

PAIN ASSESSMENT AND MANAGEMENT • 1/5

INTRODUCTION

- Discomfort, pain or stress can be associated with routine care and invasive procedures. Babies are unable to report pain; use observational skills and clinical judgment

Key recommendations

- Routine assessments to detect pain using a validated assessment tool
- Minimise number of painful procedures
- Prevent/reduce acute pain from invasive procedures using non-pharmacological and pharmacological methods
- Anticipate and treat post-operative pain

Types of pain

Acute pain	Skin-breaking procedures or tissue injury caused by diagnostic or therapeutic interventions
Established pain	Occurs after surgery, localised inflammatory conditions, birth-related trauma
Prolonged/chronic pain	Results from severe diseases e.g. necrotising enterocolitis (NEC), meningitis. Pathological pain state persisting beyond normal tissue healing time

Symptoms and signs

Lack of behavioural responses does not exclude pain

Physiological changes	Behavioural changes	Anatomical changes	Body movements
<ul style="list-style-type: none"> Increase in: <ul style="list-style-type: none"> heart rate blood pressure respiratory rate oxygen consumption mean airway pressure muscle tone intracranial pressure skin blood flow Decrease in: <ul style="list-style-type: none"> oxygen saturation and transcutaneous oxygen levels skin blood flow Apnoea shallow breathing Fixed heart rate 	<ul style="list-style-type: none"> Change in facial expression: <ul style="list-style-type: none"> grimace brow bulge eye squeeze deepening naso-labial furrow nasal flaring tongue curving or quivering Crying Whimpering 'Silent' cry (intubated babies) Decreased sleep Heightened responses 	<ul style="list-style-type: none"> Dilated pupils Sweating Flushing Pallor 	<ul style="list-style-type: none"> Fisting Tremulousness Thrashing limbs Limb withdrawal Writhing Arching back Head banging Finger splaying Cycling

- Sudden pain and distress may indicate acute deterioration e.g. bowel perforation
- Physiological** changes cannot be sustained long-term

PAIN ASSESSMENT

- Assess within 1 hr of admission
- Frequency of further assessments will depend on baby's clinical condition, underlying diagnosis and pain score (see **Frequency of assessment**)

Pain assessment tools

- Separate tools may be needed to assess acute and prolonged pain**
- Use validated pain assessment tools [Pain Assessment Tool (PAT) and Premature Infant Pain Profile (PIPP)]
- See **Abstinence syndrome** guideline for assessment of babies with neonatal abstinence syndrome

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Pain assessment not indicated/unsuitable

Not indicated	Unsuitable
<ul style="list-style-type: none">• Pharmacologically paralysed babies; provide appropriate pain relief	<ul style="list-style-type: none">• Distress is expected but easily relieved (e.g. ventilated baby requiring suction)• For simple, routine procedures e.g. capillary blood sampling• second person (parent, nurse or healthcare practitioner to provide support and comfort baby)

Use of pain assessment tool

- Note gestational age
- **Observe** baby's behaviour for 15–30 sec then gently touch baby's limb to determine muscle tone/tension (can be done during routine handling)
- Note:
 - physiological conditions that may influence score (in cyanotic heart disease, baby's colour may score normal unless there is a change in the intensity of the cyanosis or dusky skin due to pain)
 - medications that may affect behaviour or physiological responses
 - environmental triggers (sudden bright lights, noise, activity) may cause a stress response. Document on chart or in notes at time of score
- When score is above tool's recommended thresholds, initiate comfort measures or analgesia

Frequency of assessment

- **All** babies to have pain **assessment** within 1 hr of admission
- **Minimum frequency of subsequent assessments depends on level of care**
- **intensive care:** hourly with observations
- **high dependency:** 4-hrly
- **special care:** as condition dictates
- **post-operatively:** hourly for first 8 hr, then 4-hrly until 48 hr post-op (more frequently if signs of distress/discomfort)
- **If baby shows signs of distress/discomfort perform additional assessments**

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Indications

- Birth trauma
- Iatrogenic injury
- Before, during and after **any** painful procedure
- Severe illness e.g. NEC, meningitis
- To aid ventilation
- Preparation for transfer if ventilated
- **Whilst** undergoing therapeutic hypothermia
- Post-operatively
- End-of-life care
- Formal assessment indicates pain
- If non-**pharmacological** techniques are ineffective or not appropriate, progress to pharmacological agents (e.g. post-surgery, severe illness, major injury, congenital malformations and palliative care)

Non-pharmacological pain relief

- Gently repositioning baby
- Light swaddling (blanket/nest), prolonged restrictive swaddling may be associated with increased risk of developmental hip dysplasia
- Comfort/containment holding
- Reducing light, noise, and activity around baby
- Soothing voice
- Nappy change
- Non-nutritive sucking (NNS) (dummy or gloved finger) [see **Non-nutritive sucking (NNS)** guideline]
- Kangaroo care (see **Kangaroo care** guideline)
- Breastfeed (see **Breastfeeding** guideline)
- Sucrose
- Mother's expressed breast milk (MEBM) – no additives

