

Pain Management in Children



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Pain management in children

- Pain is an inherent part of most diseases.
- Children are vulnerable to poor pain management
 - Underestimation of pain severity
 - Unscientific **Pain assessment** practices
- → Inadequate management
 - Paracetamol only
 - Not using opioids when indicated. **OPIOPHOBIA**
- Non-pharmacological interventions not always effectively utilised.



APED: *Drawing of my pain.* https://www.aped-dor.org/images/diversos/documentos/drawings_my_pain.pdf

Good Pain Management involves 6 steps

1. A high index of suspicion that pain is present.
2. Accurate pain assessment that is developmentally appropriate, using scoring tools.
3. Making an assessment of pain severity – mild, moderate or severe.
4. Initiating non-pharmacological pain management strategies.
5. Timely administration of analgesia, appropriate for the severity of pain.
6. Reassessment within an appropriate time period, and ongoing care.

Pain Assessment

- Evidence supports the routine use of pain scoring tools for pain assessment.
 - Self-report (usually from 5-7 years)
 - Composite behavioural tools

The 2023 edition of the Paediatric STGs and EML include:

- Neonatal Infant Pain Scale (NIPS) **(NEW)**
- Revised FLACC tool (r-FLACC) **(updated with revised version)**
- Numerical Rating Scale (self reporting) **(NEW)**
- Eland Colour Tool (self reporting) **(NEW)**

Excluded: Faces Pain Scale - *Scale may create confusion, where faces may be seen to depict emotion rather than pain level*

Non-medicine pain management strategies

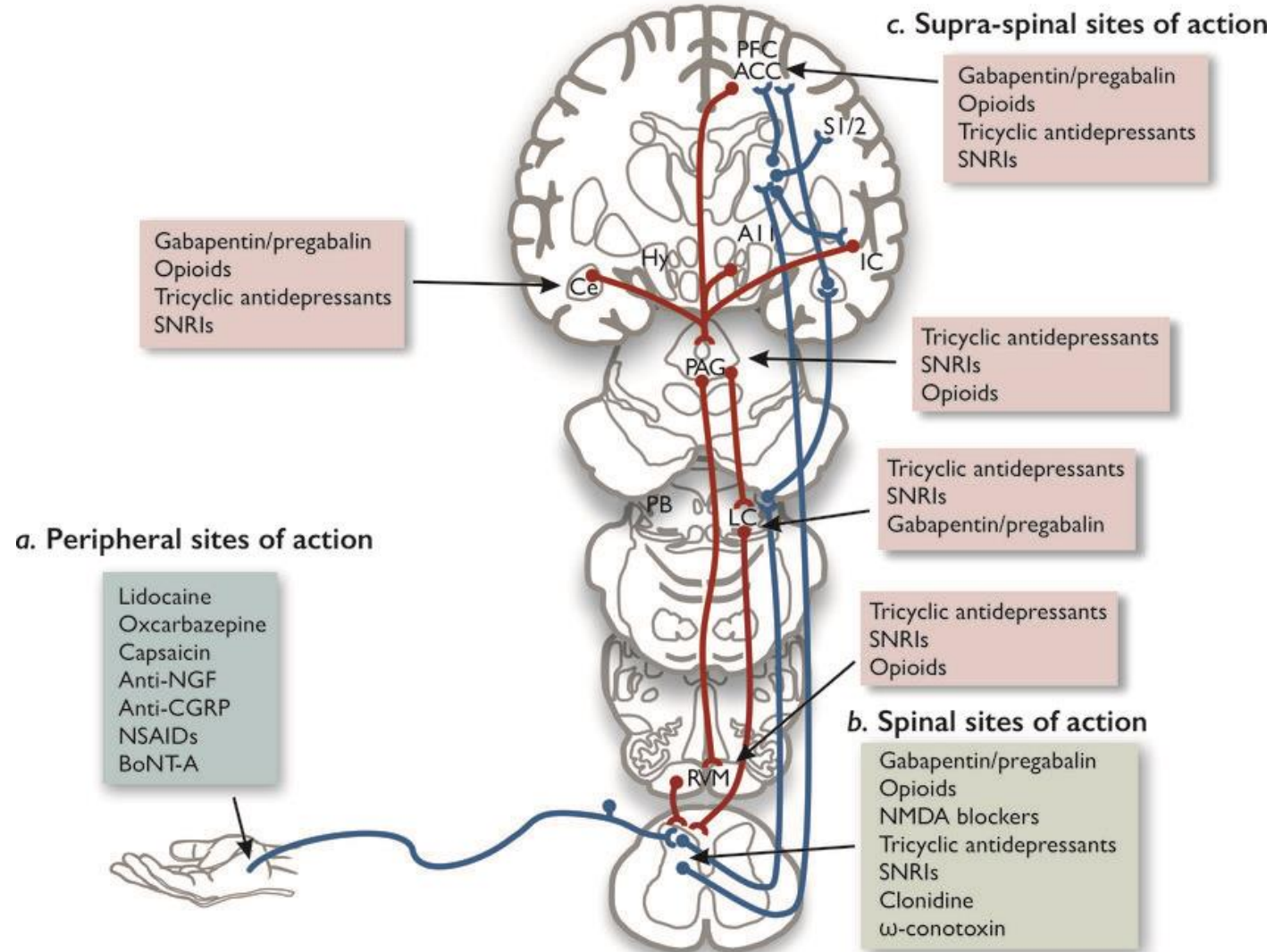
Type of intervention	Examples of evidence-based interventions
Contextual	Cluster procedures to reduce handling and allow rest.
Physical	Breast feed, non-nutritive sucking (dummy/pacifier), KMC/holding (not restraint), facilitated tucking, 24% sucrose , massage, containment, aromatherapy, keep warm. Ice for acute injuries with significant swelling. Immobilise/splint fractures. Cover burns or bleeding wounds.
Cognitive	Explain procedures, music, appropriate reassurance, explain pain, encourage mindfulness, distraction, imagery, favourite toy, music therapy.
Emotional	Caregiver presence, structured caregiver involvement (provide guidance), caregivers voice, clinician voice calm, soothing, positive affirmations, active reassurance. Parental involvement and interaction should be actively encouraged and should be an integral part of care.

