POLICY NAME:	**Pain Assessment and Management Clinical Practice Guideline**
POLICY NO:	**C.PSM.01**
AREA/DEPARTMENT:	**CLINICAL**

1.1 Purpose

Assessing and measuring pain consistently as part of a comprehensive ongoing comfort assessment is paramount to providing high quality pediatric palliative care and effective pain management. This guideline will outline an approach to pain assessment in children of all ages across a pediatric palliative care setting.

1.2 Scope

This guideline applies to all Canuck Place healthcare providers who care for children across the Canuck Place setting. The CPCH PPC Foundations: Pain and Symptom Assessment and Management Standard outlines the overarching approach to pain and symptom assessment, while this guideline is specific to pain. This guideline does not address disease specific management. For guidance of assessment at end of life care, refer to CPCH Symptom Assessment and Care at End of Life Guideline *(policy in development*). Other Symptoms are addressed in policy C.PSM.03 Symptom Assessment Policy

Practice Level

This guideline will outline an approach for all healthcare providers to pain assessment in children of all ages across a pediatric palliative care setting.

1.3 Background/Context

Assessing pain in children can be challenging. Pain can be classified as "total pain" as it impacts the social/emotional, spiritual, psychological, and physical domains of a patient and family (see Appendix A. Total Pain Components). Different types of pain will respond to different analgesics, therefore, it is important to try to understand the cause of pain, by performing physical examinations, obtaining pain histories, interpreting child's behaviors, and collaborating with patients/parents and caregivers. (see Appendix B. Type of Pain and Correlating Symptoms).

The impact that pain has on other aspects of the child's life

Physical	Pain impacts body functions, structures, and the ability to participate in physical activities or from pursuing life goals
School	Pain impacts school attendance, the return to school, and causes stress and anxiety related to missed school work, poorer academic performance, negative teacher evaluations, challenges peer relationships, inability to focus or engage in environment, participate in school activities
Social	Children with pain at greater likelihood of being bullied and may interfere with friendships and relationships with family members
Emotional	Pain impacts mood, increases stress and causes worry
Sleep	Pain impacts sleep quality, quantity, and may cause insomnia
Eating	Pain impacts frequency and variety of eating

Guideline statements

- All assessments are ALWAYS within the context **of goals of care, child's health zone and illness trajectory, child's location, child's developmental age/capacity, child's cultural and language background and CPCH's role within the child/family's healthcare team.** See CPCH PPC Foundations: Pain and Symptom Assessment and Management Standard for overarching assessment considerations and framework.

Healthcare professionals:

- Include a multidisciplinary team of professionals to address all of the domains of the total pain; such as, counselling, recreation therapy, music therapy, school, and other team members.
- Will build relationships and provide care to patients and families in alignment of Indigenous cultural safety and with the intention of equitable cultural considerations by promoting safety, choice, collaboration, empowerment and trust into every encounter
- Encourage team reflection to promote awareness of subjective personal biases so that pain assessments are person/family- centred and culturally safe.
- Recognize the child's memories of previous pain and beliefs about pain affect reactions to current pain, including memories of illness, painful procedures and operations, and/or distressing events including trauma or abuse.
- Recognize that the child's ability to communicate about pain varies with their stage of development (language, cognitive and social) and their understanding of the pain, e.g. cause, effects, ways to resolve pain. Partnering with families who have a child who is nonverbal is essential in obtaining a thorough pain history.
- Promptly recognize pain by providing frequent and thorough pain assessments using validated pain assessment tools and the O, P, Q, R, S, T, U, V pain assessment and history form. Some benefits of validated pain assessment tools include creating a common language for a child/family to communicate pain to healthcare providers and assessing pain consistently amongst healthcare providers and provide context for reassessment.
- Promptly treat pain by using the three Ps of pain management (physical, psychological, and pharmacological interventions), document and evaluate, and document for each pain reported.
- Screen for potential pain sources and initiate pain prevention approaches (See Appendix F for the Comfort Checklist as an example) to minimize the distress of pain in all clinical encounters.
- Effectively communicate and document the pain assessment findings as well as the effectiveness of the interventions with the healthcare team and the patient and family

Guideline: Assessment

Conducting a Comprehensive Pain Assessment

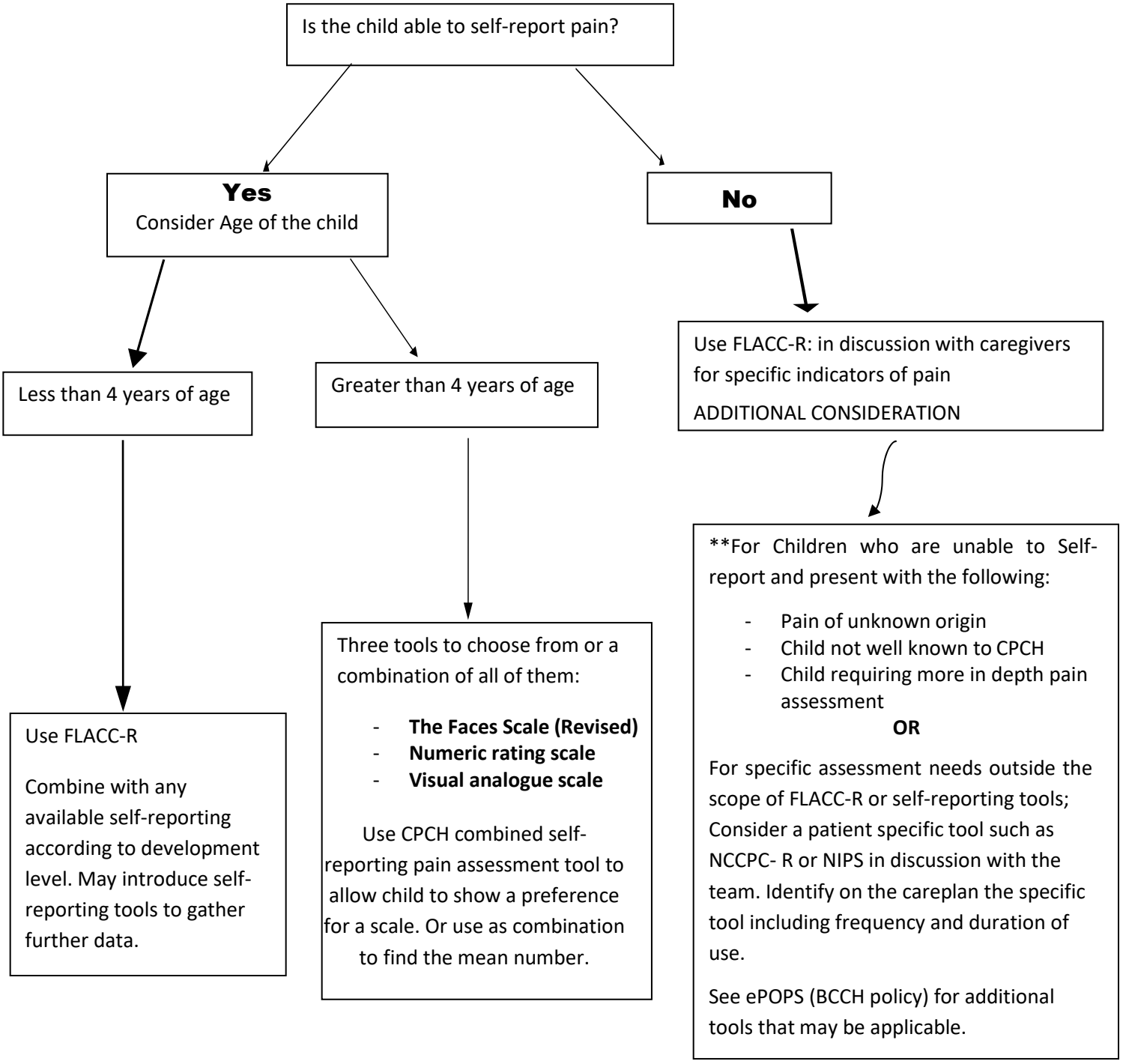
- Collaborate with the child and family to provide information, input, and observations. Parents and caregivers are integral to the care of the child. Their involvement in pain assessment and treatment is key.
- **A comprehensive pain assessment can be obtained from using the OPQRSTUV acronym as listed below. Electronically Fillable Pain History O,P,Q,R,S,T,U,V form**

