Bottom Line Recommendations: Summary of Pediatric Emergency Care Information for Healthcare Providers

Cannabis Intoxication

Cannabis contains Delta-9 Tetrahydrocannabinol (Δ-9-THC) and Cannabidiol (CBD). The psychoactive properties of cannabis are typically attributed to Δ-9-THC, which is present in variable concentrations dependent on the strain and absorbed at variable rates dependent on the route of exposure. Acute intoxication is rare from CBD products unless given in excess or with high THC:CBD ratio. Canadian legalization of cannabis has been associated with an increased rate of hospitalization for cannabis exposures in children 14 years and younger.[1]

Presentation Types

UNINTENTIONAL INGESTION (PREDOMINANTLY TODDLERS)

- Consider in any previously healthy afebrile child <12 years with acute onset of the following symptoms without another clear cause:[2]
    - Lethargy, coma
    - Tachycardia, hypoventilation/apnea (5% of children will need intubation), bradycardia, hypotension, hypothermia
    - Hypotonia, ataxia, hyperactivity/irritability, hypertonia, tremor, seizures (CBD alone has some anticonvulsant activity, but in overdose can cause seizures)
- Delayed recognition of cannabis intoxication results in increased testing/interventions and longer Emergency Department length of stay.

INTENTIONAL AND/OR CHRONIC USE (PREDOMINANTLY ADOLESCENTS)

- Common presentations after high doses include delirium, panic attacks, anxiety, psychosis, myoclonic jerking, nausea, vomiting, hypertension and/or worsening asthma symptoms.
- For more information regarding vomiting associated with chronic use, refer to TREKK's Cannabinoid Hyperemesis Syndrome Bottom Line Recommendations.

Formulations & Methods of Delivery

Methods of Delivery and Pharmacokinetic Effects			
Method	**Onset**	**Peak Effect**	**Duration**
Ingestion	30-120 minutes	Within 4 hrs	Up to 12 hrs, longer in children (often 24 hrs)
Inhalation	Within minutes	Within 15-30 minutes	Up to 6 hrs, some residual effects can last up to 24 hrs
For more detailed information see: TREKK Cannabis Formulations & Methods of Delivery and CPS Cannabis Tools			

INGESTION

- High concentration edible products are commercially available or can be made at home, making the dose difficult to determine reliably. Legal commercially available edibles are required to state the dose of THC and/or CBD per unit/total package.
- Edibles are more easily accessible to young children who can ingest large doses unintentionally, potentially leading to altered LOC and respiratory depression. Edible ingestion is a strong predictor of ICU admissions in the pediatric population.[3]
- Pharmaceutical cannabinoids, including nabilone and dronabinol (tablets) or Sativex® (rapid acting oral spray of THC and CBD), have similar time to peak effects as edibles.

INHALATION

- Inhaled dose depends on depth of inhalation and duration of puffing/breath holding. Alternative methods of inhalation of highly concentrated cannabis (e.g., vaporizing, dabbing), can lead to very rapid effects.
- Synthetic cannabinoids (e.g., "Spice", "K2") have similar symptoms of intoxication but are associated with more CNS depression/agitation and potentially life-threatening symptoms (e.g., seizures, respiratory depression).

Diagnostic Testing

- Perform work up for other causes of altered LOC if no clear history for cannabis intoxication is provided.
- With altered LOC, strongly consider: POCT glucose, venous blood gas, lactate and electrolytes. Consider CBC, liver enzymes, blood cultures, ECG and/or intracranial imaging, as required.
- **CAUTION:** Urine drug screen for the urine metabolite of Δ-9-THC can remain positive for weeks and does not necessarily reflect acute intoxication or rule out other possible co-ingestions/causes for altered LOC. There is a risk of false positives. Results rarely change clinical management.
- In order to assess for co-ingestions, ask patient/family what medications are in the home/accessible and check serum levels when possible (e.g., acetaminophen, salicylates).

Management

- Consult Poison Control/Toxicology and/or Pediatric Referral Center early, especially with major derangements in neurologic or respiratory status.
- Consider activated charcoal with appropriate timing of presentation and clinical circumstance.

Symptoms	Management
Altered LOC/ Vital sign instability	ABCs, supportive care
Nausea/Vomiting	Establish IV access and give fluid replacement. Ondansetron: oral disintegrating tablet preferred (8-15 kg: 2 mg/dose; >15-30 kg: 4 mg/dose; >30 kg: 8 mg/dose) x 1 dose PO OR 0.1 mg/kg/dose (MAX 4 mg) IV if not able to tolerate PO.
Agitation	Consider using benzodiazepines if central respiratory failure is not a concern.
Seizures	Benzodiazepines are the recommended first-line treatment for toxicologic seizures. Avoid phenytoin/fosphenytoin in toxicologic seizures.

- Transfer to Pediatric Referral Centre/admit to hospital if persistent altered LOC or intractable vomiting.
- If asymptomatic 6 hours post-exposure, patient may be discharged home.
- If intentional exposure by a guardian is suspected, discuss case with Child Protection Specialist at Pediatric Referral Centre and report to Child Welfare Authority.

Counselling Families About Cannabis

- With the exception of CBD for specific seizure disorders, there are very few proven indications for medical cannabis use in children and many concerns for acute and long-term risks.
- Provide parental education on the dangers of cannabis in children and safe storage of dangerous medication and substances. For more information for parents, visit: Caring for Kids - Cannabis: what parents need to know.
- Use harm reduction strategies to counsel teens regarding cannabis use and refer to local resources and services due to long-term concerns for their mental health (increased risk for psychosis), attention, concentration, memory and executive functioning.

Scan or click the QR code to learn more and to see a full list of references and development team members