

# Pediatric Drug Overdose Poisoning

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After graduating from Oregon State University, Corvallis, with her PharmD, Onysko completed her primary care specialty residency with Providence Physician Division in Portland, Oregon. She has been a faculty member with both the University of Wyoming and Swedish Family Medicine Residency since 2007. Onysko's primary focus is experiential and didactic teaching of pharmacy students, medical students, and family medicine resident physicians. She provides ambulatory pharmaceutical care, focusing on patients who have diabetes and/or multiple pharmacotherapy-related problems. She also serves as part of an integrated care team that brings together the physician, patient, patient's family/caretaker, psychologist, social worker, and pharmacist to better address complicated health and social problems. Her research interests include scholarship of teaching, critical literature reviews, and furthering collaborative care.



# Learning Objectives

1. Recognize signs and symptoms associated with medications commonly involved in acute poisoning.
2. Establish evidence-based protocols for treating and managing a pediatric patient who is suspected of drug overdose poisoning.
3. Develop a poison prevention education program for parents, including resources and tools that can be presented at child wellness visits.



# Audience Engagement System





### Case #1

- Cameron is a healthy 3 year old that has only been to your practice for well-child visits
- At 1 pm, your triage nurse alerts you that Cameron's mother is on the phone, concerned about a potential exposure to medication at home

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## Children are at risk

- 99% of exposures are unintentional in children <6 years old, compared to 37% of teen exposures
- 80% of Poison Control calls involve children <5 years old, half of those involved medications
- Medications left unattended can be abused
  - Children begin to self-medicate as early as 11 years old

<http://www.nsc.org/learn/NSC-initiatives/Pages/Childrens-Misuse-of-Medicine.aspx> accessed 7/2016  
[http://www.cdc.gov/safekid/pdf/nap\\_poison\\_2013.pdf](http://www.cdc.gov/safekid/pdf/nap_poison_2013.pdf) accessed 7/2016

FMX

### Case #2

- Three teens present to the emergency room within 2 hours
- They are vomiting, and have visual disturbances



FMX

## A call to action

- Prescriptions most commonly abused drugs among 12-13 year olds
- 1 in 4 teens has misused or abused a prescription drug at least once
- 6/10 drug overdose deaths involve an opioid
  - ≥50% of all opioid overdose deaths involve a prescription opioid
  - 78 Americans die every day from an opioid overdose

<http://www.cdc.gov/drugoverdose/epidemic/index.html> accessed 7/2016  
<http://www.drugfree.org/the-parent-toolkit/> accessed 7/2016

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## Learning Objectives

- Recognize signs and symptoms associated with medications commonly involved in acute poisoning.
- Establish evidence-based protocols for treating and managing a pediatric patient who is suspected of drug overdose poisoning.
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FMX

## Cameron

- Found with an open bottle of liquid medication
- Medication is on the floor, on his clothes, and on his face
- Upon questioning, Cameron admits to “taking his medicine”



FMX

## Polling Question #1

What is your first step in assisting Cameron and his mother?

- A) Tell mom to call Poison Control
- B) Have your triage nurse get Cameron into your clinic at next available appointment
- C) Tell mom to take Cameron to the emergency room now
- D) Tell mom to go to the emergency room if Cameron shows any signs of poisoning

FMX

## Polling Question #2

Do you currently have a protocol at your clinic or institution to manage acute overdoses?

- A) Yes
- B) I don't know
- C) No, but we're working on one
- D) No, and I'm unsure if there are any plans to implement a protocol for overdoses

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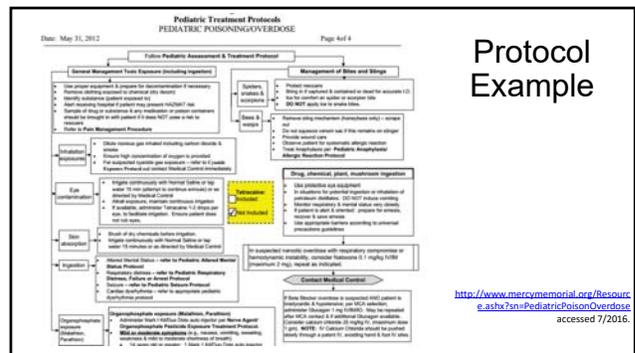
## Benefits of a protocol?

