Pain Guideline

Introduction and background

Management of pain in infants remains less than optimal and there is research ongoing into methods of managing pain in neonates.

There are 2 approaches for the management of pain in infants - categorised as pharmacological (e.g. morphine, paracetamol) and non-pharmacological, and these can be used together for maximum efficacy. Infants should be frequently assessed for signs of pain and discomfort, based on interpretation of the Pain In Neonatal Care (PINC) assessment tool (Appendix 1).

Non-pharmacological methods include:

- Breast feeding
- Minimising environmental stimuli
- Soothing/stroking
- Containment holding
- Swaddling
- Non nutritive sucking
- Sucrose

The role of Sucrose is controversial. A recent Lancet paper from UCLH indicates that sucrose does reduce facial pain scores but does not reduce pain-specific brain activity. This means that whilst it may have a calming effect, it should not be considered to have the same efficacy as a "painkiller". It is safe however, and can be used for both term and preterm infants.

Sucrose is particularly effective when combined with other non-pharmacological and nurse controlled methods (see above). According to the PINC tool, pain scores of 1-4 can be effectively managed using Sucrose and other non-pharmacological methods.

The dose of sucrose is variable, and as it is a non-pharmacological intervention we have only suggested upper limits per dose. We expect staff to use it in small boluses to get a feel for the most effective doses.

Indications for non-pharmacological pain management

Any uncomfortable or painful procedure, such as:

- Heel prick
- IV cannulation
- Venepuncture
- Long line insertion
- Lumbar puncture
- Immunization
- Arterial Stabs
- Eye examination
- Dressing changes
- Catheterisation
- Suprapubic urine collection
- Stoma bag changes
- CFM needle insertion

Dosage

Sucrose 24% solution in single-use containers.

Infant under 1000g - up to 0.5ml
Infants 1001 to 2000g - up to 1ml
Infants 2001 and over - up to 2ml

Dose can be repeated as necessary.

Use sucrose with caution in the following situation:

- Paralysed infants
- NEC
- Inability to swallow due to structural or neuromuscular problems

Procedure

Consider if pharmacological control of pain might be most appropriate
If not:
Approximately 2 minutes before procedure:

- Ensure comfortable position as possible
- Swaddle if possible
- Consider other non-pharmacological pain control techniques
- Drop the appropriate amount of sucrose into the front of the babies mouth onto tip of tongue (NOT via the NGT)
- Offer dummy if baby has one and parents have agreed
- Further sucrose doses can be given during the procedure if necessary

Can be given by doctor or nurse

Pharmacological Intervention

If pharmacological intervention deemed necessary or the infant scores:

- **5-7** on PINC tool: Consider Paracetamol or Chloral Hydrate along with Nurse Controlled Measures
- **8-10** on PINC tool: Inform Medical staff. Consider Paracetamol and discuss the use of Morphine bolus/infusion.

Dosage

Paracetamol (PO, PR and IV)

PO – 28 to 32 weeks gestation

- 20mg/kg as a single dose
- 10-15mg/kg 8 to 12 hourly
- Max 30mg/kg daily.

32weeks and above

- 20mg/kg as a single dose
- 15mg/kg 6 to 8 hourly
- Max 60mg/kg daily

PR - 28 to 32 weeks gestation

- 20mg/kg as a single dose
- 15mg/kg 12 hourly as needed
- Max 30mg/kg daily

32 weeks and above

- 30mg/kg as a single dose
- 20mg/kg 8 hourly as needed
- Max 60mg/kg daily

IV (Over 15 minutes)

Preterm neonate ≥ 32 weeks

- 7.5mg/kg every 8 hours
- Max 25mg/kg daily

Neonate

- 10mg/kg every 4 to 6 hours
- Max 30mg/kg daily

Chloral Hydrate (PO if fed, PR if not)

- 20-50mg/kg. Repeat doses should not exceed 20mg/kg 6 hourly.
- Max 100mg/kg daily

Morphine

PO

- 20-60mcg/kg 6 hourly

IV

- Bolus (1mg/ml) 50-100mcg/kg 6 hourly
- Infusion (10mg/ml) 5-20mcg/kg/hr.

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Neonatal Intensive Care Unit Clinical Guideline

Ashford and St. Peter's Hospitals NHS
NHS Foundation Trust

Appendix 1: For reference only

Name:
Date of Birth: N.B Not true to size
Hospital No:
NHS No:

Pain in Neonatal Care (PINC)

'Vulnerable neonates will sometimes learn to become helpless in order to restore energy if constant attempts to communicate pain are unrecognised (Ranger,2007)'

Facial Expression	0 – Relaxed Muscles 1- Grimace	Restful, neutral expression Tight facial muscles; creased brow
Cry	0 – No cry 1 – Whimper 2 – Vigorous cry	Quiet, not crying Mild, intermittent moaning Loud, continuous scream (Note: score silent cry if baby is intubated)
Arms	0 – Relaxed 1 – Flexed/Extended	No muscular rigidity; occasional movements Straight arms, rigid with rapid movements
Legs	0 – Relaxed 1 – Flexed/Extended	No muscular rigidity; occasional Movements Straight legs, rigid with rapid movements
Posture	0 – Relaxed 1 – Flexed/Extended	Neutral, fetal like position Back arched, rigid, head tilting
State of Arousal	0 – Sleeping/Awake 1 - Restless	Quiet and peaceful Alert, restless, thrashing
Heart Rate	0 – Within baseline 1 – Rise of 10-40bpm 2 – Rise of >40bpm	Usual pattern for this baby Increase of 10-40bpm of baseline Increase of more than 40bpm of baseline
Respiratory	0 – Within baseline 1 - Change in breathing	Usual pattern for this baby Recessing, irregular, faster than usual or Apnoeas.

How to complete a PINC score

* Observe neonate for 15-30 seconds
* Score the neonate for each of the physiological and behavioural parameters
* Indicators range from between 0-2 making a total score of 0-10. The higher the score, the higher the Level of pain

What each score means

* 1 – 3 Nurse controlled measures (e.g. non-nutritive sucking, containment holding/skin to skin, repositioning)
* 4 – 7 Consider sucrose, Paracetamol or chloral hydrate along with nurse controlled measures.
* 8 – 10 Inform Drs, consider Paracetamol. Discuss use of morphine bolus/infusion.