1.0 Introduction

The purpose of this Clinical Practice Guideline (CPG) is to optimize the prevention, assessment and management of pain in children at SickKids. 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), 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, i.e. 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 continuous, multi-modal analgesia. Includes drugs from more than one drug classification (i.e. NSAID, 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 non-steroidal anti-inflammatory drugs (NSAIDs).

- **Opioid**: Refers to natural, semisynthetic and synthetic drugs that relieve pain by binding to opioid receptors in the nervous system e.g. codeine, morphine. 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 in the proper manner, all inappropriate behaviour ceases.

- **Psychological strategies**: The use of cognitive and behavioural strategies to promote a reduction in anxiety, pain and distress.
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 2014.

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Recommendation supported by at least one randomized controlled trial, systematic review or meta-analysis.</td>
</tr>
<tr>
<td>B</td>
<td>Recommendation supported by at least one cohort comparison, case study or other experimental study.</td>
</tr>
<tr>
<td>C</td>
<td>Recommendation supported by expert opinion or experience of a consensus panel.</td>
</tr>
</tbody>
</table>

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.1 (Grade C)

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

3.2.2 Develop pain management plan with interdisciplinary team, child and family, incorporating1: (Grade C)

- Pain assessment findings and identified pain goals
- Etiology

© 2012 The Hospital for Sick Children ("SickKids"). All Rights Reserved. This document may be reproduced or used strictly for non-commercial clinical purposes. However, by permitting such use, SickKids does not grant any broader license or waive any of its exclusive rights under copyright or otherwise at law; in particular, this document may not be used for publication without appropriate acknowledgement to SickKids. This Clinical Practice Guideline has been developed to guide the practice of clinicians at the Hospital for Sick Children. Use of this guideline in any setting must be subject to the clinical judgment of those responsible for providing care. SickKids does not accept responsibility for the application of this guideline outside SickKids.
• 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)\(^1\) (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.\(^1\) (Grade C)
- Oral route when possible
- IM is NOT acceptable (Grade B)
- Consider intranasal route if appropriate

3.3.3 Use the analgesic ladder.\(^1\) (Grade B)
- Match the analgesia to the severity of the pain i.e. for severe pain begin "strong" opioid AND non-opioid.
- 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)
3.3.4 Prescribing Guidelines\(^1\) (Grade B)

### Table 2. Prescribing Guidelines

<table>
<thead>
<tr>
<th>Pain Severity</th>
<th>Agents of Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild Pain</td>
<td>acetaminophen +/- NSAID(^*) [if not contraindicated]</td>
</tr>
<tr>
<td>Moderate to Severe Pain</td>
<td>acetaminophen +/- NSAID(^*) (if not contraindicated) + opioid</td>
</tr>
</tbody>
</table>

\(^*\)Non-steroidal anti-inflammatory drug

**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.
- **Ensure that the type and timing of opioid is appropriate:** According to characteristics 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 characteristics 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 "max 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 15% 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 is required.
- **Use equianalgesic doses if changing from one opioid to another:** See Equianalgesic table \(\Rightarrow\) E-formulary.
  - Opioids have different relative potencies, and bioavailabilities 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...**
Pain Management

principles of opioid conversion, consult pain service, especially with high dose or long term opioid requirements. (Grade C)

- Transdermal fentanyl patches are 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 stool softeners/laxatives 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
- Meperidine (DemerolTM): 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, tetracaine, unless contraindicated (Grade A)

Adjuvants
- Recognize that adjuvant drugs - e.g. anticonvulsants (gabapentin), tricyclic anti-depressants (amitriptyline), ketamine*, clonidine, nabnoline - are important in the treatment of neuropathic pain. Consultation with the Pain Service is recommended (*required for ketamine). (Grade C)
- Benzodiazepines may be helpful for the treatment of painful muscle spasms.
- Anticholinergics (e.g. oxybutinin) may be used for bladder and smooth muscle spasms.

3.4 Pain Management - Physical Strategies

Use appropriate physical comfort measures¹ (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
  - 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

© 2012 The Hospital for Sick Children ('SickKids'). All Rights Reserved. This document may be reproduced or used strictly for non-commercial clinical purposes. However, by permitting such use, SickKids does not grant any broader license or waive any of its exclusive rights under copyright or otherwise at law; in particular, this document may not be used for publication without appropriate acknowledgement to SickKids. This Clinical Practice Guideline has been developed to guide the practice of clinicians at the Hospital for Sick Children. Use of this guideline in any setting must be subject to the clinical judgment of those responsible for providing care. SickKids does not accept responsibility for the application of this guideline outside SickKids.
3.5 Pain Management - Psychological Strategies

Use developmentally appropriate psychological comfort measures¹ (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

For assistance see How to use Comfort Kit and Comfort Plan.

