

Medical Marijuana – Unintentional & Pediatric Exposures

Self-Learning Module

PURPOSE

This Self-Learning Module has been developed for EMS provider training. The intent is to provide consistent and concise information to all providers. The content of the Module has been reviewed by the Protocol Development and Review Sub-Committee, and, where applicable, includes the specific standing order, resource and reference material, and instructions for completing the Self-Learning Module to obtain continuing education credit. One hour of SAEMS continuing education credit may be issued following successful completion of the module.

OBJECTIVES

Upon completion of this learning module, the participant will be able to:

1. Explain why unintentional exposure to medical marijuana is increasing
2. Understand the populations at risk of unintentional or accidental exposure to medical marijuana
3. Describe situations that may result in unintentional exposure to medical marijuana
4. Describe how someone with an exposure to medical marijuana may present
5. Know how to manage the patient with exposure to medical marijuana

INSTRUCTIONS

1. Review the accompanying information, and any additional reference material as necessary.
2. Complete the attached posttest and return it to your supervisor or base hospital manager for continuing education credit.

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INTRODUCTION

The decriminalization of marijuana use in some states has led to an increasing prevalence of use. Along with this increase, unintended or accidental exposures have also increased. These events are often the result of the ingestion of a baked good or other edible product containing marijuana. Both adults and children are at risk of exposure through this route. As the chances of exposure increase, the medical community must have an increased index of suspicion children presenting with signs and symptoms of marijuana exposure and be prepared to care for them.

Background

Accidental ingestion of marijuana containing edible products is on the rise. A retrospective review of data from 2005-2011 showed an increase in pediatric exposures in states that had passed legislation allowing medical or recreational marijuana use.¹ The American Association of Poison Control Centers' National Poison Data System reported over 1000 exposures in the pediatric population in 2014.² The edible products can be in the form of baked goods, gummies, candy, and are often in packaging that can resemble other non-marijuana containing products that may be attractive to children.^{3,4} These products are far more palatable to children than the marijuana plant itself, which makes exposure more likely. Unlike pharmaceuticals, products containing medical marijuana are not regulated by the Food and Drug Administration (FDA), and thus may not be required by federal law to have packaging that is child-proof or child-resistant. Some states have packaging laws, though these are variable, which may also contribute to unintentional exposure.

Another potential route of exposure is through breast milk. Studies have shown that THC does pass into the breast milk where it is bound to proteins. Though there is not a large amount of literature on the topic, one study estimated the exposure in breast milk to be 0.8% of the amount to which the mother is exposed.⁵ While that is a comparatively small amount, there are case reports of infants experiencing lethargy and poor feeding.⁶ However, other causes of these symptoms in an infant such as sepsis and cardiac abnormalities are more common, which should prompt further investigation.

Adults are also at risk for unintentional ingestions or overdose secondary to edible products. Edibles can contain highly variable amounts of THC both within one product and between products. For example, a brownie may not have equal distribution of THC in all parts, so each bite may have differing concentrations of the active ingredient. The concentration can also vary between brands and batches. This lack of consistency in

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dose can result in unintentional overdose. Additionally, as mentioned above, since many products that contain THC may be indistinguishable from those that don't, unintentional ingestion by adults may also occur, just as in children. Further, some products may be labeled with a THC concentration, but these labels are often inaccurate, which may lead to both under and overdosing.⁷

Clinical Effects:

Effects in children will be similar to those seen in adults and can include a decreased level of consciousness or lethargy, dizziness, ataxia, and tachycardia. Both the type of symptoms and the duration of symptoms are highly variable. In a retrospective cohort study from a single center in Colorado looking at pediatric marijuana exposures, the most common presenting symptom was lethargy.⁸ Patients may experience any combination of the symptoms below:

- Nervous system
 - Drowsiness/lethargy
 - Ataxia
 - Confusion
 - Agitation
 - Dizziness
 - Conjunctival injection
- Gastrointestinal
 - Nausea/vomiting
 - Abdominal pain
- Cardiovascular
 - Tachycardia
 - Bradycardia
 - Hypotension
 - Respiratory depression

The duration of symptoms may last anywhere from hours to days depending on the dose ingested and is difficult to predict.

For a more detailed look at signs & symptoms, please refer to the module on Pharmacology and Clinical Effects of Medical Marijuana.