O	**O**nset	When did it begin? How long does it last? How often does it occur? Is the pain always there or does it come and go?
P	**P**rovoking / **P**alliating	What brings it on? What makes it better? What makes it worse?
Q	**Q**uality	What does it feel like? Can you describe it? If can't describe, ask if the pain is sharp, dull, aching, burning, or do they experience pins and needles?
R	**R**egion / **R**adiation	Where is it? Does it spread anywhere?
S	**S**everity	What is the intensity of this symptom (On a scale of 0 to 10 with 0 being none and 10 being worst possible)? Right now? At best? At worst? Are there any other symptom(s) that accompany this symptom? Consider use of a pain assessment tool.
T	**T**reatment	What medications/treatments are you currently using? How effective are these? Do you have any side effects from any medications/treatments? What medications and treatments have you used in the past?
U	**U**nderstanding /Impact on You	What do you believe is causing this symptom? How is this symptom affecting you and / or your family?
V	**V**alues	*Be sensitive when presenting the following questions: Goals and expectations of management for this symptom. What is your goal for this symptom? What is your comfort goal or acceptable level for this symptom (On a scale of 0 to 10 with 0 being none and 10 being worst possible)? Are there any other views or feelings about this symptom that are important to you or your family?

- Pain intensity scores should be obtained by self-report (if possible), parental/caregiver report and/or observed behavioral cues. It is usually not necessary to wake the child to assess pain
- Pain assessment tools should be meaningful to the child/family.
- Healthcare providers will use their judgment as to which assessment tool is useful and how frequently it should be used, based on patient and family feedback and the Pain Assessment Scale Decision Algorithm (see Appendix C).

Algorithm Choosing an appropriate pain assessment scale by using the following decision algorithm (see Appendix C. for Reference tool for Pain Assessment Scale Decision Algorithm).

Pain Assessment Scale Decision Algorithm



Creating a Treatment/Management Plan

See CPCH PPC Foundations: Pain and Symptom Assessment and Management Standard for guiding principles and framework.

In collaboration with the child/family set realistic goals and expectations for pain alleviation with estimated timelines or re-assessment points (i.e. the expectation is often not to eliminate, but to decrease and promote function). Open communication and shared decision making is essential.

Treating underlying causes when possible
• When considering a management approach, always balance burden of a possible intervention against the likely benefit. • For palliative care emergencies (i.e. spinal cord compression), urgency of treatment is essential. • Example of underlying causes: constipation.
Consider additional investigations/interventions when appropriate
• Consider the etiology of the pain and suggest investigations/interventions consistent with the child and family's goals of care, illness trajectory and availability of resources and capacity. • Examples of investigations include: CT scan, MRI, chest x-ray, bloodwork, • Examples of interventions: nerve blocks, epidurals, chest tubes
Manage Pain
• Consider the etiology of the pain to direct care approaches and interventions. • Pain may be of acute or chronic nature. Promote comfort with use of Comfort Checklist (see Appendix E) • Create an integrative pain management plan centered on the specific child (3P approach) involving interdisciplinary team members familiar with application of specific techniques/interventions and child/family.

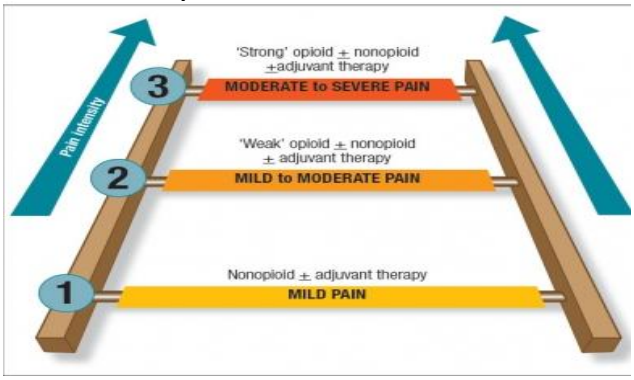
<table>
<tr><th>Psychological Approaches</th><th>Physical Approaches</th><th>Pharmacological Approaches</th></tr>
<tr><td>Supportive Counseling
Psycho-education/ Education/ explanation</td><td>Heat/cold, massage, weighted blankets, positioning and supportive positioning devices (pillows, chairs, beds)</td><td>Consider acute procedural pain approaches such as sucrose (infants), topical local anesthetic, bolus analgesics</td></tr>
<tr><td rowspan="2">Cognitive Behavioral strategies ex–

Imagery (leading child through imagery exercise),

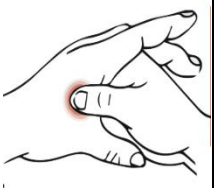
Relaxation (ex: progressive muscle relaxation by briefly tense parts of the body then relaxing them),

Distraction (see CPCH distraction kits in house)
<u>Infant</u>: pacifier, bubbles, toys, singing, rattles, parent's voice

<u>Toddler:</u> bubbles, songs, pop-up books, party blower, kaleidoscope, toys, pinwheels, comfort toys.</td><td>Modified movements, paced activity, promoting rest to alter sensations/reduce pain

Rehabilitation such as exercise, physical therapy (graded motor imagery, mirror therapy), occupational therapy.</td><td rowspan="2">Opioids (used in alignment with WHO's Pain Relief ladder)


• Opioids may be used safely in children of all ages, including neonates: Neonates, and some ex-preterm infants are more sensitive to opioids, adjust dosing accordingly.
• There is no ceiling effect to opioids: A "maximum dose" does not exist for opioids.</td></tr>
<tr><td>Acupuncture/Acupressure
Headache/Pain


