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## 1.0 Introduction


The purpose of this Clinical Practice Guideline (CPG) is to optimize the assessment and management of pain in children at SickKids with the goal of limiting or preventing pain. The document has been developed by an interdisciplinary group of stakeholders and has been circulated widely.

The **focus population** for this CPG is all SickKids patients (Inpatient, Ambulatory and Emergency). Pain can be categorized as acute (arising from medical conditions, trauma, surgical and other procedural pain) or chronic (pain which persists beyond the expected time for acute pain to heal).

While the **target users** of this CPG will likely be physicians and nurses, pain management is the responsibility of all health care professionals.

## 2.0 Definitions:

- **Addiction:** Addiction or psychological dependence refers to the use of opioids to alter mood e.g. for psychic effects, not for pain. It is characterized by behaviours that include at least one of: impaired control over drug use, compulsive use, continued use despite harm, and craving. Addiction is not common with people treated for pain in acute care settings. Physical dependence and tolerance are not the same as addiction.
- **Adjuvant:** A drug that is not primarily analgesic, but has independent or additive analgesic properties.
- **Analgesic:** A medication used for pain relief.
- **Balanced analgesia:** Also referred to as multi-modal analgesia. Includes drugs from more than one drug classification (e.g. NSAID(non-steroidal anti-inflammatory drug), opioid, local anesthetic) that may be given by different routes of administration. The goal is improved analgesia, reduced opioid requirements and minimal side effects.
- **Ceiling Effect:** A dose of medication beyond which further increases do not provide additional analgesia.
- **Equianalgesic:** Having equal pain-relieving effect: morphine sulfate is generally used as the standard for opioid analgesic comparisons.
- **Non-opioid:** Preferred to "non-narcotic". Includes acetaminophen and NSAIDs
- **Opioid:** Refers to natural, semisynthetic and synthetic drugs that relieve pain by binding to opioid receptors in the nervous system e.g. morphine, hydromorphone. Opioid is preferred to the word 'narcotic', which has legal connotations.
- **Pain:** An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. It is a complex, multidimensional, and subjective experience.
- **Pharmacological strategies:** The use of medications for pain relief.
- **Physical dependence:** Physical reliance on an opioid characterized by withdrawal symptoms if the opioid is abruptly stopped or an antagonist is administered.
- **Physical strategies:** The use of strategies such as heat/cold, massage, positioning for pain relief.
- **Pseudoaddiction:** The patient who seeks additional medications appropriately or inappropriately secondary to significant undertreatment of the pain syndrome. When the pain is treated effectively, all inappropriate behaviour ceases. ( drug seeking behaviour e.g. clockwatching)

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- **Psychological strategies:** The use of cognitive and behavioural strategies to promote a reduction in anxiety, pain and distress.
- **Titrate:** To gradually increase or decrease medication to reduce or eliminate symptoms while allowing the body to accommodate to drug side effects, and to avoid toxicity.
- **Tolerance:** A process characterized by decreasing effects of a drug at its previous dose or the need for a higher dose of drug to maintain an effect. It is the body's adaptation to a drug that results in the diminished effect over time.

### 3.0 Recommendations

The Pain Matters Task Force voted to adopt the Registered Nurses Association of Ontario (*RNAO*) *Assessment and Management of Pain* CPG for use at SickKids. This CPG was developed by an interdisciplinary group in 2002 and updated in 2007 and 2013.

The grading system in Table 1 serves as a guideline for the user about the hierarchy of evidence available to support each recommendation; with meta-analysis considered to be the highest level of evidence and expert opinion considered to be the lowest level of evidence that can be used to support a CPG.

Table 1. Grades of Recommendation	
<b>A</b>	Recommendation supported by at least one randomized controlled trial, systematic review or meta-analysis.
<b>B</b>	Recommendation supported by at least one cohort comparison, case study or other experimental study.
<b>C</b>	Recommendation supported by expert opinion or experience of a consensus panel.


#### 3.1 Pain Assessment

This CPG provides strategies for pain assessment and management. Pain management should focus on the child's pain relief goal and is an integral component to pain assessment. Specific details related to pain assessment can be found in the [Pain Assessment](#) policy.

#### 3.2 Pain Management - General Principles

##### 3.2.1 Prevent pain when possible. (Grade C)

Pain is better prevented than treated. Requirements for analgesics are lower if children are pretreated before painful procedures, including surgery.

