Pain Management

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1.0 Introduction

This document has been developed by the Pain Matters Committee. 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 **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.

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2.0 Definitions

Addiction: A chronic neurobiological disease with genetic, psychosocial, and environmental factors influencing its development and presentation. It is characterized by behaviours that include a maladaptive pattern of substance use (e.g. opioids) leading to clinically significant impairment or distress, such as impaired control over drug use, compulsive use, continued use despite harm, and craving. Addiction is distinct from physical dependence and tolerance.

Adjuvant: A drug that is not primarily analgesic but has independent or additive analgesic properties.

Analgesic: A medication used for pain relief.

Ceiling Effect: A dose of medication beyond which further increases do not provide additional analgesia

Common medical procedures: Refers to procedures that are routinely performed in the hospital setting without sedation. Includes, but not limited to needle pokes, swabs, wound care, dressing changes, and tube insertion.

Equianalgesic: Having equal pain-relieving effect: morphine sulfate is generally used as the standard for opioid analgesic comparisons.

Multimodal analgesia:. A pain management strategy that 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.

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.

> **Acute Pain:** arises suddenly, lasting from a few minutes to months. May be caused by injury, illness, trauma, surgery or painful medical procedures. It serves as a warning sign of disease or threat to the body. Usually disappears when the underlying cause is treated.
>
> **Chronic Pain:** persists for months or years, continuing beyond the usual recovery time from an injury or illness. May be constant or intermittent/recurring. May be a symptom linked with a disease (e.g. joint pain associated with arthritis) or a disease of its own (e.g. complex regional pain syndrome).
>
> **Nociceptive Pain:** arises from actual or threatened damage to non-neural tissue and is due to activation of nociceptors
>
> > **Somatic Pain:** arises from damage to musculoskeletal structures and tissues, like bones, muscles, tendons, ligaments, skin and mucous membranes. Described as localized, stabbing, sharp, aching, cramping. Does not cover pain originating from nerves (i.e. neuropathic pain). Often acute, may become chronic.
> >
> > **Visceral Pain:** arises from blood vessels and internal organs. Often described as dull, deep, crampy, achy, gnawing, pressure and diffuse.
>
> **Neuropathic Pain:** caused by a lesion or disease of the somatosensory nervous system
>
> **Nociplastic Pain:** arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing activation of nociceptors or evidence of disease or lesion of the somatosensory system causing the pain

Pharmacological strategies: The use of medications for pain relief.

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Pain Goal: The effect of pain control on comfort and function. Goals are activities that enhance recovery and quality of life e.g. deep breathing, ambulating after surgery, sleep, recreational activities. These goals may be linked to a pain intensity score.

Physical dependence: A state of physiological adaptation in which abrupt cessation, rapid dose reduction, decreasing blood level of the medication, and/or administration of an antagonist results in drug-class specific withdrawal symptoms.

Physical strategies: The use of strategies such as heat/cold, massage, positioning for pain relief.

Psychological strategies: The use of cognitive and behavioural strategies to promote a reduction in anxiety, pain and distress.

Tolerance: A normal process of physiological adaptation characterized by decreasing effects of a drug at its previous dose or the need for a higher dose of drug to maintain an effect.

3.0 Recommendations

To advance best practices in pediatric pain prevention and management, the recommendations in this CPG align with and are informed and supported by the HSO Pediatric Pain Management Standard and Pain: Prevention, assessment and management, Fourth edition (RNAO Best Practice Guideline, 2025).

The Pediatric Pain Standard calls for each organization to ensure pain management is equitable and individualized. The standard states that pain management is equitable when children and families receive care that is anti-oppressive, anti-racist, anti-ableist, culturally informed, and trauma- and violence-informed.

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

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

3.1 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 (APS) through locating. For palliative or end-of-life pain and symptom management, please contact the Paediatric Advanced Care Team (PACT).

3.2 Pain Assessment

This CPG provides strategies for pain assessment and management. Pain management is guided by a thorough pain assessment and should focus on the child's pain relief goal. Specific details related to pain assessment can be found in the Pain Assessment policy.

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3.3 Pain Management - General Principles

- Prevent pain when possible. (Grade C)

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

- A pain management plan requires a comprehensive, family-centred approach that considers pharmacological, physical, behavioural, cultural, and spiritual dimensions (Grade C).

- Develop pain management plan with interdisciplinary team, child and family, incorporating: (Grade C)
  - Pain assessment findings and identified pain goals
  - Etiology of pain
  - Treatment strategies following the "3 P" approach (pharmacological, physical and psychological) as detailed in sections 3.4 - 3.6.
  - Spiritual and cultural beliefs and considerations that are important to the patient and family.

