolysis after a seizure. The patients electrolytes remained within normal range, and the urine drug screen was negative. Another research study by Diep et al. (2018) found the adverse effects of chronic heavy users to be: "Hypertension, cognitive and behavioral impairment, and dependence potential...nausea, weight loss, fatigue, constipation, insomnia, dry mouth, polyuria, and hyperpigmentation of the cheeks. Serious deleterious effects include cardiotoxicity, nephrotoxicity, and hepatotoxicity. Kratom has been known to potentiate Torsades de Pointes in human cardiomyocytes. Chronic recreational use of kratom has also been associated with rare instances of acute liver injury within 2-8 weeks of use...typically cholestatic with elevated bilirubin levels and may be complicated by concomitant renal failure and bone marrow toxicity" (p. 193). Diep et al. (2018) also noted signs and symptoms of overdose to include "seizures, psychosis, coma, hallucination, paranoia, severe emesis, respiratory depress, and possibly death" (p. 193). Their suggested form of treatment was benzodiazepines. There were no current guidelines at the time of their research for naloxone. They also suggested using buprenorphine/naloxone for Kratom withdrawal along with a multidisciplinary support system. Along with the increased emergency room visits and hospitalizations, fatalities have been seen when Kratom is used with other substances (Diep et al. 2018).



On May 24th of this year, the FDA released a warning advising consumers to avoid Kratom and Kratom-containing products due to a multistate outbreak of salmonellosis from multiple strains of *Salmonella* (FDA, 2018).

From January through the beginning of June, the specialists at the Cincinnati Drug and Poison Information Center (DPIC) have handled seven Kratom calls. The majority of these were calls from the emergency department which involved Kratom use with other substances. In 2017, DPIC received 19 calls on Kratom exposures. The majority of these calls were ER visits involving Kratom used with other substances, followed by single-use Kratom, and lastly, questions about the drug from the public. Due to the emerging popularity of this drug, health care professionals should be familiar with the adverse effects of the drug and modes of treatment. As always, if you have questions about Kratom or any other substance, contact the Cincinnati Drug and Poison Information Center at 1-800-222-1222.

References

Babu, K. M., McCurdy, C. R., & Boyer, E. W. (2008). Opioid receptors and legal highs: *Salvia divinorum* and kratom. *Clinical Toxicology*, 46, 146-152. <http://dx.doi.org/10.1080/15563650701241795>

Cumpston, K. L., Wills, B. K., & Carter, M. (2018). Clinical outcomes after Kratom exposure: A poison center case series. *American Journal of Emergency Medicine*, 36, 166-168. Retrieved from <http://dx.doi.org/10.1016/j.ajem.2017.07.045>

Diep, J., Chin, D. T., Gupta, S., Faraz, S., Xiong, M., & Cheng, J. (2018, April 15). Kratom, an emerging drug of abuse: A case report of overdose and management of withdrawal. *International Anesthesia Research Society*, 10, 192-194. <http://dx.doi.org/10.1213/XAA.0000000000000658>

U.S. Food and Drug Administration (May 24, 2018). FDA investigates multistate outbreak of *Salmonella* infections linked to products reported to contain Kratom. Retrieved June 20, 2018 from: <https://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm597265.htm>

