Children's Safety Network

EDC Education Development Center

November 28, 2018

"Synthetic Marijuana"

What Is It, Why Is It Dangerous, and How Can We Prevent Youth from Using It?

Funding Sponsor

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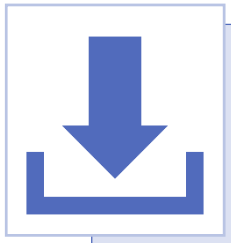

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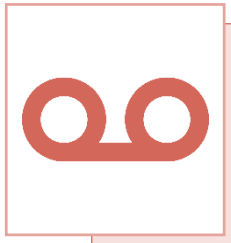

This session is being recorded

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Synthetic Cannabinoids/Marijuana:

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Disclosures

- No financial or other commercial or related interests.

Why This Talk?

- Synthetic marijuana is becoming more commonly used by adolescents
- Often marketed as a safe, legal alternative to marijuana
- Also marketed as not showing up in routine drug screening, so easier to hide use

Objectives

- Describe use of SBIRT.
- Dr. Ammerman will discuss his approach to patients who use “synthetic marijuana” as part of general screening for substance use.
- Dr. Ammerman will also review the recent literature on “synthetic marijuana” use in adolescents.
- Dr. Ammerman will discuss available prevention efforts.

Patient Experiences

Both good and bad:

- Good: enjoy the high, similar to marijuana
- Bad: Experienced various side effects, including rapid heart rate, vomiting, violent behavior, suicidal thoughts, and seizures
- Emergency Room/Hospital/Intensive Care Unit:
  - increase in blood pressure
  - reduced blood supply to the heart
  - kidney damage
  - death

Epidemiology: Longitudinal Data Sets

- 3 major sources:
  - Youth risk behavior survey (CDC)
  - Monitoring the future – MTF (U. of MI and NIDA)
  - National survey of drug use and health (National household survey on drug abuse) (SAMHSA)

MTF 2014-2015 Synthetic Cannabinoid Use

- 12th graders:
  - Current Use: (Used at least once in the past 30 days): 2.9%
  - Use >= 3x/month: (49.7% of those noted above)
  - Users were more likely to report more recent (and often more frequent) use of lysergic acid diethylamide, cocaine, heroin, and/or nonmedical use of opioids compared with marijuana-only users.
  - Compared with current marijuana-only users, users were more likely to report lower parent education, and current use of a higher number of illegal drugs other than marijuana.
  - Those using ≥10 times in the past month were more likely to be boys, frequent marijuana users, African American, and users of multiple illegal drugs.

Longitudinal Predictors of Synthetic Cannabinoid Use in Adolescents

- Depressive symptoms, marijuana use, and alcohol use are predictive of subsequent SC use in adolescents.
- Importantly, SC use does not predict later marijuana use.

Health Risk Behaviors With Synthetic Cannabinoids Versus Marijuana

2015 YRBS:

- Students who ever used synthetic cannabinoids were more likely than students who ever used marijuana only to have used marijuana before age 13 years, to have used marijuana ≥1 times during the past 30 days, and to have used marijuana ≥20 times during the past 30 days.
- Several injury/violence behaviors were more prevalent among students who ever used synthetic cannabinoids compared with students who ever used marijuana only:
- (1) rode with a driver who had been drinking alcohol, (2) did not go to school because of safety concerns, and (3) engaged in a physical fight.

Statement from FDA warning about significant health risks of contaminated illegal synthetic cannabinoid products that are being encountered by FDA, 1 of 2

July 19, 2018

- Generally, these products have been known to be associated with adverse effects including rapid heart rate, vomiting, violent behavior and suicidal thoughts, and an increase in blood pressure, as well as causing reduced blood supply to the heart, kidney damage, and seizures.
- Some of the producers of these synthetic cannabinoids have added brodifacoum, which we have heard is because it is thought to extend the duration of the drug euphoria or "high."
- But the presence of brodifacoum in these illegal and unregulated products poses severe health risks because it can cause severe bleeding. In recent months, hundreds of individuals in about 10 states – many in the Midwest – have been hospitalized after experiencing such complications. Unfortunately, there also have been several related deaths

Statement from FDA warning about significant health risks of contaminated illegal synthetic cannabinoid products that are being encountered by FDA, 2 of 2

- Standard coagulation tests, such as the prothrombin time, can be dramatically elevated in these settings, and prompt treatment with high doses of vitamin K and other supportive care can potentially be life-saving.
- As discussed, we're also concerned about the potential contamination of donated blood products. The FDA has received several reports of donors who used synthetic cannabinoids contaminated with brodifacoum. Because of its long half-life, the bleeding risk from brodifacoum, which prevents vitamin K from being reused within the body, can persist for weeks. Consequently, potential safety concerns exist for both the blood donor and the donated blood components, given the potential impact on coagulation because of its long-acting vitamin K antagonist activity.

Please answer the poll

Synthetic Cannabinoid Poll

All of the following are true about synthetic cannabinoids except for one (choose the letter of the *incorrect* response)

A) Synthetic cannabinoids (SCs) are a large, heterogeneous group of chemicals that are structurally similar to δ-9-tetrahydrocannabinol (THC)

B) Most SCs show up in routine urine drug tests

C) SCs are available to adolescents at convenience stores and smoke shops and on the Internet

D) Popular brands include "K2," "spice," "crazy monkey," and "scooby snacks"

E) SCs are often marked or labeled as "not for human consumption"

Synthetic Cannabinoid Basics

- Synthetic cannabinoids (SCs) are a large, heterogeneous group of chemicals that are structurally similar to δ-9-tetrahydrocannabinol
- Many SCs are high-efficacy full agonists of the CB1 and/or CB2 cannabinoid receptors
- SCs are available to adolescents at convenience stores and smoke shops and on the Internet
- Popular brands include “K2,” “spice,” “crazy monkey,” and “Scooby snacks”
- Typically in the category of Designer and Party Drugs
- Often marked or labeled as “not for human consumption”
- Ongoing changing the structure of the synthetic chemicals to try to skirt legal requirements
- SCs usually do not show up in routine urine drug tests

So Many Drugs, So Many Names, So Little Time!

- SBIRT: Screening, Brief Intervention, and Referral for Treatment
  - 3-part opening simple screening question
  - Uses the CRAFFT for any “yes” answer

Screening in the Office Setting: 7 Common Indications

1. Adolescent visits for preventive services/anticipatory guidance
2. Any youth undergoing mental health treatment
3. School drop outs
4. Youth demonstrating behavioral changes
5. School problems – grades dropping, absences, etc.
6. Acute medical problems (GI disturbances, trauma)
7. Other Parent and/or Provider Concerns

SBIRT: Quick and Easy Office Screening Method

<u>Be sure to address Confidentiality up front, before asking questions.</u>

If the provider is concerned about imminent harm or danger to patient or others, then confidentiality can be broken.

3-part opening screening question:

- In the past 12 months have you:
  1. Drunk any alcohol (more than a few sips)?
  2. Smoked any marijuana?
  3. Used any other drugs to get high (including illegal drugs, non-prescription drugs, prescription drugs, or things you sniff or "huff")?

Note: Here is a related non-SBIRT question that can be asked here too: Do you use alcohol, marijuana or other drugs to treat problems such as adhd, anxiety, depression, pain, or to help with sleep?

If “No” to Opening Screening Questions

No need to perform the CRAFFT

- Important to praise patient for making smart choices: “You’re making smart choices not using alcohol or drugs. Good going.”

If “Yes” to any of the Opening Screening Questions

Perform the CRAFFT

- The CRAFFT is a validated and reliable tool to screen for adolescent substance use
- Similar to the adult “CAGE” screening tool, but applies to all alcohol and drug use in adolescents

6 CRAFFT Elements

CRAFFT Scoring:

- Each “Yes” answer gets a score of 1
- 2 or more positives likely mean that the adolescent patient has problem use
- The higher the score, the more likely the severity of the problem
- A Brief Intervention (BI) is always performed if the CRAFFT is utilized.
  - The extent of the BI depends upon the Score; the higher the score, the more intensive the BI

The CRAFFT Elements, Slide 1 of 2

1. C Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?
   - Always comment on this element
2. R Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?
   - Note: For adults, "moderate" alcohol or drug use to relax is generally considered OK, but it is not OK for adolescents
3. A Do you ever use alcohol or drugs while you are by yourself, ALONE?
   - Again, Note: For adults, "moderate" alcohol or drug use when alone is generally considered OK, but it is not OK for adolescents

The CRAFFT Elements, Slide 2 of 2

4. F Do you ever FORGET things you did while using alcohol or drugs?
   - Can point out possible risky situations: e.g., unprotected sex
   - I also include "Have you ever done anything stupid under the influence of alcohol or drugs, or know anyone who has?" Virtually every adolescent knows someone who has done something stupid under the influence (particularly under the influence of alcohol)

5. F Do your FAMILY or FRIENDS ever tell you that you should cut down on your drinking or drug use?
   - This is a red flag.