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### 3.2.2 Develop pain management plan with interdisciplinary team, child and family, incorporating: (Grade C)

- Pain assessment findings and identified pain goals
- Etiology
- Treatment strategies – following the 3’P’s approach (pharmacological, physical and psychological) as detailed below.

### 3.2.3 Communicate the pain management plan with patients and families. (Grade A)

Educate patients, in a developmentally appropriate way, and families about their pain and the management plan.

### 3.2.4 Provide a written pain management plan to the patient and family, where appropriate. (Grade C)

## 3.3 Pain Management - Pharmacological Strategies

### [Refer to the E-formulary for specific medication dosages](#)

#### 3.3.1 Give analgesics regularly (scheduled) (Grade A)

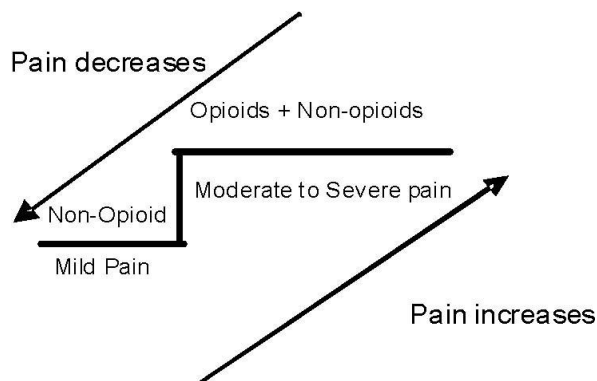
For pain that is expected to be constant (e.g. post-surgical), analgesics should be ordered and given as scheduled medications (“around the clock”). PRN dosing should be used for breakthrough pain only (e.g. pre-ambulation, pre-procedures).


#### 3.3.2 Use the least invasive route. (Grade C)

- Oral route when possible
- IM is NOT acceptable (Grade B)
- Consider intranasal route if appropriate

#### 3.3.3 Use the analgesic ladder. (Grade B)

- Match the analgesia to the severity of the pain i.e. for severe pain begin with an opioid AND non-opioids.
- Use of more than one class of analgesic (e.g. acetaminophen + NSAID) promotes better pain relief, may reduce opioid requirements and helps to minimize side-effects (“balanced analgesia”). (Grade A)



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### 3.3.4 Prescribing Guidelines<sup>1</sup> (Grade B)

Table 2. Prescribing Guidelines	
Pain Severity	Agents of Choice
<b>Mild Pain</b>	acetaminophen +/- NSAID* <i>[if not contraindicated]</i>
<b>Moderate to Severe Pain</b>	acetaminophen +/- NSAID* <i>(if not contraindicated)</i> + opioid

\*Non-steroidal anti-inflammatory drug

Review patient diagnosis and lab results before prescribing NSAIDs or Acetaminophen checking for renal or liver impairment.

#### Acetaminophen


- Ensure the maximum daily dose is not exceeded when ordering acetaminophen either alone or as a combination product.
- Use combination opioid-acetaminophen products only when dose of acetaminophen is appropriate; sometimes the acetaminophen content may be a limiting factor in upward dose titration of the combination, in which case prescribe medications separately.

#### NSAIDs

- **There is a ceiling effect to NSAIDs:** If given in maximally therapeutic doses, all NSAIDs should offer the same degree of analgesia (i.e. no advantage of IV ketorolac over PO ibuprofen/naproxen). For sustained use, ibuprofen may offer the safest side-effect profile.

#### Opioids

- **Opioids may be used safely in children of all ages, including neonates:** Analgesic dosing should be calculated based on the child's weight. Neonates, and some ex-preterm infants are more sensitive to opioids, and dosing should be appropriately adjusted. **For opioid monitoring guidelines, see [Care of Patients Receiving Continuous Infusion of Opioids. Guidelines for Pain Assessment and Management for Neonates.](#)**
- **Ensure that the type and timing of opioid is appropriate:** According to assessment of the patient, pharmacology (duration of action, peak effect and half-life) and route of drug
- **Titrate opioid dose to pain intensity:** To provide analgesia at the lowest dose with minimal side-effects, according to the assessment of the patient, pharmacology (duration of action, peak effect and half-life) and route of drug e.g. titrate dose by 25-50%.
- **There is no ceiling effect to opioids:** A "maximum dose" does not exist for opioids. Opioids can be titrated safely for increased analgesic effect however side-effects may be a limiting factor.
- **Sustained release opioids are more appropriate when dose requirements are stable. (Grade A)**
- **For patients on sustained release opioids an immediate release preparation of the same opioid should be available for breakthrough pain. (Grade C).** Each breakthrough dose should be 10% of the 24 hour dose. If more than 3 doses of immediate release opioid are required in a 24 hour period, an increase in the sustained release opioid dose maybe required.