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Reassess after 30 min

- If pain score in upper **range**, institute comfort measures and administer prescribed analgesia/seek medical review
- If score **continues** to rise, consider increasing dose of analgesia and reassess after 30 min
 - if clinical concerns – medical review
- If score constantly **below** baseline and analgesia maintained, reduce dosage
- Record effectiveness **of** pain management in care plan

Sucrose

- Sucrose 24% **solution** and breast milk provide a quick, short-term analgesic effect (given orally)
- NNS increases **effectiveness**
- Use in **conjunction** with environmental and behavioural measures to relieve pain (e.g. positioning, swaddling, containment holding, kangaroo care)
- may be given to ventilated babies with care

Contraindications to sucrose

Do not use	May not be effective
<ul style="list-style-type: none"> • <28 weeks' gestation – use MEBM • High risk of NEC – use MEBM • Nil-by-mouth (if due to surgical problem, sucrose may be appropriate, discuss with surgeon) • Sedated or on other pain medications • Diabetic mother (until blood glucose stabilised) • Known carbohydrate malabsorption or enzyme deficiency 	<ul style="list-style-type: none"> • Baby with neonatal abstinence syndrome • Baby just been fed • Exposed to chronic in-utero stress • >6 months

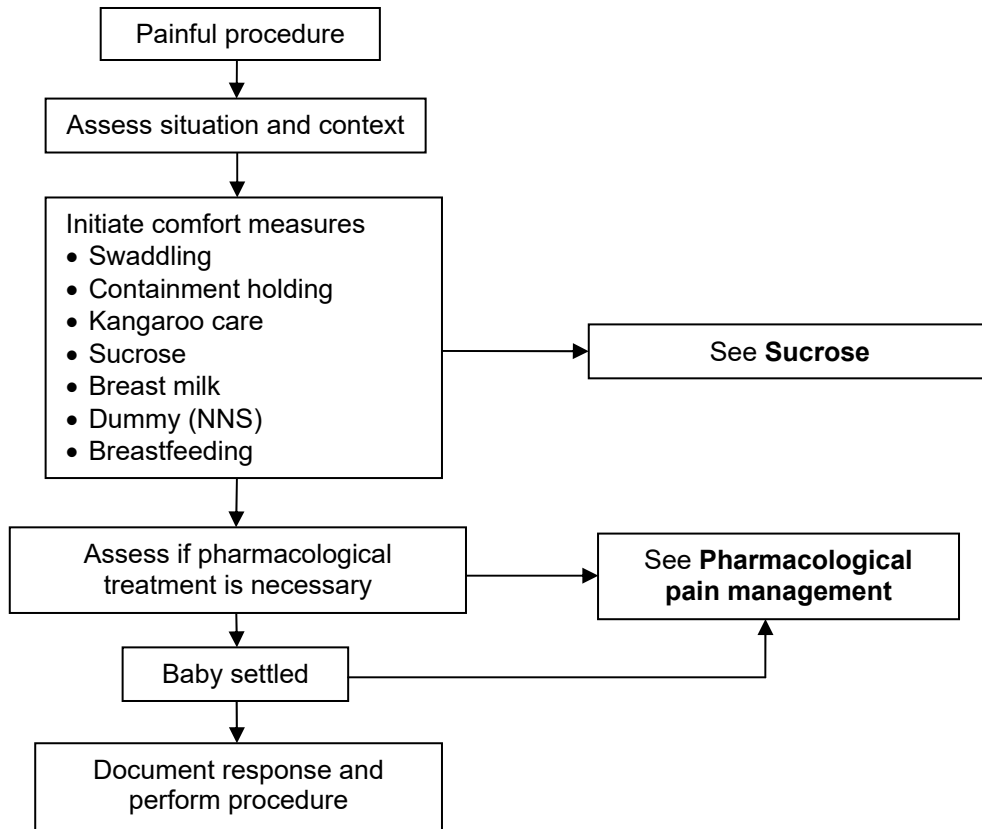
Administration

- Use **commercially** available sucrose 24% solution and follow manufacturer's guidelines regarding storage and use
- Maximum 8 doses in 24 hr
- Avoid **risk** of choking/aspiration – ensure baby is awake
- Drop **dose** onto tongue, buccal membrane, or dummy and **wait 2 min** before starting procedure
- For procedures lasting >5 min, repeat dose (maximum 2 further doses)
- **Continue** environmental and behavioural management strategies during procedure
- **Observe** baby's cues and allow 'time-out' to recover
- **Document administration of sucrose as per local policy**