6. T Have you ever gotten into TROUBLE while you were using alcohol or drugs?
   - This is also a red flag.

Useful MI Counseling Tips

- Brain Development: Your brain is developing, and will continue to do so into your 20s. Regular substance use may alter normal brain development. That's likely not good.
- Do you know anyone who is an alcoholic or a drug addict? Do you think "Uncle Joe" started drinking to become an alcoholic? No, the alcohol took over slowly but surely.
- Who's in control: you or the drug? If you are, you can cut back or quit anytime, right? If it's you, let's do a brief test – cut back or quit for X amount of time. I'll see you back in a few weeks, and we'll see how it went.
- Write down some short- and long-term goals. I'm concerned your drug use may interfere with you reaching them.
- If you developed problem use, what would that be like?
- I know your friends use marijuana regularly, but actually most kids your age don't. And if they're really your friends, they won't care if you don't use marijuana.

Resources

- NIDA: https://www.drugabuse.gov/publications/drugfacts/synthetic-cannabinoids-k2spice
- AAFP: https://www.aafp.org/news/health-of-the-public/20180518cannabinoids.html
- NZ Drug Foundation: https://www.drugfoundation.org.nz/info/drug-index/synthetic-cannabinoids/
- CDC: https://emergency.cdc.gov/coca/ppt/2016/03_31_2016_synthetic_cannnabinoids_coca_call.pdf

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Synthetic Cannabinoids: Poison Control's Perspective

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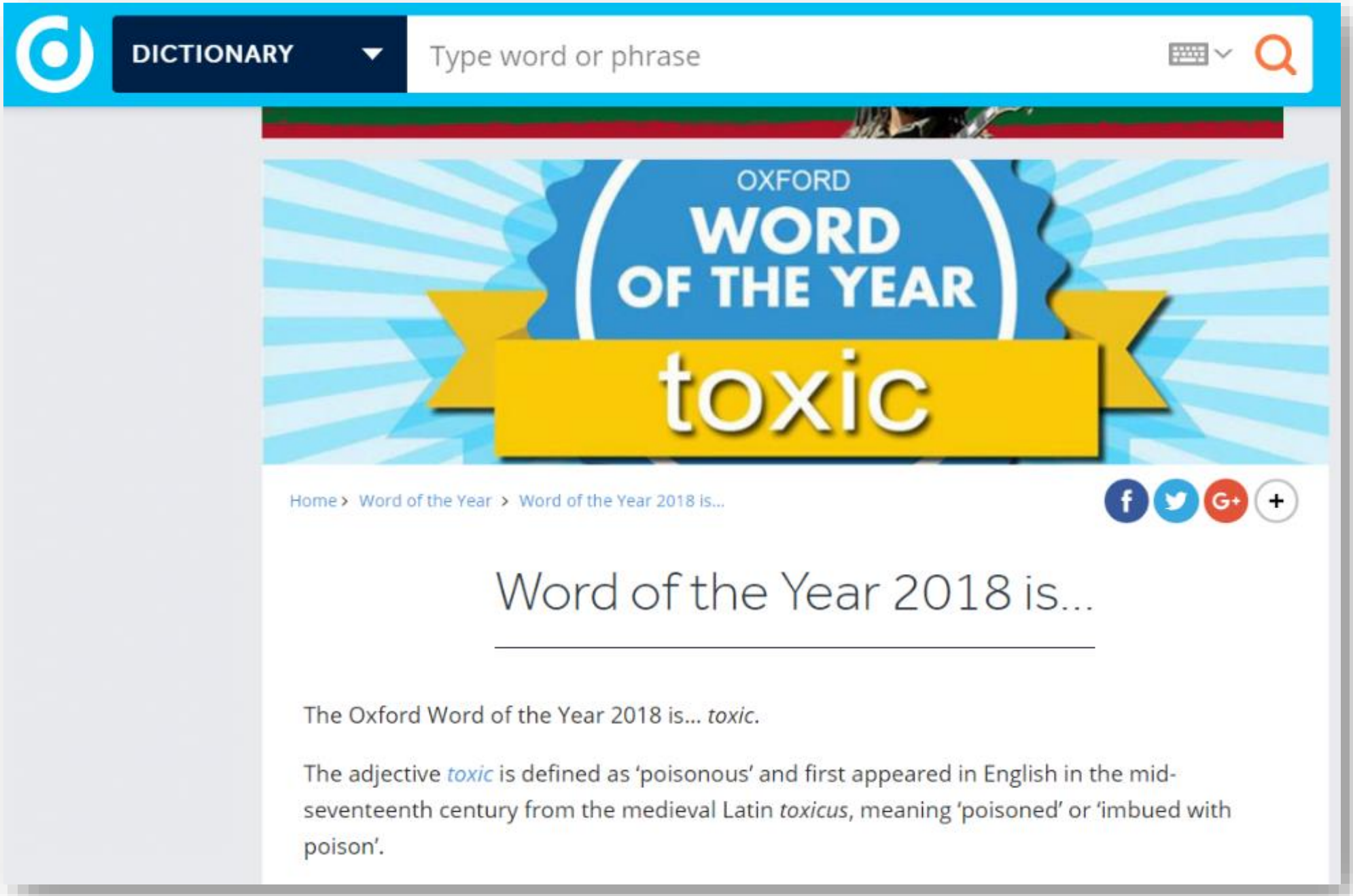
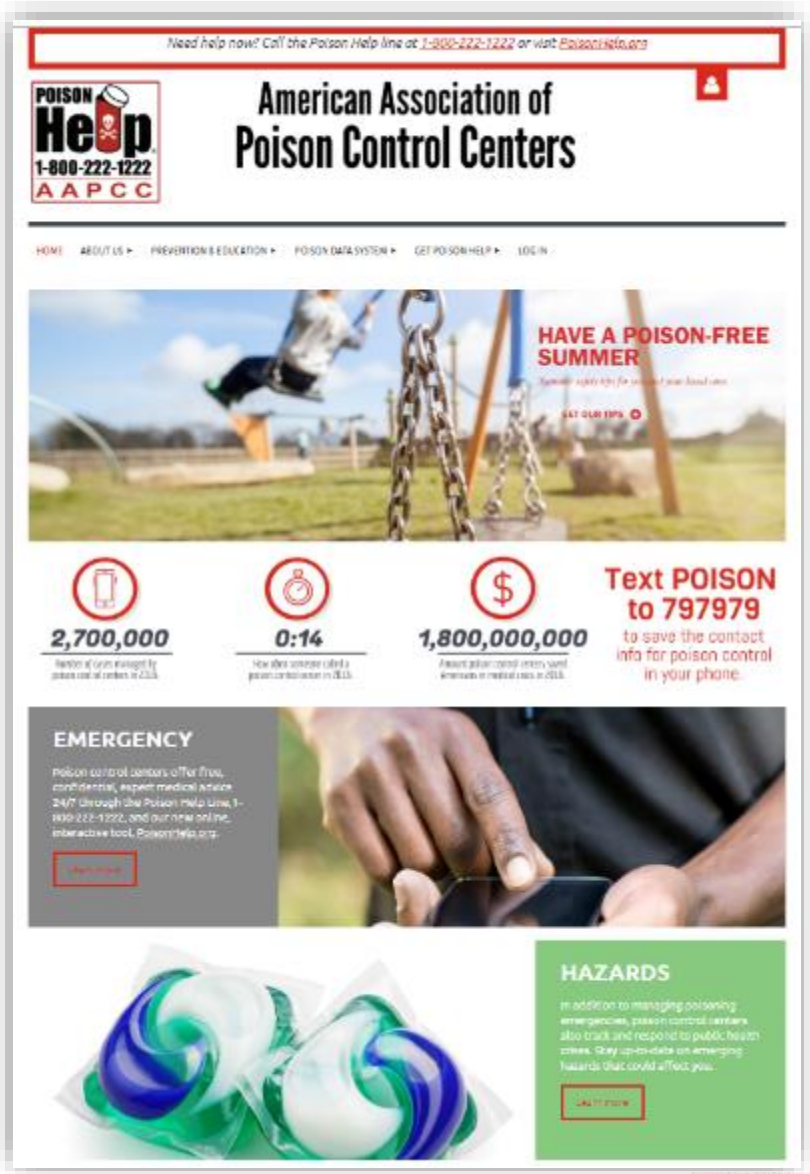

DICTIONARY
Type word or phrase
OXFORD
WORD
OF THE YEAR
toxic
Home > Word of the Year > Word of the Year 2018 is...
Word of the Year 2018 is...
The Oxford Word of the Year 2018 is... *toxic*.
The adjective *toxic* is defined as 'poisonous' and first appeared in English in the mid-seventeenth century from the medieval Latin *toxicus*, meaning 'poisoned' or 'imbued with poison'.

About AAPCC

- 501c3 Non-profit member association founded in 1958.
- Represents the 55 U.S. (PCCs) and ~1700 poison center staff.
- Support 55 member PCCs through:
  - Advocacy
  - Accreditation (centers)
  - Certification (experts)
  - Communication
  - Promotion of local services
  - Public education
- Collates and disseminate national data (NPDS).
- Engages in national educational partnerships and outreach initiatives.
- Located in Old Town Alexandria, VA.