3.6 Algorithm

The algorithm below is based on the Hospital for Sick Children’s Pain Assessment Policy and Pain Management Clinical Practice Guideline (revision May 2013).
Pain Management

Pain Assessment and Management of the Child

Pain Assessment: **WHEN?**
- On admission and with vital signs
  - AND
- Before/during/after potentially painful interventions
- With moderate to severe pain as required

Pain Assessment & Reassessment: **HOW?**
Use developmentally appropriate tool

<table>
<thead>
<tr>
<th>Self Report</th>
<th>Behavioural Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Word Scale → 3 – 7 yrs</td>
<td>PIPP → Preterm &amp; Full Term</td>
</tr>
<tr>
<td>FACES → 5 – 12 yrs</td>
<td>NIPS → 0-1 year</td>
</tr>
<tr>
<td>Numeric Rating Scale → 7-18 yrs</td>
<td>FLACC → 2 mo – 7 yrs</td>
</tr>
<tr>
<td>Revised FLACC → Nonverbal &amp; cognitive impairment</td>
<td></td>
</tr>
<tr>
<td>NCCPC → 3 - 18 yrs</td>
<td></td>
</tr>
<tr>
<td>(Non-communicative patients)</td>
<td></td>
</tr>
</tbody>
</table>

Is pain present?

No

Yes

Pain Management: **INTERVENTIONS**

Pharmacological
- Apply topical anesthetic for IVs/ophthalmology
- Give analgesics regularly
- Use least invasive route (crystalline possible)
- Mild pain: Acetaminophen + NSAID
- Moderate & Severe pain: Acetaminophen + NSAID + opioid
  - Ensure no contraindications exist

Physical
- Heat and/or cold (not for rashes)
- Vapocoolant spray
- Massage
- Pressure
- Repositioning
- Activity out of bed
- Swaddling (preterm)
- Sucrose (< 1 month)

Psychological
- Explanation (invasive procedure)
- Distraction
- Relaxation
- Consider
- Child Life Specialist
- Psychology/psychiatry
  - consult for coping strategies

Reassess in 1 hour

© 2012 The Hospital for Sick Children (‘SickKids’). All Rights Reserved. This document may be reproduced or used strictly for non-commercial clinical purposes. However, by permitting such use, SickKids does not grant any broader license or waive any of its exclusive rights under copyright or otherwise at law; in particular, this document may not be used for publication without appropriate acknowledgement to SickKids. This Clinical Practice Guideline has been developed to guide the practice of clinicians at the Hospital for Sick Children. Use of this guideline in any setting must be subject to the clinical judgment of those responsible for providing care. SickKids does not accept responsibility for the application of this guideline outside SickKids.
Contact Information
If pain persists despite following these guidelines, or for assistance with complex pain situations, please contact the pain service (Pager 416-235-8912)
For palliative or end of life pain and symptom management, please contact the Paediatric Advanced Care Team (PACT) at 416-813-6905 OR pager 416-237-4512.

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)
- NRCC Survey – inpatient pain satisfaction, Emergency satisfaction

5.0 Related Documents:

Pain Assessment
Care of Patients Receiving Patient Controlled Analgesia (PCA)
Care of Patients Receiving Regional Anaesthesia: Epidural Infusions or Peripheral Nerve Blocks
Care of Patients Receiving Continuous Infusion of Opioids

© 2012 The Hospital for Sick Children (‘SickKids’). All Rights Reserved. This document may be reproduced or used strictly for non-commercial clinical purposes. However, by permitting such use, SickKids does not grant any broader license or waive any of its exclusive rights under copyright or otherwise at law; in particular, this document may not be used for publication without appropriate acknowledgement to SickKids. This Clinical Practice Guideline has been developed to guide the practice of clinicians at the Hospital for Sick Children. Use of this guideline in any setting must be subject to the clinical judgment of those responsible for providing care. SickKids does not accept responsibility for the application of this guideline outside SickKids.
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

6.0 References:


Harrison, D., Yamada, J., Adams Webver, T. et al. Sweet tasting solutions for reduction of needle-related procedure pain in children aged one to 16 years. Cochrane Pain, Palliative and Suportive Care Group Cochrane Database of Systematic reviews. 10, 2011


NICU, Pain Committee, SickKids Hospital (2008) Pain Management Guidelines for Post-operative Patients in the NICU.


Royal Children’s Hospital Melbourne Australia, Clinical Guidelines: Oral Sucrose for procedural pain management in infants.

SickKids Drug Handbook and Formulary , The Drugs and Therapeutics Committee at the Hospital for Sick Children, Toronto, Ontario

Stevens, B., Yamada, J., Ohlsson, A. Sucrose for analgesia in newborn infants undergoing painful procedures . Cochrane Database of Systemic Reviews, 2010; 1. CD001069


7.0 Guideline Group and Reviewers

Guideline Group
Pain Matters Task Force members

Reviewers:
Dr. Denis Daneman, Paediatric-in-Chief, Paediatrics
Dr. Jeremy Friedman, Head, Division of Paediatric Medicine
Dr. Basem Naser, Director, Acute Pain Service, Anaesthesia
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:

How to use Comfort Kit and Plan.pdf