Treatment

It is important to consider the possibility of exposure in a patient that is exhibiting symptoms that are consistent with cannabinoid toxicity, especially when there is no known definite exposure. Any bystanders at the scene should be questioned about the presence of medical marijuana or edibles in the home or on the scene, hidden or otherwise, that may be a source of exposure. This includes those products that may belong to the patient or anyone else in the home or at the scene.

There is no specific antidote for marijuana and treatment is supportive. The patient's airway, breathing, and circulatory status should be evaluated and supported as necessary. This may include administration of supplemental oxygen for hypoxia or intravenous bolus of crystalloid solution for hypotension. Given the propensity for nausea, vomiting, and lethargy, administration of activated charcoal is not routinely recommended. All suspected cases should be reported to the Poison & Drug Information Center in Arizona at 1-800-222-1222.

REFERENCES

1. Wang GS, Roosevelt G, Le Lait MC, et al. Association of unintentional pediatric exposures with decriminalization of marijuana in the United States. *Ann Emerg Med.* 2014;63(6):684-689.
2. Mowry JB, Spyker DA, Cantilena LR, Jr., McMillan N, Ford M. 2013 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 31st Annual Report. *Clin Toxicol (Phila).* 2014;52(10):1032-1283.
3. Lovecchio F, Heise CW. Accidental pediatric ingestions of medical marijuana: a 4-year poison center experience. *Am J Emerg Med.* 2015;33(6):844-845.
4. Berger E. Legal marijuana and pediatric exposure pot edibles implicated in spike in child emergency department visits. *Ann Emerg Med.* 2014;64(4):A19-21.
5. Hill M, Reed K. Pregnancy, breast-feeding, and marijuana: a review article. *Obstet Gynecol Surv.* 2013;68(10):710-718.
6. Djulus J, Moretti M, Koren G. Marijuana use and breastfeeding. *Can Fam Physician.* 2005;51:349-350.
7. Vandrey R, Raber JC, Raber ME, Douglass B, Miller C, Bonn-Miller MO. Cannabinoid Dose and Label Accuracy in Edible Medical Cannabis Products. *Jama.* 2015;313(24):2491-2493.
8. Wang GS, Roosevelt G, Heard K. Pediatric marijuana exposures in a medical marijuana state. *JAMA Pediatr.* 2013;167(7):630-633.

POSTTEST

Please answer the following questions by marking the appropriate response:

6. Use of medical marijuana is on the rise. Because of the increased prevalence of medical marijuana and products that contain medical marijuana, the following groups are at risk for accidental exposure:
 - a. Infants and children
 - b. Adolescents
 - c. Adults
 - d. All of the above
 - e. None of the above

7. True or False? Breastfeeding mothers who use medical marijuana can pass the psychoactive component of marijuana, THC, to their baby through the breastmilk.
 - a. True
 - b. False

8. All of the following statements regarding the concentration of marijuana in edible products are true, EXCEPT:
 - a. Concentrations can vary within the same product item (e.g. brownie)
 - b. Labels containing concentrations are always accurate
 - c. Edibles containing marijuana may not be easily distinguishable from those that don't.
 - d. All of the above
 - e. None of the above

9. The most common symptom of a child with cannabinoid toxicity is:
 - a. The "munchies"
 - b. Agitation
 - c. Lethargy
 - d. Vomiting
 - e. All of the above
 - f. None of the above

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10. After considering and recognizing that a patient has experienced an exposure to cannabinoids, and that the patient is symptomatic, the most important next step is:

- a. Administering Activated Charcoal
- b. Administering Ondansetron to avoid vomiting and possible aspiration
- c. General supportive care
- d. All of the above
- e. None of the above

11. The best resource when you have questions regarding the patient with a toxic exposure is:

- a. Wikipedia
- b. Your friendly neighborhood Spider-Man
- c. Arizona Poison & Drug Information Center
- d. All of the above
- e. None of the above

Name _____ Date _____

EVALUATION

	Lowest Worst Least				Highest Best Most
1. To what extent did this module meet your needs?	1	2	3	4	5
2. There was a balance between theoretical and practical information.	1	2	3	4	5
3. The time required was appropriate to the content.	1	2	3	4	5
4. The module increased my knowledge and understanding of the topic.	1	2	3	4	5
5. References or audiovisuals were adequate.	1	2	3	4	5
6. Overall, this program was worthwhile.	1	2	3	4	5

7. Additional comments: _____
