Updated July 2016

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)

High scores < 24 hrs old:
***** Try to **hold on medication** due to likely non-opioid withdrawal from co-exposures
* Ask **CASE** questions
*** Non-pharm care**

Level	Starting dose of Neonatal Methadone 1mg/ml oral solution
1	**0.2 mg/kg/day** PO divided q8 hours = 0.067 mg/kg/dose
2	**0.4 mg/kg/day** PO divided q8 hours = 0.133 mg/kg/dose
3	**0.6 mg/kg/day** PO divided q8 hours = 0.200 mg/kg/dose
4	**0.8 mg/kg/day** PO divided q8 hours = 0.267 mg/kg/dose

Always use **birth weight** for methadone dosing, in **mg/kg/day**

1) Increase oral methadone dose to **next level** if:

- **2** consecutive Finnegan scores 8 or greater OR
- **1** Finnegan score of 12 or greater
- Take into account **CASE** questions in decisions

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.

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.

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

See reverse side for secondary agent instructions.

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

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

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

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:

Cumulative Sum of Loading Doses	Maintenance Dose
20 mg/kg	5mg/kg/day
30 mg/kg or higher	6.5mg/kg/day

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**