Kambô Ritual

Dezmond Brown PharmD Candidate 2019 , Robert Goetz PharmD, DABAT

The Kambô ritual originated in the Amazonian region of South America and was traditionally performed before hunting to increase strength and to prevent illness. In the past several years, the ritual has seen much broader use by people who believe it will cleanse their body and mind. This process is claimed to be a treatment for pain, depression, migraines, infertility, cancer, substance addiction, and more. There is little convincing evidence the ritual has any beneficial effects. The substance used in the Kambo ritual is obtained from the poisonous secretions scraped from the back of the Amazonian giant leaf frog *Phyllomedusa bicolor*. A shaman or “trained Kambô practitioner,” scrapes the secretions from the skin of the frog, and dries it for future use. Later the secretions are reconstituted with water or some other liquid and applied to the skin of the person participating in the ritual. During the ritual, the practitioner makes a series of small burns on the top layer of skin of the participant and places the poison in the burn wounds. Shortly after application of the poison, participants typically experience intense nausea and vomiting, facial swelling, hyperthermia (fever), and tremors. These effects should last around 30 minutes, but may persist for several hours. For those taking part in the ritual, these side effects are signs that the purification process is working. Although participants have made anecdotal claims regarding the ritual’s benefits, there is no good evidence it actually has any useful effect. Importantly, the poison is not standardized so there can be no assurance of the potency of the poison or the potential severity of its effects other than the experience of the Kambô practitioner. Some participants have developed symptoms that require immediate medical attention. These patients typically only receive symptomatic treatment because there is no specific reversal agent for Kambô. As the ritual’s popularity grows, more patients may present to area emergency rooms. It is important to be vigilant as unexpected adverse effects may arise.



References

- IAKP – International Association of Kambo Practitioners. iakp.org. (2018). Retrieved June 5, 2018 from: <https://iakp.org/>.
- Kumachev, A., Zipursky, J. S., Weinerman, A. S., & Thompson, M. (2018). Poisoning from the Kambô ritual. *Cjem*, 1,3. doi:10.1017/cem.2018.58
- Joanna P, Łapiński T. (2017). Toxic hepatitis caused by the excretions of the *Phyllomedusa bicolor* frog – a case report by the excretions of the *Phyllomedusa bicolor* frog – a case report. *Clin Exp Hepatol*, 1(3), 3-34. doi:10.5114/ceh.2017.65228.
- den Brave P, Bruins E, Bronkhorst M. (2014). *Phyllomedusa bicolor* skin secretion and the Kambô ritual. *Journal of Venomous Animals and Toxins including Tropical Diseases*, 20(1), 40. doi:10.1186/1678-9199-20-40.

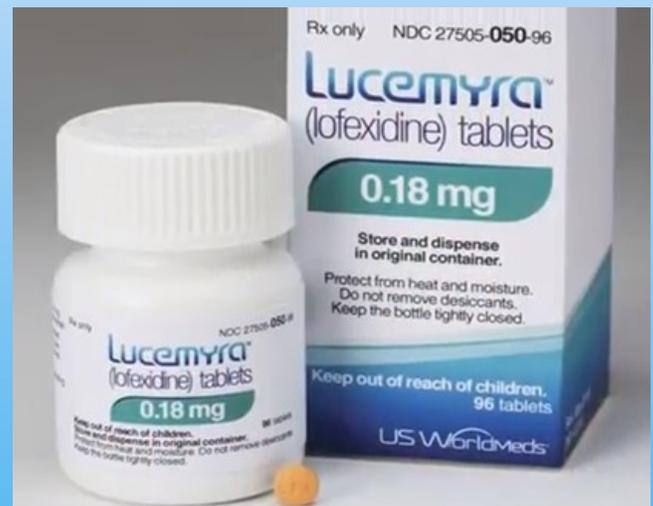
Lucemyra Approved for Mitigation of Opiate Withdrawal Symptoms

Mandy Radulea Pharm D Candidate and Robert Goetz Pharm D DABAT

Lucemyra (lofexidine) is the first FDA non-opioid medication approved to manage the symptoms associated with withdrawal after opiate discontinuation in adults. Lofexidine is a central α_2 adrenergic agonist similar to clonidine. Similar to clonidine, lofexidine suppresses the release of norepinephrine, which is thought to be responsible for many of the symptoms associated with opiate withdrawal. While clonidine has also been used to mitigate opiate withdrawal, it has not received FDA approval for this indication. Typical opiate/opioid withdrawal symptoms include: chills, nausea, vomiting diarrhea, tachycardia, agitation, etc. These symptoms while not usually life threatening, can be a huge barrier to someone attempting to overcome opiate addiction. Phase III clinical trials of lofexidine have demonstrated better efficacy compared to placebo in managing the symptoms associated with withdrawal.