About U.S. Poison Control Centers (PCCs)

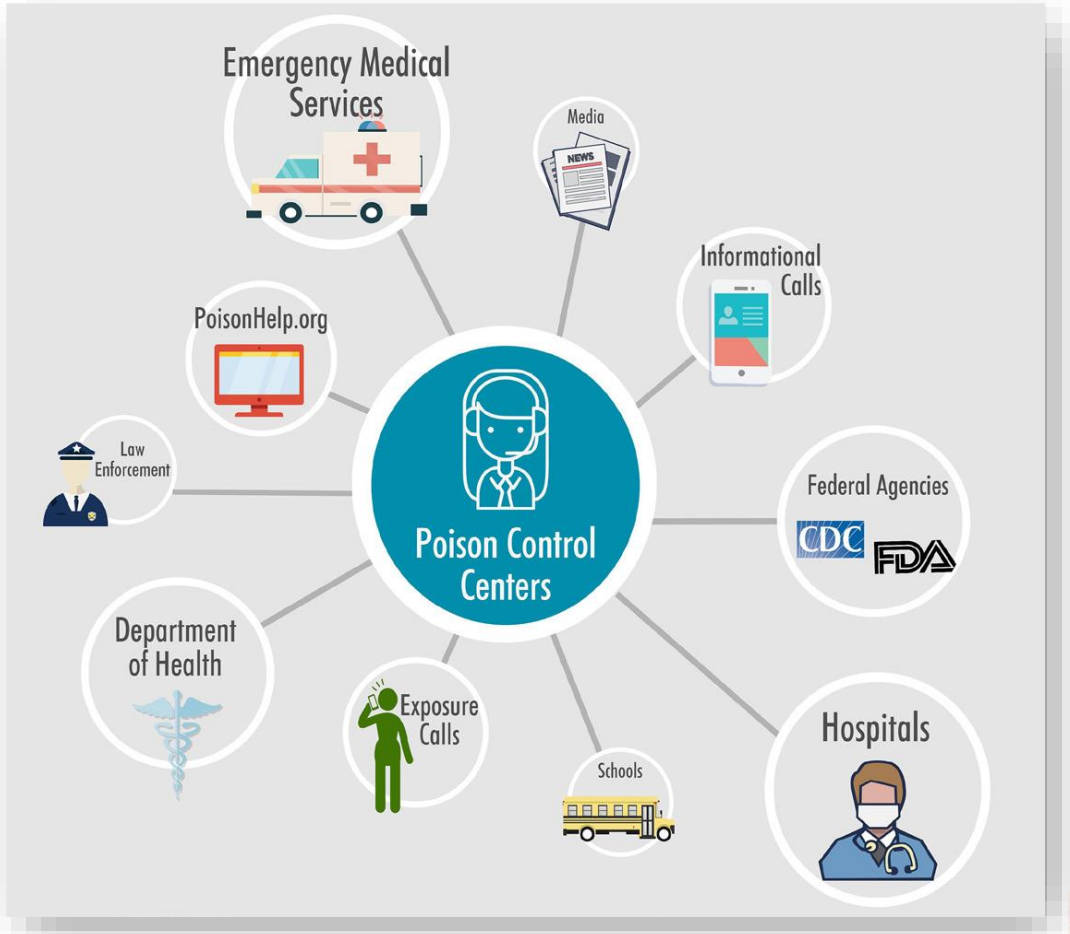
- 55 PCCs provide information and treatment advice, 24/7/365, through the national Poison Help line:

1 (800) 222-1222

- Covers 100% of the U.S. population; help provided in 150 languages.
- Calls are free, confidential, and answered by clinical experts: specially trained nurses, toxicologists, pharmacists, and physicians.
- PCCs continuously feed call data into the National Poison Data System (NPDS)—the only near real-time comprehensive poisoning surveillance database in the U.S. Approx. 9,000 calls/day.

Who Utilizes Poison Control Centers?

- Public
- Physicians
- Nurses
- Pharmacists
- Veterinarians
- Urgent Care Centers
- Occupational Medicine Centers
- Health Departments
- Government
- 911 PSAP (Public Safety Answering Point)
- Paramedics
- Police
- Fire Services
- Prison Officials
- Coroners
- Industry
- Schools



Please answer the poll

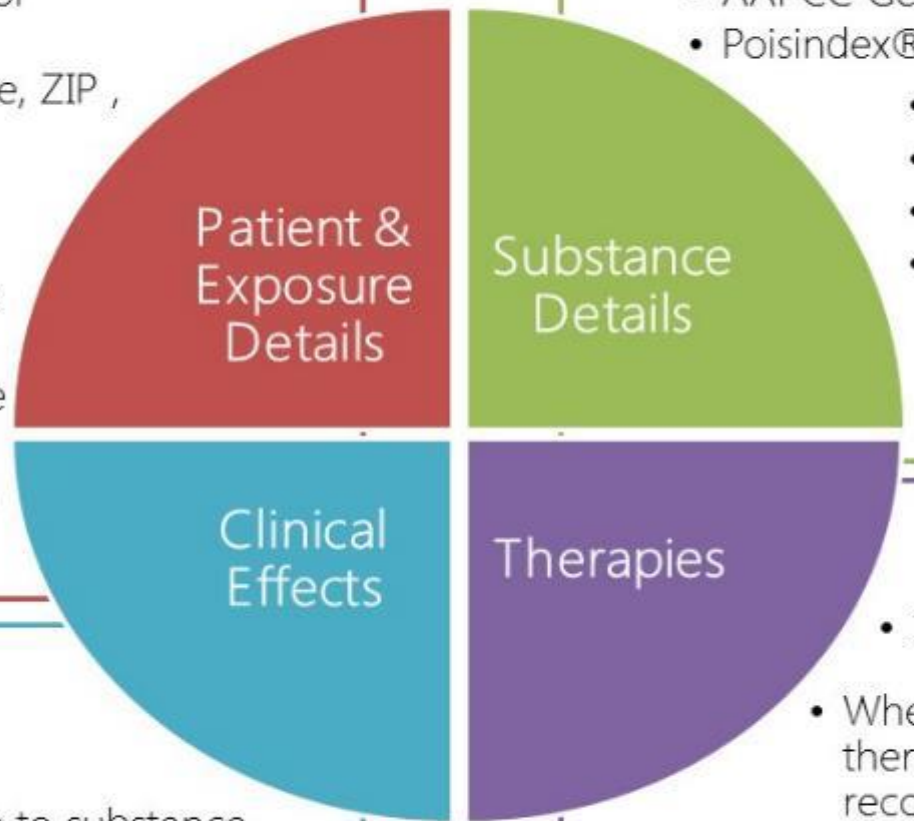
You never know when you might need it…

POISON Help 1-800-222-1222 AAPCC

About the National Poison Data System (NPDS)

- Nationwide repository of information/exposure call, triage, and management data from PCC calls.
- The only near real-time comprehensive poisoning surveillance database in the U.S.; data uploaded every 8 minutes.
- Product-specific identifiers used whenever possible; 435,000+ products in database. Generic substance codes used otherwise.
- Geocoded data with caller location as granular as 5-digit ZIP code.
- Data collection began in 1983, providing >30 years of data and more than 60 million case records.

NPDS Data Elements Overview



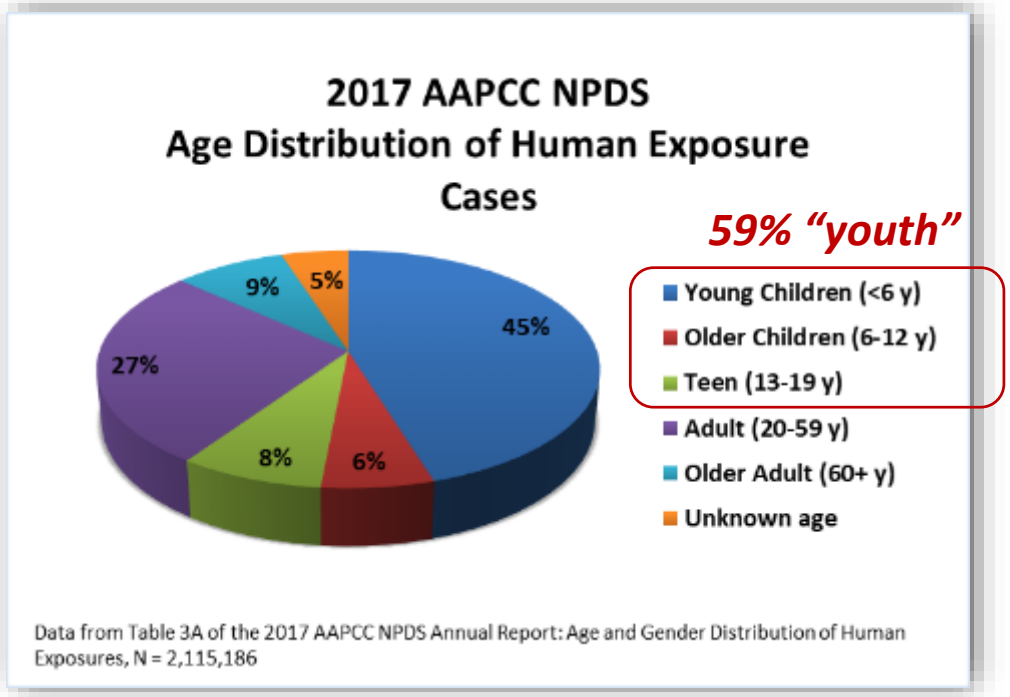
- Age/Gender/Weight
- Call Type (Exposure or Information)
- Caller Location (state, ZIP , area code)
- Caller Site Type
- Exposure Site Type
- Reason for Exposure
- Route of Exposure
- Duration of Exposure
- Scenarios
- Level of Health Care
- Medical Outcome

