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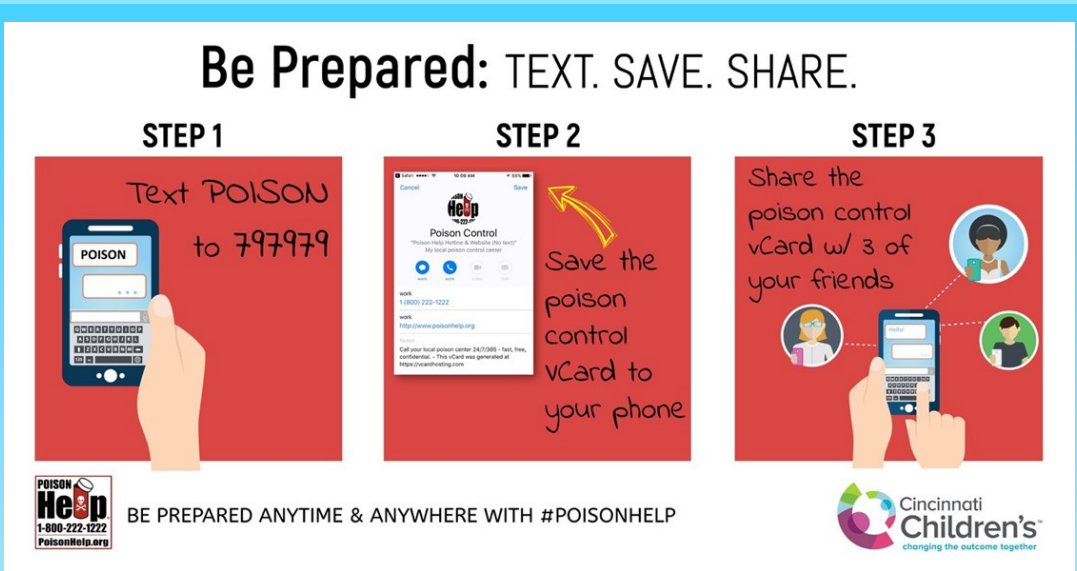
Drug & Poison Center Information Center's Newsletter

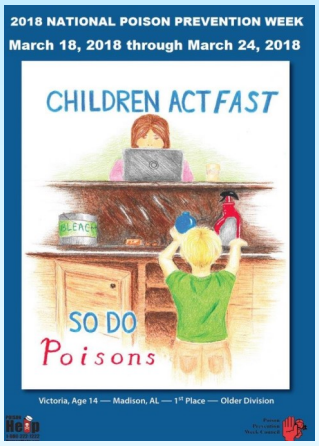
Spring 2018



National Poison Prevention Week 2018

Alysia Longmire, Prevention Education Specialist

Marsha A. Polk, Manager, Education and Outreach



Each year Poison Control Centers around the country focus on sharing tips, information and materials to help decrease the incidence of poisoning and minimize exposure to harmful chemicals. During Poison Prevention Week 2017, DPIC reached over 3 million households and families and published articles in over 18 newspapers or other print media. This year, National Poison Prevention Week is the week of **March 18– March 24, 2018**.

DPIC is again promoting the Text. Save. Share. campaign. During National Poison Prevention Week 2017, the Cincinnati Children's Hospital – DPIC was third in the country last year for the number of residents in our services area who used the Text, Save, Share campaign. Help us reach more people in 2018. Detailed instructions to text and save the poison control center contact to your cell phone are in the infographic above.

In this issue:

Drug and Poison Information Center Launches *Shatter the Myths About Heroin and Marijuana* Media Campaign

Alysia Longmire, Prevention Education Specialist

Marsha A. Polk, Manager, Education and Outreach

In response to recent news reports and local data, the DPIC in collaboration with the Cincinnati Police Department will launch a media campaign to increase public awareness; promote factual information and provide linkages to service providers for members of the community who are impacted by effects of heroin and marijuana. In 2017 during a short six-day period there were over 170 heroin overdoses in Cincinnati. Also, the greater Cincinnati area ranks among the highest in the state of Ohio for heroin related deaths (ODH, 2018). The effects of the heroin epidemic do not discriminate, and impact all sectors of the community. Many Hamilton County Residents have expressed concern about the effect that the legalization of marijuana will have on their community. Most information available now that addresses issues involving heroin abuse or the impact of the legalization of marijuana do not incorporate health literacy, appropriate reading level, and diverse educational backgrounds. DPIC will utilize existing and innovative technology, electronic media, and print material that should appeal to all members of the community at large. The Cincinnati Children's Hospital Drug and Poison Information Center (DPIC) will collaborate with The People of Color Wellness Alliance (POCWA) Coalition, select school systems, the Hamilton County Heroin Coalition, and the Cincinnati Police Department to implement the ***Shatter the Myths: What You Should Know About Heroin*** *and* ***Shatter the Myths: The Facts About Legalized Marijuana and Your Job***. All community residents can benefit from the media messages that will be promoted during the *Shatter the Myths* campaign. The campaign will take place over a six-month period. There will be community based events held to disseminate information and resources to large numbers. The LED Video Board (a.k.a. JumboTron) on Fountain Square will also be used to display factual messages related to the *Shatter the Myths* campaign. The sponsors of the JumboTron state that thousands of adults (work downtown and pass through Fountain Square) and youth/young adults (in Fountain Square to "hang out" or access public transportation) will view posted messages.