The recommended dose of lofexidine is three 0.18 mg tablets taken four times daily with or without food (maximum daily dose of 2.88 mg or 16 tablets) for up to 14 days. The dose should be adjusted based on renal or hepatic insufficiency. Common adverse effects include orthostatic hypotension, bradycardia and dizziness. Additive CNS depression may occur when lofexidine is combined with other central nervous system depressant drugs. Lofexidine may cause QTc prolongation and should be used with caution in patients taking other medicines that prolong QTc.

Lofexidine may help patients avoid or reduce the symptoms associated with opiate withdrawal. The medicine has been available for this use in the United Kingdom since 1992 and has been prescribed to treat over 300,000 patients. Lucemyra is only approved for the mitigation of withdrawal symptoms and does not suppress cravings nor is it a treatment option for opioid use disorder (OUD).



References

FDA (2018). *Lofexidine hydrochloride (Lucemyra) Briefing document*. Louisville: US WorldMeds, LLV, pp.12-43.

Gorodetzky, C., Walsh, S., Martin, P., Saxon, A., Gullo, K. and Biswas, K. (2017). A phase III, randomized, multi-center, double blind, placebo controlled study of safety and efficacy of lofexidine for relief of symptoms in individuals undergoing inpatient opioid withdrawal. *Elsevier Ireland Ltd*, 176, pp.79-88.

Severe Illness Related to Tainted Synthetic Cannabinoids

Annie Ulyshen, PharmD candidate and Jan Scaglione, MT, PharmD, DABAT



Since March 2018, over 200 patients have presented to the Emergency Departments across nine different states with signs of unexplained, but significant bleeding. To date, 4 of these patients have died. There is a common denominator among these patients, however. Some were found to have used rat poison-infused synthetic cannabinoids. Synthetic cannabinoids, designed to mimic marijuana effects by acting on cannabinoid receptors in the brain, are man-made chemicals that are often sprayed onto dried plant material and smoked. While synthetic cannabinoids may functionally produce a marijuana-like high, they are often different structurally, posing unknown threats on their users. The unregulated manufacture of these illicit compounds means that the constituents of the end product is unknown and may easily be adulterated with other substances. In the exposure cases that began showing up in March in the Chicago area first, it was discovered the synthetic cannabinoids contained brodifacoum, a long-acting anticoagulant previously used in mice and rat poison products.

Hundreds of times more potent than warfarin, bleeding induced by brodifacoum occurs as a result of interference with the formation of vitamin K dependent clotting factors. Warfarin is a blood thinner used in humans to prevent clotting of blood, and brodifacoum has been used to induce bleeding in mice and rats to eliminate them as pests. Both warfarin and brodifacoum treatment is the same; administration of Vitamin K. The length of time someone needs to be treated with vitamin K as a result of exposure to brodifacoum is much longer than warfarin, however, owing to its highly lipophilic nature. This lipophilicity enables it to permeate tissue where depots of drug may be stored. Drug from these stores can be released back into the body for as long as nine months, necessitating the need for prolonged treatment with vitamin K. Strict adherence to a prolonged treatment regimen with vitamin K is critical to prevent the risk of bleeding and potential lethality.

On the street, synthetic cannabinoids are often called synthetic marijuana, K2 or Spice, but may also be packaged under numerous other “branded” names. Unlike marijuana, synthetic cannabinoids are typically not detected in drug screens, leading many users to view them as smart alternatives to marijuana. Synthetic cannabinoids have been linked with serious and perplexing side effects in users such as seizures, strokes, and heart attacks. Additionally, synthetic cannabinoids have been found to be more potent (and therefore addictive) than marijuana, a property many users learn the hard way.

While it is suspected that the brodifacoum was intentionally added to the synthetic cannabinoid products, it is unknown if the intent was malicious or strategic. The perception of users is brodifacoum may help prolong the high by interfering with metabolism of the cannabinoid. The Centers for Disease Control (CDC) has issued a health advisory to address the recent poisonings with brodifacoum. In it, the CDC recommends that the use of synthetic cannabinoids should be considered and investigated in any patient exhibiting unexplained bleeding. Tests designed to measure potential for bleeding should be conducted in any patient that uses synthetic cannabinoids, regardless of whether or not there is evidence of bleeding. Additionally, greater effort on the part of healthcare workers needs to be made to educate the general public about the harm, known and unknown, associated with synthetic cannabinoid use. As always, if you have questions about synthetic cannabinoids or any other substance, contact the Cincinnati Drug and Poison Information Center at 1-800-222-1222.

