**NAS Primary Agent Algorithm**

- Begin Finnegan scoring within 4 hours of birth. Infants may be scored on the mother skin-to-skin.
- Infants should be scored every 3-4 hours, after feeds/cares.
- **NAS Bundle of Care:** Encourage breastfeeding (if eligible), skin-to-skin with parents, parental presence at the bedside, feeding on demand, swaddling, decreased noise and light stimulation.

### 2) Consider initiation of Level 1 Neonatal Methadone 1mg/ml oral solution after a team bedside evaluation if:

- 2 consecutive Finnegan scores 8 or greater OR 1 Finnegan score of 12 or greater, AND
- Infant is scoring primarily for **CASE** items of 1) **Console** (Cannot console within 10 min), 2) **Autonomic** (Fever, tachypnea), 3) **Sleep** < 1 hour, 4) **E = Eating** (Poor feeding, vomiting or diarrhea)

<table>
<thead>
<tr>
<th>Level</th>
<th>Starting dose of Neonatal Methadone 1mg/ml oral solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.2 mg/kg/day PO divided q8 hours = 0.067 mg/kg/dose</td>
</tr>
<tr>
<td>2</td>
<td>0.4 mg/kg/day PO divided q8 hours = 0.133 mg/kg/dose</td>
</tr>
<tr>
<td>3</td>
<td>0.6 mg/kg/day PO divided q8 hours = 0.200 mg/kg/dose</td>
</tr>
<tr>
<td>4</td>
<td>0.8 mg/kg/day PO divided q8 hours = 0.267 mg/kg/dose</td>
</tr>
</tbody>
</table>

### 3a) Consider weaning if: Finnegan scores are on average < 8 while being maintained on the same dose for 24 hours, taking into account **CASE** questions in decisions.

### 3b) Consider adding a secondary agent if:

- The max oral methadone dose is reached and symptoms persist with scores > 8 due to NAS, OR if
  - Infant is unable to wean by day 7 of treatment OR if
  - At any time after day 7, infant cannot be weaned for a consecutive 48 hour period

### 4a) Methadone Weaning:

- Wean by 10% of maximum dose in mg/kg/day.
- Discontinue methadone when dose is 20% of maximum dose.
- For Level 4 infants, consider weaning down to 10% of maximum dose if borderline scores.
- For Level 1 infants, consider stopping at 30% of maximum dose.
- Infants should be monitored for 24-48 hours off methadone before discharge home.

### 4b) Failed Weans:

If after a wean, persistent scores >8 due to NAS, particularly **CASE** items, then:

- **Option 1:** Consider adding secondary agent if <50% through wean.
- **Option 2:** Consider increasing methadone dose by 10%.
- **Option 3:** Attempt to hold current dose for up to 24 hrs, particularly towards the end of the weaning process.

### 5) Re-Initiation of methadone after discontinuation:

- Consider for persistent scores >8 due to NAS
- Re-start at "off dose" – 20% of maximum dose
- If on phenobarbital, ensure level is therapeutic

All methadone and buprenorphine exposed infants should be observed inpatient for minimum of 5-7 days for need for medication treatment.
NAS Secondary Agent Algorithm

1) Consider adding secondary agent if:
- the maximum oral methadone dose (level 4) is reached and symptoms persist with Finnegan scores of 8 or greater due to NAS, taking into account CASE questions, OR if
- infant is unable to wean by day 7 of treatment OR if
- at any time after day 7, infant cannot be weaned for a consecutive 48 hour period
- Use Phenobarbital as secondary agent if infant is polypharmacy, benzodiazepine, illicit drug (including heroin) and/or alcohol exposed or if infant exhibiting severe neurological symptoms.
- Use Clonidine as a secondary agent if infant is SSRI and/or opioid only exposed.

2a) Phenobarbital loading dose = 20 mg/kg PO

3a) Reload phenobarbital if:
- Persistent scores >8 due to NAS, taking into account CASE questions
- 10mg/kg/dose PO every 8-12 hours as needed x 2 more doses until the cumulative total of all loading doses reaches a maximum of 40mg/kg

2b) Clonidine dose = 1 mcg/kg PO q4 hours
- Monitor blood pressure every 4 hours. Hold dose if SBP <65 or DBP <35.
- Never increase dose > 1 mcg/kg/dose

3b) Once stable, wean off methadone, then decrease clonidine dose every 24 hours as tolerated by extending the dosing interval from q4hr to q8hr to q12hr, then off.
- After discontinuation, observe for 48 hrs minimum before preparing for discharge.

4a) Begin phenobarbital maintenance dosing 24 hours after last loading dose and give maintenance dose every 24 hours. Maintenance dose depends on sum of all loading doses received:

<table>
<thead>
<tr>
<th>Cumulative Sum of Loading Doses</th>
<th>Maintenance Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mg/kg</td>
<td>5mg/kg/day</td>
</tr>
<tr>
<td>30 mg/kg or higher</td>
<td>6.5mg/kg/day</td>
</tr>
</tbody>
</table>

Phenobarbital serum levels:
- If a cumulative total of 30mg/kg of loading doses have been given, draw a serum level prior to giving any further loading doses.
- For all infants on Phenobarbital, obtain a baseline trough level 48 hours following the last loading dose.
- Ideal phenobarbital serum level to control NAS is 20-30mg/ml. If the level is >40mg/ml, consider decreasing the dose and contact the pediatric pharmacist for additional guidance.
- Additional serum levels may be drawn as clinically indicated.

5a) Once an infant is off of oral methadone, phenobarbital may be weaned by the inpatient team or the primary care physician.
- Phenobarbital can generally be discontinued after a 4-8 week taper
- Wean phenobarbital by 20% every week, as long as the infant is not exhibiting withdrawal symptoms
- Include phenobarbital weaning in discharge Rx and instructions in the discharge summary