- Bring order to potential chaos
- Decrease common human omissions
- No confusion among staff or trainees
- Guidelines based on latest scientific evidence, providers and trainees become well versed in the literature

Obaidulla. Clinical protocols: introduction to a useful strategy in clinical practice. *J Pak Med Assoc.* 2000;50(10):354-7

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## Protocol Example



<http://www.mercymemorial.org/Resource.aspx?na=PediatricPoisonOverdose> accessed 7/2016.

## Triage via Phone

- Ok to treat at home IF
  - Contact with poison control center
  - Patient is reliable
  - Asymptomatic
  - Ingested known nontoxic quantity of medication
- Call an ambulance IF
  - Symptomatic or exposure unknown

Frittsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. *Am Fam Physician.* 2010 Feb 1;81(3):316-23.

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## American Association of Poison Control Centers

Emergency Information. Prevention. 1-800-222-1222.

The American Association of Poison Control Centers supports the nation's 55 poison centers in their efforts to prevent and treat poison exposures. Poison centers offer free, confidential medical advice 24 hours a day, seven days a week through the Poison Help line at 1-800-222-1222. This service provides a primary resource for poisoning information and helps reduce costly hospital visits through in-home treatment.

The AAPCC's mission is to actively advance the health care role and public health mission of our members through information, advocacy, education and research.

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## Why call?

- Assessment, monitoring, and triage
- Healthcare cost reduction
  - >70% of people that call can be treated at home
- Detecting and monitoring disease
  - Managed and tracked exposures during the Gulf oil spill
- Public and professional education

<http://www.aapcc.org> accessed 7/2016.

FMX

## Key Assessment Questions

- When did the ingestion occur?
  - Activated charcoal should be performed within 1 hour of ingestion
- What exactly was consumed?
  - Identify medication, exact formulation, amount
    - A child playing with a patch may deny taking anything by mouth

Frithsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.

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## Cameron

- During a 3-way conference call with poison control, you learn the following:
  - Diphenhydramine 12.5mg/5ml oral solution bottle is empty
  - Cameron has become unsteady on his feet and agitated
  - Poison control recommends transport to emergency room



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## Toxidromes

- Recognizable symptoms related to drug toxicity
- Allows treatment to be started empirically, based on clinical presentation, before the causative agent is known

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### CHOLINERGIC TOXIDROME

<u>Causative agents</u>	<u>Signs and symptoms</u>
Organophosphates and carbamates (insecticides), pilocarpine (Salagen®), scopolamine, muscarinic mushrooms, physostigmine (antidote), bethanechol (urinary retention)	Bradycardia, urination, bronchospasm, bronchorrhea, lacrimation, emesis, diarrhea/defecation, miosis, salivation, sweating, muscle weakness, and muscle fasciculations

### ANTICHOLINERGIC TOXIDROME

<u>Causative agents</u>	<u>Signs and symptoms</u>
Diphenhydramine, antihistamines, atropine, antipsychotics, baclofen, phenothiazines (Compazine®), TCAs	Dry mucous membranes, <b>flushed/dry/hot skin</b> , visual disturbances, tachycardia, urinary retention, constipation, seizures, and <b>decreased bowel sounds</b>

TCA = tricyclic antidepressant

Frithsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.

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### SYMPATHOMIMETIC/STIMULANT TOXIDROME

<u>Causative agents</u>	<u>Signs and symptoms</u>
Amphetamines, methamphetamine, caffeine, cocaine, ephedrine, LSD, methylphenidate, nicotine, PCP	Excessive speech, excessive motor activity, tremor, insomnia, anorexia, hyperreflexia, seizures, rhabdomyolysis, tachycardia, <b>hyperactive bowel sounds, and diaphoresis</b>

### OPIOID/NARCOTIC TOXIDROME

<u>Causative agents</u>	<u>Signs and symptoms</u>
Clonidine, codeine, buprenorphine, dextromethorphan, heroin, methadone, morphine, meperidine, hydrocodone, oxycodone, tramadol	<b>CNS AND respiratory depression</b> , confusion, somnolence, coma, shallow respirations, bradypnea, bradycardia, hypotension, hypothermia, decreased bowel sounds, hyporeflexia, and <b>miosis</b>

Frithsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.  
LSD = lysergic acid diethylamide; PCP = phencyclidine

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## Observe or Admit?

- Stable patients may be observed, time dependent of half-life of medication, amount ingested, and formulation
- Admit anyone with signs/symptoms of toxicity that do not reverse during observation
- Intensive care for unstable patients

Frittsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.

