

Pharmacological Management of Pediatric Pain

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Faculty/Presenter Disclosure

- ▶ **Faculty:** Naiyi Sun
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Learning Objectives

By the end of this session, participants will be able to:

- To summarize the evidence regarding commonly used analgesics in children and adolescents.
- To outline analgesic indications for pediatric acute and chronic pain.
- To review the use and limitations of analgesics for common types of chronic pain.

Pharmacotherapy For Chronic Pain:



Tired



Sad



Achy



Can't sleep



Anxious

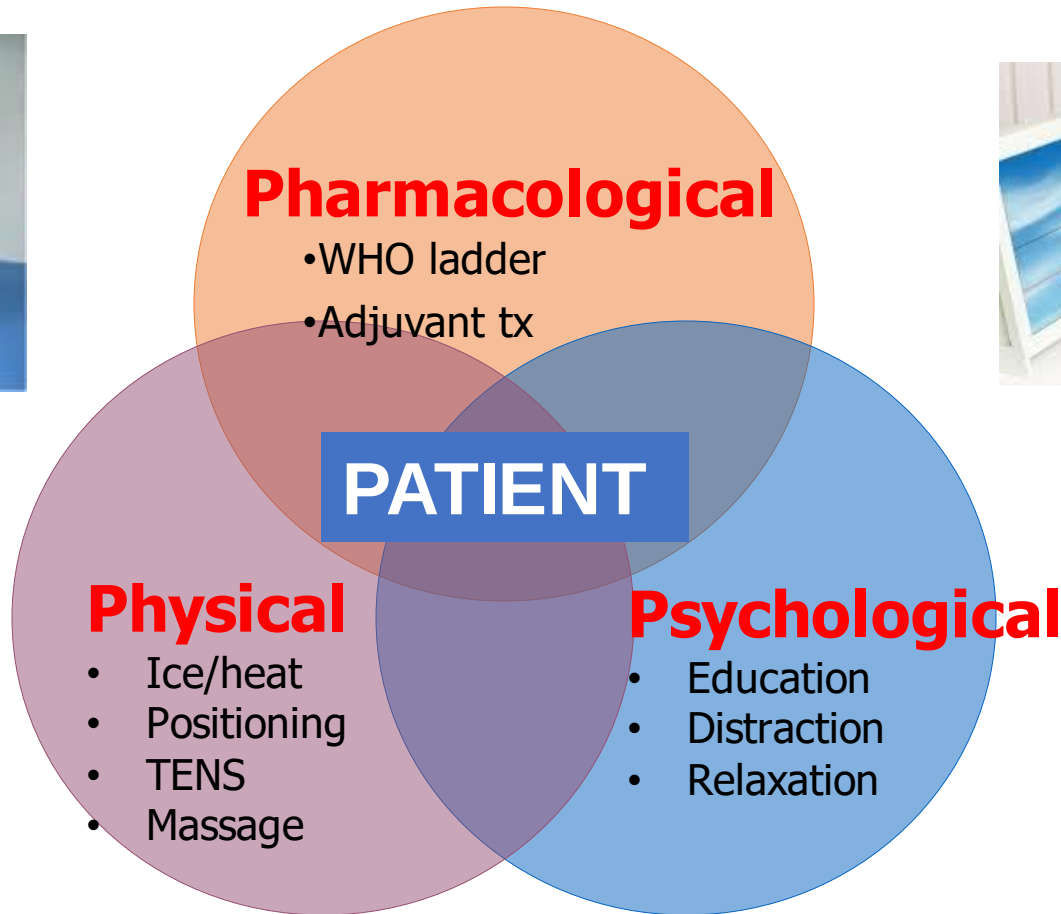


Scared

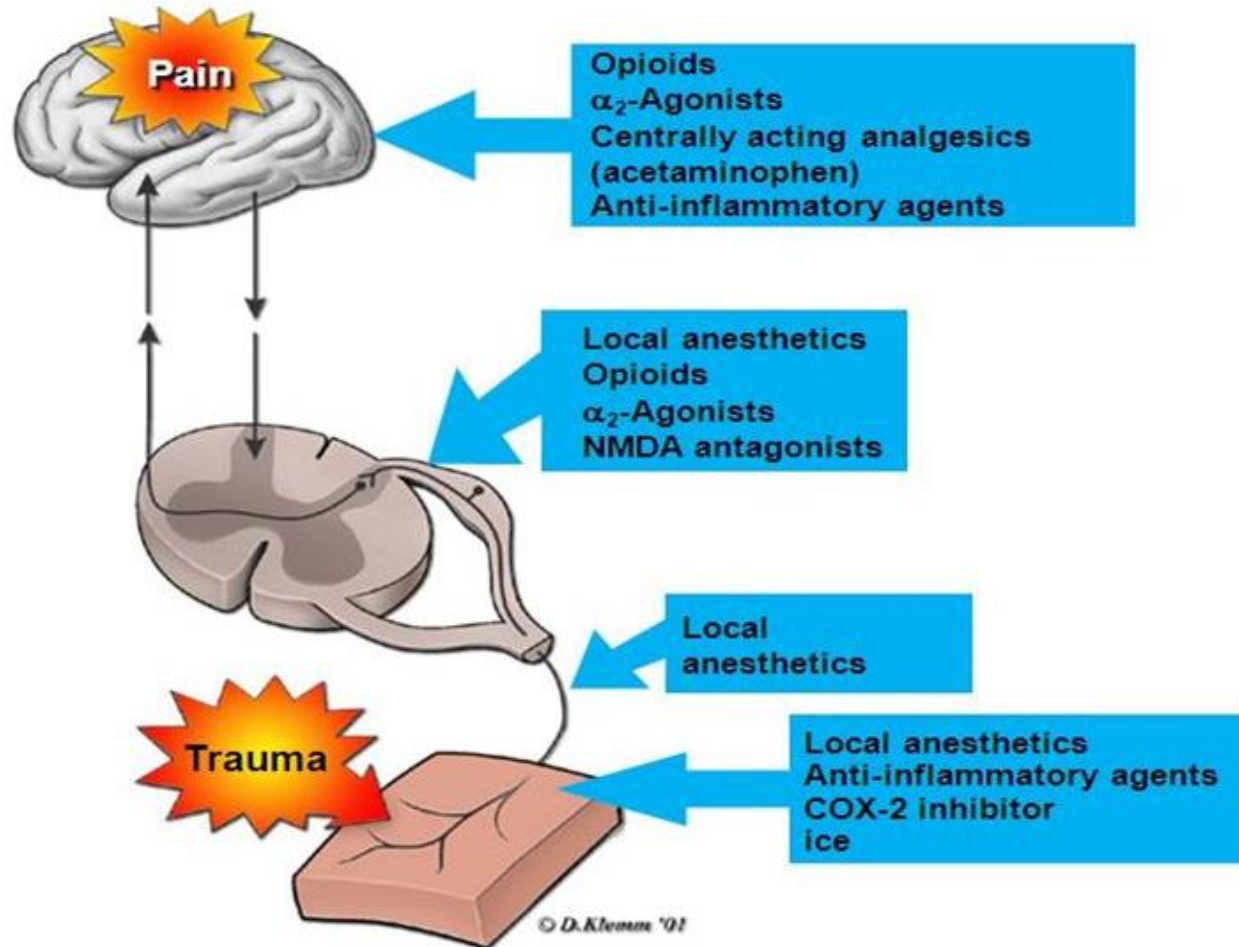


Stressed

Multidisciplinary Pediatric Pain Treatment:

