	Document Scope: Hospital-wide Patient Care
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19
	Version: 2
Guidelines for Pain Assessment and Management for Neonates	

Original approval by NICU Interprofessional Practice Nov 26, 2010

1.0 Introduction

All neonates in the NICU will have standard assessments of pain, which include PIPP scores for preterm and term infants less than 2 months of age, and FLACC scores for preterm and term infants who are more than 2 months of age.

2.0 Definitions

PIPP: Premature Infant Pain Profile is a bio-behavioural observational tool for acute and procedural pain.


FLACC: Face, Legs, Activity, Cry, Consolability is a behavioural observational tool for acute pain.



3.0 Clinical Practice Recommendations


The grading system in Table 1 serves as a guideline for the user about the hierarchy of evidence available to support each recommendation.

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 Pain Assessment

PIPP or FLACC scores should be documented on each patient once a shift, on admission, and before, during and after an invasive procedure as per hospital policy. See Pain Assessment ==>  In addition, PIPP⁵ or FLACC⁴ scores should be done more frequently:

1. Following post-operative procedures. See [Pain Management Guidelines for Post-Operative Patients in the NICU](#) ==> 
2. To assess pain in infants with known medical conditions or interventions that may cause pain (e.g. NEC, chest tubes etc)
3. Following changes to continuous analgesia.
4. To evaluate weaning of pharmacological treatments for infants who have been on short term opioids. For patients with treatment lengths greater than 3-5 days utilize routine Neonatal Abstinence Scoring for withdrawal of opioids. See [Pain Management Guidelines for Post Operative Patients in the NICU](#) ==> 

	Document Scope: Hospital-wide Patient Care	
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19	
	Guidelines for Pain Assessment and Management for Neonates	Version: 2

3.2 Pain Management

For general principles of pain management, see [Pain Management Clinical Practice Guideline](#) ==>  Some additional strategies for neonatal procedural pain management are outlined below.

3.2.1 All infants should receive physical/psychological developmentally appropriate strategies during all painful procedures² (**Grade B**). Developmental strategies include:


1. Non-nutritive sucking
2. Positioning and containment
3. Swaddling
4. Reduction of light and sound levels
5. Minimal handling
6. Auditory and visual distraction
7. Skin to skin contact
8. Breastfeeding dependent on infants' condition and if mother is breastfeeding and available during procedure.





3.2.2 In addition to developmental strategies, pharmacological strategies should be used based on the type of procedure. Local topical analgesics may be used with some procedures but may be limited if vasoconstriction would inhibit the success of the procedure (eg. IV starts). EMLA is the standard topical analgesia for the NICU and can be used for premature infants and full term infants, however they must be greater than 14 days of age (see [SickKids e-formulary](#)).⁸ (**Grade C**).


3.2.3 Sucrose Administration [See Pain Management Clinical Practice Guideline](#) ==> 







3.3 Adjunct Management for Procedural Pain


The following chart recommends appropriate options for pain management for the most common neonatal procedures. In addition to recommended management below, administration of appropriate developmental strategies for pain management (see non pharmacological guidelines for pain management) should always be utilized.




	Document Scope: Hospital-wide Patient Care
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19
	Version: 2
Guidelines for Pain Assessment and Management for Neonates	


