Guideline

Pain Assessment and Management of the Neonate during transfer

1 Scope

For use within the Paediatric and Neonatal Decision Support and Retrieval (PaNDR) for the East of England
Injunction with 'Pain management in neonates' (Neonatal pain management guideline)
Version 7; Approved May 2020.

2 Purpose

- To provide guidance in the assessment of pain of the Neonate.
- To minimize the intensity, duration and physiological impact of pain.
- To maximize the comfort of the neonate during transfer.

Key Recommendations

- Staff understand the pain assessment tool NPASS used in the transport setting. (SEE DIAGRAM)
- All infants will be appropriately assessed at appropriate times.
- Pain scores will be accurately documented using the relevant pain score.
- Staff are aware of the environment in which the infant is nursed and its effect on the infant's coping mechanisms.
- Staff are aware of the potential side effects of any pharmacological interventions used in neonates.

3 Definitions and abbreviations

NPASS – Neonatal Pain, Agitation and Sedation Score.
UVC- Umbilical venous catheter
UAC- Umbilical arterial catheter

4 Introduction

Neonates requiring transfer are unavoidably exposed to painful stimuli due to preparation procedures that are required for safe transfers.
Some infants/Neonates that have been hospitalised prior to transfer for long periods are routinely exposed to pain.

It is important that severely sick neonates requiring transfer are effectively managed for their potential painful experiences, whilst those who require routine repatriation are transferred as comfortable as possible.
Infants who are subjected to painful events repeatedly can interfere with their normal growth and development if pain is not managed effectively. (1)
The infant can experience acute and chronic pain therefore by the careful assessment of pain can significantly minimize the intensity of pain.

5 Assessment of pain

Neonatal pain assessment tools differ from the Paediatrics and adult generation tools, as they require behavioral indicators to assess pain. This is because Neonates are unable to communicate and verbalize their pain (2).

Pain Assessment tools facilitate in the overall subjective assessment of a patient and contributes to vital observations. Furthermore, assessment of pain provides evidenced documentation and effective management of suspected pain.
Behavioral and physiological measurements are valid and reliable indicators of acute pain in the neonate and should determine the effectiveness of the current pain relief or when pain is anticipated.

Every infant should be pain assessed regularly in order to promote successful pain management and comfort.

- Initial assessment of the baby upon arrival
- Pain assess 30 minutes after commencing or adjusting analgesia to establish effectiveness.
- 4 hourly/ as required if receiving analgesia
- One hour post operatively (then 4 hourly up to 48 hours post surgery)
- Hourly for those infants requiring morphine infusion.
- **Please note**: those infants/neonates that are muscle relaxed are difficult to pain assess by behavioral responses, therefore physiological parameters are more useful indicators (this can include increased heart rate). It is important to be aware that this can also relate to those receiving inotropic support. (3)

  Invasive procedures in relation to PaNDR Pre/ post Chest drain insertion
- Pre/ post endotracheal intubation
- Pre/post insertion of UAC/UVC lines

In addition to pain assessment, it is important to document rationale to interventions made and evaluate the effectiveness of pain management.

The Environment
Transfer of the infant can be an uncomfortable experience and increase stressors.
Over-stimulation from environmental sources ie. Temperature, light, noise and handling, can cause extra stress and amplify pain perception. (Please refer to Developmental Care Guideline during Transport (4).

Physiological expression of pain
Changes to heart rate, respiratory rate, blood pressure and perfusion may be an indicator of pain in the neonate. Hyperglycaemia may also indicate an infant stress/ pain response (5).

Ventilation
Ventilated babies are more likely to breathe asynchronously if they are distressed. It is important to make sure:

- Adequately ventilated will prevent agitation
- Consider morphine
- Careful handling and positioning

Painful Procedures
It is important to be aware of supportive measures that can be given during the procedure. During a stabilization and transfer, painful procedures are essential and will be carried out at that present time for a clinical purpose. However, some supportive steps can be used to aid comfort during these procedures:

- Swaddling
- Positive touch
- Pacifier
- Sucrose
- Intraveneous analgesia

(Please refer to appendix 1 and 2)

6 Monitoring compliance with and the effectiveness of this document

The PaNDR team will monitor compliance with this document by undertaking regular audits; results will be presented in the PaNDR Governance meetings. The pain assessment will be part of the initial assessment of the baby and be a compulsory part of the documentation paperwork along with observations.

7 References

1. Symington A, Pinelli J (2006) Developmental care for promoting development and preventing morbidity in preterm infants (review). The Cochrane Database of

Systematic Reviews. Issue 2. Art. No.: CD001814. DOI: 10.1002/14651858. CD001814.pub2.
2. Anand KJS, International Evidence-Based Group for Neonatal Pain (2006) Consensus Statement for the Prevention and Management of Pain in the Newborn: An update. Pediatrics 118(5): 2231 – 2241
3. Taddio A, Katz J, Ilersich A and Koren G (1997) Effect of Circumcision on Pain Response during Subsequent Routine Vaccination. The Lancet 349:599-603.
4. Puchalski M, Hummel P. (2002) The reality of neonatal pain. Advances in Neonatal Care. 2(5): 233 - 247.