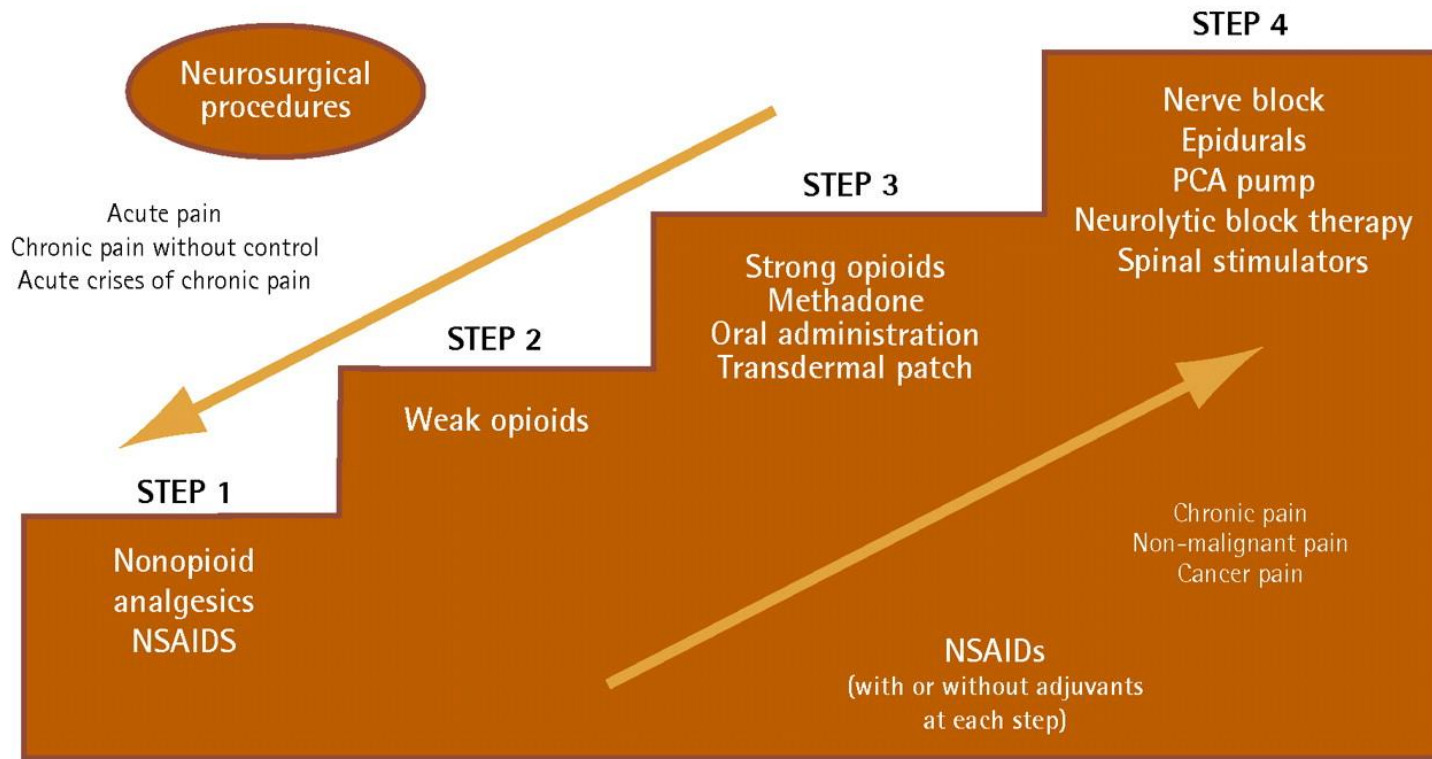


Multimodal Treatment Plan:



Adapted WHO Analgesic Ladder

Figure 2. New adaptation of the analgesic ladder



NSAID—nonsteroidal anti-inflammatory drug, PCA—patient-controlled analgesia.

Acetaminophen

- Most widely used analgesic in children.
- Safe in all age groups and has a low side effect profile.
- Available by oral, rectal, or intravenous routes.
- Has an opioid-sparing effect in postoperative children.
- It is available in a wide variety of combination medications such as decongestants and with opioids.
- These combination products pose a potential risk of acetaminophen overdose in children who may be given more than one formulation that contains the drug.