Community involvement is essential to implement effective environmental strategies for community change. Media campaigns are a cost effective, environmental strategy that promotes awareness and engages the community in issues that directly impact their lives. The City of Cincinnati is in the midst of a drug abuse epidemic that affects everyone. The effectiveness of this campaign will be measured by assessing process and outcome objectives. DPIC is excited to launch this campaign. If you have any questions contact Alysia Longmire by phone at 513-636-5094 or via email, Alysia.Longmire@cchmc.org.

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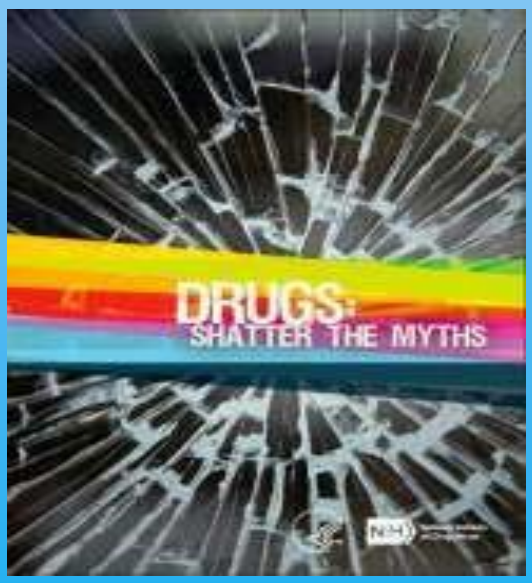

https://www.drugabuse.gov/publications/drugs-shatter-myths

Overview of the 34th Annual Report of the American Association of Poison Control Centers' National Poison Data System

American Association of Poison Control Centers

Poisoning is the leading cause of injury death in the U.S. In 2016, there were 55 poison control centers (PCCs) serving 323 million people, nationwide. PCCs managed 2.7 million cases via telephone, about 2.2 million of which were about people coming into contact with potentially dangerous substances. These types of cases are called exposures. *Someone called a PCC about every 12 seconds in 2016.*

Who calls poison control centers?
Anyone can experience a poison emergency, because any substance can be harmful if used in the wrong way, wrong amount, or by the wrong person. PCCs take calls about people of all ages, and provide live help to callers in 150 languages. In 2016, children under 6 years accounted for almost half of all human exposures managed by PCCs. However, as in previous years, many of the more clinically serious cases occurred among adolescents and adults.

Who answers poison control center calls?
PCC cases are managed by *medical experts* – doctors, nurses, and pharmacists who have extensive, specialized training in poisoning prevention and treatment. Even emergency department physicians and pediatricians rely on the experts at poison control centers. *In fact, in 2016 over 23% of human exposure calls came to PCCs from health care facilities.*

Why do people call poison control centers?
People call PCCs when they think someone may have been exposed to something that could hurt them. People also call PCCs for information. In 2016, 56% of human exposure cases managed by PCCs involved drugs and medications. Other exposures were to household and personal products, plants, mushrooms, pesticides, animal bites and stings, carbon monoxide, and many other non-pharmaceutical substances. The majority of exposure cases managed by PCCs involve only one substance, but cases that involve more than one substance tend to be more dangerous. In 2016, while only 12% of exposure cases involved more than one substance, multiple substance exposures represented over 58% of all fatal exposure cases.

In 2016, 79% of exposures involved people who swallowed a substance. However, people were also exposed through the lungs, skin, eyes, and in other ways. Most poison exposures were unintentional (78%). Poison centers also received calls about medication side effects, substance abuse, malicious poisonings, and suicide attempts.

Opioid overdoses have quadrupled in the U.S. since 1999. In 2016, PCCs managed over 67,000 opioid exposure cases. Analgesics (pain relievers) continue to be the #1 substance involved in exposures managed by PCCs.

When do people call poison control centers?
Experts answer PCC calls 24 hours a day, 7 days a week, every day of the year. Similar to previous years, in 2016 higher call volumes were observed in the warmer months.

Where do poison exposures occur?
In 2016, 93% of human exposures reported to PCCs occurred at a residence, but they can also occur in the workplace, schools, outdoors, and anywhere else. About 67% of the 2.2 million exposures reported to PCCs were treated at the exposure site, saving millions of dollars in medical expenses. In fact, poison centers save Americans more than $1.8 billion every year in medical costs and lost productivity.

Text POISON to 797979 to save the Poison Help™ number in your smartphone.
The American Association of Poison Control Centers (AAPCC) maintains the National Poison Data System (NPDS). Developed in 1983, NPDS contains more than 60 million poison exposures managed over the telephone by U.S. PCCs. NPDS is the only comprehensive, near real-time poisoning surveillance database in the U.S.

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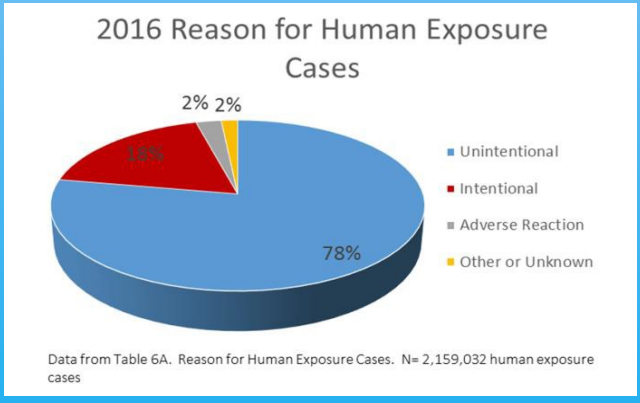

