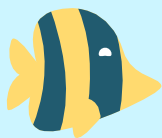



## DRUG DOSAGES FOR ACUTE PAIN MANAGEMENT IN CHILDREN



| ANALGESIC LADDER FOR ACUTE PAIN MANAGEMENT |  |   |  |
|--|--|---|--|
| MILD<br>Score 1-3                          |  | MODERATE<br>Score 4-6   |  |
| Regular<br>No medication<br>or<br>PCM      | PRN<br>PCM &/ or<br>NSAIDs/ COX 2<br>inhibitor | Regular<br>Tramadol<br>or Morphine<br>± PCM<br>± NSAIDs/<br>COX2 inhibitor      | PRN<br>Additional<br>Tramadol<br>or<br>Morphine  |
|  |  | SEVERE<br>Score 7-10  |  |
|  |  | Regular<br>Morphine<br>or IR Oxycodone<br>± PCM<br>± NSAIDs/<br>COX 2 inhibitor | PRN<br>Additional<br>Morphine<br>or IR Oxycodone |
|  |  | UNCONTROLLED  |  |
|  |  | To refer to APS for:<br>PCA or Epidural<br>or other forms<br>of analgesia       |  |

| DRUG        | ROUTE      | DOSE AND FREQUENCY  |            |   |  |
|-------------|------------|---|------------|---|--|
|             |            | 1 MONTH-2 YEARS   | 2-12 YEARS | 12-18 YEARS   | >18 YEARS  |
| Paracetamol | Oral       | <ul style="list-style-type: none"> <li>▪ <b>0-3 months:</b> 15mg/kg 6-8 H<br/>(Max: 60mg/kg/day;<br/>if preterm 28-32 CGA, max 30mg/kg/day)</li> <li>▪ <b>&gt; 3 months-12 years:</b> 15mg/kg 4-6 H<br/>(Max: 75mg/kg/day or 4 grams/day)</li> </ul>  |            | <ul style="list-style-type: none"> <li>▪ 500mg-1g 4-6 H<br/><br/>(If non- obese<br/>≥50kg: 1g 4-6 H)<br/>(Max: 4g/day)</li> </ul>   | <ul style="list-style-type: none"> <li>▪ 500 mg-1g 4-6 H<br/>(Max: 4 g/day)</li> </ul> |
|             | Per rectal | <ul style="list-style-type: none"> <li>▪ <b>0-3 months:</b> LD 30 mg/kg;<br/>MD: 20mg/kg 8 H (Max: 60mg/kg/day)</li> <li>▪ <b>&gt; 3 month-12 years:</b> LD 40mg/kg;<br/>MD : 15-20mg/kg 6 H (Max: 75mg/kg/day)</li> </ul>  |            | NA  |  |
|             | IV         | <ul style="list-style-type: none"> <li>▪ <b>Preterm neonate over 32/52 (CGA):</b><br/>7.5mg/kg 8 H (Max 25mg/kg/day)</li> <li>▪ <b>Term neonate &amp; until 10kg:</b> 7.5 mg/kg 6-<br/>8 H (Max: 30mg/kg/day)</li> <li>▪ <b>&gt;10kg or child up to 50kg:</b> 15mg/kg 4-6H<br/>(Max: 60 mg/kg/day, not exceeding 2<br/>grams/day if &lt; 33 kg, or 3 grams/day for<br/>33-50 kg)</li> </ul> |            | <ul style="list-style-type: none"> <li>▪ <b>If non obese &gt; 50kg :</b> 1g 4-6 H<br/>(Max: 4g/day)</li> <li>▪ <b>**Obese Children:</b> 15mg/kg Adjusted<br/>body weight (Max: 4g/day)</li> </ul> |  |
| Ibuprofen   | Oral       | <ul style="list-style-type: none"> <li>▪ <b>&lt; 3 months:</b> not recommended</li> <li>▪ <b>&gt; 3 months:</b> 5mg/kg 6-8 H<br/>(Max: 20mg/kg/day)</li> <li>▪ <b>6 months-12 years:</b> 5-10mg/kg 6-8 H<br/>(Max: 30-40mg/kg/day or 1.2 grams/24<br/>hours, whichever less)</li> </ul>   |            | <ul style="list-style-type: none"> <li>▪ 200-400 mg 4-6 H (Max: 2.4g/day)</li> </ul>  |  |
| Diclofenac  | Oral       | <ul style="list-style-type: none"> <li>▪ <b>&lt; 6 months:</b> not recommended</li> <li>▪ <b>&gt; 6 months or &gt; 10kg:</b> 0.3-1mg/kg 8 H<br/>(Max: 3 mg/kg/day up to 150 mg/day,<br/>whichever is less for 2 days)</li> </ul>  |            | <ul style="list-style-type: none"> <li>▪ Oral 25-50mg 8 H (Max: 3 doses/day)</li> </ul>   |  |
|             | Per rectal | <ul style="list-style-type: none"> <li>▪ <b>&gt; 1 year:</b> 1 mg/kg 8-12 H (Max: 3<br/>mg/kg/day up to 150 mg/day, whichever is<br/>less)</li> </ul>   |            | <ul style="list-style-type: none"> <li>▪ 50-100mg (oral to be started 18 hours<br/>after initial 100mg suppository)</li> </ul>  |  |