Nonsteroidal Anti-inflammatory Drugs

- NSAIDS provide pain relief, decrease inflammation, and reduce fever through direct inhibition of prostaglandin synthesis via the cyclooxygenase (COX) pathway.
- Risks include GI and renal toxicity with chronic use, especially in children with associated risk factors.
- Ibuprofen is the most commonly used NSAID in children 6 months of age or older.
- First line treatment for musculoskeletal pain, inflammatory arthritis, dysmenorrhea, and abortive treatment for acute migraines.
- Acetaminophen and NSAIDS can be safely combined without an increase in their adverse effects.

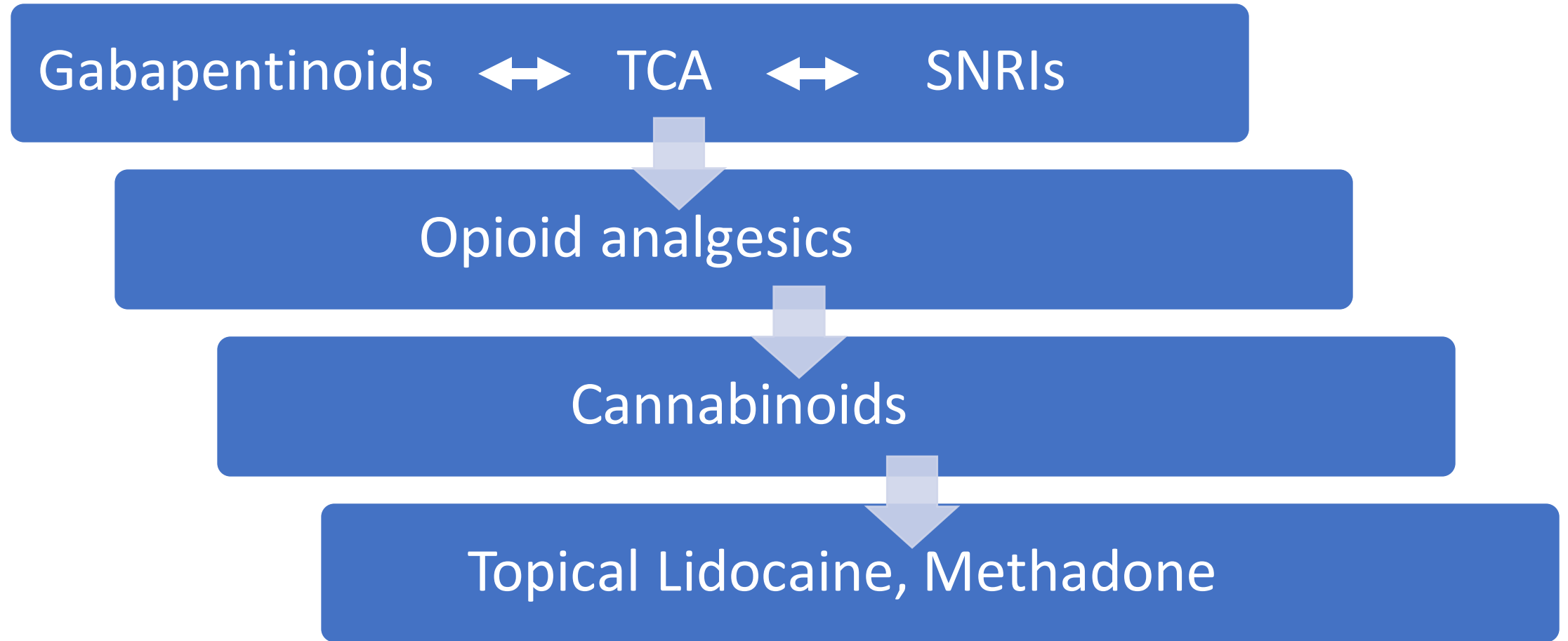
Nonsteroidal Anti-inflammatory Drugs - Evidence