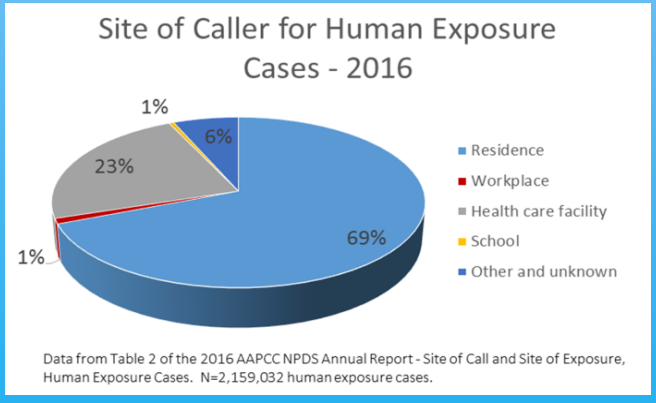

Nitrates and Nitrites—Blue Is Not Your Color

Desiree Zink EMT-B

Nitrates and nitrites are relatively common substances. Nitrates are found in soil and also in our diet (spinach, beets, and broccoli for example). They are also in a few medications that primarily treat heart disease and hypertension. Nitrites are commonly found in preservatives, fertilizers, and in instant cold packs. In controlled amounts, these two ingredients are not expected to be problematic. However, like many things, overuse can cause negative effects, especially for your health.

One problem with nitrate and nitrite-containing products occurs when it "oxidizes the iron component of red blood cells, rendering them unable to carry oxygen" (Serkalem, 2018). To put simply, the red blood cells become unable to carry oxygen, leading to a condition call methemoglobinemia. The characteristics of this condition include a paling or blue-gray tint to the skin. Some people say it is similar to the look you get when you've been out in the cold. However, this condition can be very serious. The more red blood cells affected, the more serious the symptoms (the more blue they appear).

Nitrates can also be problematic and can cause serious poisoning situations. Ingested medications, such as nitroglycerin, can lower the blood pressure. People have been poisoned after drinking nitrate-contaminated water from areas where it is used a fertilizer. Children and infants can become ill after ingesting formula that has been tainted by nitrate-infused water, or though foods given that are high in nitrates/nitrites. Symptoms of nitrate poisoning vary from mild methemoglobinemia to cyanosis, loss of consciousness, seizures, and sometimes death.

While nitrates and nitrites are a part of our day-to-day lives, too much can be a problem. By taking medications as prescribed, talking to your child's Pediatrician about proper nutrition, and monitoring your environment for nitrate/nitrite exposures, you can lower your chances of a poisoning situation. It is recommended that if someone you know has been exposed to nitrates or nitrites, no matter how insignificant it may seem, you should call the poison control center at 1-800-222-1222 for guidance.

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JUULing: Fast Facts

Sheila Goertemoeller PharmD, D ABAT, ICPS

- JUUL is a brand of electronic cigarette marketed to adults, but has caught the attention of teenagers because it looks like a flash drive and can be charged in the USB drive of laptops and computers.
- It is illegal for purchase by teens but is available for purchase online by clicking a box confirming the buyer is 21 years old.
- It is affordable at $49.99 for a starter kit which includes a 4 pack of JUUL pods.
- The JUUL pods range in flavors from crème brulee to fruit medley.
- Most schools ban the device and its use on school grounds.
- It is estimated that the nicotine in one pod is equivalent to a whole pack of cigarettes.
- The American Academy of Pediatrics states that the use of electronic nicotine delivery systems is a significant public health concern.

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When The Weather Is Cold These Drugs May Increase Susceptibility To The Risk Of Hypothermia And/or Frostbite

Robert Goetz PharmD, D ABAT
Earl Siegel PharmD

The US Center for Disease Control and Prevention reported an average of 689 deaths related to hypothermia in the United States between 1979 and 2002. **The three main risk factors for hypothermia-related deaths are advanced age (≥65 years), mental impairment, and substance abuse.**

Some medicines can increase the risk of becoming too cold.

The brain closely monitors and maintains body temperature in at least two ways. The first involves the conscious perception of cold. Drugs that reduce our perception and related judgements can increase the risk of becoming too cold. Broadly, this group includes any drug that causes central nervous system depression. Examples include alcohol, opioids (like morphine and heroin), and prescription sleep aids or anti-anxiety and anti-psychotic medicines.

The brain maintains body temperature by having a normal set point usually around 98.6 degrees. Some medicines can reduce the body's mechanisms to normalize this set point. Some medicines cause dilation of blood vessels in the skin which increases heat loss. Some medicines block shivering which decreases heat production.

- Many of the medicines that affect the normal set point are used to treat psychiatric illness, like schizophrenia and other forms of psychosis. Examples include: Risperidone, Olanzapine, and Lithium, but virtually all of the medicines used to treat psychosis increase the risk of low body temperature by this mechanism.

- When the weather is cold, constricting blood vessels in the skin helps to conserve body heat. Medicines that dilate blood vessels in the skin defeat this protective response and lower body temperature. These medicines include certain medications for an enlarged prostate or lowering of blood pressure like terazosin.

- Medicines that decrease shivering reduce the body's ability to generate extra heat. These medicines include: opioids (like heroin, morphine and meperidine), tramadol, clonidine, guanfacine (Intuniv, others), and buspirone (Buspar, others).

Selected Examples of drugs that may increase susceptibility to hypothermia and frostbite:

If you or someone you know is taking any of the medications listed here, please contact your doctor or pharmacist to see if it may cause an increased risk for hypothermia or frostbite.