References

Anderson, S.L., Kattappuram, R.S., Marrs, J.C., Joseph, N.M. (2017). Intentional brodifacoum ingestion. *The American Journal of Medicine*, 130(1). doi:10.1016/j.amjmed.2016.08.010.

Powell, D. (April 2018). The spice of death: The science behind tainted “Synthetic Marijuana”. *Scientific American*.

Rajasekaran, M., Brents, L.K., Franks, L.N., Moran & Prather, P.L. (2013). Human metabolites of synthetic cannabinoids JWH-018 and JWH-073 bind with high affinity and act as potent agonists at cannabinoid type-2 receptors. *Toxicol Appl Pharmacol*, 269(2), 100-108.

Responding to the Heroin Epidemic

Marsha A. Polk, Manager, Education and Outreach

Alysia Longmire, Prevention Education Specialist



The effects of the opioid epidemic continue to impact the lives of healthcare professionals, mental health professionals, treatment providers, counselors, and the community at large. While there is much work to be done, the infographic below highlights three important steps to respond to the heroin epidemic. As always, if you have questions about heroin or any other substance, contact the Cincinnati Drug and Poison Information Center at 1-800-222-1222.

Responding to the Heroin Epidemic



PREVENT People From Starting Heroin

Reduce prescription opioid painkiller abuse.

Improve opioid painkiller prescribing practices and identify high-risk individuals early.



REDUCE Heroin Addiction

Ensure access to Medication-Assisted Treatment (MAT).

Treat people addicted to heroin or prescription opioid painkillers with MAT which combines the use of medications (methadone, buprenorphine, or naltrexone) with counseling and behavioral therapies.



REVERSE Heroin Overdose

Expand the use of naloxone.

Use naloxone, a life-saving drug that can reverse the effects of an opioid overdose when administered in time.

Source: CDC Vital Signs

Provided Courtesy of Cincinnati Children's Hospital Drug and Poison Information Center

1-800-222-1222

Or

Text POISON to 797979

Drug and Poison Information Center: Tips For A Safe Summer

Alysia Longmire, Prevention Education Specialist

Marsha A. Polk, Manager, Education and Outreach



The warmer months are now here, school is out, and there is increased activity both indoors and out. During the summer season, don't forget the importance of household safety to avoid accidental poisoning, and unintended exposure to drugs or chemicals. As the temperature rises, and attention is often focused on cleaning and outdoor activities, the Cincinnati Children's Hospital Drug and Poison Information Center (DPIC) offers the following tips to prevent accidental exposure to medications and household cleaning products:

- Follow label instructions for use
- Place products on high shelves out of sight and reach of young children
- Do not mix cleaning products
- Use products in well-ventilated areas
- Remember to call the Poison Control Center : 1-800-222-1222 with questions
- Store medications and household products in original containers (to avoid confusing "look-a-like" products)
- Do not store potentially toxic items where food products are stored

Many household products that are not meant to be consumed can be confused with food, beverage, or personal care items. Included here are photos of common products that demonstrate how easy it can be to make a mistake.



candy		or	medicine?	

POISON Help
1-800-222-1222

For a poison emergency, or just a question, call your poison control center at **1-800-222-1222**. Reach poison experts, 24/7. Free and confidential.

© Strong Health, Strong Memorial Hospital, Ruth A. Lawrence Poison & Drug Information Center 2006. Reprinted with permission of the Ruth A. Lawrence Poison & Drug Information Center.

When questions arise, remember, the Cincinnati Children's Hospital DPIC is always available.

Call 1-800-222-1222 or text POISON to 797979.