Oral administration of morphine versus ibuprofen to manage postfracture pain in children: a randomized trial

Poonai N et al. CMAJ 2014

- Morphine vs Ibuprofen RCT
- 134 children with uncomplicated extremity fractures were randomized to receive either morphine (0.5 mg/kg) or ibuprofen (10 mg/kg) for 24 hours after discharge.
- No difference in pain scores at any time point.
- Less nausea with ibuprofen (NNT=5)

Pharmacological Treatments



Neuropathic Medications: Trade-Offs

- Gabapentin and pregabalin
 - sedation, mental clouding, effects on depressed mood and anxiety are unpredictable – can be better or worse.
 - Dose response highly variable
 - No drug interactions
- Tricyclics (e.g. amitriptyline)
 - anticholinergic side effects (sedation, constipation, dry mouth, blurry vision)
 - ECGs recommended (sparse data)
- Duloxetine
 - effects on depressed mood and anxiety vary
 - nausea, vomiting, and dizziness are most common

Opioid Prescribing for Chronic Pain

- Very few guidelines available to guide decision making.
- Which pediatric chronic non-cancer pain conditions?
 - Tissue damage – e.g. severe inflammatory MSK pain, EB.
 - Sickle Cell disease, Osteogenesis Imperfecta, Ehler Danlos.
- Opioids do not have a role in the majority of primary pain conditions in children including abdominal pain, headache, and widespread MSK pain.
- Focus on improvement in function.

Codeine: Time to Say “No”

Joseph D. Tobias, MD, Thomas P. Green, MD, Charles J. Coté, MD, SECTION ON
ANESTHESIOLOGY AND PAIN MEDICINE, COMMITTEE ON DRUGS

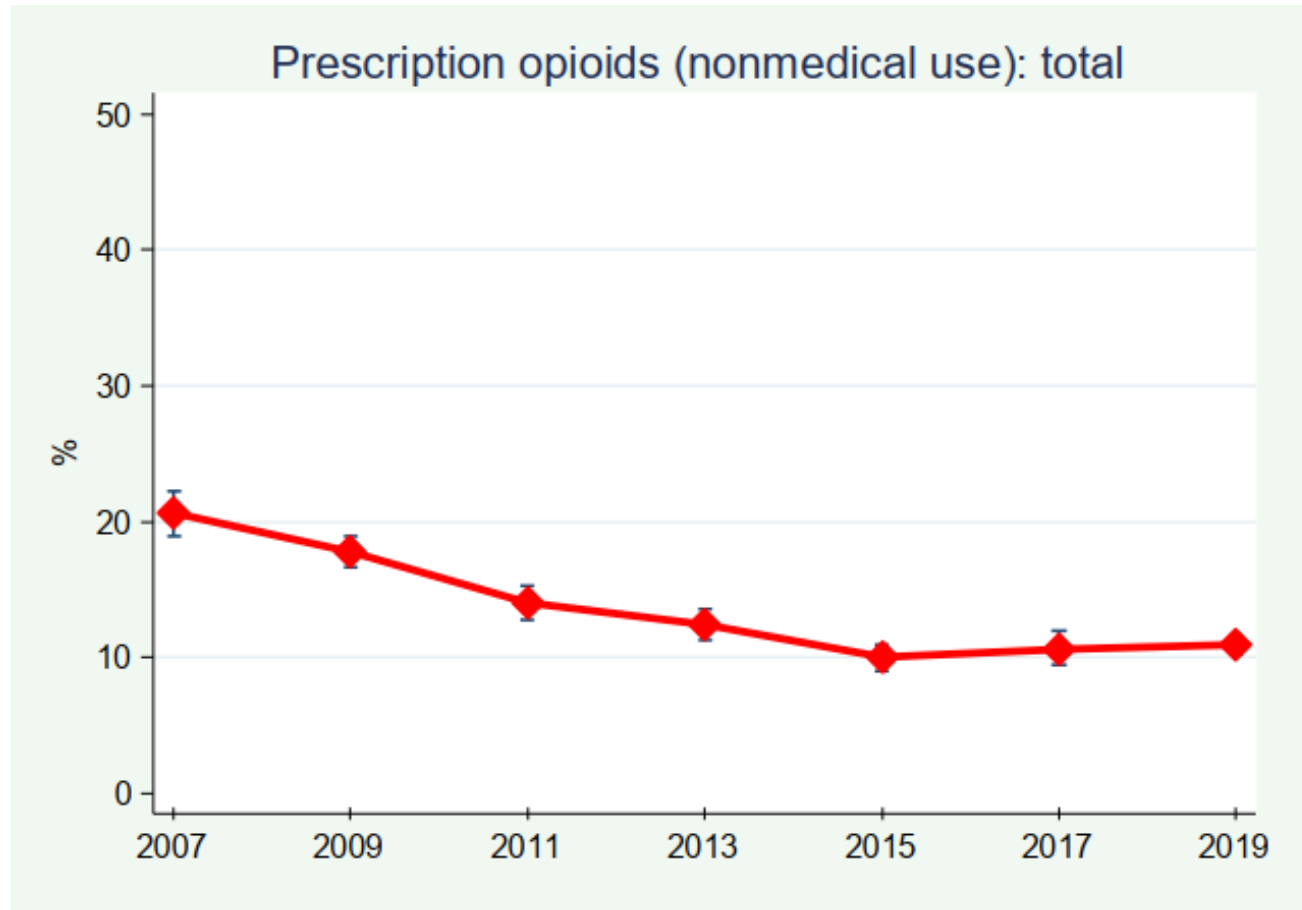
- Health Canada recommendations:
 - Codeine should not be used in patients under 18 years to treat pain after surgery to remove tonsils or adenoids.
 - It is not recommended for children under age 12 for any use.
- FDA
 - Tramadol should not be used in children younger than 18 years after T and A surgery and in adolescents who are obese or have conditions such as OSA or severe lung disease.