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- **Use equianalgesic doses if changing from one opioid to another:** See Equianalgesic table ==> [E-formulary](#). Opioids have different relative potencies, and bioavailability which need to be considered when changing drugs or routes (i.e. IV to PO). Morphine is considered the “gold standard” for comparison. **If you are unfamiliar with principles of opioid conversion, consult the acute pain service, especially with high dose or long term opioid requirements.** Consider principles of opioid rotation (acute vs chronic use, and cross tolerance) **(Grade C)**
- **Transdermal fentanyl patches are only indicated for persistent, moderate to severe chronic pain. (Grade C)** Patches are not indicated for acute, severe, unstable pain in opioid naïve patients.
- **Anticipate and treat opioid side-effects proactively:** Most opioid side-effects are easily treated with simple interventions. Use bowel regimen medications (e.g. PEG 3350 and bisacodyl) routinely, [Management of Functional Constipation CPG](#), anti-emetics, anti-pruritics, as needed. Advise patients that side-effects can be controlled. **(Grade A)**
- **Treating pain with opioids does NOT lead to psychological dependence/addiction. (Grade A)**
- **Prevent opioid withdrawal by using the [Prevention & Treatment of Opioid and Benzodiazepine Withdrawal CPG](#)**
- **Meperidine (Demerol™):** Is not recommended because of associated risks **(Grade A)**
- **Codeine is a non-formulary drug.** Codeine is metabolized to a small amount of morphine for its analgesic effect. Codeine is ineffective in at least 10 % of the population who are unable to metabolize it to morphine. There are also supermetabolizers who metabolize the codeine to a disproportionate amount of morphine. Other oral opioids such as Morphine should be used instead of codeine.

#### Local Anesthetics

- Topical anesthetics should be used for all skin-breaking procedures including but not limited to venipunctures, IV starts and lumbar punctures e.g. EMLA™, Maxiline™, unless contraindicated **(Grade A)**


#### Adjuvants

- Recognize that adjuvant drugs - e.g. anticonvulsants (gabapentin), tricyclic anti-depressants (amitriptyline), ketamine\*, clonidine, nabilone - are important in the treatment of neuropathic pain. Consultation with the Acute Pain Service is recommended (\*required for ketamine). **(Grade C)**
- Benzodiazepines may be helpful for the treatment of painful muscle spasms.
- Anticholinergics (e.g. oxybutynin) may be used for bladder and smooth muscle spasms.
- Skeletal Muscle Relaxants ( e.g. methocarbamol) may be used for skeletal muscle conditions with pain or injury

### 3.4 Pain Management - Physical Strategies

#### Use appropriate physical comfort measures (Grade A)

- Use of physical strategies in conjunction with pharmacological and psychological strategies can promote lower levels of anxiety, distress and pain. Examples of physical strategies include:
  - Deep breathing
  - Use of heat and/or cold (See [Application of Heat & Cold as a Pain Management Strategy](#))
  - Massage

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- Pressure or vibration
- Repositioning
- Activity out of bed as tolerated e.g. sitting up in a chair, going for short walks or rides in a wheelchair
- Neonatal development strategies e.g. non-nutritive sucking, facilitated tucking, swaddling, rocking, kangaroo care
- Vapocoolant spray e.g. PainEase
- For complex and/or chronic pain issues, consultation with a Physiotherapist is recommended

### 24% Oral Sucrose for Procedural Pain

- **Oral sucrose reduces procedural pain in neonates and young infants (Grade A).** Sucrose is a sugar commonly found in food. It is most effective in newborn and young infants but may help reduce pain in infants up to 18 months of age. It is administered as a solution orally, with either a syringe or on a pacifier. Addition of a pacifier enhances the analgesic effect. The analgesic effect lasts for approximately 5-8 minutes.