| DRUG   | ROUTE   | DOSE AND FREQUENCY   |  |  |   |
|--|---------|--|--|--|---|
|  |         | 1 MONTH-2 YEARS  | 2-12 YEARS   | 12-18 YEARS  | >18 YEARS   |
| <br><b>Celecoxib</b> | Oral    | <ul style="list-style-type: none"><li>▪ <b>&lt; 2 years:</b> not recommended</li></ul>   | <ul style="list-style-type: none"><li>▪ <b>&gt; 2 years:</b> weigh risks &amp; benefits</li><li>▪ <b>10-25 kg:</b> 50mg 12 H</li><li>▪ <b>&gt; 25 kg:</b> 100mg 12 H</li></ul> |  | <ul style="list-style-type: none"><li>▪ 200mg 12 H / 400mg daily (Max for 1 week)</li></ul>               |
| <b>Tramadol</b>  | Oral/IV | <ul style="list-style-type: none"><li>▪ <b>&gt; 1 year:</b> 0.5-1mg/kg 4-6 H (with caution)</li></ul> (NB: For tonsillectomy max: 1mg/kg/dose 6-8 H)   |  | <ul style="list-style-type: none"><li>▪ <b>&gt; 12 years:</b> 1mg/kg 4-6 H (Max: 100mg/dose or 400mg/day)</li></ul>  | <ul style="list-style-type: none"><li>▪ 50-100mg 6-8 H (Max: 400mg/day)</li></ul>                         |
| <b>Oxycodone</b>   | Oral    | <ul style="list-style-type: none"><li>▪ <b>&gt; 1 month:</b> Immediate-release (IR Oxynorm) 0.1-0.2mg/kg (max 5mg) PRN or 4-6 H (by APS / Palliative team)</li><li>▪ NB: Immediate-release (IR Oxynorm) for acute pain; controlled-release (CR Oxycontin) for severe background pain</li></ul> |  |  | <ul style="list-style-type: none"><li>▪ IR Oxynorm 5-10mg 6 H</li><li>▪ CR Oxycontin 10-20mg BD</li></ul> |
| <b>Morphine</b>  | Oral    | <ul style="list-style-type: none"><li>▪ <b>&gt; 1 month-1 year:</b> 0.1mg/kg 4-6 H (for moderate-severe pain) (with caution)</li><li>▪ <b>&gt; 1 year:</b> 0.1-0.2mg/kg 4-6 H (for moderate pain), 0.2-0.4 mg/kg 4-6 H (for severe pain)</li></ul>   |  | <ul style="list-style-type: none"><li>▪ <b>&gt; 12 yrs:</b> 0.1-0.3 mg/kg 4-6 H (Max: 10-15mg/dose, up to 6x / 24 hours)</li></ul>                               |   |
|  | SC      | 0.1-0.2 mg/kg <ul style="list-style-type: none"><li>▪ <b>&lt; 6 months:</b> (up to 4x / 24 hours)</li><li>▪ <b>&gt; 6 months:</b> (up to 6x / 24 hours)</li></ul>  | <ul style="list-style-type: none"><li>▪ 0.2 mg/kg (up to 6x / 24 hours)</li></ul>  | <ul style="list-style-type: none"><li>▪ <b>&gt; 12 yrs:</b> 5-10mg (up to 6x / 24 hours)</li></ul>   |   |
|  | IV      | Slow titration: <b>Refer iv morphine titration protocol</b> <ul style="list-style-type: none"><li>▪ <b>1-12 months:</b> Max: 0.1 mg/kg (up to 4x / 24 hours)</li><li>▪ <b>&gt; 1 year:</b> Max: 0.1 mg/kg (up to 6x / 24 hours)</li></ul>  |  | Slow titration: <b>Refer iv morphine titration protocol</b> <ul style="list-style-type: none"><li>▪ <b>&gt; 12 yrs:</b> 2.5-10mg (up to 6x / 24 hours)</li></ul> |   |
| <b>Ketamine</b>  | Oral/IV | <ul style="list-style-type: none"><li>▪ Oral: 2-10mg/kg; IV: 0.2-0.5mg/kg (restricted use only for trained personnel)</li></ul> (To be used in combination with midazolam for procedural analgesia if Ketamine dose > 0.5mg/kg)  |  |  |   |

\*\*For Obese Children, recommended adjustments for drug dosing:

Opioid: Ideal Body weight (IBW); Paracetamol and NSAID: Adjusted Body Weight= IBW+ 0.4 x (Actual BW-IBW)



**Review all regular use of analgesics no later than 72 hours after initiation**

References:

- 1) Paediatric Pain Management Guidelines 2023, MOH
- 2) Management of Postoperative Pain in Children; Paediatrics 2008

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