LI- 4
• Located at the back of the hand where the thumb and index finger meet
• Find the exact point by bringing your thumb and</td></tr>
</table>

School age: videos, electronic toys, stories, jokes, counting, talking about other things Adolescent: music, video games, jokes, humor, talking or focusing on other things	index finger together. The muscle will bulge a little – that's the spot. • Angle the pressure towards the bone that connects with the index finger.	• Treating pain with opioids does NOT lead to psychological dependence/addiction • 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 / half-life) and route of drug e.g. titrate dose by 25-50%. • Sustained release opioids are appropriate when dose requirements are stable. • For patients on sustained release opioids an immediate release preparation of the same opioid should be available for breakthrough pain. 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 baseline opioid dose maybe required. • Transdermal fentanyl patches are only indicated for persistent, moderate to severe chronic pain. • Use equianalgesic doses if changing from one opioid to another: See BCCH Equianalgesic table Consider principles of opioid rotation (acute vs chronic use, and cross tolerance) • Anticipate and treat opioid side-effects proactively: Most opioid side-effects are easily treated with simple interventions. See CPCH Symptom Assessment and Management Guideline
Mind-body techniques – hypnosis (language of suggestion) • slinky sleep (See Appendix C) • favorite place (use senses, breath and language of suggestion) • pain switch (focused selected attention)	Aromatherapy Sleep/anxiety: sweet orange, lavender Pain: headache (peppermint, lavender, rosemary, eucalyptus), body pain (lemongrass, rosemary) Depression: lavender, lemon	
Deep Breathing – Belly breathing (see Appendix C) Mindfulness Consider use of apps (Breathr, mindshift, smiling mind) or other resources https://keltymentalhealth.ca	Developmental considerations: • neonates/infants benefit from: kangaroo care, breastfeeding, non-nutritive sucking, developmental positioning (facilitated tucked – arms/hands midline and close to mouth, lower limbs tucked and close to body often with supportive barriers/containment).	

<table>
<tr>
<td>Support parent capacity to support decrease pain

• Distraction
• Humor
• Suggestions on how to cope together
• Involving/teaching parent the above listed psychological approaches

Supporting parent behavior to help decrease pain through:

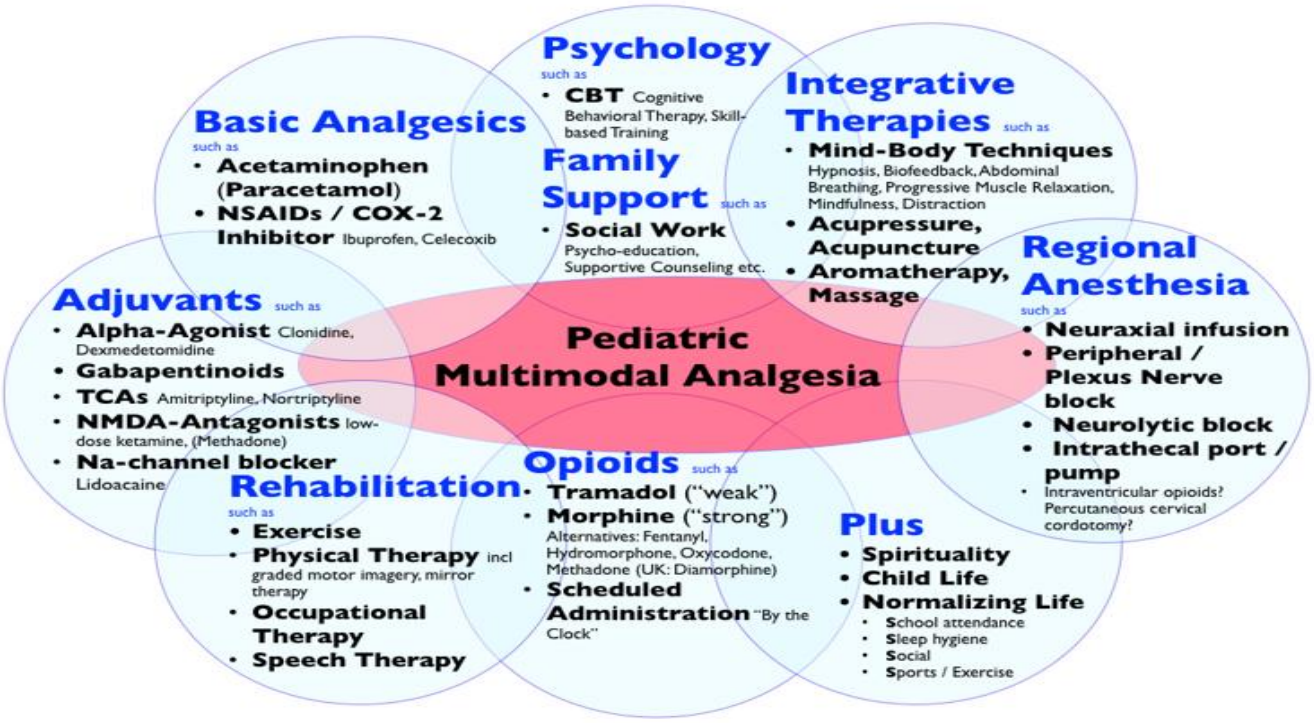
• supportive Counseling
• Psycho-education
• Education/ explanation</td>
<td>Strategies for symptoms triggered by gastrointestinal tract distention include:

• Gastrostomy tube venting,
• Equipment that allows venting during feedings,
• Decrease in the total volume of fluids and nutrition given by feeding tube.
• Decrease rate of feeds and/or duration of feeds when appropriate.
• Rotation to pedialyte or clear fluids for a period of time.

See CPCH Symptom Assessment and Management Guideline for further guidance on constipation, feeding intolerance or other symptom associated discomfort.</td>
<td>Adjuvants
• Non-opioid analgesics (Acetaminophen/ NSAIDs) are helpful for treatment of mild pain when appropriate based on etiology.
•Recognize that adjuvant drugs - e.g. anticonvulsants (gabapentin), tricyclic anti-depressants (amitriptyline), ketamine*, lidocaine, clonidine, nabilone – can be important in the treatment of neuropathic and complex pain. See CPCH Policy C.PT.08 Lidocaine Infusion Protocol.
• Benzodiazepines may be helpful for the treatment of painful muscle spasms and symptom associated anxiety.
• 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

Methadone
• Long acting analgesic (NMDA antagonist receptor). Effective with chronic and neuropathic pain.
• Long half-life requires skilled dosing and pharmacokinetic understanding.
• Recognize large medication interaction profile, medication review necessary.
• Assess need for ECG when appropriate.</td>
</tr>
<tr>
<td colspan="3">See the following for detailed medication support for palliative pain support:
• BC Inter-professional palliative symptom guidelines for guidance. https://bc-cpc.ca/wp-content/uploads/2019/10/SMG-Interactive-Oct-16-2019.pdf
• Dana Farber Cancer Institute (2020). Pediatric Palliative Care Approach to Pain and Symptom Management. Retrieved from https://pinkbook.dfci.org/assets/docs/blueBook.pdf (includes Neuro-pain considerations for children with significant impairment to the central nervous system)</td>
</tr>
</table>

