Recommendations Based on History of Anticipated Degree of Pain Associated with Surgery and History of Previous Opioid Exposure(s)

**Potential for Mild Pain Procedures**
- PEG
- Laparoscopic procedures (G-tube, Ladd's, hernia repair)

**Potential for Moderate Pain Procedures**
- PDA Ligation
- Chest tube insertion and chest tube maintenance
- Gastrostomy tube with or without Nissen
- Abdominal drain insertion
- Gastrochisis silo placement
- Incarcerated hernia repair
- Anorectal malformation repair
- Hirschsprung's Disease Pull through
- VP shunt placement
- Myelomeningocele closure

**Potential for Severe Pain Procedures**
- Closure or reduction of abdominal wall defects
- CDH Repair
- TEF Repair
- Thoracotomy
- Exploratory laparotomy
- Critical airway procedure and/or tracheostomy
- Open/siloed abdomen
- Mandibular distraction

Discussion of airway security and effects of narcotics on respiratory depression necessary in preoperative huddle and with ongoing pain management decisions

Previous opioid exposure defined as greater than 7 days of opioid exposure within 1 month of present surgery
Guideline #1: Potential for MILD/MODERATE Post-Operative Pain
(see attached for listing of mild/moderate painful procedures)

**Extubated or Intubated**

**Scheduled Acetaminophen IV 10 mg/kg/dose Q6 hrs for 48-72 hrs postoperative**

**and**

**Intermittent Morphine 0.05 mg/kg/dose IV PRN every 2 hours for breakthrough pain**

*if experiencing pain with NPASS scores $\geq 4$ upon postoperative admission to the NICU consider 1x dose of Fentanyl 1 mcg/kg/dose IV every 10 min PRN x1-2 doses administered slowly

<table>
<thead>
<tr>
<th>NPASS Score -2 to -10</th>
<th>NPASS Score -1 to +3</th>
<th>NPASS Score $\geq 4$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Sedation</strong></td>
<td><strong>Goal</strong></td>
<td><strong>Danger Zone</strong></td>
</tr>
<tr>
<td>• Consider reason for scores: planned sedation or was patient not reversed</td>
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<tr>
<td>• If unplanned sedation → wean infusion rate or transition to PRN doses</td>
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<tr>
<td>• Continue NPASS scoring per protocol</td>
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<tr>
<td>• Continue Non-pharmacological interventions</td>
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<td></td>
</tr>
<tr>
<td>• Adequate control of pain and sedation; no change recommended</td>
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<tr>
<td>• Utilize PRN Morphine IV dose</td>
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</tbody>
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**Extubated or Intubated**

**Administer prn dose and start low dose morphine continuous infusion**

<table>
<thead>
<tr>
<th><strong>Opioid Naive</strong></th>
<th><strong>Opioid Exposed</strong></th>
</tr>
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<tbody>
<tr>
<td>Utilize low dose Morphine infusion of 0.02 mg/kg/hr</td>
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<tr>
<td>Closely monitor patient respiratory status if extubated</td>
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</tr>
<tr>
<td>Utilize low dose Morphine infusion of 0.05 mg/kg/hr</td>
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<tr>
<td>• If on continuous infusion prior to procedure, then restart infusion and increase dose by 20%</td>
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</tr>
<tr>
<td>Reassess NPASS and titrate up (scores remaining $\geq 4$) by 0.01 mg/kg/hr every 6-12 hrs</td>
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</tr>
</tbody>
</table>
Guideline #2: Potential for SEVERE Post-Operative Pain
(see attached for listing of mild/moderate painful procedures)

**Extubated or Intubated:** engage in preoperative discussion of sedation needs and potential plan to keep patient intubated

**Scheduled Acetaminophen IV 10 mg/kg/dose Q 6 hrs for 48-72 hrs postoperative**
and
**Start low dose continuous morphine infusion**

*if experiencing pain with NPASS scores ≥ 4 upon postoperative admission to the NICU consider 1x dose of Fentanyl 1-2 mcg/kg/dose IV every 10 min PRN x1-2 doses administered slowly

**consider potential need for sedation (see below recommendations)**

<table>
<thead>
<tr>
<th>Opioid Naive</th>
<th>Opioid Exposed</th>
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<tbody>
<tr>
<td>Utilize low dose Morphine infusion of 0.03-0.05 mg/kg/hr</td>
<td>Utilize low dose Morphine infusion of 0.05-0.1 mg/kg/hr <em>or</em> increase current opioid infusion by 20%</td>
</tr>
<tr>
<td>Closely monitor patient respiratory status if extubated</td>
<td>Reassess NPASS and titrate up (scores remaining ≥ 4) by 0.01 mg/kg/hr every 6-12 hrs</td>
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<tr>
<td></td>
<td>Closely monitor patient respiratory status if extubated</td>
</tr>
</tbody>
</table>

Intermittent Morphine 0.05 mg/kg/dose IV PRN every 2 hours for breakthrough pain to start
- if increasing morphine infusion, the PRN dose and infusion hourly dose should be the same

**NPASS Score -2 to -10**

- Heavy Sedation
  - Consider reason for scores: planned sedation or was patient not reversed
  - If unplanned sedation→ wean infusion rate or transition to PRN doses
  - Continue NPASS scoring per protocol
  - Continue Non-pharmacological interventions

**NPASS Score -1 to +3**

- Goal
  - Adequate control of pain and sedation; no change recommended
  - Continue NPASS scoring per protocol
  - Continue Non-pharmacological interventions

**NPASS Score ≥ 4**

- Danger Zone
  - ≤ 3 PRN Doses in 12 hours
  - Utilize PRN Morphine IV dose as needed
  - Continue NPASS scoring per protocol
  - Continue non-pharmacological interventions
  - ≥ 3 PRN Doses in 12 hours
  - Continue NPASS scoring per protocol
  - Continue non-pharmacological interventions

**Extubated or Intubated**

**Administer prn dose and increase morphine continuous infusion**

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<tr>
<th>Opioid Naive</th>
<th>Opioid Exposed</th>
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<tr>
<td>Increase Morphine infusion by 20%</td>
<td>Increase Morphine infusion by 20%</td>
</tr>
<tr>
<td>Closely monitor patient respiratory status if extubated</td>
<td>Consider Pain Team consult</td>
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<td>Closely monitor patient respiratory status if extubated</td>
<td></td>
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</table>

**Sedation Recommendations:** If morphine infusion requires > 2 rate/dose increases and ≥ 4 PRN doses are given within a 12 hr period after infusion started, consider the addition of dexmedetomidine 0.2- 1 mcg/kg/hr.
If experiencing continued agitation, consider addition of midazolam or Ativan
References