Summary of changes to medicines section

- IV paracetamol added
- Oral morphine
- Multimodal analgesia
- Onsets, peaks and durations of actions added.
- Dosing tables added where appropriate to simplify dosing.
- Ketamine, Midazolam routes of administration expanded.
- Amitriptyline added for neuropathic pain. Carbamazepine removed.
- SNI: Clonidine, Amitriptyline.
- Cancer pain: Bone pain, visceral pain, neuropathic pain
- Procedural pain:

Route	Dose (mg/kg)	Onset (minutes)	Peak (minutes)	Duration
Oral	6–10	> 5	30	4–6 hours
Intranasal	5	5–10	20	20–120 minutes
IV (bolus)	0.25–1	< 1	3–5	10–15 minutes
IV (infusion)	0.5–1 mg/kg/hr	< 1	3–5	10–15 minutes
Intramuscular*	2–4	2–5	20	30–120 minutes

Multimodal pain management



3-step Management approach

Pain severity	Analgesia	Comments
Mild	Paracetamol ± NSAIDs	
Moderate	Paracetamol ± NSAIDs + Opioid: • Morphine, oral	
Severe	Paracetamol ± NSAIDs + Opioid: • Morphine, oral or IV. OR • Fentanyl, IV.	Titrate IV opioids for safety.
Adjuvant agents	Ketamine	Can be used with any pain severity. Re-commended for moderate/severe pain.
Interventional modalities	Regional anaesthesia. See Chapter 22: Anaesthesia, section 22.3.1: Local and regional anaesthesia.	Consider indwelling catheters.