Procedure	Recommended Pain Management
Lumbar Puncture	<ul style="list-style-type: none"> • Use pacifier with 24% Sucrose 0.5-2.0 ml po 2 minutes prior to procedure⁶ (Grade B). See Pain Management Clinical Practice Guideline (CPG) ==>  or E-formulary: Sucrose • Ventilated patients may be given Morphine or Fentanyl prior to procedure if patient is difficult to position for lumbar puncture. • Cautious physical handling is advised
Chest Tube Insertion	<ul style="list-style-type: none"> • Morphine 0.1 mg/kg/dose IV 20 minutes prior to procedure or Fentanyl 1mcg/kg/dose IV 3-5 minutes prior to procedure. Administer fentanyl by slow IV push over 2 minutes • Use pacifier with 24% Sucrose 0.5-2.0 ml po 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose • Buffered lidocaine 1% SQ as local anesthetic • Start morphine infusion of 5-10mcg/kg/hr following bolus and assess infant as per guidelines for sub acute pain management
Chest Tube Removal	<ul style="list-style-type: none"> • Use pacifier with 24% Sucrose 0.5-2.0 ml po 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
Immunization/ Intramuscular Injection	<ul style="list-style-type: none"> • Use pacifier with 24% Sucrose 0.5-2.0 ml po 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose • Apply local topical anesthetic cream (EMLA) 45-60 minutes prior to procedure (must be greater than 14 days of age) • Acetaminophen 10-15mg/kg/dose po 1 hour prior to procedure and then Q4Hprn x 24 hrs if required for fever or local inflammation to maximum daily dose 65mg/kg/day • Follow hospital wide IM Injection Policy recommendations.





	Document Scope: Hospital-wide Patient Care
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19
	Version: 2
Guidelines for Pain Assessment and Management for Neonates	

Procedure	Recommended Pain Management
Subcutaneous Injection	<ul style="list-style-type: none"> Use pacifier with 24% Sucrose 0.5-2.0 ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose Apply local topical anesthetic cream (EMLA) 45-60 minutes prior to procedure (must be greater than 14 days of age)
Eye Exams	<ul style="list-style-type: none"> Use pacifier with 24% Sucrose 0.5-2.0 ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
Intubation	<ul style="list-style-type: none"> See Neonatal Endotracheal Intubation guidelines
Heel Lance	<ul style="list-style-type: none"> Use pacifier with 24% Sucrose 0.5-2.0 ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
Venipuncture/Intravenous Catheter Insertion	<ul style="list-style-type: none"> Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose EMLA may be chosen if non urgent and patient is greater than one month of age
Peripheral arterial puncture/Peripheral arterial line	<ul style="list-style-type: none"> Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to the procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
PICC Line Note: if patient already receiving opioid infusion, they still require bolus pre PICC for acute pain management.	NICU PICCs Premature Patients <ul style="list-style-type: none"> Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose NON-INTUBATED: Fentanyl 0.5 mcg/kg/dose 5 minutes prior to procedure

	Document Scope: Hospital-wide Patient Care
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19
	Version: 2
Guidelines for Pain Assessment and Management for Neonates	


Procedure	Recommended Pain Management
	<ul style="list-style-type: none"> • INTUBATED: Fentanyl 1 mcg/kg/dose 5 minutes prior to procedure <p>Term Patients</p> <ul style="list-style-type: none"> • Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose • NON-INTUBATED & INTUBATED: Fentanyl 1 mcg/kg/dose 5 minutes prior to procedure OR morphine 0.1 mg/kg/dose 20 minutes prior to procedure <p>IGT PICCs</p> <p>Premature Patients</p> <ul style="list-style-type: none"> • Use pacifier with 24% sucrose 2 minutes prior to procedure as per sucrose guidelines. See Pain Management CPG ==>  or E-formulary: Sucrose • Apply local topical anesthetic cream (EMLA 45-60 minutes prior to procedure) if infant is greater than 14 days of age • NON-INTUBATED: Fentanyl 0.5 mcg/kg/dose 5 minutes prior to procedure • INTUBATED: Fentanyl 1 mcg/kg/dose 5 minutes prior to procedure <p>Term Patients</p> <ul style="list-style-type: none"> • Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶(Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose • Apply local topical anesthetic cream (EMLA) 45-60 minutes prior to procedure if infant is greater than 14 days of age • NON-INTUBATED & INTUBATED: Fentanyl 1 mcg/kg/dose 5 minutes prior to procedure OR morphine 0.1 mg/kg/dose 20 minutes prior to procedure • Midazolam 50 mcg/kg/dose (0.05mg/kg/dose) 5 minutes prior