Recreational drugs
- Marijuana
- Alcohol
- Nicotine

Blood pressure medications and medications for an enlarged prostate
- Clonidine
- Tamsulosin
- Alfuzosin
- Doxazosin
- Prazosin

Antipsychotics
- Risperidone
- Olanzapine
- Lithium

Seizure preventing medications
- Diazepam
- Oxcarbazepine
- Valproic Acid

Pain Medications
- Morphine
- Oxycodone

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FDA Approved Device May Help To Reduce Symptoms Of Opioid Withdrawal

Regina Tarantino BSN, RN, CSPI

The NSS-2 Bridge device is the first non-pharmacologic device the U.S. Food and Drug Administration (FDA) has granted marketing authorization to help reduce symptoms associated with opioid withdrawal. The results of an open-label pilot study regarding this device's effectiveness was reviewed by the FDA before approval.

A battery-powered chip placed behind the patient's ear sends electrical nerve stimulation to a part of the brain called the peripheral cranial neurovascular bundles. This region of the brain is thought to provide relief from the initial acute withdrawal signs and symptoms from opioids, such as sweating, gastrointestinal issues, agitation, sleeplessness, malaise and joint pain. The NSS-2 Bridge device can be worn up to the first five days following opioid discontinuation, often referred to as the induction phase. Patients will need a prescription for the NSS-2 Bridge. This device will NOT be able to be used in all people; contraindications to use include conditions such as hemophilia, psoriasis vulgaris, or those that have a cardiac pacemaker (U.S. Food and Drug Administration [FDA], 2017). AL

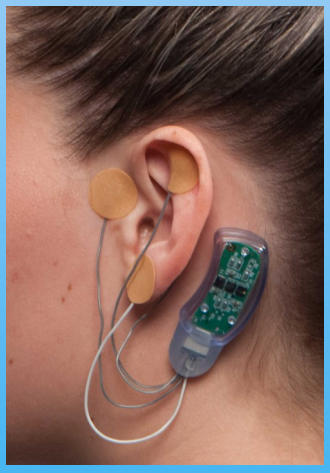
The acute severity of withdrawal signs and symptoms, along with mismanagement in the induction phase have been reported as deterrents to patient compliance. The patient must complete withdrawal successfully under the supervision of a physician before receiving opioid receptor antagonists. In the absence of proper timing, the patient may experience an induced withdrawal if the opioid receptor antagonist, such as buprenorphine, methadone, or naltrexone is started prematurely. "Pain associated with withdrawal is often cited as a primary reason for patients opting out of treatment" (Miranda & Taca, 2017, p. 1-2).

The NSS-2 Bridge pilot study evaluated the intensity of 73 patient's withdrawal experienced by using the clinical opiate withdrawal scale (COWS). The higher the COWS score, the worse the patient's withdrawal symptoms. In this study, the device provided a reduction in COWS score of 31% within the first 30 minutes of using the device. Five days after the Bridge placement, the COW withdrawal score decreased by 97%. Sixty-four of the 73 patients (88.8%) transitioned over to medication-assisted therapy (MAT) using ER naltrexone (FDA, 2017).

The NSS-2 Bridge offers a non-pharmaceutical intervention with minimal adverse effects, is relatively inexpensive ($500.00), and the health professional training is minimal. The device may also reduce the fear of an induced precipitated withdrawal.

Although the pilot study showed positive results regarding this treatment alternative, the study was uncontrolled, retrospective, included a small sample size and has no long term patient follow up results. The COW was scored on both objective and subjective data. The study did not consider other patient medications or adjunct medications taken during the induction phase (Miranda & Taca, 2017). Further research and studies are needed.

The FDA is continuing to encourage ongoing research, trials, and studies. The FDA Commissioner Scott Gottlieb, M.D. stated "the FDA is committed to supporting the development of novel treatments, both drugs and devices that can be used to address opioid dependence or addiction, as well as new, non-addictive treatments for pain that can serve as alternatives to opioids" (FDA, 2017, p. 1).



This photo provided by Innovative Health Solutions shows the NSS-2

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The Dark Web: Buy Anything You Didn't Know You Could

Isaac Wiegman, U. of Cincinnati Pharmacy student 2018
Jan Scaglione MT, PharmD, D ABAT

It goes by many different names; the Dark Net, the Hidden Web, Deep Web, or more commonly the Dark Web. Accessed with the aid of specific software, the Dark Web cannot be searched through normal internet search engines like Google. People interested in conducting illegal activities can protect their anonymity while browsing the dark web, purchasing products, and communicating with vendors. This article provides a summary of how anonymity is accomplished while purchasing illicit substances through the dark web.

TOR: TOR stands for "**T**he **O**nion **R**outer", and it is free software, a browser comparable to Internet Explorer or Firefox, that allows anonymous access to the Internet. It gets the name "The Onion Router" as a result of the layers of encryption it implements. Every computer has an IP address which acts as your computers identification (ID) while it accesses the internet. TOR encrypts your ID multiple times, sending it through many virtual relays in a random manner throughout the world before reaching your desired website, making you virtually untraceable. Once you access TOR, you are free to search anonymously and shop on various crypto markets of your choosing.

Crypto Markets: A Crypto Market is an online marketplace platform, similar to commonly travelled marketplaces like Amazon or Ebay, and they bring together multiple sellers or vendors that then list items for sale, but on this platform many of the items listed are illegal goods and services for sale. These markets do sell illicit drugs, but may also be used to buy anything from firearms to passports to endangered animals. The first and most popular crypto market established was called Silk Road. During the 2.5 years they successfully operated, the FBI found that "several thousand drug dealers distributed hundreds of kilograms of illegal drugs to hundreds of thousands of buyers which generated more than 1.2 billion dollars in sales". Silk Road has been shut down, but the market has expanded rapidly with additional crypto markets, including Crypto Market, Silk Road 3, Dream Market, The Trade Route, Valhalla, and Tochka.