- Number of Products Involved
- AAPCC Generic Code(s)
- Poisindex® Product Code(s)
  - Certainty
  - Formulation
  - Quantity
  - Sequence Number

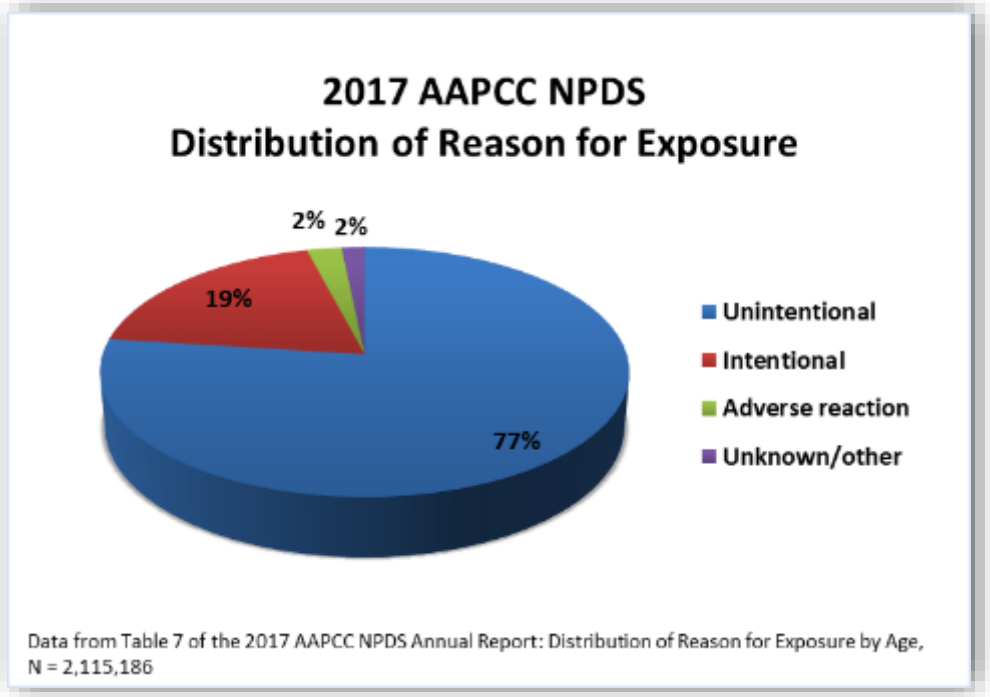
- 177 clinical effects (signs, symptoms, lab abnormalities)
- Relationship of each to substance reported
- Duration of clinical effects

- 122 therapies
- Whether each therapy was recommended by the poison center and/or performed

Overview of the 2017 NPDS Data Set

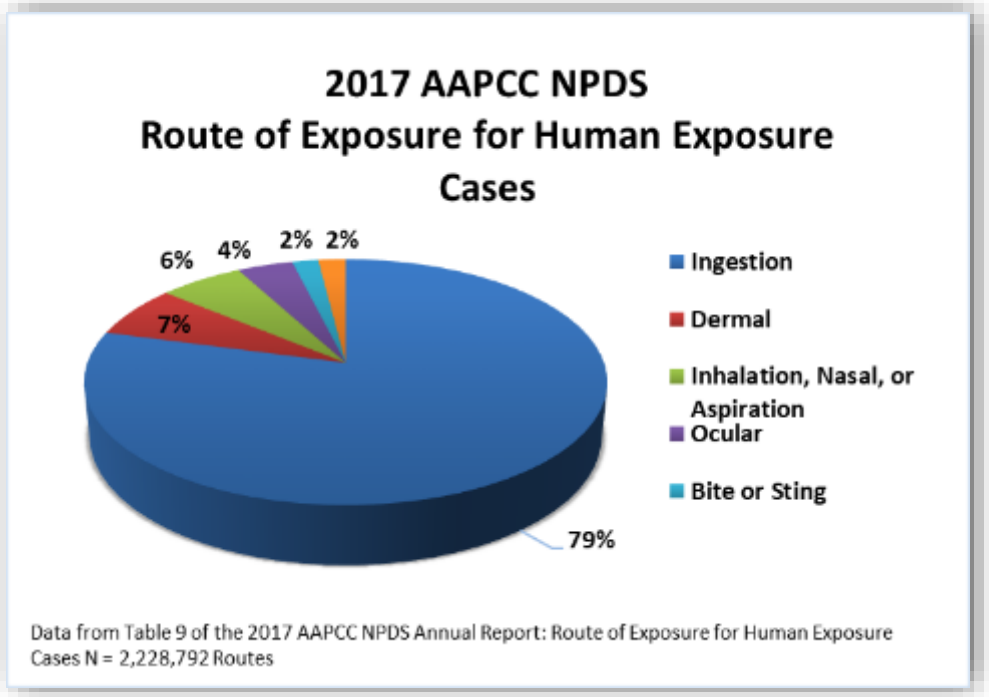


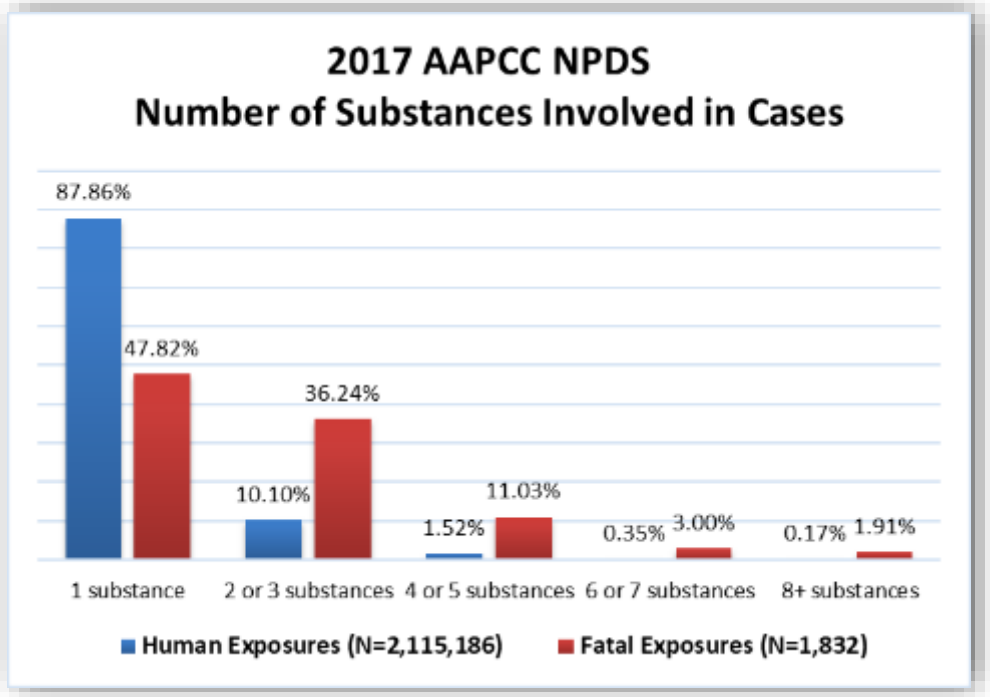
Data from Table 3A of the 2017 AAPCC NPDS Annual Report: Age and Gender Distribution of Human Exposures, N = 2,115,186



Data from Table 7 of the 2017 AAPCC NPDS Annual Report: Distribution of Reason for Exposure by Age, N = 2,115,186

Overview of the 2017 NPDS Data Set





2017 AAPCC NPDS Top Ten Substance Categories by Age Group

All Ages

Substance category	%
Analgesics	11.1
Household Cleaning Substances	7.4
Cosmetics, Personal Care Products	6.8
Sedative, Hypnotics, Antipsychotics	5.7
Antidepressants	5.0
Antihistamines	4.3
Cardiovascular Drugs	4.2
Foreign Bodies, Toys, Miscellaneous	3.5
Pesticides	3.3
Alcohols	2.8

N (total for all ages) = 2,560,308

Young Child (<6y)

Substance category	%
Cosmetics, Personal Care Products	12.6
Household Cleaning Substances	11.0
Analgesics	9.2
Foreign Bodies, Toys, Miscellaneous	6.4
Topical Preparations	4.8
Antihistamines	4.7
Vitamins	4.3
Pesticides	3.4
Dietary Supplements, Herbals, Homeopathics	3.4
Plants	2.8

N (young child exposures) = 999,529

Older Child (6-12)