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

  In a developmentally appropriate way, educate families and patients about their pain and the management plan, including benefits, risks, anticipated outcomes, and potential side effects. Provide families and patients opportunities to ask questions about the pain management plan.

- Support patients and families with pain management at home by providing a written pain management plan. (Grade C)

  Ensure written materials accommodate patients/families across the spectrum of language, literacy, and learning needs. Avoid medical jargon. Use words that are familiar and culturally appropriate.

- Educate patients and families on the safe use, storage, and disposal of opioids. (Grade C)

- Given the dependency of children upon adults regarding pain assessment, prevention, and management, pediatric patients are vulnerable to suboptimal pain management. (Grade C)

  Within the pediatric population, there are further subsets of patients with increased vulnerability to inadequate pain assessment and management. Some additional vulnerable populations include but are not limited to neonates, patients with Sickle Cell Disease, patients with significant neurological injury, and patients with Substance Use Disorders.

  - Acute Painful Episodes Vaso-occlusive Episodes (VOE): Guidelines for Management in Children with Sickle Cell Disease
  - Neonatal Post Operative Pain Guidelines
  - Neonatal Pain Assessment and Procedural Pain Management
  - For children with significant impairment of the central nervous system, Hauer and Houtrow (2017) provide an excellent review of pain assessment and management considerations.
  - For patients with diagnosis of Substance Use Disorder or substance use health concerns, refer here for information and considerations impacting the pain experience.

3.4 Pain Management - Pharmacological Strategies

- 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 or truly intermittent pain only (e.g. pre-ambulation, pre-procedures).

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- Use the least invasive route. (Grade C)

Use the simplest, most effective, least painful, least invasive route. Use the oral route when possible. The intramuscular (IM) route is NOT acceptable for analgesic administration (Grade B). The rectal route has unreliable bioavailability. Consider the intranasal route if appropriate.

- Use the analgesic ladder. (Grade B) (Figure 1)

Match the analgesia to the severity of the pain. A first-step strategy for mild pain recommends non-opioid agents such as acetaminophen and ibuprofen, when not contraindicated. For children less than 3 months of age, acetaminophen only is recommended. 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)

Adjuvants (i.e. antidepressants, gabapentinoids, local anaesthetics, etc.) can be helpful in various pain conditions and may be used alongside or in some cases instead of opioids and non-opioids along either step of the pain ladder. (Grade A)

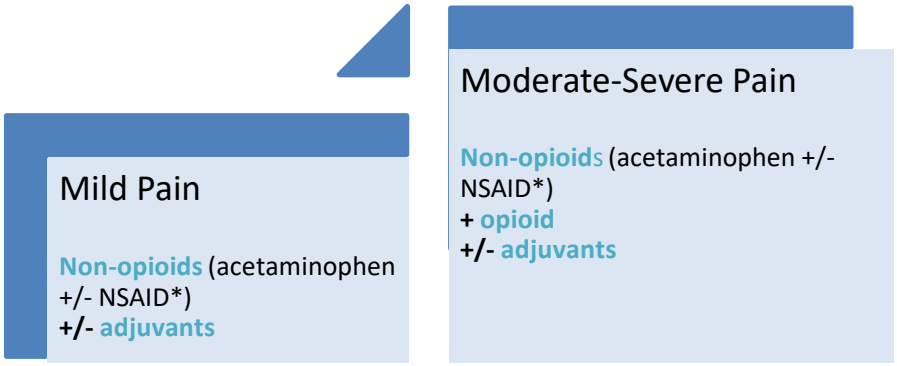

Figure 1
**Non-steroidal anti-inflammatory drug*
Review patient diagnosis and lab results before prescribing NSAIDs or Acetaminophen checking for renal or liver impairment.

Pharmacological Agents

Refer to the E-formulary for specific medication dosages.

Acetaminophen

Acetaminophen is effective for mild to moderate pain in children and is a useful adjunct as part of multimodal analgesia for more severe pain.

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

Non-steroidal anti-inflammatory drugs are effective analgesics for mild to moderate pain. They should be used in caution in infants < 6 months and may be contraindicated for infants <1 month old (Refer to drug-specific formulary guidelines).