Multimodal Analgesia



EPEC Pediatric Friedrichsdorf SJ: 12th Pediatric Pain Master Class in Minneapolis, MN, 2020 - Multimodal Analgesia (Module 10)

Reassessment/Monitoring

• Feedback from patients and parents regarding the effectiveness of pain interventions is invaluable.
• When tracking pain over time, assessments should be documented on a comfort log and/or in the IN notes.
• Pain should be routinely assessed based on patient's clinical condition upon admission and minimally once per shift.
• Frequency of pain assessments
  ○ Based on clinical condition and presentation, the stability of medical condition and type of pain and/or symptom
  ○ Upon admission
  ○ Minimally once per shift
  ○ More frequent assessment as indicated by:
  ▪ pain intensity
  ▪ near the expected peak action time of a given analgesic
  ▪ following the start of a new treatment
  ▪ with each new report of pain
  ▪ any changes in presentation of pain
  ▪ when pain is not relieved by previous strategy
  ▪ before, during, and after a potentially painful experience (position changes, toileting)
  ▪ during and after any pharmacologic, physical, or psychological intervention

Documentation

MAR (Section 3)

- The administration of regular pain medications and adjuvants and all as needed (PRN) medications to treat pain and symptoms

Care plan - Comfort Management Section (section 4) – is the child's baseline, general overview of comfort - to be updated on admission and throughout the child's hospice stay with the following information:

- Physical, psychological and pharmacological interventions to be used for pain relief and comfort measures identified by the child and/or family and caregivers.
- If applicable, obtain and document a pain history, including previous experience with pain, pain coping strategies, impact, perceptions, beliefs, understanding, expectation for pain control, and how the person communicates pain.
- A self-report pain assessment scale tool chosen by the child if possible, or a standardized pain rating tool for children who are unable to self-report (preverbal, nonverbal, sleeping) including behavioral cues, physiological cues and contextual factors. FLACC-r is the most used scale appropriate for most of the CPCH patient population (non-verbal +/- age). Self-report is typically for age category of 7+. See Appendix C for the Pain Assessment Tool Decision Algorithm.
- A child's individual pain behaviours and indicators of pain. For example, if using the Faces, Legs, Activity, Cry Consolability Revised pain scale (FLACC-R), discuss with parent/caregiver child's individual pain cues and document descriptions in the appropriate sections. Observe child for a period of at least 5 minutes to determine behaviours suggesting pain. (See Reference tools section).

Care plan – Specific Symptom Management Care Plan (section 4) – an additional care plan add-in to be used when a CPCH clinician or the child's parent/caregiver has identified a specific symptom that requires further assessment and management during the admission. It will be used to gather more information, to trend, to investigate, to trial and to evaluate new treatment or management plans during a specific admission.

- An OPQRSTUV comprehensive pain assessment should be completed by a clinical team member and filed in the *OPQRSTUV & Summaries tab of sub-section 4* in the chart. It is an assessment conducted based on child/family's assessment, understanding, and hopes and goals. A fillable PDF form can be found: V:\Child Charts\Chart Forms\4 - Inpatient Care Plan

Comfort log (section 5) - comprehensive tracking log of child's comfort/symptom from identification to outcome. The comfort log highlights the following:

- Physical, psychological and pharmacological interventions used for pain relief and comfort measures
- Context, environment or triggers for the child.
- The name of the validated pain assessment tool used and its scores
- Outcome of interventions on patient's pain level and on family/caregiver perspective on interventions used

Ensure the legend at the bottom of the comfort log matches the interventions listed in the comfort management section or symptom management section in the child specific careplan.

Interdisciplinary Notes (Section 7)

- Use an Interdisciplinary Note (IN) for any additional documentation on comfort that do not fit on the comfort log notes section.

Patient and Family Engagement/Education

- Encourage child and family to report changes in pain, pain that is new and pain that does not improve after an intervention. If the child is non-verbal, collaborate with parents to identify the individual ways the child communicates and include pain indicators in plan of care.
- Discuss and develop goals of care with the child and family to understand their hopes, values and impact of quality of care.
- Collaborate with the child and family to understand their experiences of pain, pain behaviors and relevant comfort measures including physical and psychological interventions such as (hot or cold packs, massage, distraction, meditation, mindfulness, imagery).

Supporting Documents

- Total Pain Image https://www.researchgate.net/figure/Pain-as-a-multidimensional-experience-Different-components-interact-to-form-the-complex_fig1_23931238
- Pain is multidimensional reference https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-018-3368-8
- Characteristics of Different Pain Types http://www.vemcomeded.com/pain/pain7.htm
- Canuck Place – Managing Pain with Medication Information Sheet – Youth Edition
- Canuck Place – Managing Pain with Medication Information Sheet – Parent Caregiver Edition
- The comfort checklist
- Counselling supporting documents – *in development*

Definitions

Pain An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage

Nociceptive pain arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors

Neuropathic pain is caused by a lesion or disease of the somatosensory nervous system. It may be associated with abnormal sensations.

Central Neuropathic pain. Symptoms include pain localized to the gastrointestinal tract, such as pain triggered by distention of the gastrointestinal tract (suggested by pain associated with tube feedings or intestinal gas, with relief after a bowel movement or flatus)

Hyperalgesia is an increased perception or experience of painful stimuli

Visceral Hyperalgesia is altered threshold to pain generation in response to a stimulus in the gastrointestinal tract. Attributable to sensitization of visceral afferents as well as central sensitization in the CNS.

Allodynia is the experience of pain induced by non-painful stimuli

Dysesthesias are uncomfortable sensations that are perceived as abnormal and described using terms such as “burning”, “shock-like” or “electrical”. All three are indicative of neuropathic pain mechanisms.

Dystonia. Involuntary sustained or intermittent muscle contractions cause twisting and repetitive movements, abnormal postures, or both. Children with secondary dystonia attributable to severe alterations of the CNS may also be at risk of central neuropathic pain. Pain can trigger and worsen features of dystonia.

Mixed pain has both nociceptive and neuropathic components.

Total Pain the suffering that encompasses all of a person's physical, psychological, social, spiritual, and practical struggles.

Background pain is pain present for twelve or more hours per day during the previous week, or would be present if not taking analgesia.

Breakthrough pain (BT) is a transient exacerbation of pain that occurs either spontaneously, or in relation to a specific predictable or unpredictable trigger, despite relatively stable and adequately controlled background pain. Different subtypes of breakthrough pain:

Incident pain is precipitated by a movement or a voluntary action, and is predictable or expected.

Spontaneous pain is not related to an identifiable precipitant, and so is unpredictable in nature.

End of Dose Failure describes an exacerbation of pain that occurs prior to the next dose of the background analgesic, and reflects declining levels of the background analgesic.