Crypto Currency: Crypto currency is a digital form of currency that is decentralized from any government or political affiliation. Although there are hundreds of current crypto currencies, the most popular by far is called BITCOIN. Invented in 2009 by Satoshi Nakamoto it has since grown exponentially into the worlds most trusted form of digital currency. The value of the very first BITCOIN was negotiable, with one of the first notable transactions being 10,000 BITCOINS to indirectly purchase 2 Papa Johns Pizzas. At the time of this article, the value of 1 BITCOIN has soared now that it trades on the stock market to more than $8,000. While you must purchase BITCOIN through a broker or through websites such as www.bitcoin.com with a bank card through 1 of 33 available exchanges, the fact that this currency is digital means that it can be encrypted and randomized, therefore rendering transactions untraceable. This encryption and randomization is done through BITCOIN tumblers, which collect BITCOINS from multiple users and distributes them back in a random manner.

PGP: "Pretty Good Privacy" is a system of anonymous communication through encrypted messages invented by Phil Zimmerman in 1991. It implements a dual key system where each user possesses one "Public Key" used to encrypt messages, and one "Private Key" used to decrypt messages. In order for a message to be sent anonymously to a vendor, the consumer must first encrypt the message using the vendors public key that is listed on their profile. The message is then sent and may only be decrypted using the vendors private key that cannot be accessed by outside parties. By using this system, if a message is intercepted before it reaches the intended recipient, it will not be able to be read.

The use of this system has allowed consumers access to a greater variety of drugs. In an anonymous survey done through social media platforms targeting subjects in their early twenties, they discovered the following:

- 65% of all respondents have heard of Silk Road.
- 47% of respondents have consumed illicit substances from Silk Road with 18% having self- purchased substances for personal use on this site
- Median age was 21 years old with greater than 80% being white males
- Top purchased substances include MDMA (53%), LSD (45%), Cannabis (34%), Magic Mushrooms (27%), DMT (24%), and Prescription Drugs (20%)

This article is intended to provide knowledge that illicit substances are not always purchased from the streets, and in fact, may be purchased from the comfort of one's home, from anywhere on planet earth, with delivery right to their door afterwards. The Dark Web makes this much easier to do than through the regular Internet, which may be traced quite easily to your door. Drugs that are not normally available in an area are now available with this resource. Because vendors are rated by the buyer after purchase, there is some evidence that the drugs purchased may actually be less adulterated than those purchased on the street. This doesn't change the danger associated with purchasing illicit drugs, however, but is a reason why more people are gravitating to the Dark Web for such purposes. The Dark Web has certainly provided challenges to law enforcement who attempt to keep dangerous drugs out of the hands of people who may overdose on them, as well as to healthcare professionals who may have patients coming to them with symptoms related to drugs not normally found in their locale.

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Dangerous Drugs: Special Focus on Cleveland, OH

Jan Scaglione MT, PharmD, D ABAT

For reasons still to be determined, the entire state of Ohio has been the focus of extremely dangerous drug trafficking in recent years. Heroin began flooding Ohio as cocaine was shipped overseas in 2008 and the heroin market took over. Just in case that wasn't good enough, synthetic opioids like fentanyl started getting added to the mix in 2014. Analogs of fentanyl came onto the markets soon thereafter, the most potent one being carfentanil, often referred to as the "elephant tranquilizer" since it is a veterinary drug used to sedate large animals, like elephants. The hardest hit areas of Ohio for carfentanil included Cuyahoga County, home of the city of Cleveland, and Hamilton County, home of the city of Cincinnati. Figure 1, below , shows where drugs were captured by law enforcement and analyzed by the DEA for carfentanil in 2016 (US Department of Justice Drug Enforcement Administration Diversion Control Division, 2017). This potent narcotic, carfentanil, made its way into Ohio in July of 2016, and it was responsible for a high number of deaths among both heroin and cocaine users.

According to the most recent publication of the Ohio Substance Abuse Monitoring (OSAM) network report covering 2016, 168 items containing carfentanil were submitted for analysis to the National Forensic Laboratory Information Service (NFLIS) from the Cleveland region, an area composed of 8 counties, including Cuyahoga County. It takes very little carfentanil to produce enough respiratory and central nervous system depression to result in death for someone who gets this added to the illicit drug they are seeking. Carfentanil is up to 2,000 times more potent than heroin itself, so adding this to heroin massively increased the number of people who died across the state. The Cuyahoga County Medical Examiner's Office recorded 56 carfentanil-related deaths in 2016. Synthetic fentanyl and related analogs, including carfentanil, comprised 71.6 percent of all opioid deaths recorded for 2016 in Cuyahoga County. Opioid deaths, including heroin, accounted for 83.6 percent of all the recorded deaths due to any drug in Cuyahoga County in 2016. An unprecedented number of drug-related deaths, 666, were recorded by the Cuyahoga County Medical Examiner's Office for 2016. This represented an 80 percent increase from the previous year, 2015 (Cuyahoga County Medical Examiner's Statistical Report).