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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

Dosing and Titration

- **Opioids may be used safely in children of all ages, including neonates (Grade A).**
  Initial analgesic dosing should be calculated based on the child's weight. Dose and dosing interval should be altered (decreased) for neonates and some premature infants as they have decreased clearance of morphine, and have a larger volume of distribution and decreased protein binding, resulting in greater free fraction of opioid. Guidelines for Pain Assessment and Management for Neonates.
- **Ensure that the timing of opioid administration is appropriate.**
  Dosing frequency and timing of administration depends upon assessment of the patient's pain, pharmacokinetics and pharmacodynamics (duration of action, peak effect and half-life) and route of drug (Grade C).
- **Titrate opioid dose to pain intensity and presence of side effects.**
  The appropriate dose is that which provides analgesia with minimal side-effects, according to the assessment of the patient, pharmacokinetics and pharmacodynamics (duration of action, peak effect and half-life) and route of drug. Select the lowest dose that prevents pain between doses (Grade C).
- **There is no ceiling effect to opioids (Grade A).**
  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.
- **Routine switching of opioids (opioid rotation) is not recommended (Grade C).**
  Morphine is a first-line option for severe pain in patients requiring opioids due to its predictable delivery and rapid onset. Opioid rotation should be considered in the presence of inadequate analgesia with intolerable side-effects.
- **Use equianalgesic doses if changing from one opioid to another.**
  See Equianalgesic table. 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)
- **For those maintained on opioids prior to surgery, continue pre-operative opioid dosing as a baseline (Grade C).**
  Provide acute post-operative analgesia above baseline opioids. Include non-opioid analgesics.

Opioid Choice

- **Sustained release opioids are more appropriate when dose requirements are stable. (Grade A)**
  To convert from an oral immediate-release formulation to a sustained-release formulation of the same opioid, use the total dose of immediate-release formulation administered during the dosing interval of the sustained-release form. E.g. 5 mg PO immediate-release Morphine q4h ➔ 15 mg PO sustained-release Morphine q12h.
- **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 may be required.

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- **Fentanyl's rapid onset and short duration of action make it ideal for immediate post-operative pain and for painful procedures requiring opioids (Grade C).**
  Fentanyl is a very potent opioid with a high-risk profile. The development of tolerance with fentanyl is much higher than with morphine when receiving prolonged continuous infusions. Fentanyl has a unique adverse effect in children of chest wall rigidity with rapid administration. There is a higher risk with higher doses. Fentanyl boluses should be given over at least 3-5 minutes and patients observed closely.
- **Intranasal fentanyl may be helpful for painful procedures (Grade A).**
  Intranasal fentanyl is rapidly absorbed, producing rapid and short-acting analgesic effects.
- **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.
- **Meperidine (Demerol™) is not recommended because of associated risks (Grade A).**
- **Codeine is a non-formulary drug and not recommended (Grade C).**
  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. There are also super-metabolizers who metabolize the codeine to a disproportionate amount of morphine.
- **Methadone has been used safely and effectively in some cases of pediatric pain (Grade A).**
  Most evidence for methadone in pediatrics reflects its utility at end-of-life and with cancer pain. Methadone may be considered for patients who have not tolerated or responded to other opioids or are opioid-tolerant, and have moderate-to-severe neuropathic or mixed-type (nociceptive and neuropathic) pain.

Opioid Monitoring and Management of Side Effects and Adverse Effects

- **Oxygen saturations, respiratory rate and quality, heart rate, and sedation should be monitored in patients receiving intravenous opioids.**
  Adverse effects can occur with opioids administered by any route.
  Increased monitoring may be advised for patients at high risk of respiratory depression. For SickKids specific opioid monitoring policy and guidelines, see Monitoring Requirements for Patients Receiving Opioids.
- **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 and anti-emetics and anti-pruritics as needed. Preference should be given to non-sedating medications (Grade A).
  Naloxone infusion is helpful for treating and possibly preventing opioid-induced pruritus and may be helpful for opioid-induced nausea/vomiting and urinary retention. (Grade A)
  Methylnatrexone can treat opioid-induced ileus (Grade B).

Opioid Dependence and Withdrawal

- **Treating pain with opioids does NOT lead to psychological dependence/addiction. (Grade A)**
  Psychological dependence includes behavioural, cognitive, and physiological features that develop after repeated or long-term opioid use, typically including a strong desire to take the opioid, persistent use despite harm, and priority placed for taking the drug over other activities.
- **Prevent opioid withdrawal with the** Prevention & Treatment of Opioid and Benzodiazepine Withdrawal CPG.

Outpatient Opioid Use

- **For patients discharged with opioids, provide patients and families with education about opioid use at home (Grade C).**
  Education should include appropriate indications for opioid use, strategies for safe use, storage, and

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disposal, and other pain management strategies including non-opioid analgesics and non-pharmacological strategies.
Discharge instructions for pain medication should be written and verbal.

Consider providing a naloxone kit to patients discharged with an opioid prescription.