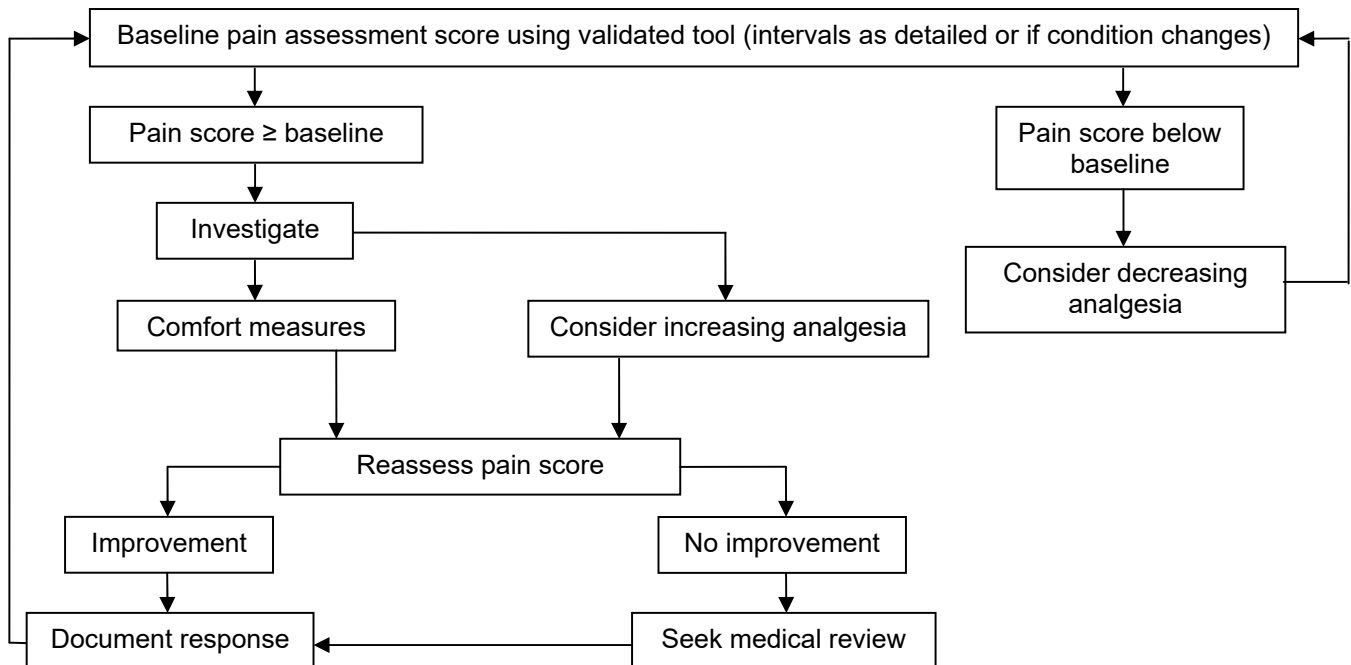
Gestation	Dose of sucrose 24%
28 ⁺⁰ –30 ⁺⁶ weeks	0.1 mL (max 0.3 mL per procedure)
≥31 ⁺⁰ weeks and 1000–2000 g	0.2 mL (max 0.6 mL per procedure)
>2000 g	0.5 mL (max 1.5 mL per procedure)

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Management of procedural pain



Management of prolonged or chronic pain



Pharmacological pain management

- Give medication in **conjunction** with non-pharmacological measures
- The following drugs may be useful:
 - diamorphine
 - fentanyl
 - morphine
 - paracetamol
- Details of these drugs **can** be found in the **Neonatal Formulary**

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Suggested medication for procedures

Specific situations

Non-urgent endotracheal intubation	Mechanical ventilation	Chest drain insertion	CT/MR imaging	Laser therapy for ROP	Therapeutic hypothermia
<ul style="list-style-type: none"> • Fentanyl • Atropine • Suxamethonium 	<ul style="list-style-type: none"> • Morphine/diamorphine continuous infusion 	<ul style="list-style-type: none"> • Morphine/diamorphine IV • Lidocaine SC 	<ul style="list-style-type: none"> • Sedation may be unnecessary if baby fed and swaddled • Chloral hydrate • Midazolam IV/buccal/intranasal 	<ul style="list-style-type: none"> • Morphine/diamorphine continuous infusion 	

Simple surgical procedures

Abdominal drain insertion	Broviac line removal	Wound dressing/drain removal	Application of silo bag for gastroschisis
<ul style="list-style-type: none"> • Morphine/diamorphine continuous infusion • Lidocaine SC 	<ul style="list-style-type: none"> • Paracetamol oral/rectal • Lidocaine SC • Sucrose 	<ul style="list-style-type: none"> • Paracetamol oral/rectal • Sucrose 	<ul style="list-style-type: none"> • Paracetamol rectal