

NCCU CLINICAL GUIDELINES  
SECTION: 3

**PAIN ASSESSMENT AND MANAGEMENT**

Section 3: Pain assessment and management  
Pain assessment  
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Neonatology Clinical Guidelines  
King Edward Memorial/Princess Margaret Hospitals  
Perth Western Australia  
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by Neonatal Coordinating Group

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## **PAIN ASSESSMENT**

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### **Pain Management**

#### **INTRODUCTION**

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. (Merskey, H. 1979) Neonates cannot verbalise their pain experience and so depend on caregivers to assess and manage it. Neonates admitted to the Neonatal Unit may experience pain as a result of diagnostic or therapeutic interventions or as a result of the disease process.

By assessing neonatal pain, adequate treatment can be provided, Anand and Goldschneider suggest that untreated neonatal pain may result in many long term consequences –hyperalgesia, sensitisation/windup, physiological destabilisation and personality and behavioural changes. (Goldschneider KR, Anand KJS. 2003) Neonates have hormonal, physiological and behavioural responses when exposed to noxious stimuli. (Anand et al.1989)

#### **KEY POINTS**

- Using a pain assessment tool increases staff awareness of neonates' pain experience and gives a guideline to both medical and nursing staff to ensure consistency and optimal management of pain in Neonates.
- Pain treatment should be instituted in all cases where pain is a possibility and the neonate should be monitored and treated for potential side effects of analgesics. The sedative effect of analgesia, or sedation alone, should also be monitored.
- Preterm infants have an increased pain perception because they exhibit a greater magnitude of endocrine metabolic stress response to surgery. They display prolonged hypersensitivity to tissue injury.
- Infants receiving inotropic support may have an increased heart rate. Infants on muscle relaxants will have minimal response to pain and always need analgesia.
- Vulnerable infants will sometimes learn to become helpless in order to restore energy if constant attempts to communicate pain are unrecognized (Ranger, 2007) e.g. an infant that does not respond to nasogastric tube insertion or heel lance. This does not mean pain is not experienced, only that they have learnt this behaviour to conserve their energy.

## EXAMPLES OF PAINFUL PROCEDURES PERFORMED ON NEONATES

<ul style="list-style-type: none"><li>- Arterial puncture</li><li>- Central line insertion / removal</li><li>- Chest / wound drain insertion / removal</li><li>- Dressings / removal of sutures</li><li>Heel lance</li><li>- ETT intubation / extubation</li><li>- Gastric tube insertion</li></ul>	<ul style="list-style-type: none"><li>- Immunisations / IM injections IV access</li><li>- IDC insertion</li><li>- Lumbar puncture</li><li>- Removal of adhesive tape</li><li>- ROP examination</li><li>- Suprapubic urine collection</li><li>- Ventilation</li><li>- Venipuncture</li><li>-</li></ul>
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## USE OF PAIN ASSESSMENT / INTERVENTION / SCORING TOOLS:

### INDICATIONS FOR USE (all cases where pain is a possibility):

- Painful pre-operative conditions (e.g. peritonitis, suspected or confirmed necrotising enterocolitis).
- Post-operative conditions.
- Recurrent agitation.
- Receiving analgesics or sedatives.
- 15-30 minutes after bolus dose of analgesia to assess neonate's response to medication.
- Consider using in all ventilated or critically sick neonates
- Cooled neonates with HIE

### FREQUENCY OF PAIN ASSESSMENT

- Base line pain assessment scores should be completed at least once per shift for all neonates in intensive or special care.
- Score immediately post-op and continue hourly for 24 hours then 2 to 4 hourly. Scores should be recorded for a minimum of 48 hours or until analgesia is ceased for 24 hours.
- Scores should be completed prior to and following any procedure that the neonates undergoes.
- Score 30 minutes after any interventions to establish effectiveness.
- Neonates who are ventilated or receiving analgesia should have P.A.T/PIPP scores at least 4 hourly.
- Long term ventilated patients should have P.A.T/PIPP assessed 8 hrly.

### PREMATURE INFANT PAIN PROFILE (PIPP) FOR INFANTS < 33 WEEKS GESTATION

Treatment or intervention can be pharmacological and/or non-pharmacological depending on the clinical situation. The goal of intervention is a decrease in the pain score. Pain and sedation scores should be recorded separately.