Substance category	%
Analgesics	7.4
Foreign Bodies, Toys, Miscellaneous	6.9
Antihistamines	6.6
Cosmetics, Personal Care Products	6.5
Household Cleaning Substances	4.9
Stimulants and Street Drugs	4.5
Vitamins	4.3
Cardiovascular Drugs	3.8
Plants	3.7
Cold and Cough Preparations	3.6

N (older child exposures) = 144,202

Teen (13-19y)

Substance category	%
Analgesics	21.3
Antidepressants	12.3
Sedatives, Hypnotics, Antipsychotics	8.1
Antihistamines	6.9
Stimulants and Street Drugs	5.3
Cold and Cough Preparations	4.2
Household Cleaning Substances	3.7
Anticonvulsants	3.3
Cardiovascular Drugs	3.2
Cosmetics, Personal Care Products	2.7

N (total teen exposures) = 234,831

Adult (20-59y)

Substance category	%
Analgesics	12.3
Sedatives, Hypnotics, Antipsychotics	11.6
Antidepressants	8.4
Alcohols	6.0
Household Cleaning Substances	5.1
Anticonvulsants	4.8
Stimulants and Street Drugs	4.6
Cardiovascular Drugs	4.2
Antihistamines	3.8
Pesticides	3.1

N (total adult exposures) = 818,257

Older Adult (60+y)

Substance category	%
Cardiovascular Drugs	15.2
Analgesics	9.3
Sedatives, Hypnotics, Antipsychotics	6.4
Hormones and Hormone Antagonists	5.9
Antidepressants	5.2
Household Cleaning Substances	4.8
Pesticides	3.9
Cosmetics, Personal Care Products	3.7
Anticonvulsants	3.6
Miscellaneous Drugs	2.8

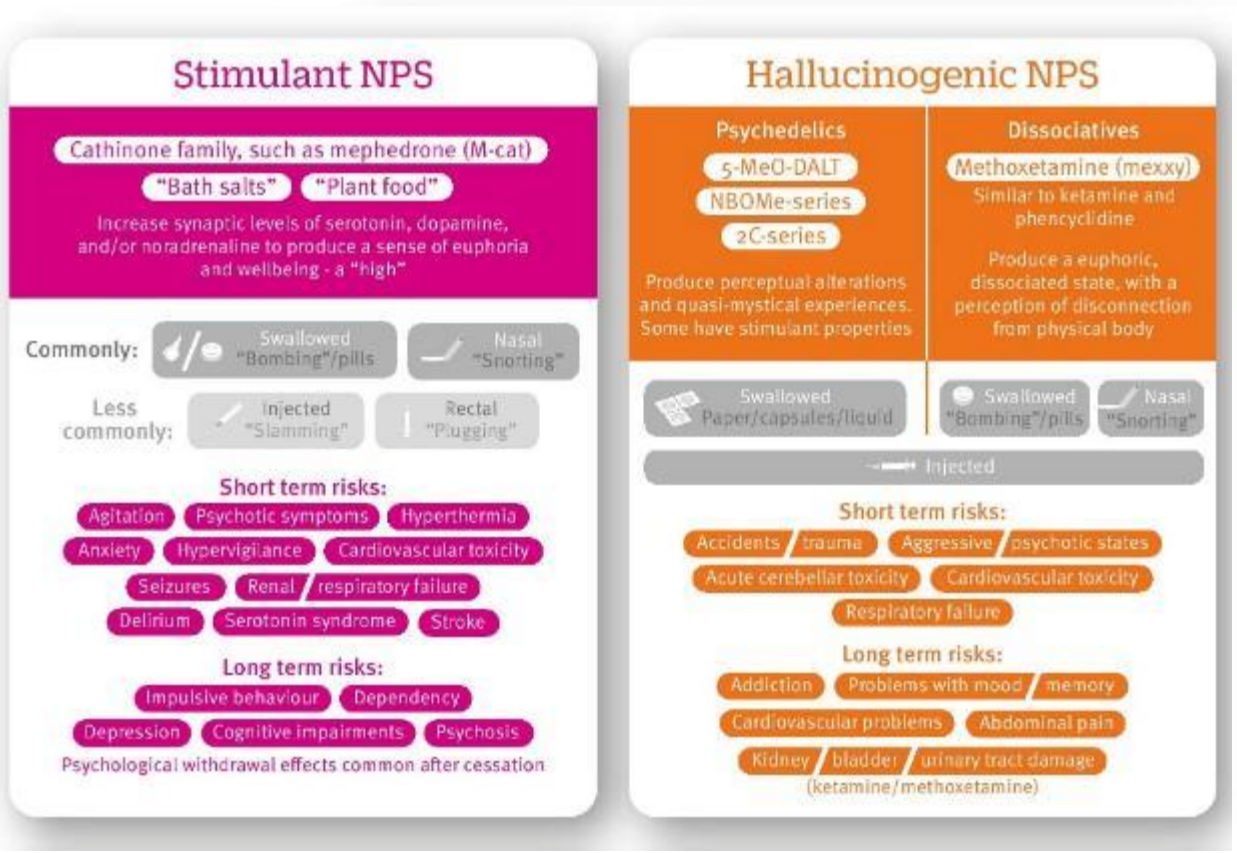
N (total older adult exposures) = 245,820

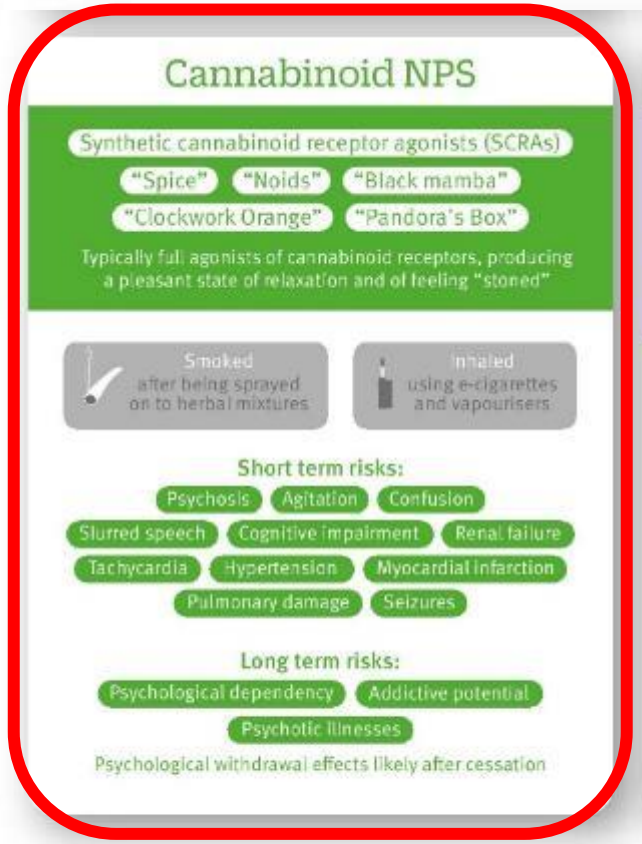
Novel Psychoactive Substances (NPS)

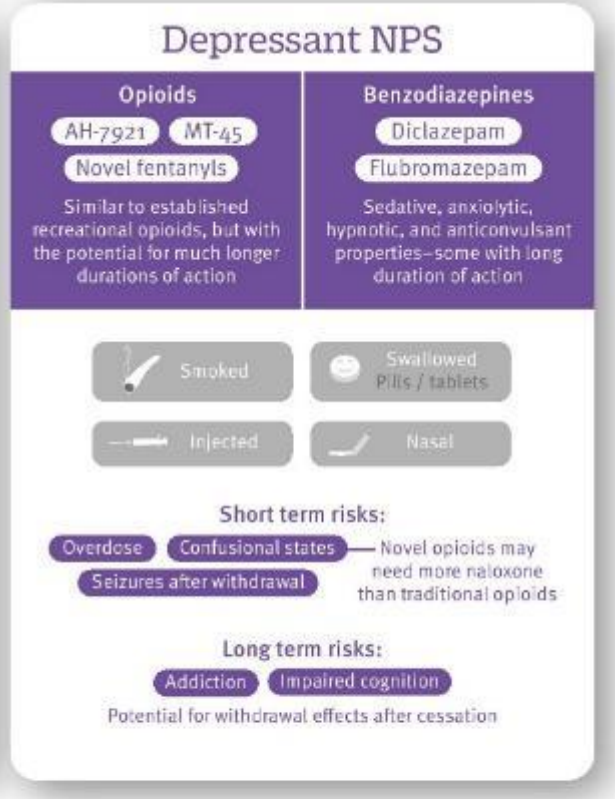
- A.k.a. “designer drugs”
- Unregulated psychoactive mind-altering substances with no legitimate medical use and are made to copy the effects of controlled substances. They are introduced and reintroduced into the market in quick succession to dodge or hinder law enforcement efforts to address their manufacture and sale. (Drugabuse.gov)

Novel psychoactive substances (NPS)

Novel psychoactive substances (NPS), sometimes incorrectly called "legal highs," include a multitude of substances, with many different effects. This infographic classifies NPS into their major groupings and provides information on the desired effects of these compounds, common methods of usage, and their associated risks.