Cocaine reemerged in drug-related death cases recorded in 2016 in Cuyahoga County as well. The Medical Examiner recorded a doubling of deaths involving cocaine in 2016 versus the previous year. The majority of these cases also involved fentanyl being added to the cocaine. The Cuyahoga County Medical Examiner's Office issued a special warning as addition of fentanyl to cocaine purchased by unsuspecting users resulted in a doubling of cocaine-related deaths in 2016 versus the previous year. Many of those dying with cocaine and fentanyl in their systems were from the African American community. The Medical Examiner believes that Mexican Cartels are deliberately targeting the African American population by adulterating cocaine with fentanyl (Cuyahoga County Medical Examiner's Statistical Report).

Once fentanyl was introduced into the heroin supply in 2014, the cartels and drug dealers began shifting the mix more and more to include fentanyl, with less and less heroin in the product sold on the street. The incentive was most likely one of pure economics since you can produce $500,000 worth of fentanyl with as little as $200 worth of precursor chemicals. By contrast, in order to produce heroin you need to grow many poppy plants, make sure there is plenty of sun, water, and nutrition, hire workers to score the poppy pods and collect the resin, and then process the resin in a lab to produce the final end product, heroin. Much more time consuming and costly, is it really any wonder fentanyl and other analogs have been marketed with ferocious intensity by drug dealers and cartels? As a direct result of this shift, while cartels save money, the cost to human life has been exorbitantly high. The Cuyahoga County Medical Examiner's Office has recorded increasing numbers of drug deaths involving heroin over the last 10 years, but in 2016, for the first time, they recorded an even higher number of drug deaths with fentanyl (Figure 2) (Cuyahoga County Medical Examiner's Statistical Report).

The U.S. DEA is cracking down on fentanyl and analogs of fentanyl, and is actively working with the Chinese government to decrease the supply of fentanyl produced and marketed to drug users here in the US and abroad. While it is too soon to say, it is hoped that cracking down on potent synthetic opioids like fentanyl and carfentanil will result in less loss of life for this very vulnerable population of users, even while drug cartels look for cheaper methods of drug manufacture of the potent and addictive drugs they push.

Figure 1.

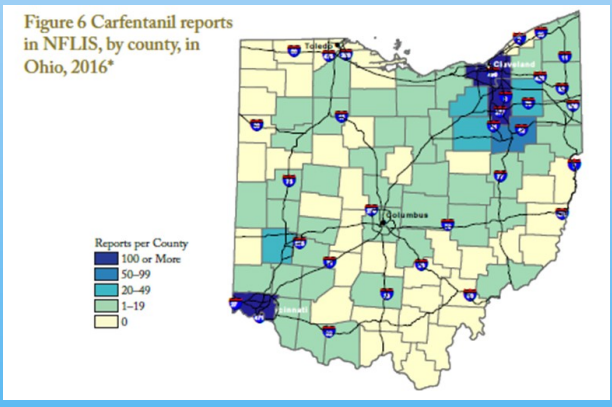
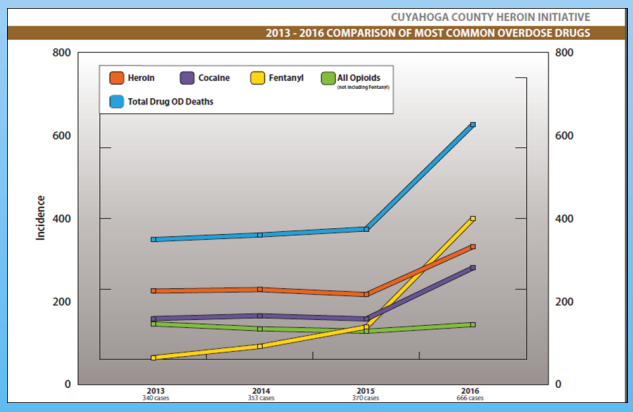


Figure 2.



*Includes drugs submitted from January through December that were analyzed within three months of the calendar year reporting period.

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Poison Prevention In The Blind And Low Vision Populations

Anne Hammen, Poison Information Provider

In 2015, the United States had approximately 7,297,100 people who experienced a visual disability (Blindness Statistics, 2015). Of these citizens, almost 41% of the population is over 65 years old (Blindness Statistics, 2015). In this population of 65 and older, about 90.8% of the population took at least one prescription medication in the past 30 days (CDC, 2017). A large population of blind patients are prescribed medications, leading to a very high risk for medication errors and poisoning situations. So, how can we help?

- **LABELS**

The most obvious difficulty for the blind and visually impaired patients are reading and comprehending prescription bottle labels. For example, the visually impaired have trouble distinguishing labels that have colors rather than simply black and white. Labels with simple black lettering and white backgrounds could be beneficial for some of these patients. Also, another challenge for the visually impaired is reading the small print on their prescription bottles. To help combat this difficulty, prescription bottles with 18 point font, bolded letters, standard spaced, with no narrow, condensed, italic, or oblique fonts could help visually impaired patients.

- **ORGANIZATIONAL METHODS**

Another option for preventing medication errors and poisonings is to have the patient's medication organized in a specific way that benefits the patient's understanding of when to take these medications. For example, a non-visually impaired family member may pre-organize the patient's pills into a pill organizer. Another option is to have some type of marker on the pill bottles, such as a rubber band. For example, Lisinopril may have one rubber band on the bottle, but the patient's Glipizide medication may have two rubber bands, thus distinguishing between the two medications.

- **INDIVIDUAL MEDICATIONS**

According to a national poll by the American Foundation for the Blind in 2007, 65% of low vision people were generally concerned about properly identifying their medications (AFB, 2007). As far as individual markings, colors, and shapes of individual medications, there is not much that can be done outside of general education to the patient on their medication's characteristics. One way to help a patient identify a medication may be to have them feel and inspect the medication when they are first prescribed it. In this way, patients can see (if possible) and feel what it looks like for themselves, so that if they need to identify it in the future, they can remember the characteristics of the medication.