**FMX**

## Cameron



- Children more sensitive than adults
- Estimated fatal dose is 20-40 mg/kg
  - Cameron = 14.5 kg
  - 236 ml bottle (12.5mg/5mL) = 590 mg of diphenhydramine
    - 590 mg/14.5 kg = 40 mg/kg
- Half-life of diphenhydramine 1-4 hours

Olson K. Poisoning & Drug Overdose, 5<sup>th</sup> edition

**FMX**

## Decontamination

- Single-dose activated charcoal is the gastrointestinal decontamination modality of choice in most medication ingestions; it can generally be used up to one hour after ingestion
  - Okay to use activated charcoal outside of 1 hour if long acting medication was consumed
  - Also okay to do multiple doses of activated charcoal, no data to show it reduces morbidity/mortality
- Use without sorbitol = less vomiting
- Do not use in CNS or respiratory depression without protected airway (or any risk for aspiration)
- Causes black stools (this will look the same coming out as it does going in)

Lowry J. Use of activated charcoal in pediatric populations. [http://www.who.int/selection\\_medicines/committees/subcommittee/2/charcoal\\_rev.pdf](http://www.who.int/selection_medicines/committees/subcommittee/2/charcoal_rev.pdf) accessed 7/2016

**FMX**

## Interventions continued

- Ipecac syrup and gastric lavage are no longer used
- No studies assessing effectiveness of cathartics in children, generally not recommended

Lowry J. Use of activated charcoal in pediatric populations. [http://www.who.int/selection\\_medicines/committees/subcommittee/2/charcoal\\_rev.pdf](http://www.who.int/selection_medicines/committees/subcommittee/2/charcoal_rev.pdf) accessed 7/2016

**FMX**

## What happened to Ipecac?

- No longer available OTC per FDA in 2003
- Effective for inducing vomiting, not poison control
- Other problems
  - Not safe to give when chemicals were ingested
  - Abused by people with eating disorders
  - Patients vomiting after Ipecac could not keep other medications down to treat the poisoning

<http://www.poison.org/articles/ipecac> accessed 7/2016

**FMX**

## Cameron



- After 8 hours of observation, patient is asymptomatic

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## Some discharge considerations

- What time is it?
- How is the child's home situation?
- Patients may need psychiatric evaluation
- Refer patients with substance abuse problems to counseling

Frittsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.

**FMX**



## Case #2

- Three teens present to the emergency room within 2 hours
- They are vomiting, have visual disturbances, and altered mental status

**FMX**

## Approach to altered mental status

- Always consider inadvertent or intentional inappropriate medication ingestion
  - Increase level of suspicion of overdose IF
    - Acute behavioral changes
    - Friend/relative concern
    - Evidence of ingestion (e.g. pills in patient's possession)

Frittsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.

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## Approach to altered mental status

- Consider naloxone if opioid toxicity is suspected
- Look for transdermal patches
  - Analgesics
  - Antidepressants
  - Stimulants

Frittsen IL, Simpson WM Jr. Recognition and management of acute medication poisoning. Am Fam Physician. 2010 Feb 1;81(3):316-23.

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## Case #2

- They tell you they took some pills at a "Pharming party" last night
- No opioids in urine screen
- Hyperkalemia
- Serum digoxin levels 2-4 ng/mL



## Antidotes

- Naloxone – opioids
- Acetylcysteine – acetaminophen
- Digoxin-immune Fab – digoxin
- In the absence of an antidote, symptomatic and supportive care should be the mainstay of treatment

**FMX**

**FMX**

## Naloxone

- A tool, not treatment for saving lives
- Fast acting opioid antagonist, may be gone after 90 minutes, can trigger strong withdrawal symptoms
- American Society of Addiction Medicine (ASAM) 2015 practice guidelines recommend family or friends of individuals with addiction to be prescribed naloxone
  - Allowed in 39 states
- Available OTC in some states
  - Florida passed law granting OTC status in March, available July 1st

<http://www.drugfree.org/join-together/commentary-naloxone-tool-not-treatment-saving-lives/> accessed 7/2016  
Kampman K. American Society of Addiction Medicine National Practice Guideline for the use of medications in the treatment of addiction involving opioid use. *J Addict Med* 2015;(9):1-10

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## Comprehensive Addiction and Recover Act (CARA)

- US Senate approved bipartisan bill mid July
  - Expands the availability of naloxone to first responders and law enforcement
  - Supports additional resources to identify and treat incarcerated individuals struggling with substance use disorders
  - Expands drug take-back efforts to promote safe disposal of unused or unwanted prescriptions
  - Launches prescription opioid and heroin treatment and intervention programs

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## Midpoint Q&A

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## Learning Objectives

- ✓ Recognize signs and symptoms associated with medications commonly involved in acute poisoning.
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## Polling Question #3

How do you talk about preventing child/teen alcohol and drug abuse with your patients?