http://sandpit.bmj.com/graphics/2017/nps/nps-v40-web.pdf

Street Names

- “Synthetic marijuana is sold under a wide range of names and brands around the world. We are attempting to catalogue every brand and street name.”
- Site has almost 700 names in its directory

- K2
- Spice
- Algerian blend
- Aroma
- Black Mamba
- Blaze
- Bliss
- Bombay Blue
- Bonsai-18
- Chaos
- Chill
- Dream
- Fake pot
- Fake weed
- Genie
- Lava
- Mojo
- Mr. Happy
- Mr. Smiley
- Phantom Wicked
- Red X Dawn
- Scooby Snacks
- Sence
- Sensation Serenity
- Silent Black
- Skunk
- Smoke
- Space Diamond
- SpicyXXX
- Spike 99
- Tai Fun
- Wicked X
- Yucatan Fire
- Zen

https://www.drugfreeworld.org/drugfacts/synthetic/synthetic-marijuana.html; https://spiceaddictionsupport.org/street-names-for-synthetic-marijuana/

SYNTHETIC ~~MARIJUANA~~ CANNABINOID
NOT A "NATURAL HIGH"

Synthetic marijuana, most commonly known as Spice or K2, is a mixture of herbs and spices that are sprayed with a chemical with similarities to THC, the mind-altering ingredient found in marijuana.

Synthetic drugs such as Spice and K2 are often falsely advertised as "safe," "natural" and "legal" highs. The truth is that they are technically not legal and are definitely not natural or safe.

Chemical analyses have shown that, in all cases, the active ingredients in these drugs are synthetic chemicals with dangerous toxic effects. Beyond that, because the chemical composition of products sold as Spice or K2 is unknown, users have no idea what chemicals they are putting into their bodies or what the effects will be. And, as herbs and spices can be sprayed unevenly, the potency can vary wildly.

Synthetic marijuana has the appearance of dried leaves and is often sold in small, silvery plastic bags as "herbal incense" or "potpourri." It is also advertised in liquid form for use in vaporizers.

It is often smoked in rolled joints, pipes or e-cigarettes, and some users make it into a tea or use it in brownie recipes. It has also been taken in vaporized form through the nose or in liquid form.

https://www.drugfreeworld.org/drugfacts/synthetic/synthetic-marijuana.html

So what?

- It makes a poison specialist's job – tailored, evidence-based treatment advice - extremely difficult when they don't know what substance(s) they are treating for, and in what dose.
- Often forces them to work backwards – deciding what the substance is most likely to be based on the symptoms and going from there. A different kind of case to manage.

Outbreak of Severe Illness Linked to Brodifacoum and Use of Synthetic Cannabinoids — Illinois, March–April 2018

- March 22, 2018: Illinois Poison Center notifies DPH of 4 patients seen in EDs during the preceding 2 weeks with unexplained bleeding and lab work indicating a clotting disorder, and reported synthetic cannabinoid use during the previous 3 days. Case definition developed, investigation began.
- As of April 25, 2018, a total of 155 cases had been identified; four (2.6%) patients died from major bleeding events. Median patient age was 32 years (range = 18–65 years), 147 (95%) were hospitalized, and eight (5%) were treated in an ED only. All patients reported bleeding from at least one site. INRs were elevated in all patients.
- All 81 (52%) analyzed clinical specimens from patients with a confirmed or probable case were positive for brodifacoum, a “superwarfarin” used in rodenticides.

Moritz E, Austin C, Wahl M, et al. *Notes from the Field:* Outbreak of Severe Illness Linked to the Vitamin K Antagonist Brodifacoum and Use of Synthetic Cannabinoids — Illinois, March–April 2018. MMWR Morb Mortal Wkly Rep 2018;67:607–608. DOI: http://dx.doi.org/10.15585/mmwr.mm6721a4. https://www.cdc.gov/mmwr/volumes/67/wr/mm6721a4.htm

Outbreak of Severe Illness Linked to Brodifacoum and Use of Synthetic Cannabinoids — Illinois, March–April 2018

- Although cases clustered in two geographic areas in IL, no single product source has been identified.
- Why add brodificoum (anticoagulant)? According to the National Drug Early Warning System (NDEWS):
  - To enhance and extend euphoric effects of the SC
  - Rationale – to saturate liver enzymes with anticoagulants and this should reduce metabolism of the drug, prolonging its effects

Moritz E, Austin C, Wahl M, et al. *Notes from the Field:* Outbreak of Severe Illness Linked to the Vitamin K Antagonist Brodifacoum and Use of Synthetic Cannabinoids — Illinois, March–April 2018. MMWR Morb Mortal Wkly Rep 2018;67:607–608. DOI: http://dx.doi.org/10.15585/mmwr.mm6721a4. https://www.cdc.gov/mmwr/volumes/67/wr/mm6721a4.htm

Acute Poisonings from a Synthetic Cannabinoid Sold as Cannabidiol — Utah, 2017–2018

- December 8, 2017: Utah Poison Control Center (UPCC) notified the Utah DoH of reports of ED visits associated with reported exposure to products labeled as CBD (cannabidiol), a nonpsychoactive compound derived from the marijuana plant.
- 5 patients experienced adverse reactions, including altered mental status, seizures, confusion, loss of consciousness, and hallucinations – symptoms inconsistent with known CBD effects, which prompted concern for potential adulteration with a synthetic cannabinoid.

Horth RZ, Crouch B, Horowitz BZ, et al. *Notes from the Field:* Acute Poisonings from a Synthetic Cannabinoid Sold as Cannabidiol — Utah, 2017–2018. MMWR Morb Mortal Wkly Rep 2018;67:587–588. DOI: http://dx.doi.org/10.15585/mmwr.mm6720a5.

Acute Poisonings from a Synthetic Cannabinoid Sold as Cannabidiol — Utah, 2017–2018

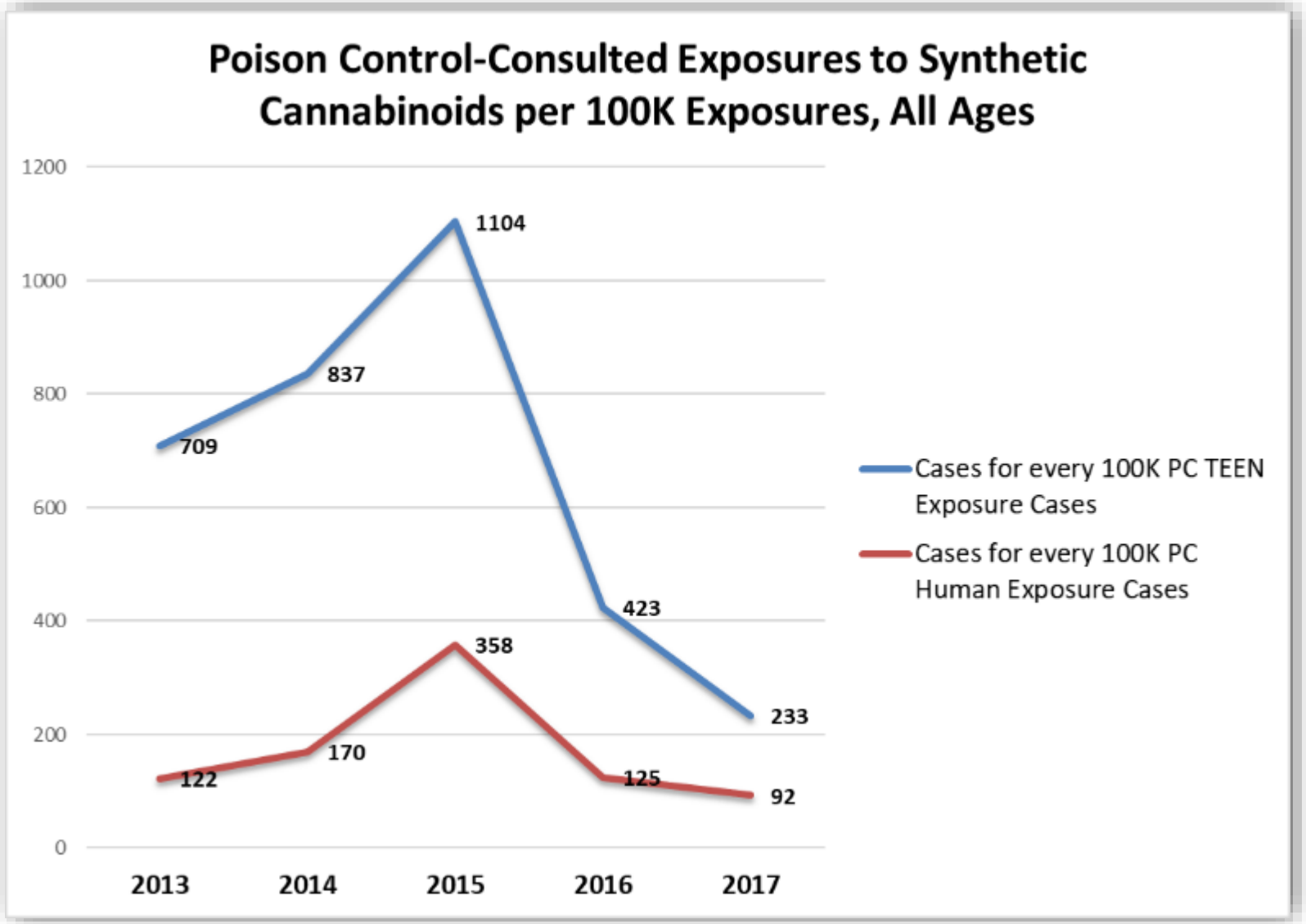
- By the end of January 2018, 52 cases.
- 9 product samples found to contain 4-CCB, a synthetic cannabinoid, but no CBD. Eight of the tested products were branded as “Yolo CBD oil” and indicated no information about the manufacturer or ingredients.
- Approximately one quarter of cases were persons <18 years, nearly 75% had vaped the CBD product, and approximately 60% were seen at an ED.
- The top three symptoms experienced were altered mental status, nausea or vomiting, and seizures or shaking.
- Rapid identification and a coordinated response among state and local agencies contributed to control of the outbreak.