- **There is insufficient evidence regarding PRN (as needed) vs scheduled dosing for discharge opioids after surgery in children.**
  The consensus is for opioids administered at home after surgery to be dosed PRN (Grade C).
- **Limit prescriptions to an amount required for the expected period of severe pain after surgery (Grade B).**
  Encourage use of non-opioid analgesics and non-pharmacological interventions for mild-moderate pain.

Adjuvants

- **Adjuvant analgesics may improve pain control either in addition to basic analgesia and/or opioids, or they may also act as primary analgesics (Grade C).**
- **Anticonvulsants** like gabapentin, pregabalin, and carbamazepine are commonly used to treat neuropathic pain in adults and can be considered as part of a multimodal approach to management or chronic and neuropathic pain in children and adolescents (Grade A).
- **Benzodiazepines** and **Baclofen** may be helpful for the treatment of painful muscle spasms and spasticity (Grade A).
  - Evidence is limited for oral baclofen with stronger evidence available for intrathecal administration.
  - Benzodiazepines can result in dependence with prolonged use and should be used short-term as needed. Side effects such as sedation may limit upward titration.
  - Baclofen and benzodiazepines must be weaned to avoid withdrawal.
- **Skeletal Muscle Relaxants** (e.g. methocarbamol) may be helpful for skeletal muscle conditions with pain or injury. It may decrease opioid requirements in patients with rib fractures (Grade B). Evidence is limited in children and methocarbamol is recommended for adolescents and adults 12 years of age and older.
- **Antidepressants** (Tricyclics, SSRIs, and SNRIs) may be helpful for neuropathic pain, headache, sleep disturbance, chronic widespread pain, post-herpetic neuralgia, abdominal pain, and other chronic pains. Evidence in children is limited. (Grade C).
- **Anticholinergics** (e.g. oxybutynin) may be used for bladder and smooth muscle spasms. (Grade A).
- **Dexmedetomidine** is an alpha-adrenergic agonist indicated for sedation. It may offer some analgesic effects without the respiratory depressant effects associated with opioids, but is considered insufficient as a primary analgesic agent for management of moderate-severe pain.
- **Cannabis and medical marijuana** (including cannabidiol [CBD] and tetrahydrocannabinol [THC]) lack evidence to support its use for treatment of acute or chronic pain (Grade A). However, in children with life-limiting conditions, the administration of medical cannabis may be requested by patients and their caregivers and should be considered on a case-by-case basis.

Table 2. Common Adjuvants

Medication	Class	Indication
Gabapentin **Pregabalin**	Anti-convulsant	Neuropathic, persistent, and acute perioperative pain

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Clonidine	Alpha-2-adrenergic agonists	Opioid sparing; adjuvant to support opioid weaning
Amitriptyline	Tricyclic antidepressant	Neuropathic pain
Ketamine	Anesthetic/ NMDA antagonist	Opioid-sparing, non-responsive pain
Diazepam	Benzodiazepine	Muscle spasms (centrally mediated muscle relaxation)
Methocarbamol	Skeletal muscle relaxant	Muscle spasms
Oxybutynin	Anti-cholinergic	Bladder spasms

Local Anesthetics

- **Topical anesthetics should be used for all skin-breaking procedures (Grade A).** Procedures that will benefit from topical anesthetics (e.g. EMLA™, Zensa™) include but are not limited to venipunctures, sutures, IV starts and lumbar punctures. Refer to Section 4.3, Table 6.
- **Injectable subcutaneous lidocaine** provides fast-acting, localized numbness and may be helpful for painful procedures such as laceration repairs, lumbar punctures, and venipuncture. Strategies to reduce stinging associated with lidocaine administration include buffering with bicarbonate and using the smallest gauge needle possible. Lidocaine can be combined with epinephrine to prolong its effect (via vasoconstriction).

Regional Anaesthesia

- **Regional anaesthesia is widely used for postoperative pain management in children and has been shown to be effective and safe when performed by experienced practitioners and with adequate monitoring (Grade A).**

  These techniques include both single bolus injections and continuous infusions of local anesthetics within the epidural space or targeting single nerves or groups of peripheral nerves.

  Portable regional anaesthesia modalities exist, and may be appropriate for certain patient populations. Appropriate follow-up is required to ensure safe and proper care at home.

  Benefits of regional anaesthesia include earlier ambulation, rapid weaning from ventilators, lower levels of stress hormones, improved pain control, reduced opioid requirements, reduced incidence of postoperative nausea and vomiting, and reduced incidence of respiratory complications. Portable regional anaesthesia modalities have the added benefit of reduced length of stay in hospital.