- A) Only if my patient brings it to my attention
- B) Only if I suspect a problem
- C) It is a scheduled part of well-child visits
- D) It is a scheduled part of well-adult and well-child visits

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## Why outreach?



- Poisoning prevention education programs have been shown to improve safe storage behavior in the home
  - provide free or low-cost cabinet locks
  - poison control stickers
  - Unclear if this results in fewer poisonings

Theurer WM, Bhavsar AK. Prevention of unintentional childhood injury. *Am Fam Physician*. 2013 Apr 1;87(7):502-9.

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## Resources for Parents

- Partnership for Drug-Free Kids  
[www.drugfree.org](http://www.drugfree.org)
  - PDF Drug guide
  - Ways to talk about drugs and alcohol
  - Searching your child's room
  - Intervention eBook – what do to if child is abusing drugs

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## More resources

PILL IDENTIFIER:  
Find My Pill

- Pill identifier
  - <http://pill-id.webpoisoncontrol.org/#/intro>



## DRUG GUIDE FOR PARENTS: LEARN THE FACTS TO KEEP YOUR TEEN SAFE

Drug Name / Commercial	Looks Like	How It's Stored/Handled	What Teens Have Heard	Dangerous Behavior	Teens Who Are Most at Risk	Signs of Abuse	Important to Know
Alcohol	Clear liquid in a bottle or can	Store in a cool, dark place. Do not mix with other drinks.	"It's just a drink." "It's not that bad."	Drinking and driving, binge drinking, mixing with other drugs.	Teens who drink regularly, teens who drink and drive.	Slurred speech, drowsiness, vomiting, loss of consciousness.	Alcohol is a depressant. It slows down the brain and can be fatal. Never drink and drive.
Antidepressants	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my mood."	Using someone else's medication, crushing and snorting.	Teens who are depressed, teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Antidepressants are prescription drugs. They can be dangerous if used incorrectly.
Aspirin	Small white tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my headache."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Stomach pain, dizziness, ringing in the ears.	Aspirin is a pain reliever. It can be dangerous if used incorrectly.
Batteries	Small metal cylinders	Store in a cool, dry place. Do not share.	"It's just a battery." "It's for my remote control."	Using someone else's battery, crushing and snorting.	Teens who are using someone else's battery.	Stomach pain, dizziness, ringing in the ears.	Batteries are not for consumption. They can be dangerous if used incorrectly.
Benzodiazepines	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my anxiety."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Benzodiazepines are prescription drugs. They can be dangerous if used incorrectly.
Cardiovascular drugs	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my heart."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Cardiovascular drugs are prescription drugs. They can be dangerous if used incorrectly.
Chemicals	Various shapes and sizes	Store in a cool, dry place. Do not share.	"It's just a chemical." "It's for my hair."	Using someone else's chemical, crushing and snorting.	Teens who are using someone else's chemical.	Stomach pain, dizziness, ringing in the ears.	Chemicals are not for consumption. They can be dangerous if used incorrectly.
Heroin	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my pain."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Heroin is a powerful opioid. It can be fatal.
Insulin	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my diabetes."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Insulin is a prescription drug. It can be dangerous if used incorrectly.
Medicines	Various shapes and sizes	Store in a cool, dry place. Do not share.	"It's just a medicine." "It's for my cold."	Using someone else's medication, crushing and snorting.	Teens who are using someone else's medication.	Stomach pain, dizziness, ringing in the ears.	Medicines are not for consumption. They can be dangerous if used incorrectly.
Over-the-counter drugs	Various shapes and sizes	Store in a cool, dry place. Do not share.	"It's just a drug." "It's for my headache."	Using someone else's medication, crushing and snorting.	Teens who are using someone else's medication.	Stomach pain, dizziness, ringing in the ears.	Over-the-counter drugs are not for consumption. They can be dangerous if used incorrectly.
Painkillers	Various shapes and sizes	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my pain."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Painkillers are prescription drugs. They can be dangerous if used incorrectly.
Stimulants	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my energy."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Stimulants are prescription drugs. They can be dangerous if used incorrectly.
Street Drugs	Various shapes and sizes	Store in a cool, dry place. Do not share.	"It's just a drug." "It's for my fun."	Using someone else's medication, crushing and snorting.	Teens who are using someone else's medication.	Stomach pain, dizziness, ringing in the ears.	Street drugs are not for consumption. They can be dangerous if used incorrectly.
Suboxone	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my pain."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Suboxone is a prescription drug. It can be dangerous if used incorrectly.
Valium	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my anxiety."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Valium is a prescription drug. It can be dangerous if used incorrectly.
Xanax	Small white or pink tablets	Store in a cool, dry place. Do not share.	"It's just a pill." "It's for my anxiety."	Using someone else's medication, crushing and snorting.	Teens who are taking medication without a prescription.	Changes in mood, behavior, or appearance.	Xanax is a prescription drug. It can be dangerous if used incorrectly.