Titration: Adjustments of analgesics to improve pain control and to minimize adverse effects

Total Daily Dose is the 24 hour total of drug that is taken for regular and breakthrough doses combined.

Serious Illness: a condition that carries a high-risk of mortality and negatively impacts a child's daily function/ quality of life/ excessively stresses the caregiver.

Goals of Care: Goals of care (GOC) refer to a parents'/child's values, wishes and beliefs regarding what is best for their child/themselves. These help inform the Canuck Place role on the child's care team.

Health Zone: The intersection of the fragility and instability determines the child's zone of health.

Symptom: within our population, a symptom refers to an interference with basic function impacting the well-being and quality of life of the child/family, which may lead to distress of the child/family.

Difficult symptom: a symptom that could possibly respond within a tolerable time-frame, to aggressive interventions that yield adequate relief and preserve consciousness, without excessive adverse results.

Refractory symptom: Physical and emotional symptoms for which "all possible treatments have failed, or it is determined that no methods are available for palliation within the time frame and the risk-benefit ratio that the patient can "tolerate". Often geography and the relative availability of interventions influence the determination of refractoriness.

Distress: A physiological, behavioral and/or experience that can be manifested as discomfort, anxiety, fear, agitated movement, grimacing, crying, avoidance, muscle tension and/or autonomic nervous system responses.

Suffering: "a sense of helplessness/loss in the face of a seemingly relentless and unendurable threat to quality of life or integrity of self". Suffering involves the whole person.

Existential suffering: Describes the experience of patients facing terminal illness who may or may not have physical symptoms**.** Distress is related to the "meaninglessness in present life", hopelessness, being a burden on others, feeling emotionally irrelevant, dependent, isolated, or grieving.

Develops specifically as a result of facing one's own mortality

3P Approach: Pain management is provided with a combination of psychological, physical, and pharmacological strategies, or methods, to treat and manage pain.

Related documents

- CPCH Cover Sheet for Children's and Women's Health Centre of British Columbia Pain and Comfort Standard
- CPCH PPC Foundations: Pain and Symptom Assessment and Management Standard
- Children's and Women's Health Centre of British Columbia Pain Assessment Standard
- Children's and Women's Health Centre of British Columbia Pain Management Standard
- CPCH Sucrose Guideline
- CPCH Comfort Log and Reference Tool
- CPCH Cover Sheet for Children's and Women's Health Centre of British Columbia Person and Family Centred Care Standard

Most commonly used Pain assessment scales and reference tools

See BCCH Pain Assessment Standard for additional tools.

- Reference Tools Acute Pain Self-Assessment: Faces Pain Scale-Revised (FPS-R)
- Visual Analog Scale (VAS), Numerical Rating Scale (NRS)
- Reference Tool Faces, Legs, Activity, Consolability, Cry - Revised (FLACC-R)
- Reference Tool NCCPR-R Non-communicating Children's Pain Checklist – Revised

References

BC Centre for Palliative Care (2019) *B.C. Inter-professional Palliative Symptom Management Guideline,* https://bc-cpc.ca/publications/symptom-management-guidelines/

British Columbia Children's Hospital (2018). *Pediatric Drug Dosage Guidelines* (Seventh Edition). https://your.healthbc.org/sites/NeonatalProgram/home%20page%20material/drug%20dosage%20guidelines.aspx

Breau, L, McGrath, P., Camfield, C. & Finley, G. (2002). Psychometric Properties of the Non-Communicating Children's Pain Checklist Revised. *Pain.Sept* 99 (1-2), 349-357.

Dana-Farber Cancer Institute (2018). Pain Management Tables and Guidelines, *Guidelines for Assessment and Management of Nausea and Vomiting, Pediatric Pain and Symptom Management Guidelines* https://pinkbook.dfci.org/

Dana Farber Cancer Institute (2020). Pediatric Palliative Care Approach to Pain and Symptom Management. Retrieved from https://pinkbook.dfci.org/assets/docs/blueBook.pdf

Downing, G. Michael. (2006). Medical Care of the Dying. *Victoria Hospice Society Learning Centre for Palliative Care.* 4th Ed.

Hauer, J & Houtrow, A. (2017). Pain Assessment and Treatment in Children with Significant Impairment of the Central Nervous System. *American Academy of Pediatrics,* 139(6),

Herr, K., Coyne, P., Manworren, R., McCaffery, M., Merkel, S., Pelosi-Kelly, J. & Wild, L. (2006). Pain assessment in the nonverbal patient: Position statement with clinical practice recommendations. *Pain Management Nursing.*7(2), 44-52.

Hicks, CL et al. The Faces Pain Scale – Revised: Toward a common metric in pediatric pain measurement. **Pain** 2001;93 (2):173-183.

Goldman, A, Hain R, Liben, S (2012). Oxford Textbook of Palliative Care for Children (2nd edition). Oxford University Press; Oxford.

International Association for the Study of Pain 2018 https://ww.iasp-pain.org/PublicationsNews/NewsDetail.aspx?ItemNumber=10475

International Children's Palliative Care Network. *Pain Assessment and Management for Children*. https://www.elearnicpcn.org/

Kahsaym, H. (2017). Assessment and treatment of pain in pediatric patients. *Current Pediatric Res* 21(1). 148-157.

Malviya et al. (2006). The revised FLACC observational pain tool: Improved reliability and validity for pain assessment in children with cognitive impairment. *Pediatric Anesthesia.* 16, 258- 265.

Manworren RCB, & Hynan LS. (2003). Practice applications of research. Clinical validation of FLACC: preverbal patient pain scale. Pediatric Nursing, 29(2), 140-146.

Neale, K. (2012). The fifth vital sign: Chronic pain assessment of the adolescent oncology patient. *Journal of Pediatric Oncology Nursing.* 29(4), 185-198.

Phenwan, Tharin. BMC Res Notes. *Relieving total pain in an adolescent: a case report*. **11,** 265 (2018). https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-018-3368-8

Registered Nurses Association of Ontario (2013). Clinical Best Practice Guideline: *Assessment and Management of Pain*. 3rd Ed. Retrieved from http://rnao.ca/sites/rnao-ca/files/AssessAndManagementOfPain_15_WEB-_FINAL_DEC_2.pdf

Richmond C. Dame Cicely Saunders. *BMJ* 2005;33: 238. (23 July.)

SickKids (2018). *Clinical Practice Guideline: Pain Management*. Retrieved from https://wapps.sickkids.ca/clinical-practice-guidelines/clinical-practice-guidelines/Export/CLINH142/Main%20Document.pdf

Siden, H. (2018). Pediatric Palliative Care for Children with Progressive Non-Malignant Diseases. *Children* 2018, *5*(2), 28; https://doi.org/10.3390/children5020028

Together for short lives (2017). Basic Symptom Control in Paediatric Palliative Care. 4th Ed. The Rainbows Children's Hospice Guidelines retrieved from https://www.togetherforshortlives.org.uk/resource/basic-symptom-control-paediatric-palliative- care/

Tucker-Bartley, Anthony et al. *Pain Phenotypes in Rare Musculoskeletal and Neuromuscular Diseases Neuroscience & Biobehavioral Reviews*, Volume 124, May 2021, Pages 267-290, https://www.sciencedirect.com/science/article/abs/pii/S0149763421000609?via%3Dihub

Twycross, A, Dowden, S, Stinson, J. (Eds) 2013. Managing Pain in Children:A Clinical Guide for Nurses and Healthcare Professionals (2nd ed.).

