Pharmacologic Treatment of Moderate/Severe Neonatal Abstinence Syndrome (NAS)*

**FIRST-LINE THERAPY:**
*Neonatal Oral Solution*
Morphine 0.05 mg/kg PO q4h

- **KNOWN/ SUSPECTED POLYPHARMACY ABUSE?**
  - **NO**
    - Increase dose to 0.08mg/kg PO q4h if Finnegan scores remain >8
    - If scores still not stabilized after 24 hours, increase to a max dose of 0.1mg/kg PO q4h
  - **YES**
    - Finnegan Scores stabilized on morphine?
      - **NO**
        - Hold consistent morphine dose for 24-48 hours for stabilization
      - **YES**
        - Taper dose every 24-48 hours as tolerated guided by Finnegan Scores < 8. First decrease dose then increase interval [See taper schedule]

**SECOND-LINE THERAPY:**
Add phenobarbital and continue on morphine.

- **PHENOBARBITAL LOADING DOSE:**
  16mg/kg PO, divided in 2 doses administered 12 hours apart
- **PHENOBARBITAL MAINTENANCE DOSE:**
  2.5mg/kg PO q12h

- **IF POSSIBLE, OBSERVE OFF MORPHINE 48 HOURS PRIOR TO DISCHARGE**
- **DISCHARGE ON PHENOBARBITAL**

*As defined by a Finnegan score ≥ 8

**Begin Finnegan scoring within 2 hours of life and continue scoring every 4 hours**
## Recommended Tapering Regimen for Morphine

<table>
<thead>
<tr>
<th>If infant weight &gt;3 kg</th>
<th>If infant weight ≤ 3 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4mg PO q4h</td>
<td>0.4mg PO q4h</td>
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<tr>
<td>0.3mg PO q4h</td>
<td>0.3mg PO q4h</td>
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<tr>
<td>0.2mg PO q4h</td>
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<td>0.2mg PO q4h</td>
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<td>0.2mg PO q4h</td>
<td>0.1mg PO q4h</td>
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<tr>
<td>DISCONTINUE</td>
<td>DISCONTINUE</td>
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</tbody>
</table>

**KEY POINTS:**

- Tapering dosing based on ABSOLUTE mg, not mg/kg
- Start a tapering regimen with the dose on the chart that is closest to the infant’s stabilized dose (this means you may not start at the top of the chart)
- Taper doses every 24-48 hours as tolerated, while keeping Finnegan score <8

**ALTERNATIVE PHARMACOLOGIC THERAPY (Not considered first-line treatment in NAS):**

**Methadone**

- Alternative to morphine; second-line due to long half-life
- **DOSE:** 0.05mg/kg PO q12h (increase by 0.05mg/kg until Finnegan scores stabilize)
- Must obtain ECG to evaluate for QT-Prolongation
- Half-life may be up to 24 hours in an infant
- Must be tapered by 10-20% over 4 to 6 weeks

**Clonidine**

- Alternative to phenobarbital; second-line due to side-effects
- **DOSE:** 1 mcg/kg PO q4h
- Adverse Effects: hypotension, AV-block, bradycardia
• Must taper over 10-14 days to avoid rebound hypertension