## Prescriptions = Potential Problems

- Adult prescriptions are significantly associated with exposures and poisonings in children
  - Emergency room visits caused by:
    - Hypoglycemics
    - Beta blockers
  - Serious injury/hospitalizations
    - Opioids
    - Hypoglycemics

Children 0-5 and 13-19 years old at highest risk

Burghardt LC, et al. Adult prescription drug use and pediatric medication exposures and poisonings. Pediatrics. 2013 Jul;132(1):18-27.

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## Lock it up!

	Number	Percent (%)
Analgesics	133	19.2
Fumes/gases/vapors	86	12.4
Cold/cough preparations	49	7.1
Antihistamines	38	5.5
Hydrocarbons	29	4.2
Sedatives/hypnotics/antipsychotics	29	4.2
Household cleaning substances	28	4.0
Antidepressants	26	3.8
Cardiovascular drugs	23	3.3
Alcohols	19	2.7
Stimulants and street drugs	18	2.6
Batteries	17	2.5
Pesticides	17	2.5

What is the most serious poisoning?

Fatalities reported to US Poison Control from 2010 through 2014

Pain medications are the #1 most frequent cause of pediatric fatalities related to poisoning

<http://www.poison.org/poison-statistics-national> accessed 7/2016

## Drug Take-Back



<http://www.awarex.phar.macy/dispose-safely/disposal-sites> accessed 7/2016

## Safeguard Medications (toddlers)

- Medications should be out of sight and out of reach
- Use child safety caps
- Keep in original bottles
- Dispose of old/unwanted medicine
- Teach children about medicine safety
- Don't take medicine in front of children who may mimic adults

<http://www.safeguardmy meds.org/> accessed 7/2016

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## Safeguard Medications (teens)

- Encourage parents to talk to their teens
  - Warn that taking prescriptions without medical supervision can be just as dangerous as illicit drugs
- Suggest keeping medications hidden and to keep an inventory
  - Know what is in the home, and how much
- Urge parents to ask questions
  - Teach them which medications have a potential for abuse
- If medications are needed during school hours, support communication between school officials and parents
  - Ensure any unused medications are returned

<http://www.drugfree.org/resources/5-tips-to-help-safeguard-pills-and-educate-your-teen/> accessed 7/2016

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**Medicine Inventory Sheet**

• Help prevent the abuse and misuse of prescription medicines.  
 • Make your children's medicines more secure.  
 • Record when your medicines will expire—check this monthly.  
 • Have your pharmacist check your medicines for safety.  
 • Take to your community pharmacist about how to properly dispose of your unused or unwanted medicines or call the Home and Drug Administration's guide for safe disposal at [www2.gov.bc.ca/gov2/health/meds\\_disposal](http://www2.gov.bc.ca/gov2/health/meds_disposal) and search for "My Drug Disposal."

Name of Prescriber	Medication Name	Date Prescribed	Strength	Quantity & Units	Frequency	Patient's Name	Patient's Address

<http://www.safeguardmy meds.org/> accessed 7/2016

## "Other" Medications with Abuse Potential

- Amphetamines (e.g. methylphenidate, Concerta)
- Promethazine w/ codeine cough syrup
- Dextromethorphan
- Clonidine
- Pregabalin
- Quetiapine

FMX

## Children Are At Risk

- Pediatric patients require special consideration for dosing related to age, weight, body surface area and clinical condition
- Use of non-standard measurement instruments significantly contributes to dosing errors
- Increased risk with multiple chronic conditions being treated

<http://www.nsc.org/learn/nsc-initiatives/Pages/Childrens-Misuse-of-Medicine.aspx> accessed 7/2016  
[http://www.cdc.gov/safecild/pdf/nap\\_poison\\_2013.pdf](http://www.cdc.gov/safecild/pdf/nap_poison_2013.pdf) accessed 7/2016  
 Yin HS, Dreyer BP, Ugboaja DC, et al. Unit of Measurement Used and Parent Medication Dosing Errors. *Pediatrics*. 2014.