Voepel-Lewis, Terri MSN, RN; Malviya, Shobha MD; Tait, Alan R. PhD; Merkel, Sandra MS, RN; Foster, Roxie PhD, RN; Krane, Elliot J. MD; Davis, Peter J. A Comparison of the Clinical Utility of Pain Assessment Tools for Children with Cognitive Impairment, Anesthesia & Analgesia: January 2008 - Volume 106 - Issue 1 - p 72-78.

Willis MHW, Merkel SI, Voepel-Lewis T, & Malviya S. (2003). FLACC Behavioral Pain Assessment Scale: a comparison with the child's self-report. Pediatric Nursing, 29(3), 195-198.

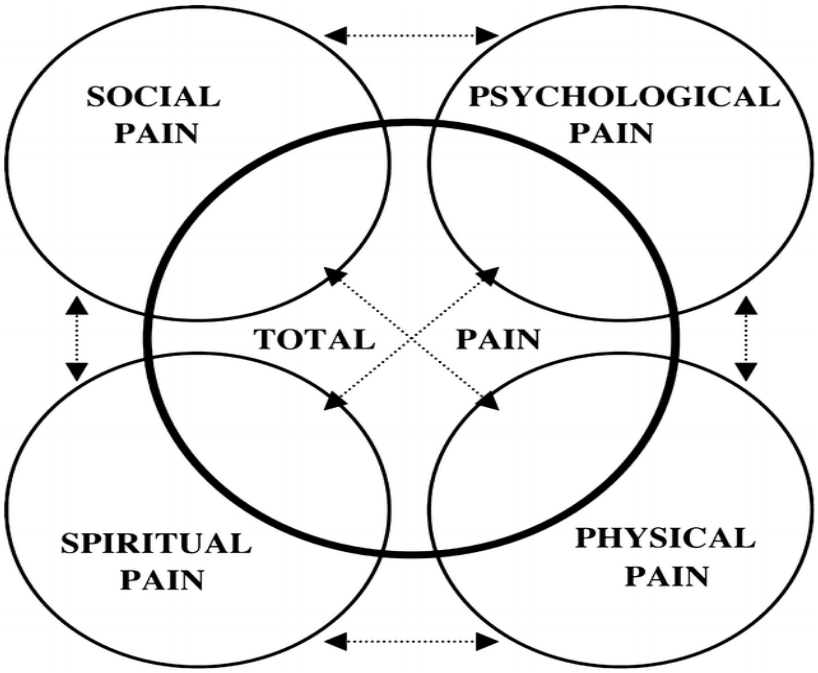
Wong DL, Hess CS Wong and Whaley's Clinical Manual of Pediatric Nursing Education, edition 5 2000, Mosby, St Louis.

World Health Organization (2012). *Persisting pain in children package: WHO guidelines on the pharmacological treatment of persisting pain in children with medical illness* https://pubmed.ncbi.nlm.nih.gov/23720867/

Appendices

Appendix A: Total Pain Components
Appendix B: Nociceptive, Neuropathic, and Nociplastic Pain Chart
Appendix C: Reference Tool for Pain Assessment Scale Decision Algorithm
Appendix D: Pain Behaviours in Infants and Children
Appendix E: Comfort Checklist
Appendix F: Belly Breathing

Appendix A: Total Pain Components



Appendix B: Nociceptive, Neuropathic, and Nociplastic Pain Chart

Nociceptive Pain	Neuropathic Pain	Nociplastic Pain
Mechanism: Caused by activation of the alarm mediated network serving as protective function by removing a potentially harmful stimulus.	**Mechanism:** Lesion or disease to the nervous system caused by mechanical trauma, metabolic diseases, neurotoxic chemicals, or tumor invasion.	**Mechanism:** Alterations in the nociceptive signaling pathway without evidence of physical neuronal or tissue damage.
Pain Quality: Sharp, stinging, dull ache, or throbbing.	**Pain Quality:** Burning, lancinating, paresthesia, or numbness that often follows a neuroanatomical distribution. Hypersensitivity (hyperalgesia and allodynia) often present.	**Pain Quality:** Sharp, dull ache, and paresthesia. Non-specific.
Pharmacological Therapy: NSAIDS, acetaminophen, or opioids. No therapy required in some acute pain cases.	**Pharmacological Therapy**: Na^+ and Ca^{2+} channel blockers, opioids (limited effectiveness), SNRIs, and TCAs.	**Pharmacological Therapy**: SNRIs, TCAs, Ca^{2+} channel blockers, ketamine, and CGRP antibodies.
Clinical Conditions: Osteoarthritis, bone fractures, burns, acute surgical pain, or physiological pain.	**Clinical Conditions**: Diabetic neuropathy, HIV/AIDS, postherpetic neuralgia, trigeminal neuralgia, multiple sclerosis, mono-/poly-neuropathy, and radiculopathy.	**Clinical Conditions**: Fibromyalgia, irritable bowel syndrome, interstitial cystitis, migraine, and tension headaches.

Appendix C: Reference Tool for Pain Assessment Scale Decision Algorithm

Picking a Pain Assessment Tool
Using the Pain Assessment Tool Decision Algorithm

From a pediatric palliative care perspective, the **FLACC-r** tool can be used as our standard daily assessment tool for any child who cannot self-report, OR in conjunction with self-reporting. This tool has sensitivity of 98% and specificity of 88% for both pre-verbal (younger than 3 years) or children who cannot self-report related to cognitive impairment. The FLACC-r is also valid for procedural pain, so can be effective for multiple settings. Studies also show that this tool is considered more user friendly for nursing staff, increasing the reliability of its use shift to shift. We also considered that the tools we chose to standardize cover the same information as some of the other tools, so we wanted to reduce redundancy.

The FLACC-r allows parents and caregivers to identify patient specific pain indicators under each category.

This standardize assessment tool was chosen based on the following factors:

1) Information needed
    a. For most situations, a general assessment of overall discomfort is appropriate
    b. Information gathered from the tool builds on existing knowledge of the child
2) Simplicity of consistent use
    a. Using one standard tool encourages consistent and reliable use
    b. Factors in staff comfort and feasibility of use
3) Evidence
    a. Strong evidence of efficacy for our population

For children who can self-report, there appears to be equal efficacy amongst three standard tools; **the FACES (specifically Wong Baker revised), numerical scale and the visual analogue scale.** One study indicated the benefit of linking all 3 together for a more accurate mean, and allows for patient preference of tool to use when self-reporting.