8 Associated documents

- PaNDR guideline; Developmental care guideline during Transport http://pandreastofengland.co.uk
- EOE ODN Pain management Guideline, available at: https://www.eoeneonatalpccsicnetwork.nhs.uk/wp-content/uploads/2021/10/Pain-guideline.pdf

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APPENDIX 1

N-PASS:
Neonatal Pain, Agitation, & Sedation Scale

Assessment Criteria	Sedation		Sedation/Pain	Pain / Agitation	
	-2	-1	0/0	1	2
Crying Irritability	No cry with painful stimuli	Moans or cries minimally with painful stimuli	No sedation/ No pain signs	Irritable or crying at intervals Consolable	High-pitched or silent-continuous cry Inconsolable
Behavior State	No arousal to any stimuli No spontaneous movement	Arouses minimally to stimuli Little spontaneous movement	No sedation/ No pain signs	Restless, squirming Awakens frequently	Arching, kicking Constantly awake or Arouses minimally / no movement (not sedated)
Facial Expression	Mouth is lax No expression	Minimal expression with stimuli	No sedation/ No pain signs	Any pain expression intermittent	Any pain expression continual
Extremities Tone	No grasp reflex Flaccid tone	Weak grasp reflex ↓ muscle tone	No sedation/ No pain signs	Intermittent clenched toes, fists or finger splay Body is not tense	Continual clenched toes, fists, or finger splay Body is tense
Vital Signs HR, RR, BP, SaO_2	No variability with stimuli Hypoventilation or apnea	< 10% variability from baseline with stimuli	No sedation/ No pain signs	↑ 10-20% from baseline SaO_2 76-85% with stimulation - quick ↑	↑ > 20% from baseline $SaO_2 \leq 75\%$ with stimulation - slow ↑ Out of sync/fighting vent

Premature Pain Assessment → + 1 if <30 weeks gestation / corrected age

Appendix 2

Procedure	Management
Capillary sampling.	Consider venepuncture instead. Use right sized tenderfoot device for the infant. Consider giving sucrose with a pacifier (if consented). Consider skin-to-skin contact/breast feeding with the mother. Use swaddling or positive touch. Environmental measures. Position extremity downward to enhance blood flow. Avoid squeezing as this is the most painful part of the procedure and can lead to spuriously high potassium levels.
Venepuncture, cannulation or arterial puncture.	Consider sucrose with a pacifier (if consented). Environmental measures. Position extremity downward to enhance blood flow. Contain limbs to aid infant's effort to gain self-control. Provide boundaries. Second caregiver for support. Use swaddling or positive touch.
Long line insertion.	Consider sucrose with a pacifier (if consented). Consider administering morphine if ventilated. Positive touch. Environmental measures. Provide boundaries.
Long line removal.	Use sterile silicone based medical adhesive remover to remove fixing tape/Tagaderm. Consider sucrose with a pacifier (if consented). Environmental measures. Positive touch.
Umbilical arterial/ venous catheter (UAC) (UVC) insertion	Use comfort holding/positive touch. Environmental measures. Consider sucrose with a pacifier (if consented). Consider administering morphine if ventilated. Provide boundaries.

Procedure	Management
Lumbar puncture.	Consider sucrose with pacifier (if consented). Environmental measures. Positive touch. Consider administering morphine if ventilated.
Intubation.	For non-urgent intubation follow: Pre-medication for non-emergency endotracheal intubation in the neonate guideline.
Extubation.	Ensure second person for support. Use swaddling or positive touch. Environmental measures.
Tracheal suctioning.	Always use inline suctioning where possible. Use swaddling or positive touch. Comfort holding. Environmental measures. Provide boundaries.
Chest drain.	Anticipate the need for intubation and ventilation in spontaneously breathing infants. Positive touch. Provide boundaries. Use subcutaneous lignocaine. Consider sucrose with pacifier (if consented). Consider morphine bolus or paracetamol.
Gastric tube insertion.	Use swaddling or comfort holding. Positive touch. Environmental measures. Provide boundaries. Consider sucrose and pacifier (if consented).[42]
Bladder catheterisation or tap.	Use swaddling or comfort holding. Positive touch. Environmental measures. Provide boundaries. Consider sucrose and pacifier (if consented).
Rectal biopsy or washout.	Use swaddling or comfort holding. Positive touch. Environmental measures. Provide boundaries. Consider sucrose and pacifier (if consented).