  Regional Anaesthesia can be used as part of a multimodal strategy.

3.5 Pain Management - Psychological Strategies

► Use developmentally appropriate psychological pain management strategies (Grade A) and involve patients and families in choosing appropriate strategies (Grade C).

Psychological strategies in conjunction with pharmacological and physical strategies can promote lower levels of chronic and acute pain, anxiety, and distress. These strategies aim to increase comfort, reduce pain-associated disability, promote adaptive behaviours, and modify situational, emotional, cognitive, social, and behavioural factors that contribute to and maintain pain. Some strategies may require facilitation by a trained healthcare professional (e.g. Psychologist) or via virtual modalities (e.g. smartphone app), while some can be taught to patients who then enact them independently.

Choice of strategies used depends on the patient's developmental level, the type of pain, and how the patient has coped with previous experiences of pain.

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Table 3. Psychological Pain Management Strategies

Strategy (Evidence Grade)	**Key Points**
Education/Preparation (C)	Pain education and preparation for procedures should be given to patients and families.
Distraction (A)	Conscious focus of attention to non-painful stimuli can suppress pain. Ideal distractions are those which are engaging, relaxing and enjoyable, those which improve mood and reduce anxiety, and tailored to the interests of the patient. Examples include imagery, problem solving, cognitive activities, behavioural activities (e.g. playing games), and external sensory focus. Refer to Section 4.5, Table 8, for specific age-appropriate distraction techniques for the management of procedural pain and anxiety.
Imagery or Guided Imagery (A)	Alone or with guidance, the patient imagines sights, sounds, smells, tastes, and other sensations to reduce pain and anxiety. Useful resources: Child Life specialists; web- or technology-based applications
Environment modification (C)	Dim lights, reduce noise, decrease stimulation in patient's environment.
Therapeutic art, music, and play (A)	Engage Creative Arts Therapists and Child Life Specialists.
Cognitive Behavioural Therapy (A)	CBT and associated cognitive and behavioural strategies, including but not limited to relaxation training, parental interventions, biofeedback, and talk therapy, target thoughts, feelings and behaviours about pain.
Hypnosis (A)	Hypnosis involves relaxation and suggestion to induce an altered state of consciousness to decrease anxiety and sensory awareness.
Mindfulness (C)	A meditation practice that focuses on awareness of the present moment and non-judgmentally experiencing and accepting feelings, thoughts, and bodily sensations. SickKids internal mindfulness resource for children and families: Click here
Spirituality and spiritual-based pracitces (C)	Spiritual practices may facilitate and promote use of adaptive coping responses.

3.6 Pain Management - Physical Strategies

- Use developmentally appropriate physical pain management strategies (Grade A).

  Physical strategies for acute and chronic pain management are used in conjunction with psychological and pharmacological interventions. An ideal pain management plan promotes active self-management when possible, using both active (e.g. exercise) and passive (e.g. heat/cold, massage) physical strategies.

  Some physical interventions may require a specialist (e.g. physiotherapist, Registered Massage Therapist).

Table 4. Physical Pain Management Strategies

Strategy (Evidence Grade)	**Key Points**
Exercise (A)	*Graded exercise* involves finding a child's baseline tolerance and gradually increasing activity participation each week. *Targeted exercises* address posture, range of motion, or muscle strength.

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	Activity pacing involves participation in activities for a specific time, alternating rest/non-rest periods.
Deep breathing (A)	*Diaphragmatic breathing* ("belly breathing") stimulates the vagus nerve and promotes a parasympathetic relaxation response. Utilize imagery (e.g. blowing out candles slowly), bubbles, or pin wheels to assist younger children with slow abdominal breathing.
Positioning (C)	Ensure the painful area is in a comfortable position. Consider overall position of the patient and/or supporting the area with pillows. See Table 7 for Comfort Positioning suggestions.
Heat, cold (A)	See Application of Heat & Cold as a Pain Management Strategy
Vapocoolant spray (A)	For needle-poke procedures (e.g. PainEase)
Sucrose and non-nutritive sucking (A)	For infants up to 18 months (Grade A). Refer to Table 5. See the e-formulary for dosing and contraindications. Refer to Guidelines for Pain Assessment and Management in Neonates. Breastfeeding may also be considered for pain relief in infants during painful procedures.
Infant strategies (A)	Examples include swaddling, therapeutic touch/massage, skin to skin contact**.**
Massage therapy (A)	Limited evidence in children. Targets muscle tension and improves restricted movement.
Transcutaneous electrical nerve stimulation (TENS) (A)	Limited evidence in children. Provides an electric current to disrupt pain signals transmitted to the brain via electrodes adhered to the skin.
Graded motor imagery (A)	Limited evidence in children. Retrains the brain to normalize motor function through imagined movements, and includes mirror therapy for chronic pain following amputation
Desensitization (A)	Limited evidence in children. Used for treatment of allodynia and hypersensitivity; involves using increased stimuli such as touch, pressure, and temperature, applied to the painful area with an aim to reduce painful response to non-painful stimuli.
Acupuncture/acupressure (A)	Evidence in infants to young adults, for acute (including surgical) and chronic pain.
Yoga (A)	Shown to be beneficial in some types of chronic pain.