We chose to include a decision algorithm to guide staff in choosing an appropriate tool from a short list of standardized tools.

*For specific assessment needs outside the scope of FLACC-r or self-reporting tools; consider a patient specific tool such as NCCPC-R, NIPS, etc. in discussion with the team. Consider identifying a specific tool in terms of frequency and duration of use in the care plan.

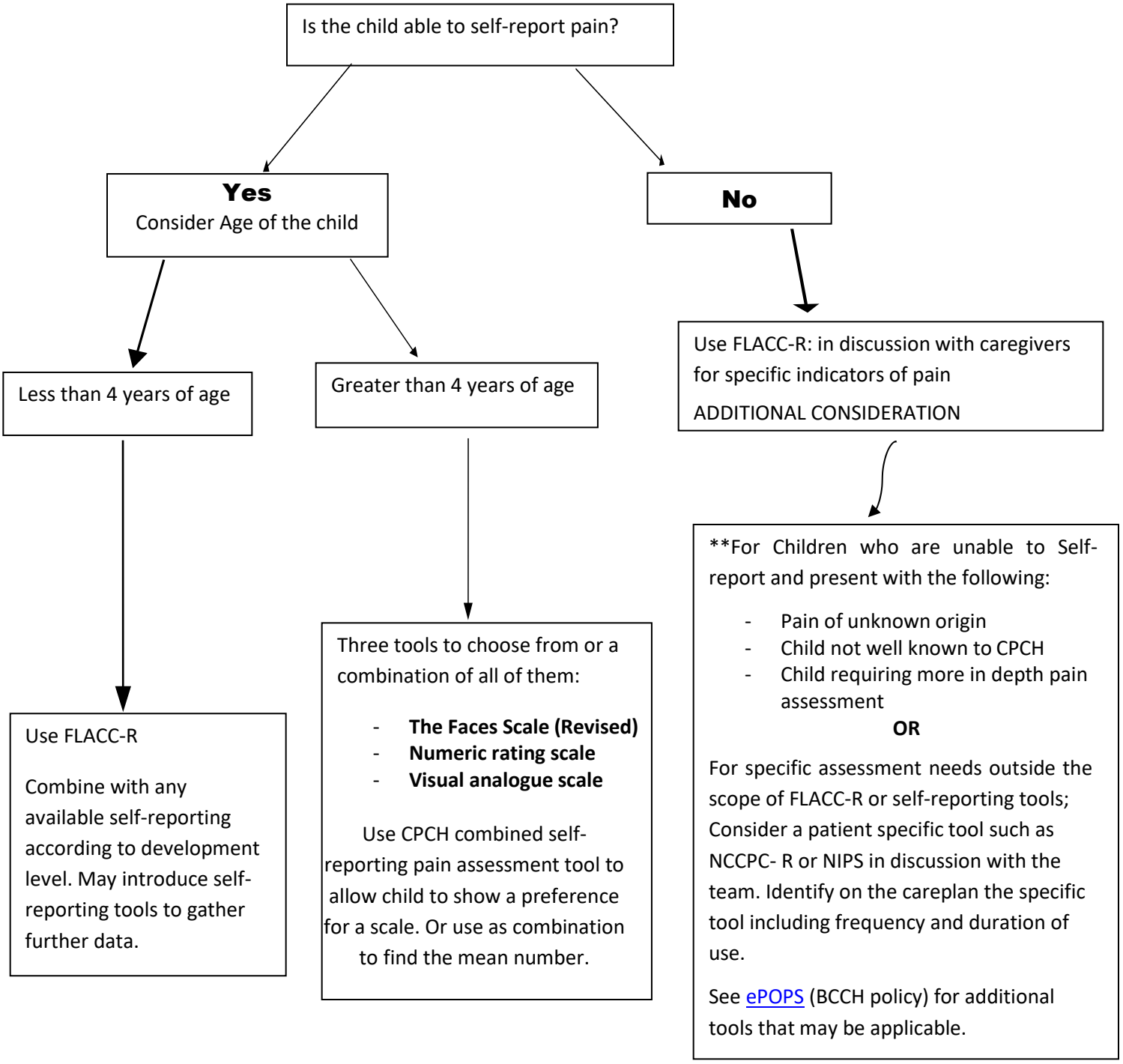
Most commonly used Pain assessment scales and reference tools.

a. Reference Tools Acute Pain Self-Assessment: Faces Pain Scale-Revised (FPS-R)
b. Visual Analog Scale (VAS), Numerical Rating Scale (NRS)
c. Reference Tool Faces, Legs, Activity, Consolability, Cry - Revised (FLACC-R)
d. Reference Tool NCCPR-R Non-communicating Children's Pain Checklist – Revised

Please refer to BCCH pain assessment policy for a more extensive list of alternate pain assessment tools and reference tools http://policyandorders.cw.bc.ca/epops-search-results#k=pain%20assessment or ePOPS

Algorithm Choosing an appropriate pain assessment scale by using the following decision algorithm

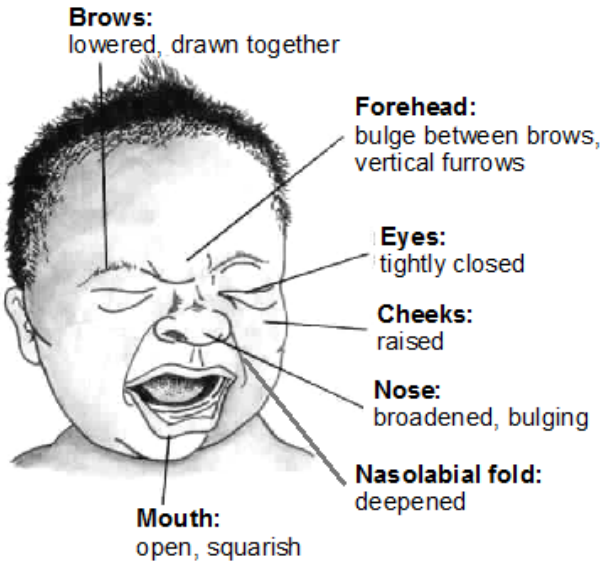
Pain Assessment Scale Decision Algorithm



Appendix D: Pain Behaviours in Infants

Wong DL, Hess CS Wong and Whaley's Clinical Manual of Pediatric Nursing Education edition 5 2000 Mosby St Louis

1. **Brow bulge**: bulging, creasing and vertical furrows above and between brows occurring as a result of the lowering and drawing together of the eyebrows.
2. **Eye squeeze**: squeeze or bulging of the eyelids. Bulging of the fatty pads of the infant's eyes are pronounced.
3. **Naso-labial furrow:** the pulling upwards and deepening of the naso-labial furrow (a line or wrinkle which begins adjacent to the nostrils & runs down & outwards beyond lip corners).