	Document Scope: Hospital-wide Patient Care
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19
	Version: 2
Guidelines for Pain Assessment and Management for Neonates	

Procedure	Recommended Pain Management
	<p>to procedure</p> <ul style="list-style-type: none"> • May repeat midazolam 50 mcg/kg x1, 30 minutes after first dose if inadequate sedation
<p>PICC Removal (IGT lines only)- See Removal of a PICC ==> </p>	<ul style="list-style-type: none"> • Cuffed IGT lines must be removed by IGT staff and will be organized by VAS staff to occur in the NICU or in IGT • EMLA patch⁸ (Grade B) is often used as per IGT See E-formulary: EMLA • Uncuffed lines may be removed by NICU staff at the discretion of IGT
Umbilical Lines	<ul style="list-style-type: none"> • Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
Nasogastric Tubes	<ul style="list-style-type: none"> • Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
Urinary catheters/Suprapubic bladder tap	<ul style="list-style-type: none"> • Use pacifier with 24% sucrose 0.5-2.0ml 2 minutes prior to procedure⁶ (Grade B). See Pain Management CPG ==>  or E-formulary: Sucrose
Palliative Care	<ul style="list-style-type: none"> • Physical and psychological strategies for pain management • Oral morphine or lorazepam may be utilized as recommended by the palliative care team

3.3.1 Post-operative Pain Management

See [Pain Management Guidelines for Post-Operative Patients in the NICU](#) ==> 

	Document Scope: Hospital-wide Patient Care
	Document Type: Clinical Practice Guideline Approved on 2017-01-19 Next Review Date: 2020-01-19
	Guidelines for Pain Assessment and Management for Neonates

4.0 Related Documents

[Pain Assessment Policy](#) ==> 

[Pain Management Clinical Practice Guideline](#) ==> 

[Pain Management Guidelines for Post Operative Patients in the NICU](#) ==> 

[Removal of a Peripherally Inserted Central Catheter \(PICC\)](#) ==> 

[E-formulary: EMLA](#)

[E-formulary: Sucrose](#)

5.0 References

1. Anand, KJS, International Evidence-Based Group for Neonatal Pain (2001). Consensus statement for the prevention and management of pain in the newborn. *Archives of Pediatric Adolescent Medicine*, 155: 173-180.
2. Franck, L.S. Lawhorn, G. (1998). Environmental and behavioural strategies to prevent and manage pain. *Seminars in Perinatology*, 22(5): 434-443.
3. Khuran, S, Whit Hall, R, Anand, KJS. (2005). Treatment of pain and stress in the neonate: When and how. *Neoreviews*, 6(2): e76-e86.
4. Markel, S.L., Voepel-Lewis, T., Shayeviz, J.R., & Malviya, S. (1997) The FLACC: A behavioural scale for scoring postoperative pain in young children. *Pediatric Nursing*;23:293-297.
5. Stevens B., Johnston, C., Petryshen P. et al. (1996) Premature Infant Pain Profile: development and initial validation, *Clinical Journal of Pain*;12:13-22.
6. Stevens, B., Yamada, J., Ohlsson, A. (2006) Sucrose for analgesia in newborn infants undergoing painful procedures. *Cochrane Database of Systemic Reviews*, 1.
7. Taddio A, Lee C, Yip A, Parvez B, McNamara PJ, Shah V. (2006). Intravenous morphine and topical tetracaine for treatment of pain in preterm neonates undergoing central line placement. *JAMA*, 295(7): 793-800.
8. Taddio, A., Ohlsson, A. Einarson, T., Stevens, B., Koren, G. (1998). A systematic review of lidocaine-prilocaine (EMLA) in the treatment of acute pain in neonates. *Pediatrics*, 101(2), e1-9.
9. Walden, M. (2001) Pain Assessment and Management: Guideline for practice. *National Association of Neonatal Nurses*, 1-24.