



GUIDELINE

Pain Assessment and Management

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [disclaimer](#)

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Aim

To provide a structured standardised process to assist staff to assess acute pain in neonatal patients.

Risk

Inappropriate or inadequate assessment can lead to ineffective treatment and management of pain.

Background

- Neonates may be subjected to prolonged and repetitive exposure to painful stimuli which may lead to long-term physiological, behavioural and hormonal complications. Continuous noxious stimuli results in the neonate entering a withdrawn state over time, to conserve energy. [5, 9, 11, 12, 23, 24]
- Poorly assessed and managed pain can have detrimental outcomes; leading to longer hospital stay, increased ventilation requirements and increased family distress. The long term effects of untreated pain are well documented in the literature [2, 6, 7, 11, 13, 19]. Unrelieved pain within the neonate can lead to immediate and long lasting negative behavioural, physiological and developmental effects.
- The delayed, subdued or absent reactions to pain by the neonate can be barriers for the effective assessment of pain. Accurate pain assessment using validated pain assessment tools are key to optimising pain management. Pain assessment should be considered a 5th vital sign. [11, 16, 17, 20, 21, 22]
- Neuroanatomical components and neuroendocrine systems are developed in the premature neonate which allows the transmission of painful stimuli. Unmyelinated sheaths surrounding the nerve cells cause the premature neonate to be hypersensitive to pain [2].

Key points

- When administering pain relief of any kind, it is important to wait until the pain relief has taken effect before undertaking the procedure.
- Continuous noxious stimuli cause the neonate to enter into a 'withdrawn state', to conserve energy. The neonate can become floppy and unresponsive to painful procedures, especially premature neonates. This withdrawn state is often mistaken for compliance of the neonate when really they are experiencing very high levels of pain. If possible, cease the procedure and reassess pain management.
- Prevention strategies, interventions, treatment plan and follow up assessment and care should be documented in the clinical records. [4]
- Long term use of opioid use or narcotic infusions can lead to acquired narcotic dependence. Care should be taken when weaning infusion. See [Narcotic Dependence: Treatment of Iatrogenically Acquired Narcotic Dependence](#)

Physiological, behavioural and hormonal responses of neonatal pain

	Physiological	Behavioural	Hormonal	Autonomic
Increased	Heart rate Blood pressure Respirations Muscle tone Sensitivity Oxygen consumption Metabolism	Facial expression • Grimace • Brow furrowing • Nasolabial squeeze • Eye squeeze • Quivering chin Vocal expression • Attempted cry • Grizzling • Grunting Body movements • Waving or extension of limbs • Clenching of hands • Arching back	Cortisol Glucagon Aldosterone Antidiuretic hormone Growth hormone	Pallor Sweating (term infants) Flushing Pupil dilation
Decreased	SaO ₂ Vagal nerve tone	Body movements/ Tone	Insulin	

Pain Assessment and Pain Assessment Scoring Tools

Thorough pain assessment using a validated and appropriate assessment tool allows health care professionals to respond with the appropriate pain management and comfort measures required ^[6]. Refer to the MR forms for assessment and scoring instructions.

- Infants born <33 weeks gestation use the **Premature Infant Pain Profile (PIPP) MR812.01**
- Infants born >33 weeks gestation use the **Pain Assessment Tool (PAT) MR812.00**
- For post-operative pain management use **Post Operative Pain & Sedation Assessment Tool MR812.02**. Also see [Post Operative Pain and Sedation Guideline](#).

After completing and documenting the pain assessment and score, document the total score and the interventions on the Observation Charts (MR489/491), and in the clinical record if required. If a baseline score and a post procedure score are completed in the same hour, place diagonal line through the pain score box. Record the baseline pain score in the top box with a circle around the number and the post procedure scores recording under it.

Frequency of Pain Assessment

Admission to NICU

- Complete a baseline pain assessment on admission.
- Consider commencing a pain assessment chart for neonates that are admitted to the nursery after instrumental deliveries.

Neonates on respiratory support

- Complete a baseline pain assessment at the commencement of each shift.
- Pain assessment to be completed every 6 hours for intubated and ventilated neonates. If infant appears uncomfortable or agitated, provide pain relief and repeat pain scoring hourly until the infant settles.

Procedures

- Scoring should be completed prior to and following all procedures.
- Where analgesia is given, score 30 minutes post administration to assess effectiveness.
- Surgical patients – see [Post Operative Pain and Sedation](#) Guideline.

Continuous analgesia infusions

- Complete pain assessment hourly for the first 4 hours. Then 4 hourly thereafter.
- On cessation of infusion continue pain assessment 4 hourly for 24 hours to ensure neonate is not in pain.

Other

- If the caregiver perceives the infant to be in pain commence a pain assessment chart and alert medical staff as applicable.

Non-pharmacological methods (Comfort measures)

Comfort measures are encouraged and are often effective in providing short term pain relief for minor procedures.

- Breastfeeding (if able)
- Non-nutritive sucking on a pacifier
- [Sucrose](#) – Give before the procedure and wait 2 minutes for sucrose to take effect before attending the procedure.
- Kangaroo care - (skin to skin cuddles), if baby is stable enough, is shown to reduce infants pain response. This is suitable for stable infants when receiving minor routine blood tests e.g. capillary gas.
- Nesting and swaddling – using boundaries to mimic the womb-like environment and secure the infant. Even if the infant is not usually swaddled consider this

technique for procedures such as IV insertions (the infant can be swaddled with the limb exposed).