4.0 Bundled Approach to Managing Pain and Distress from Common Medical Procedures

Common medical procedures, such as needle pokes, urethral catheterization, nasogastric tube insertion, nasopharyngeal swabs, and wound and dressing care, are known to cause pediatric patients pain and distress. If left untreated, pain and distress from medical procedures can lead to increased distress, pain, and overall avoidance of health care. The section below outlines the multimodal bundled approach to reducing pain and distress associated with common medical procedures.

4.1 Guiding Principles

- Develop a plan with the patient and family.

  Using a multimodal approach (positioning, distraction, topical anesthetics, and sucrose/breastfeeding for infants) for pain and anxiety management, collaborate with the patient and family to determine which strategies will work best for the individual.

- Bundle strategies together.

  Positioning, distraction, topical anaesthetics, and sucrose/breastfeeding for infants are bundled to optimize pain and anxiety management.

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- Offer developmentally appropriate choices to support patient's autonomy.

  Examples: *Would you like to be held by your mom or dad? Would you like to watch the procedure or watch your iPad/TV? Would you like numbing cream for your IV start? How can we help you get more comfortable?*
- Let the patient and caregivers know what to expect and what is expected of them.

  Prepare patients for procedures with education (verbal, written, visual/virtual). Engage ChildLife if needed.
- Focus on patient/family's strengths by understanding what has worked in the past.
- Acknowledge and normalize common fears and responses.

4.2. List of effective multi-modal strategies to use for common medical procedures

Table 5. Multi-modal strategies for common medical procedures

Procedure	Comfort Positions	Distraction	Topical Anesthetics	Sucrose /Breastfeeding for infants
Needle pokes*	✓	✓	✓ (Zensa preferred)	✓
NP swabs	✓	✓	Contraindicated	✓
Urinary catheter insertion/ removal	✓	✓	Cathejell (2% lidocaine jelly), Xylocaine (2% lidocaine jelly)	✓
NG tube insertion	✓	✓	Lidocaine 4% topical solution Given the strong evidence for analgesic effect in adults, topical local anaesthetic (nebulised or aerosolised) can be considered in co-operative older children.	✓
Dressing changes	✓	✓	Contraindicated. Use hospital-approved adhesive remover to reduce pain from adhesive.	✓
X-ray	✓	✓	Contraindicated	✓
G-tube insertion/ removal	✓	✓	Cathejell (2% lidocaine jelly), Xylocaine (2% lidocaine jelly)	✓
Lumbar Puncture	✓	✓	✓ (EMLA/Zensa)	✓
Suture removal	✓	✓	Contraindicated. Do not apply to open skin.	✓
Light debridement	✓	✓	Contraindicated. Do not apply to open skin.	✓
Laceration repair	✓	✓	✓ (LET Gel/solution)	✓
Adhesive tape removal	✓	✓	Contraindicated. Use hospital-approved adhesive remover to reduce pain	✓
Wound Care	✓	✓	Contraindicated. Do not apply to open skin.	✓

* For IV Insertions, limiting number of pokes can reduce pain and distress. Refer to the IV Escalation Pathway.

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4.3 Topical Anesthetic

Topical anesthetics can be used to suppress pain in the area that the procedure is being performed. Topical anesthetics are more effective in reducing pain than Vapocoolant sprays and should always be offered first.

Vapocoolant sprays

Vapocoolant sprays are not considered an anesthetic as they do not block pain. These sprays freeze the area and are considered a method of distraction and should only be used if they are effective for the individual patient.