### PAIN ASSESSMENT TOOL (PAT) FOR INFANTS > 33 WEEKS GESTATION

P.A.T. was developed by Hodgkinson et al 1994.

A pilot study conducted June 1999 to March 2000 Nepean NICU, showed P.A.T. to be both reliable and valid in various groups of infants. It focuses on behavioural and physiological responses to painful stimuli as well as nurses perception indicator.

- Behavioral Indicators: posture/tone sleep pattern. Facial expressions colour and cry.
- Physiological Indicators: respirations, heart rate, saturations and blood pressure.

Steps on using PAT scoring:

1. Observe the neonate for 15-20 seconds (behavioral state, colour, facial expressions, and then gently touch the neonate's limbs to determine muscle tone or tension).
2. Record baseline heart rate respiration, saturations and blood pressure at the beginning of each shift.
3. Score the neonate for each physiological, behavioural and nurses perception.
4. Calculate the score.
5. Scores 0-5, generally indicate none or minimal pain.
6. Scores 6-10 slight to moderate pain
7. Scores 10-20 severe pain
8. Remember each infant is an individual and will have different thresholds
9. The absence of a response to painful stimuli does not necessarily indicate the infant is not in pain (Johnson and Stevens, 1990 )

## DOCUMENTATION

After completing a PAT/PIPP score, the number should be documented and what interventions were initiated and whether effective.

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## PAIN MANAGEMENT

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The goals of pain management are to minimise the intensity and duration of pain and to provide interventions that provide maximum effect with the least risk.

### NON-PHARMACOLOGICAL INTERVENTIONS

Implement non-pharmacological comfort measures first if there are no identifiable cause for pain and pain scores are in the moderate range for each pain tool.

Developmental positioning (knees flexed, arms close to body, hands to mouth), swaddling, nesting (containment), pacifier, breast feed, reduction of environmental stressors (light, noise and handling). Older neonates may respond to cuddling and rocking. Optimise ventilation – neonates become agitated when not adequately ventilated (needing suction etc).

### PHARMACOLOGICAL INTERVENTIONS

The above measures should always be instituted along with analgesia Administer analgesics and sedatives to provide relief of pain Sedatives do not provide pain relief, but do enhance the effects of narcotics, therefore they should not be given alone and should be used cautiously.

Treat anticipated procedure related pain prophylactically.

- Invasive procedures such as chest tubes, abdominal drains, etc. should include premedication.
- Sucrose solution decreases the pain response and should be considered as an adjunctive measure before and during any minor procedure.
- All neonates tolerate procedures better if swaddled, or contained by staff members or parents.

- Efforts should be made to calm the neonate before and after the procedure.
- Continuous cardio-respiratory monitoring and/or pulse oximetry should be in place when using narcotics analgesia or sedation.
- Evaluate the effect of pain medication 30 minutes to one hour after administration.
- If pain score is not falling as expected, additional medications and non-pharmacological measures should be instituted and re-evaluation take place for additional causes of pain and/or agitation.

## **NARCOTICS**

**Morphine** - [See Morphine Sulphate - Neonatal Medication protocols](#)

An IV loading or bolus dose should usually be given prior to commencement of infusion so increased plasma levels are reached within 20 minutes rather than the 4-6 hours it would take by increasing the infusion alone.

**Fentanyl** - [See Fentanyl - Neonatal Medication Protocols](#)

Tolerance and withdrawal develops faster than with morphine and needs to be considered when used for prolonged periods.

## **SEDATIVES**

Midazolam – [See Midazolam - Neonatal Medication Protocols](#)

Chloral hydrate – [See Chloral Hydrate - Neonatal Medication Protocols](#)

## **LOCAL INFILTRATION**

Lignocaine 1% for insertion of drains.

## **ORAL ANALGESICS**

[Intravenous Paracetamol](#) / [Oral Paracetamol](#)

## **SUCROSE**

See **Oral sucrose for procedural pain relief** guideline (note: sucrose is not classed as a pharmaceutical medication)

## **FURTHER READING (ALSO SEE DESKTOP INTERACTIVE CD-ROM ON NICU PC'S)**

[American Academy of Pediatrics](#) ( 2006 policy statement - prevention and management of pain and stress in the neonate)

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