Horth RZ, Crouch B, Horowitz BZ, et al. *Notes from the Field:* Acute Poisonings from a Synthetic Cannabinoid Sold as Cannabidiol — Utah, 2017–2018. MMWR Morb Mortal Wkly Rep 2018;67:587–588. DOI: http://dx.doi.org/10.15585/mmwr.mm6720a5.

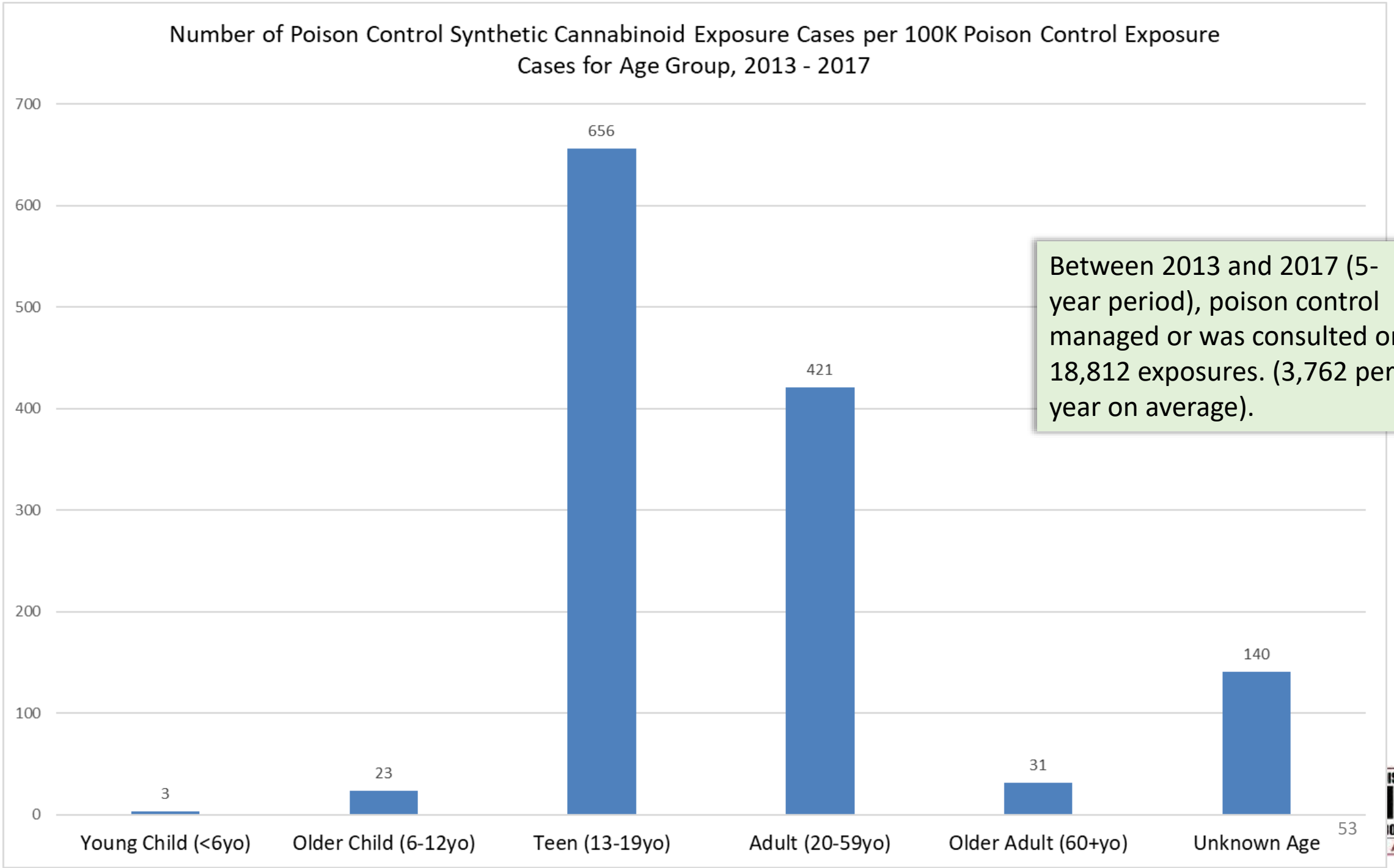
So what?

- At least one study suggests that synthetic cannabinoids are 30 times more likely to harm users than regular marijuana.
- Do poison control data agree?
  - About which age groups did poison control receive more calls?
  - Where did the calls come from? (Calls from HCFs tend to be more clinically significant.)
  - What were the medical outcomes, and how do they compare to traditional cannabinoids?

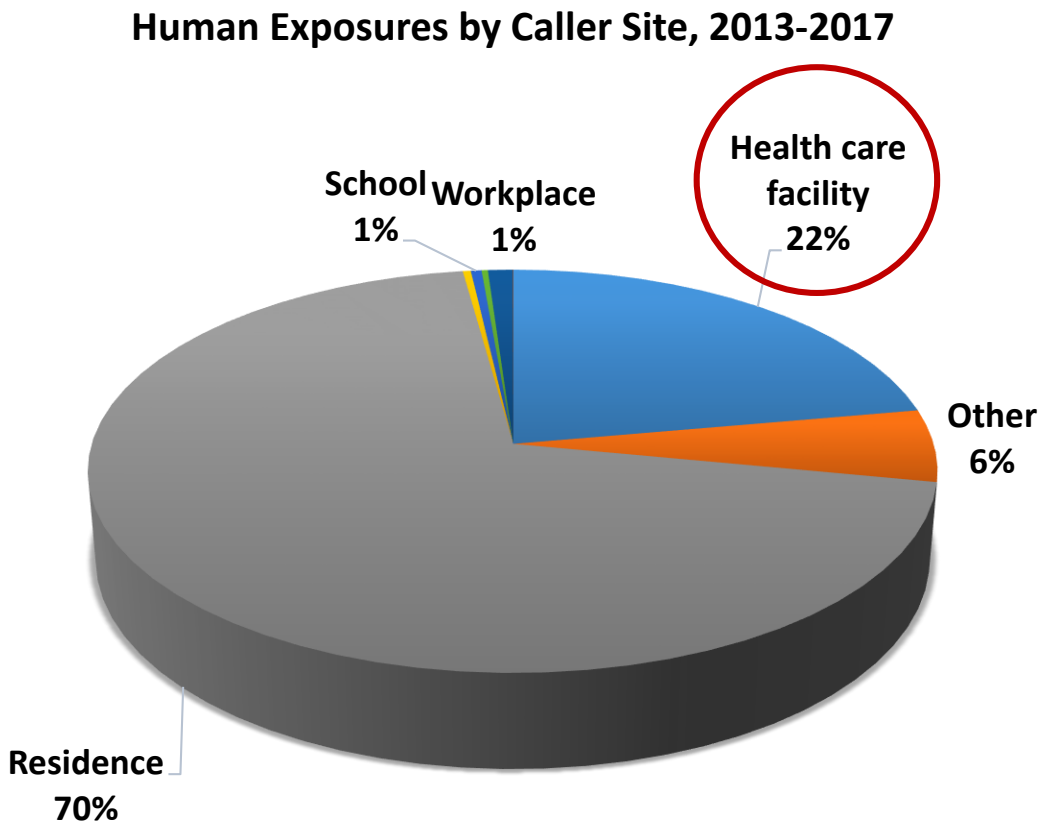
White CM. The Pharmacologic and Clinical Effects of Illicit Synthetic Cannabinoids. J Clin Pharmacol. 2017 Mar;57(3):297-304. PubMed PMID: 27610597.