**Indication:** Procedures may include but are not limited to: Intravenous catheter insertion, venipuncture, heel lance, lumbar puncture, chest tube insertion/removal, subcutaneous injection, PICC line insertion and removal, nasogastric tube insertion, eye exam, dressing changes, urinary catheter insertion. See Guidelines for Pain Assessment and Management in Neonates\*. Opioids will be required for some procedures, sucrose will be an adjunct and not in place of opioids or other pain relieving medications.

- The dose can be given in aliquots throughout the procedure or the total amount can be given before the procedure.
- Give 2 minutes prior to painful procedure onto the infant's tongue. Offer a pacifier if it is part of the infant's care routine.
- Dose may be administered in increments of 2 minute intervals for prolonged procedures.
- Document administration on the electronic health record
- See [E-formulary](#) for dosing guidelines and contraindications.


Breastfeeding may also be considered a strategy for pain relief in infants during painful procedures

### 3.5 Pain Management - Psychological Strategies

#### Use developmentally appropriate psychological comfort measures (Grade A)

- Use of psychological strategies in conjunction with pharmacological and physical strategies can promote lower levels of anxiety, distress and pain. Examples of psychological strategies include:
  - Education - Explanation of pain provoking procedures to the extent that child shows interest
  - Distraction
  - Relaxation
  - Referral to Child Life Specialist, Clinical Psychologist, Psychiatrist as indicated



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### 3.6 Algorithm

The [pain assessment and management algorithm](#) is based on the Hospital for Sick Children's Pain Assessment Policy and Pain Management Clinical Practice Guideline and is recommended to guide pain assessment and management strategies.

When additional support is required contact the Acute Pain Service through locating. For palliative or end of life pain and symptom management, please contact the Paediatric Advanced Care Team (PACT).

### 4.0 Implementation of CPG:

#### Potential health benefits for patients

- Improved assessment of pain on admission and throughout hospitalization using standardized measures
- Improved pain management of acute, procedural and chronic pain
- Patients and families will be partners in their pain management plan
- Improved communication with families about pain assessment and management
- Earlier discharge from hospital
- Fewer re-admissions to hospital
- Reduced risk of developing chronic pain

#### Facilitators to implementation

- Pain Matters Steering Committee and associated Task Force
- Organizational support, i.e. chief nursing executive, RNAO best-practice spotlight
- Experts in pain at all levels, clinical, research and education

#### Organizational barriers to implementation


- Scope of practice issues – e.g. unregulated HCP
- Availability of resources – e.g. topical anesthetics, comfort kit supplies

#### Key review criteria/indicators for monitoring and audit purposes

- Quality Improvement Plan – Quarterly audit and feedback on pain practices (assessment using validated pain tool, and interventions for moderate to severe pain) and clinical pain outcomes (prevalence of moderate to severe pain)
- Ontario Child HCAHPS Survey – Inpatient Care
- Ontario Emergency Department Patient Experience of Care Survey
- NRCC Paediatric Ambulatory Clinics Survey

### 5.0 Related Documents:

#### [Pain Assessment](#)

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[Care of Patients Receiving Regional Anaesthesia: Epidural Infusions or Peripheral Nerve Blocks](#)

[Care of Patients Receiving Continuous Infusion of Opioids](#)

[Application of Heat and Cold as a Pain Management Strategy](#)

[Management of Functional Constipation CPG](#)

[Guideline for Pain Assessment and Management for Neonates](#)

[Pain Management Guidelines for Post-operative Patients in the NICU](#)

[Vital Sign Monitoring](#)

[Electronic Patient Monitoring](#)

[RNAO Assessment and Management of Pain Best Practice Guideline](#)

[E-formulary](#)

[Prevention and Treatment of Opioid and Benzodiazepine Withdrawal](#)

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## 7.0 Guideline Group and Reviewers

### Guideline Group

Pain Matters Task Force members

### Reviewers:

Dr. Denis Daneman, Paediatrician-in-Chief, Paediatrics  
Dr. Jeremy Friedman, Head, Division of Paediatric Medicine  
Dr. Basem Naser, Director, Acute Pain Service, Anaesthesia  
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Dr. Suzan Schneeweiss, Staff Physician, Emergency Medicine Division  
Ms. Jocelyne Volpe, APN, Haematology/Oncology  
Dr. James G. Wright, Surgeon-In-Chief, Department of Surgery,  
Pain Matters Committee- 2017

Reviewers were selected to reflect different backgrounds and perspectives. Their comments and suggestions were considered and the document amended accordingly.

### Attachments:

[pain algorithm.pdf](#)