Loss of Tilidine

- Tilidine was previously included as an intermediate efficacy opioid.
 - Discontinued in South Africa (as of late 2022) – and thus could not be included.
 - On review: alternatives in this setting are extremely limited.
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- → Oral morphine was included for moderate/severe pain.
 - Management of complications
 - Guidance for monitoring
 - Continued efforts to find suitable alternatives will be undertaken during next review cycle.



NEW: Paracetamol IV (1)

- The previous Paediatric STGs and EML only included oral and rectal paracetamol.
- Limitations to rectal paracetamol include:
 - Variable and unpredictable pharmacokinetics;
 - Cannot be used in children under 3 months;
 - Accessibility – were not on the National Tender.

Paracetamol IV was reviewed for inclusion, particularly in peri-operative setting (or other settings where oral route not possible) for short term use.

NEW: Paracetamol IV (2)

- Evidence review: Evaluate safety and efficacy of IV vs rectal paracetamol.
- Evidence: IV to not be inferior to rectal.
- No safety concerns for IV were found in children under 3 months of age.
- Cost comparison: IV potentially less costly than rectal paracetamol.

Recommendation: addition of paracetamol IV as an alternative to rectal paracetamol where oral route of administration is not possible (for short term use only)

NEW: Paracetamol IV (3)

- Oral paracetamol is preferred route
- IV paracetamol reserved for patients who cannot receive paracetamol PO.
- PR where unable to take orally, where IV access is not available. PR should be avoided in children with neutropenia.

Paracetamol dosing table added

Route	Loading dose	Maintenance dose				Maximum daily dose
		Preterm neonates < 32 weeks	Neonates	Infants 30 days to 3 months	3 months to 12 years	
Oral	20 mg/kg	10 mg/kg 12 hourly (Maximum 30 mg/kg/day)	10 mg/kg 6 to 8 hourly	10 mg/kg 6 hourly	15 mg/kg 6 hourly	60 mg/kg/day (Maximum 4 g/day)
Intravenous	20 mg/kg	10 mg/kg 12 hourly (Maximum 30 mg/kg/day)	10 mg/kg 6 to 8 hourly	10 mg/kg 6 hourly	15 mg/kg 6 hourly	60 mg/kg/day (Maximum 4 g/day)
Rectal	40 mg/kg	Not recommended	30 mg/kg/dose 6 hourly		Maximum 5 g/day	

NEW: Clonidine

Clonidine added for management of pain in children with SNI

Pain in children with severe neurological impairment (SNI):

Patients with SNI may suffer from neuro-irritability, which can be associated with pain. In a child with recurrent pain behaviour episodes (3 or more prolonged episodes per week or a monthly cycle of frequent episodes for 1–2 weeks each month), initiate:

- Clonidine, oral, 1–3 mcg/kg 6–8 hourly.
- Amitriptyline, oral, 0.5–1 mg/kg 8 hourly.
 - Maximum: 25 mg/dose.

Procedural Sedation and Analgesia

	Procedures associated with mild pain	Procedures associated with moderate to severe pain
Examples	<p>Blood taking. Heel prick. IM injection. Nasogastric tube insertion. Urethral catheterisation. Peripheral cannulation.</p>	<p>Arterial line, central venous catheter. Simple laceration. Intercostal drain insertion/removal. Dressing change for burns. Lumbar puncture. Fracture reduction/manipulation. Bone marrow aspirate and trephine.</p>
ANALGESIA		
Local anaesthesia*	<ul style="list-style-type: none"> • Topical lidocaine (lignocaine)/prilocaine 1 hour before procedure) covered with occlusive dressing. • Lidocaine (lignocaine) infiltration 0.5, 1 or 2% (lower concentrations burn less). • Consider regional anaesthesia (e.g. digit blocks, wrist block). 	
Systemic	<ul style="list-style-type: none"> • Sucrose 24% solution (up to 12 months). • Breastfeed • Paracetamol • ± Ibuprofen 	<ul style="list-style-type: none"> • Paracetamol ± ibuprofen AND <u>one</u> of the following medicines: • Ketamine OR • Fentanyl

Thank you