- **TECHNOLOGY**

A device called a Pen Friend provides a way of labeling medications using their own voice which puts information onto self-adhesive labels. In this way, when you touch the pen to the label, it will read the label back in their own voice. This device provides easy recognition and also only has 4 simple buttons to help make it easy for aging generations to use.
Another device is called LookTel Recognizer. This recognizer allows those with visual impairments to immediately recognize everyday items. This app goes on any smart phone and is easy to use. The app uses a patient created library of different items and medications to identify and describe items using the phone's camera. Therefore, a visually impaired patient could point their phone's camera at a medication, and their phone will tell them what medication it is and describe it.

Although poison prevention can be difficult in visually impaired populations, there are many helpful tips and tools to help these patients avoid scary situations, such as a medication error. The tips above can help patients and their families pick the correct options for them and their individual needs, but it is important for us as healthcare providers to understand these patient's challenges to provide the best patient centered care. It is also our job as providers to educate these populations on resources available to them if a poisoning situation/medication error does occur, such as calling 1-800-222-1222 for drug and poison information. As providers, we can help create a safer life for those with visual impairments by following the tips above and educating their loved ones on how to best help these populations as well.

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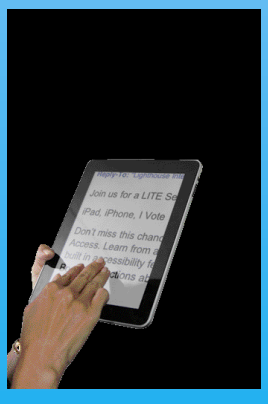

First Ingestible Digital Tracker

Christy Evans EMT, DPIA

How Abilify MyCite Works. (2018). Retrieved from https://s.yimg.com/uu/api/res/1.2/O4rb0gM9JUs_2d80zcXW4Q--~B/aD00OTY7dz0xMjM2O3NtPTE7YXBwaWQ9eXRhY2h5b24-/https://s.yimg.com/os/creatr-images/GLB/2017-11-14/920fea60-c951-11e7-a988-55dcdefeac97_Screen-Shot-2017-11-14-at-10-23-03-AM.png

Did I forget to take my medication today? When did I take my last dose of medication? These are questions that may be asked by patients taking medications on a daily basis.

The US FDA has approved aripiprazole pills that have an ingestible sensor in them that has the capability to record when and if the medication has been taken. Abilify MyCite is the first digital medicine system to be cleared by the FDA; the product will be available in 2018. Abilify MyCite is approved for the treatment of schizophrenia, the acute treatment of manic episodes, the treatment of mixed episodes associated with bipolar I disorder, and for use an adjunctive treatment for major depressive disorder in adults (Abilify MyCite, 2018).

The system works by sending a message from the pill's sensor to a wearable patch, which transmits the information to a mobile application, allowing patients to record their daily medication intake on their smartphone. Patients can allow their healthcare provider to access the information through a Web-based dashboard. The patch detects and records the date and time of the ingestion of the tablet as well as certain physiologic data, such as activity level (Abilify MyCite, 2018).

The pill's sensor is the size of a grain of sand and is made up of ingredients found in food. The sensor becomes activated when in contact with stomach fluid and is then digested and eliminated from the body. It can take 30 minutes to 2 hours to detect ingestion of the tablet.

Some potential concerns with the system could include lack of detection of an ingested dose, lost device or smartphone, and inability to sync the patch to the device. According to the manufacturer, the MyCite patch will communicate to a paired device when it is within 9 feet of the device and the device is on with blue tooth enabled (Abilify MyCite, 2018).

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Relaxation Without Intoxication

Robyn Davis RN, MSN, CNL, CSPI

When you think about the cannabis plant, what comes to mind? You most likely think of Tetrahydrocannabinol (THC), which is the psychoactive part of the cannabis plant that causes a "high." Although THC is the most well-known chemical compound in the cannabis plant, it's not the most prevalent. Cannabidiol (CBD) is the most prevalent chemical compound and is emerging as a possible therapy for epilepsy and other selected neuropsychiatric disorders like anxiety and schizophrenia.

CBD has found a place on the internet and is being incorporated into a variety of things such as gummy chews, bath bombs, chocolate bars, bottled water and CBD chews for your furry pet friends (CBDLiving.com).

The CBD products are not expected to lead to a euphoria for you or your pets. CBD actually lacks the ability to cause the "high" that THC is known for and is more likely to cause 'relaxation without intoxication' (CBDLiving.com).

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The Dangers Of Self-Medication In Children With Over-The-Counter Drugs

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Inappropriate medication use is increasing in adults and children. Over-the-counter (OTC) medications are often considered safer to take than prescription drugs since they are readily available to purchase without seeing a doctor first. In a recent study, 71,224 emergency room visits resulted from unintentional medication overdoses in children 18 years old and younger (Schillie, Shehab, Thomas & Budnitz, 2009). Three out of the four most common medications taken in overdose situations involved OTC medications: acetaminophen, cough and cold medications, and non-steroidal anti-inflammatory drugs like ibuprofen or aspirin. A contributing factor is difficulty in reading a drug-facts label on OTC medications (Young, 2016). Currently, public school curriculum does not require education on medication safety at any age level. Inclusion of medication safety education in the school curriculum could help mitigate inappropriate medication use.