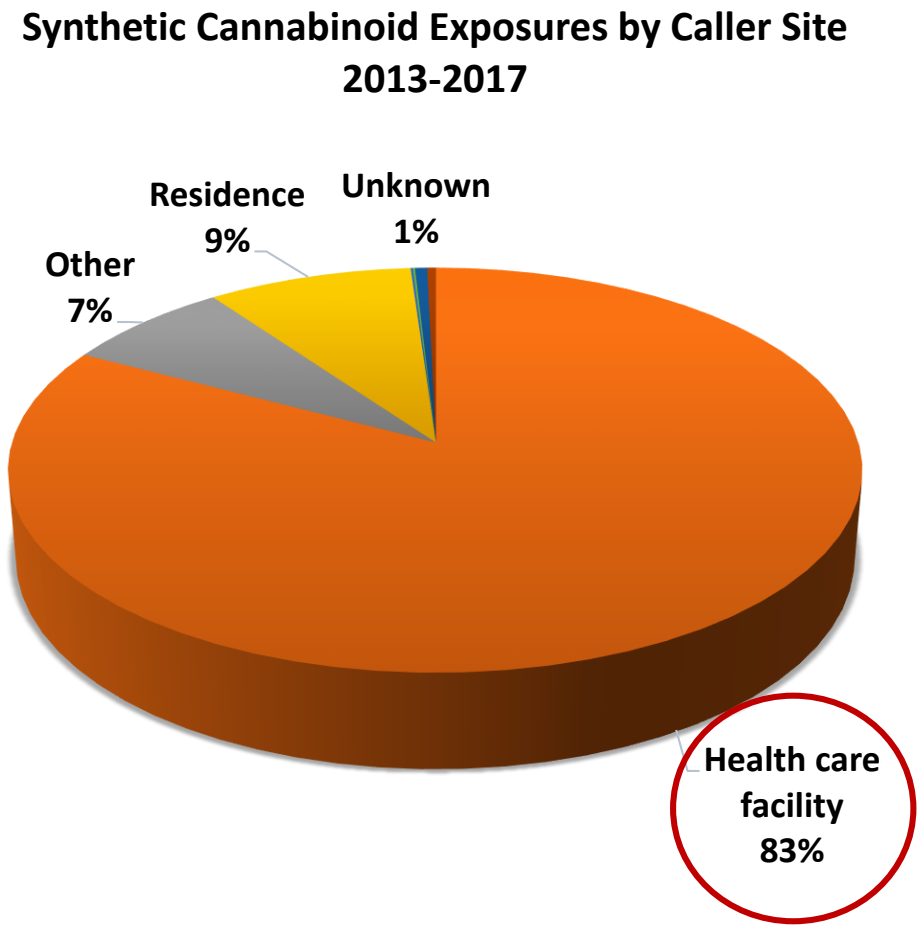


Year	Cases for every 100K PC TEEN Exposure Cases	Cases for every 100K PC Human Exposure Cases
2013	709	122
2014	837	170
2015	1104	358
2016	423	125
2017	233	92


Number of Poison Control Synthetic Cannabinoid Exposure Cases per 100K Poison Control Exposure Cases for Age Group, 2013 - 2017
700
600
500
400
300
200
100
0
3
23
656
421
31
140
53
Young Child (<6yo)
Older Child (6-12yo)
Teen (13-19yo)
Adult (20-59yo)
Older Adult (60+yo)
Unknown Age
Between 2013 and 2017 (5-year period), poison control managed or was consulted on 18,812 exposures. (3,762 per year on average).

Caller Site Comparison





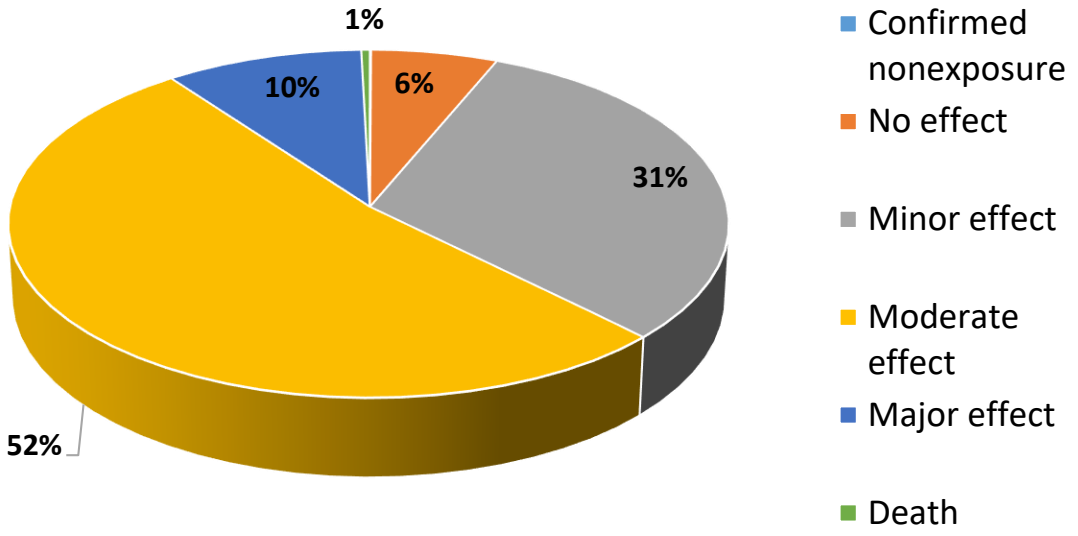
Examples of Medical Outcomes

- **Moderate** = patient exhibited symptoms as a result of the exposure which are more pronounced, more prolonged, or more of a systemic nature than minor symptoms. Usually some form of treatment is indicated.
- Examples: GI symptoms causing dehydration, disorientation, hypotension which rapidly responds to treatment, isolated brief seizures which resolve spontaneously or readily respond to treatment, hepatic injury without encephalopathy, etc.

Examples of Medical Outcomes

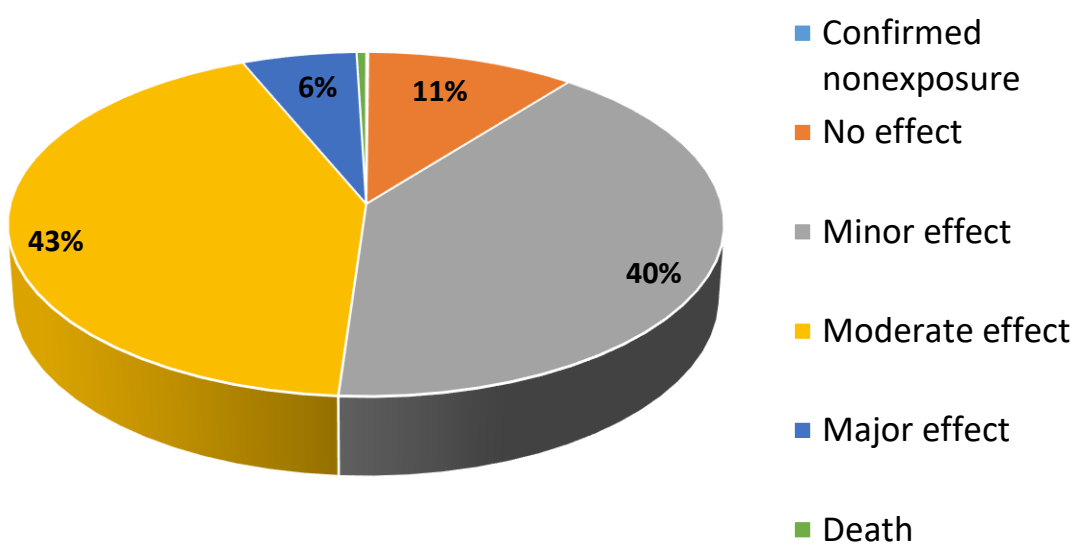
- **Major** = patient has exhibited symptoms as a result of the exposure which were life-threatening or resulted in significant residual disability or disfigurement.
- Examples: Repeated seizures, ventricular tachycardia with hypotension, cardiovascular instability, coma with hypotension, cardiac arrest or respiratory arrest, clinical evidence of renal failure (not just minor increases in creatinine), etc.

Poison Control-Consulted Exposures to Synthetic Cannabinoids by Medical Outcome, 2013-2017



63% have at least a moderate outcome.

Poison Control-Consulted Exposures to Traditional Cannabinoids by Medical Outcome, 2013-2017



49% have at least a moderate outcome.

Caveat: People who are “happily hallucinating” or “happily high” are not going to HCFs and they are not calling poison control. For every case with a bad outcome, there may be many with no negative outcome that aren’t reported to poison control. Selection bias in the data set.

- Contact information:
  - Krista Osterthaler, osterthaler@aapcc.org or datarequests@aapcc.org

- Sources of information:
- https://aapcc.org/track/synthetic-cannabinoids
- https://www.drugfreeworld.org/drugfacts/synthetic/synthetic-marijuana.html
- https://www.cdc.gov/nceh/hsb/chemicals/sc/healthcare.html
- https://www.drugabuse.gov/drugs-abuse/synthetic-cannabinoids-k2spice
- https://ndews.umd.edu/sites/ndews.umd.edu/files/outbreak-of-synthetic-cannabinoid-associated-coagulopathy.pdf

Questions?

Please enter your questions in the Q & A pod

Thank you!

Please fill out our evaluation: https://www.surveymonkey.com/r/2TTJGRJ

Visit our website:
www.ChildrensSafetyNetwork.org