Topical Products available at SickKids:

Table 6. Topical Products for Common Medical Procedures*

Product	Formulation	Key Information	Indications
EMLA (lidocaine and prilocaine)	Topical: cream or patch	**Onset:** 60 minutes, lasts for 2 hours. Should be covered with a transparent bandage or plastic wrap to ensure it stays in place.	Needle procedures on intact skin
Zensa (5% lidocaine)	Topical cream	**Onset:** 30 minutes. Can remain on skin up to 2 hours and is effective for 1 hour post removal. Should be covered with a transparent bandage or plastic wrap to ensure it stays in place.	Needle procedures on intact skin
Ametop (Tetracaine 4%)	Topical cream	**Onset:** 30 minutes (venipuncture), 45 minutes (IV cannulation). Duration 4-6h. Should be covered with a transparent bandage or plastic wrap to ensure it stays in place.	Needle procedures on intact skin For patients with lidocaine allergies.
Lidocaine 4% topical solution	Topical solution to be administered using mucosal atomization device	**Onset:** usually within 1-5 minutes. Duration of anesthesia persists for approximately 15-30 minutes.	May be used in the nare for NG tube insertion.
Xylocaine Jelly 2% (600mg/30ml)	Topical jelly Tube	**Onset:** 5 minutes, depending on the area of application. Duration of anesthesia is approximately 20-30 minutes. Ineffective when applied to intact skin.	Surface anesthesia and lubrication for various procedures where tube is inserted into the mouth, nose, throat, or urinary tract.
Cathejell (2% lidocaine)	Topical jelly (prefilled 10 mL syringe)	**Onset:** Within 5 minutes, depending on the area of application. Duration is approximately 20–30 minutes. Cathejell® (lidocaine hydrochloride) is ineffective when applied to intact skin. Do not leave on large body areas for >2 hours.	Surface anesthesia and lubrication for various procedures where tube is inserted into the mouth, nose, throat, or urinary tract.
LET solution	Solution, topical, compounded by SickKids	**Onset:** 15-30 minutes. Last for 30 minutes.	Lacerations; Wounds ≤6 cm or an area that can be covered by a 2 cm x 2 cm gauze.

* Refer to e-formulary and consult with pharmacy on clinical appropriate use.

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4.4 Comfort Positioning

- Avoid lying patients flat for procedures. Being physically restrained increases patient's distress and anxiety related to the procedure.

  Use comfort holds to help to stabilize the affective procedure area without restraining the patient.

- Encourage caregiver involvement in comfort positioning to ease patient's procedure related distress.

  Offer choices to patient/family care giver when possible. Comfort positions will vary based on the procedure, patient's level of anxiety, and development age.

- Consult with Child Life Specialists for additional comfort hold strategies.

Table 7. Comfort Positioning by Developmental Age Group

Age Group	Examples of Recommended Comfort Positions		
Infants (birth to 12 months)	· Swaddle	· Skin to skin	· Allow parents to hold
Toddler (1-5yrs)	· Sitting upright, back to their parent's chest		· Parent holds child during procedure
School age/Teenagers (6-18yrs)	· Encourage to sit upright		

4.5 Distraction

Age-appropriate distraction techniques help to reduce pain and anxiety by shifting focus away from the procedure. Ensure to select a distraction method that will focus the patient's attention before and during the procedure.

Table 8. Distraction by Developmental Age Group

Age Group	Recommended Distraction Techniques	
Infants (birth to 12 months)	· Light-up or brightly-coloured toys · Singing · Baby's favourite object	· Patting baby and using soothing voice · Pacifier
Toddler (1-5yrs)	· Light-up toys · Pop-up picture books · Drawing or colouring · Bubbles	· Singing · Music · Videos · Favourite objects from home
School age (6-12yrs)	· Books or magazines · Videos · Video games · Drawing or colouring	· Deep breathing · Singing · If preferred, allow patient to watch procedure
Teenagers (13-18yrs)	· iPad or other electronic devices · Videos · Video games	· Virtual reality headsets · Deep breathing exercises · If preferred, allow patient to watch procedure

5.0 Further Management of Common Medical Procedures

Some patients will require additional treatment such as pharmacological and psychosocial management to address their pain and anxiety related to common medical procedures.

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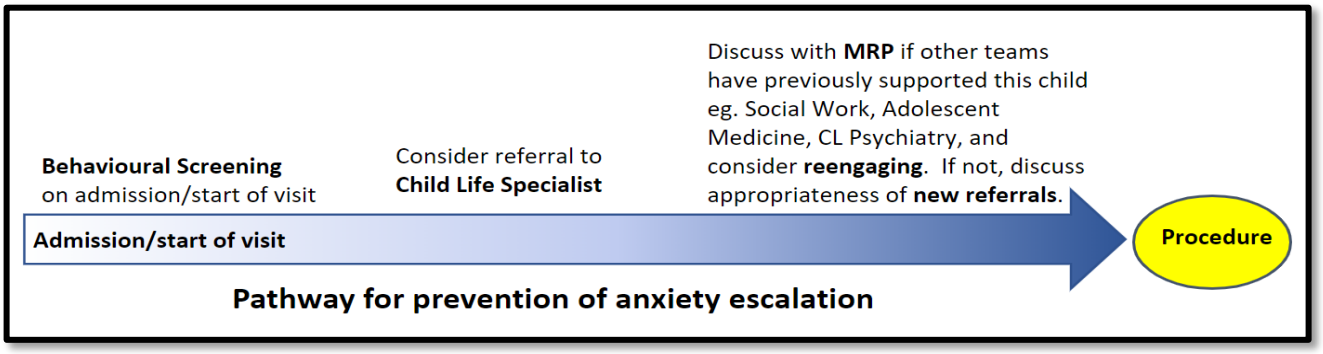
5.1 Patients requiring management for anxiety/phobia