There is a drug facts label on each OTC product intended to promote appropriate use of the product. It lists the active ingredients along with their purpose to assist patients' selection of the correct product based on symptoms. Information regarding allergies is there, along with information on medication interactions. The warning section should be read carefully to identify medical conditions that may prohibit use of the product. The "when using this product" section warns the patient about side effects. The "stop use and seek medical help" section is designed to indicate side effects or conditions that warrant discontinuation or seeking of medical attention. Directions are listed near the bottom to prevent the user from using the product without completely reading the label. The list of inactive ingredients aids to prevent use of the product in the presence of allergies, intolerances, etc. Lastly, the questions or concerns section is designed to help parents obtain additional information, and to report side effects.

Tips to consider when using OTC medications (Pfizer Inc., 2011).

1. Read the full drug-facts label prior to use every time. Pay close attention to use, warnings, and directions based on age. 2. Know how much and how often to give the medication. Keep track of when the last dose of medication was given. 3. Units matter. Know abbreviations for tablespoon (tbsp. or Tbsp. or T), teaspoon (tsp), milligram (mg), milliliter (mL), and ounce (oz.). Example: 5 mg is NOT equal to 5 milliliters. 4. Use the correct dosing device to measure liquids with the units you are measuring. Don't ever just guess. 5. Never take 2 medications at the same time without talking to your doctor or pharmacist who will help identify and manage any potential drug interactions. 6. Always follow weight and age recommendations. 7. Do not use any medication that has signs of tampering (tears, cuts) on the packaging. 8. Discard appropriately after the expiration date. 9. If you have a question or concern about how to use a product, ask your doctor or pharmacist.

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FLUAD™, The First Approved Flu Vaccine With Adjuvant MF59

Frank Quattrone, BSN, RN, CSPI

The Centers for Disease Control report most seasonal flu related deaths and hospitalizations occur in seniors (Infection Control Today, 2015). The Food and Drug Administration (FDA) gave approval to Novartis Pharmaceuticals to market FLUAD™, a seasonal flu vaccine with an adjuvant for adults 65 years of age and older. Approval was obtained in November of 2015 to provide another flu shot alternative for seniors in the following year. FLUAD™ contains Adjuvant MF59, an emulsion of squalene oil and is the first flu vaccine in the United States to contain an adjuvant (Centers for Disease Control and Prevention, 2016).

An adjuvant is added to a vaccine in order to make it more effective. When an adjuvant is used, less-virus is needed. FLUAD™ contains strains form 3 different inactivated viruses, and is the first FDA approved vaccine to contain an adjuvant. It is marketed by Seqirus INC. Each dose contains about 10mg of squalene oil (Novartis Pharmaceuticals, 2017).

MF59 adjuvant has been in use for 20 years in flu vaccines outside the United States. It was first approved in 1997 in Italy in FLUAD™ by Chiron. 87 million doses have been given since 1997, in 39 different countries (World Health Organization 2006). Squalene is a naturally occurring biodegradable substance found in both plants and animals. In animals it is produced in the liver. Squalene circulates in our blood, is a building block in production of hormones, and is even found in the oils left in fingerprints. Squalene is also an ingredient found in foods, cosmetics, and dietary supplements. Squalene used in pharmaceutical products is derived from purified shark liver oil.

Contraindications for FLUAD™ include egg allergy and previous reactions to other Flu (egg derived) vaccines and rubber latex allergy since the cap of the prefilled syringe contains latex. Adverse reactions reported have been mild to moderate and temporary. The most common side effects include pain and redness at the injection site, muscle aches, headache and malaise (Novartis Pharmaceuticals, 2017).

Post marketing studies will need to be done to determine if FLUAD™ works better than current flu vaccines already available, but offers the senior population another alternative in fighting off seasonal flu. It's still not too late to get a flu shot.

https://www.immunizationinfo.com/fluad-vaccine/

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Triclosan

Sara King Pinkston RN, MSN, CSPI

Triclosan is an antibacterial compound used as an active ingredient in antibacterial hand soaps, antibacterial hand sanitizers, and in personal care products such as body washes, cosmetics, shampoos, and toothpastes (Ohio Water Resources Center, 2016). Triclosan may also be found in detergents, carpets, paints, and children's toys (American Society of Agronomy, 2016).

Why is this important? On December 17, 2017, the FDA issued a final rule banning triclosan from antibacterial soaps due to insufficient data regarding its safety and effectiveness (FDA Consumer Health Information, 2017). To be clear, this ban covers only soap. Several companies including Avon, Johnson & Johnson, and Procter & Gamble have already eliminated triclosan from their products (Kaplan, 2016).

Triclosan has been implicated in animal studies as having endocrine disrupting properties which could affect fertility and brain development possibly leading to learning disabilities (Ohio Water, 2016). In addition, studies have shown that triclosan kills both good and bad bacteria. It has been shown to be toxic to algae. According to a recent United States Geological Survey, triclosan has been found in 58% of freshwater streams despite the fact that triclosan is removed in most waste water treatment plants. Once released into rivers, streams, and fields, it is broken down into soils and sediments.

Are there any benefits to triclosan? The FDA reviewed effectiveness data in 1997 of triclosan in Colgate Total toothpaste. It was shown to prevent gingivitis (FDA Consumer Health Information, 2017).

What is the best alternative to triclosan? According to the FDA, plain old soap and water are just as effective as triclosan and does not come with some of the safety issues of triclosan (Kaplan, 2016).

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American Association of Poison Control Centers

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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.

POISON Help
1-800-222-1222

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