Zoom Poll

What percentage of adolescents in Ontario report using a prescription opioid analgesic without medical prescription in the past year?

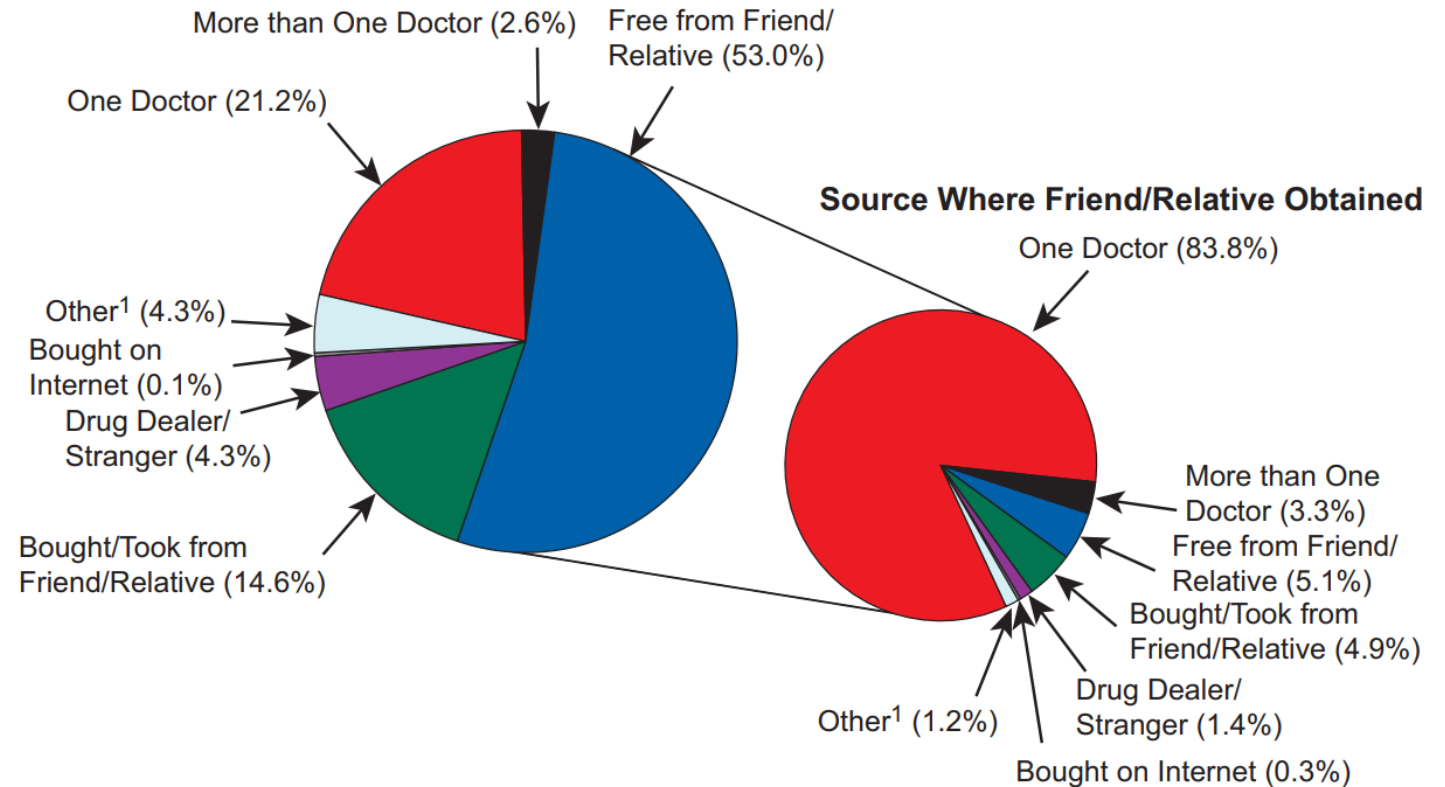
- A. 1%
- B. 2%
- C. 5%
- D. 10%
- E. 20%

Past Year Nonmedical Use of Prescription Opioid Pain Relievers in Ontario



Non-medical use of Prescription Opioids in adolescents

- Through unused prescriptions, healthcare providers may inadvertently add to the supply of opioids within the community.
- Among high school seniors who report non-medical use of prescription opioids, 80% access leftover medication from a legitimate prescription.



¹ The Other category includes the sources "Wrote Fake Prescription," "Stole from Doctor's Office/Clinic/Hospital/Pharmacy," and "Some Other Way."

Note: The percentages do not add to 100 percent due to rounding.

Opioids Prescribing for Acute Pain

Opioids have a crucial role in the treatment of moderate to severe pain in children and adolescents.

Dose:

- Prescribe the lowest estimate effective dose and allow for upward titration if analgesia is ineffective. (low and slow)
- Prescribe short-acting opioids for acute pain.

Duration:

- Prescribe no more than what is needed for the expected duration of moderate to severe pain. 3 or fewer days is often sufficient for acute pain.

Education:

- Provide education on expectation regarding pain, how the efficacy of opioids will be assessed, and tapering of medication.
- Instruct patient and families on safe storage and disposal of leftover opioids to minimize the risk of diversion and accidental ingestion.

GENERAL PRINCIPLES OF Pediatric PAIN MANAGEMENT

- Balanced Analgesia - More than one class of analgesic or adjuvant each working in a different way = better pain relief with fewer side effects
- Start low and go slow – titration is critical to limiting side effects
- Trial and error approach – inter-individual variation in response to treatment.
- Set realistic expectations: improve function with minimal side effects, and reduce pain.

New Pain ECHO Program:

NEW PILOT SERIES: Opioids and Substance Use in the Management of Pain in Children and Youth

A 10-session Pilot Series examining the effectiveness and value of the programming offered by ECHO Pain Canada.

Fridays 12 - 1 pm | April 14th - June 23rd



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Questions?



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