Unmanaged pain and distress from common medical procedures can result in trauma and phobias. In addition to the bundled approach, the following should be completed to identify patients who may benefit from additional behavioural and psychological supports:

- Complete the behavioural screening tool upon admission for all patients ≥2 years of age.
- Consult with department's Child life specialist to develop additional strategies
- Consider consulting teams that may already be involved in the child's care who may be able to assist with developing strategies to reduce procedure-related anxiety.

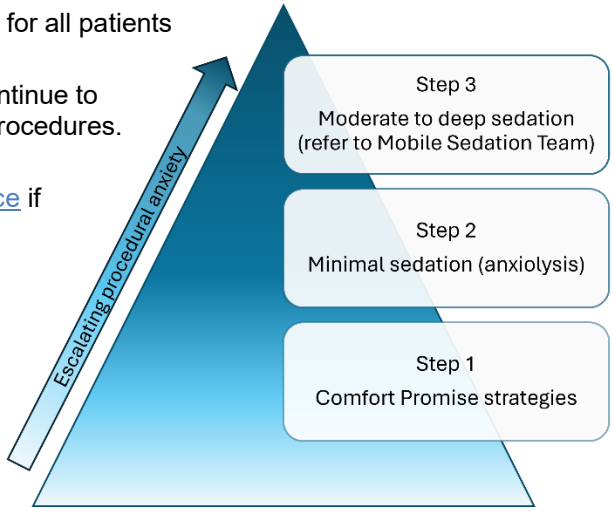


5.2 Patients requiring pharmacological management for procedural pain and anxiety

Comfort Promise bundle strategies should be considered for all patients undergoing a potentially painful or distressing procedure.

Consider minimal sedation/anxiolysis for patients who continue to experience pain +/- anxiety related to common medical procedures. See Sedation Continuum for more information.

Consider consultation with the Integrated Sedation Service if moderate to deep sedation may be required.



6.0 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

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- Reduced risk of developing chronic pain

Facilitators to implementation

- Pain Matters Committee
- 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

- Pain Centre Quality Improvement – 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)
- Inpatient, Emergency, and Ambulatory Patient/Family Survey Results

7.0 Related Documents

Pain Assessment

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

Neonatal Pain Assessment and Procedural Pain Management

Adolescents presenting with substance use related health concerns and risk for acute withdrawal

Acute Painful Episodes Vaso-occlusive Episodes (VOE): Guidelines for Management in Children with Sickle Cell Disease

Vital Sign Monitoring

Electronic Patient Monitoring

Prevention and Treatment of Opioid and Benzodiazepine Withdrawal

Comfort Positioning Guide

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9.0 Guideline Group and Reviewers

Guideline Revision 2025

- Jacqueline Hanley, Acute Pain Service
- Ashley Harvey, Acute Pain Service
- Reviewed by members of: Pain Matters Committee, Acute Pain Service, Transitional Pain Service, Adolescent Medicine

Guideline Contributors and Reviewers (from all CPG Versions)

- Erica Patterson, RN, MN
- Dr. Beth Gumulka, Paediatrics
- Dr. Maryse Bouchard, Orthopaedic Surgery
- Dr. Suzan Schneeweiss, Emergency
- Carolyn Beck, Palliative Care
- Dr. Lisa Isaac, Anaesthesia and Pain Medicine
- Dr. Fiona Campbell, Anaesthesia and Pain Medicine
- Family Advisory Network
- 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. Arie Peliowski, Staff Anesthesiologist, Anaesthesia
- Dr. Suzan Schneeweiss, Staff Physician, Emergency Medicine Division
- Ms. Jocelyne Volpe, APN, Haematology/Oncology
- Dr. James G. Wright , Surgeon-In-Chief, Department of Surgery,

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

Attachments:

5696.Comfort Positioning Guide.pdf

pain algorithm.pdf

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