- Containment holding/Facilitated tucking - use two hands to hold the infant and make them feel secure (i.e. one hand on the baby's head and one on their feet). Or whilst side-lying, hold the infants limbs in close to the body with gentle pressure in a flexed position.

Pain Management

The combined effects of pharmacological and non-pharmacological methods provide a synergistic effect. Sedatives do not provide pain relief but can enhance the effect of narcotics. Consider the following **before** undertaking any painful procedure:

Prevention

- Is the test/intervention necessary or can it be minimised?
- Can a non-invasive technique be used such as using TCMs for monitoring Co₂ rather than a CBG/ABG?
- Can a central line be used rather than a peripheral?
- Cue based cares - attend cares and reposition when the neonate wakes
- Ensure adequate ventilation prior to and during procedures. Neonates become agitated when ventilation is inadequate prior to interventions.

Environment

Reduce/decrease noxious stimuli to minimise stress such as:

- Lighting
- Tactile and/or visual stimulation
- Acoustic sounds: be mindful of placing objects on top of incubator, talking to others over baby or whilst incubator doors are open. Use ear muffs, incubator covers where able. DO NOT open packets near baby's head.

Procedure	Suggested Pain Management
Heel prick, Venepuncture, IV cannula, IM injection	• Administer Sucrose or 0.2mls EBM and allow 2 mins to work. Use other comfort measures such as swaddling, lateral positioning. • Allow baby to non-nutritively suck on pacifier (this enhances the analgesic effect). • Alternatively put baby to the breast or allow parent to give baby a suck feed or cuddle.
Gastric tube insertion	• Administer Sucrose or 0.2mls EBM & use other comfort measures such as swaddling and containment. • Allow baby to non-nutritively suck on pacifier (this enhances the analgesic effect).

Central line insertion, PAL	• Provide comfort measure and swaddle baby for procedure even if in incubator. Expose the limb required for the procedure. • Administer Sucrose or 0.2mls EBM • Allow baby to non-nutritively suck on pacifier
Lumbar puncture	• Administer Sucrose or 0.2mls EBM • Allow baby to non-nutritively suck on pacifier • Lignocaine injection to numb area of procedure.
ETT intubation	See Intubation
ETT suctioning	• Make sure baby is in comfortable position in order to self soothe. • Use swaddling or containment comfort measures.
Chest drain (ICC)	• Administer Sucrose or 0.2mls EBM • Lignocaine injection to numb area of procedure. • Consider analgesia narcotic infusion such as Morphine or Fentanyl prior to and/or on completion of drain insertion.
Post ROP Laser Therapy	• Reduce lighting - Place loose cover over baby's eyes such as a loose Biliband, incubator/cot cover. • Consider Paracetamol if pain score increases.
Diagnostic procedures	If a procedure is known to be painful (in adults), then it is potentially even more painful to a baby. Use analgesia if the procedure is not an emergency to enable the infant to cope and recover faster ^[2, 6, 7] .

Related CAHS internal policies, procedures and guidelines

- [Intubation](#)
- [Narcotic Dependence: Treatment of Iatrogenically Acquired Narcotic Dependence](#)
- [Post Operative Pain and Sedation](#)

Neonatology Medication Protocols

- [Morphine](#)
- [Fentanyl](#)

References and related external legislation, policies, and guidelines

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Useful resources (including related forms)

- Premature Infant Pain Profile (PIPP) MR812.01
- Pain Assessment Tool (PAT) MR812.00
- Post Operative Pain & Sedation Assessment Tool MR812.02.

This document can be made available in alternative formats on request.

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Respect

Appendix 1: Sucrose Administration

The administration of sucrose produces an analgesic effect when administered to the anterior part of the tongue. The initial response to sucrose is the sweet taste which offers a soothing effect. The secondary response results from the activation of the sweet taste receptors on the tongue. This leads to the activation of endogenous opioid pathways. Breastmilk has also been reported in the literature to provide a similar response [1, 18].

Key Points

- Sucrose is short acting and peaks after 2 minutes.
- After administering sucrose allow 2 minutes for sucrose to work before commencing the procedure.
- Sucrose last for 5-8 minutes.
- Sucrose should always be used in combination with other comfort measures.
- Sucrose is absorbed in the buccal membrane not the stomach. It does not affect blood sugar levels
- Evaluate and document the effectiveness of treatment in the comments section of the observation chart.

Exclusion for Administering Sucrose

- Suspected or proven necrotising enterocolitis (these infants should have narcotic analgesia infusions).
- Unrepaired tracheo-oesophageal fistula.
- Altered gag or swallow reflex (i.e. infants with HIE).
- Known fructose or sucrose intolerance.
- Critically ill neonates already receiving IV analgesia and/or sedation.

Sucrose Dosage

The 24% sucrose solution in single use ampoules can be used multiple times throughout a procedure, must be discarded after the procedure.

20 drops equates to 1mL, therefore, 1 drop = 0.05mL.

Gestation/weight	Volume	Total amount in 24hours
Term	0.5 - 1.0 mL (10-20 drops in 5 drop aliquots)	3 mL >1500 grams
Preterm: ≥1500 grams	0.25 mL (5 drops)	3 mL >1500 gram
Preterm: 1000 - 1500 grams	0.15 mL (3 drops)	2 mL if weight <1500 grams
VLBW: (if deemed appropriate)	0.05 - 0.1 mL (1 to 2 drops)	Up to 1 mL if weight <1000 grams