Facial expression of physical distress and pain in the infant

Reproduced with permission from Wong DL, Hess CS: Wong and Whaley's Clincial Manual of Pediatric Nursing, Ed. 5, 2000, Mosby, St. Louis

Common behaviours of pain in children

1. **Facial expression:** Grimace/frown, furrowed brow, squinching/screwing up eyes, distressed or frightened looking face
2. **Body movement or posturing**: clenching or grinding teeth, legs drawn up, tremors or jerking, tense or guarded movements, stiff, spastic, gesturing/touching part of body that hurts, head banging, shivering
3. **Respiratory characteristics:** breath holding, gasping or sharp intake of breaths
4. **Mood:** Agitated, anger, low mood, undue quietness
5. **Verbal:** Crying/ Moaning/ Whimpering/ Screaming/Grunting
6. **Inability to be consoled**: Resisting comfort or care measures
7. **Changes of activities in daily living:** fear of being moved, eating less/difficult to feed, disturbed sleep, poor school performance

Appendix E: Comfort Checklist

BC Children's Hospital Comfort Checklist

BC Children's Hospital is committed to promoting comfort at every clinical encounter. This checklist is a protocol to support a patient's comfort using five key approaches.

Preparation

- ✓ Use words the patient understands to explain the procedure
- ✓ Minimize environmental stressors
- ✓ Make a plan with the patient & caregiver
- ✓ Communicate the plan to the appropriate people
- ✓ Provide time for the patient and family to ask questions

Communication

- ✓ Use therapeutic communication (speed & tone of voice)
- ✓ Have one supportive voice talking at a time
- ✓ Be aware of non-verbal communication
- ✓ Provide realistic choices
- ✓ Use concrete/descriptive language

Comfort Positions

- ✓ Consider the best position for the caregiver & procedure
- ✓ Assess caregiver comfort to support the position
- ✓ Explore preference to be able to see the procedure or not
- ✓ Ensure the experience is safe & comfortable for everyone
- ✓ Position patient so the caregiver can be seen/hugged

Alternate Focus

- ✓ Offer alterative focus and explore different options together
- ✓ Support the decision to watch the procedure if preferred
- ✓ Coach an adult to support alternative focus
- ✓ Engage and re-engage attention as needed
- ✓ Guide focus throughout the procedure



Medication

- ✓ Consider the need for medicine
- ✓ Establish access
- ✓ Assess the need for pre-medication/sedation
- ✓ Use numbing creams for skin breaking procedures
- ✓ Encourage breast-feeding or oral sucrose for infants

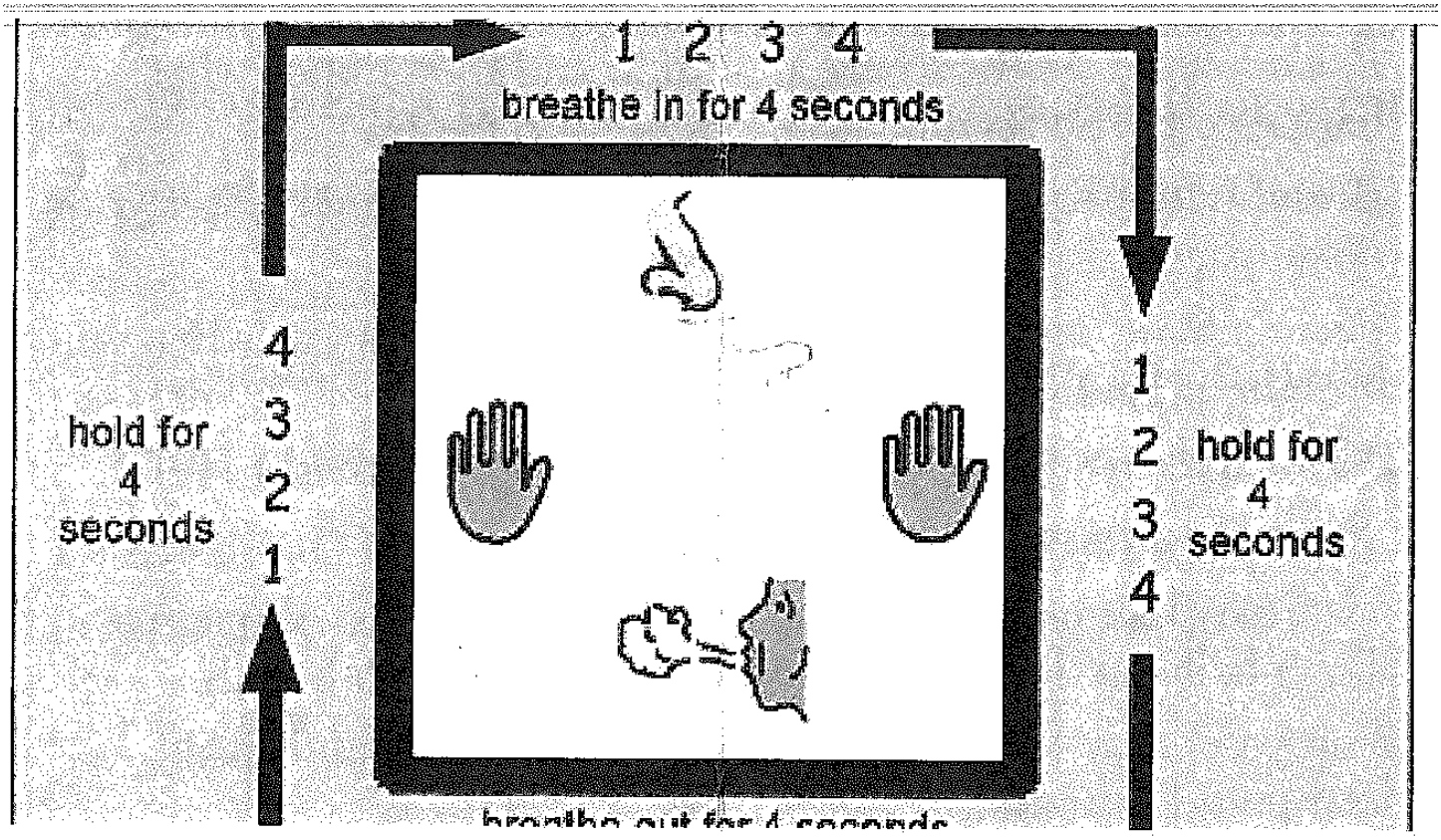
BC Children's Hospital | PainCare 360

childkind

Appendix F: Belly Breathing

Belly breathing: A Script

- Place a hand on the lower abdomen and then notice what happens as you breathe comfortably and easily.
- Breathe in through your nose; breathe out through either your nose or your mouth, whichever you prefer.
- Place a hand on your belly and notice what happens when you breathe in and out.
- Allow the muscles in the shoulders and upper chest to relax.
- Just notice the belly going up and down.
- You may like to imagine like to imagine your the stomach is like a balloon that inflates and deflates with each breath.
- Enjoy the nice feeling of breathing comfortably and easily, innnn and ouuuut...



For information on Breathr App refer to https://keltymentalhealth.ca/breathr