SAFEGUARDING INFANTS AND YOUNG CHILDREN FROM ADDICTIVE SUBSTANCES

The American Association of Poison Control Centers (AAPCC) supports the nation's 55 poison centers in their efforts to prevent and treat poison exposures. AAPCC's mission is to actively advance the health care role and public health mission of our members through information, advocacy, education, and research.



In April 2018, the Center on Addiction released a report highlighting the incredibly high rates at which infants and toddlers are exposed to toxic and addictive products. AAPCC provided a vast majority of the data for this study. Specifically:



- The rate of exposures to marijuana increased by 148 percent over an 8 year period.
- Exposures to opioid pain relievers went up 93 percent each year over a nine-year period corresponding to the opioid epidemic's progression.
- Calls to poison control centers about e-cigarettes increased by more than 1,400 percent over just three years.
- The number of young children exposed to alcoholic beverages has gone up every year since 2012.

Tips to Combat These Trends:

- Support increased funding for poison control centers.
- Get the facts out through population-wide public awareness campaigns targeted to parents, other caregivers, educators, and health care professionals.
- Improve child-resistant packaging requirements for medications as well as nicotine, alcohol, and marijuana products.
- Store and dispose of all addictive substances, including prescription medications, properly.
- Call your local poison control center at 1-800-222-1222 if exposure to a toxic, addictive substance is suspected. All calls are answered by specialist in poison information and are confidential. The nation's poison control centers are available to help 24/7/365.
- Save the phone number for poison control centers in your phone by texting POISON to 797979.

Center on Addiction is a science-based, nonpartisan, nonprofit organization focused on improving the understanding, prevention and treatment of addiction. Founded in 1992 by former U.S. Secretary of Health, Education and Welfare Joseph A. Califano, Jr., our purpose is to find, promote and enact the necessary solutions to address America's deadly addiction crisis. For more information, visit www.centeronaddiction.org.

Poisoning remains the leading cause of injury-related death in the U.S. The most important tool we have to help combat poisoning is the national Poison Help Hotline, 1(800) 222-1222. Clinical experts who are specially trained and certified in toxicology answer the phone and help people who have poison-related questions, concerns, or emergencies. Anyone can access this invaluable resource any time around the clock, every day of the year, for free!

BE SAFE, NOT SORRY

Visit our website <https://www.cincinnatichildrens.org/service/d/dpic>

Visit our blog <https://www.cincinnatichildrens.org/service/d/dpic/dpic-blog>

The Cincinnati Drug and Poison Information Center (DPIC) at Cincinnati Children's Hospital Medical Center is a 24-hour emergency and information telephone service for anyone with concerns about poison or drugs.

The center's specially trained staff of pharmacists, pharmacologists and nurses and drug / poison information assistants answer questions about poisonings, drug abuse, product contents, substance identification, interactions and adverse reactions.

The Drug and Poison Information Center also works to provide you with important prevention information, educational materials, first-aid information, common household hazards and references to national helpline organizations and agencies.

The phone number for the Cincinnati Drug and Poison Information Center is **1-800-222-1222**.

The center also offers contract services to businesses looking for pharmacovigilance and safety surveillance for post-marketing and clinical trials.



© 2018 By the Cincinnati Drug & Poison Information Center (DPIC)

Editors: Alysha Behrman RN, MSN, CSPI, ICPS; Sheila Goertemoeller PharmD, D.ABAT, ICPS ; Robert Goetz PharmD, D.ABAT; Marsha A. Polk HPT, OCPS; Jan Scaglione MT, PharmD, D.ABAT; Earl G. Siegel PharmD, OCPS; Shan Yin, MD, MPH.

The opinions expressed herein are those of the contributing authors and do not necessarily reflect the views of the editor, publisher or supporting institutions. DPIC is a service of the Cincinnati Children's Hospital Medical Center and Children's Hospital Research Foundation. Services are also supported by: the US Department of Health and Human Services (HRSA), the Ohio Department of Health, Hamilton County Mental Health and Recovery Services Board, and the Ohio Department of Alcohol and Drug Addiction Services (ODADAS). Additional support for DPIC services is provided by Cuyahoga Department of Health and Human Services and additional member hospitals.