FMX

## mL better than "tsp"

- 2110 children < 8 years old with English and Spanish-speaking parents
  - 77% limited health literacy (35% Spanish)

27% who viewed labels containing "tsp" or "teaspoon" chose non-standard dosing tool vs 8% who viewed "mL" labels

Yin HS, et al. Effect of Medication Label Units of Measure on Parent Choice of Dosing Tool: A Randomized Experiment. *Acad Pediatr*. 2016;16(3):147-4.

FMX

## Safer Prescribing

- When feasible, use once- or twice-daily medication schedules
- Do not use antibiotics to treat colds
- Avoid OTC cough/cold medications in children <4 years old
- Avoid analgesic rotation

Dolansky G, Rieder M. What is the evidence for safety and efficacy of OTC cough and cold preparations for children younger than six years of age? Paediatr Child Health 2008;13(12):125-127.

**FMX**

## Emerging Concerns



www.coloradodispensaries.com accessed 7/2016

**FMX**

## Case 1 – Cannabinoid Hyperemesis

- 17 year old male presents to emergency room with nausea and vomiting over the last 48 hours
- Urine toxicology is positive for THC
- Nausea does not respond to anti-emetics
- Only relief comes from taking a hot shower
- Treatment is supportive
  - Haloperidol, benzodiazepines, topical capsaicin

THC = Δ9-tetrahydrocannabinol

**FMX**

## Many Forms of Marijuana

- Smoking vs edibles
- THC vs CBD

THC (tetrahydrocannabinol)	CBD (cannabidiol)
"High"	Analgesia
Psychoactive	Anti-inflammatory
Paranoia	Anti-anxiety
Hallucinations	Anti-nausea
Anxiety	Anti-psychotic
Drowsiness	Wakefulness

**FMX**

## Case 2 – Synthetic Cannabinoids

- 17 year old female presents to emergency room with severe anxiety and paranoia
- Workup is negative for any acute medical problem and urine toxicology is negative
- Upon questioning, she admits to smoking Spice, an herbal smoking blend available on the internet

**FMX**

## Know what is in your community

- W-18 (synthetic opioid 100 times more potent than fentanyl)
- Flakka "\$5 insanity" – similar to cocaine
  - 63 users died in Florida between September 2014 and December 2015
  - No longer available, Chinese ban on production
- Bath salts
  - Synthetic compound more addictive than crystal methamphetamine
  - 23,000 ER visits in US in 2011
- Purple drank
  - Promethazine with codeine + soda
  - Popular in hip hop community (Sippin' on Sizzurp)
- Check out the experience vaults of Erowid [www.erowid.com](http://www.erowid.com)

<http://www.cnn.com/2016/04/18/health/flakka-drug-disappearance/>  
<http://www.medicaldaily.com/bath-salts-caused-23000-er-visits-2011-67-linked-other-drug-use-257010>  
accessed 7/2016

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## Want to get involved?

- Incorporate National Action Plan for Child Injury Prevention (NAP)
- PROJECT Initiative from the CDC
  - Collaboration bringing together public health agencies, private sector companies, professional organizations, consumer/patient advocates, and academic experts to develop strategies to keep children safe from unintentional medication overdoses.

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## Practice Recommendations

- Most pediatric overdoses are unintentional, prescribe medications that are easy to use (SOR C)
- Recognizing clinical toxidromes will help a clinician narrow down possible causative drugs associated with an overdose (SOR B)
- Call Poison Control 1-800-222-1222 when acute poisoning is suspected (SOR A)
- Incorporate education for families on best practices to keep children safe (SOR C)

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## Questions

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## Contact Information

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## Billing & Coding

When services performed in conjunction with:

Office Visit 992xx

Preventive 9938x/9939x

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Interested in More CME on this topic?  
[aafp.org/fmx-internal](http://aafp.org/fmx-internal)

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