Neonatal Narcotic Abstinence Syndrome (NAS) Clinical Practice Guideline

General Information

Currently, the prevalence of narcotic use during pregnancy in the U.S. depends on the studied population and is estimated to be as high as 5-8%. The narcotics include naturally occurring opiates (morphine, codeine, and opium), semisynthetic narcotics (heroin, oxycodone), and synthetic narcotics (methadone, vicodin, buprenorphine, fentanyl). NAS presentation is dependent on many variables, including type of drug, timing and frequency, gestational age of exposure and excretion of the drug and typically presents 48-72 hours but can present as late as four weeks of age.

Clinical Presentation of N.A.S.

Gastrointestinal Dysfunction	Neurologic Excitability	Autonomic Signs
Poor feeding, uncoordinated suck	Tremors, irritability, high pitched cry	Temp. instability
Vomiting	Hyperactive reflexes (DTRs, Moro)	Diaphoresis
Diarrhea	Increased wakefulness	Fever
Dehydration	Frequent yawning and sneezing	Mottling
Poor weight gain	Increase muscle tone	Nasal congestion
	Seizures	

INFANTS BORN WITH KNOWN NARCOTIC EXPOSURE PRIOR TO NAS SYMPTOMS:

1. **Complete physical exam with special consideration to birth weight, length, and head circumference. Each parameter may be lower than unexposed infants of the same gestational age.**
2. **Obtain a complete maternal substance-use history (including dose) to ensure proper monitoring and pharmacologic treatment if needed.**
3. **Send urine and meconium toxicology screens. Notify lab of the specific toxin suspected.**
4. **Determine risk for HIV, Hep B, Hep C, HSV, CMV, Syphilis, Chlamydia, and GC. This may include maternal prenatal screening and/or testing the infant post-delivery.**
5. **Contact MMC social worker. The social worker will complete appropriate DHHS notifications.**
6. **Perform ESC (eat, sleep, console) care assessments every 3-4 hours with initial assessment in the first 4-6 hours for a minimum of 5 to 7 days, depending on the clinical course and the potential for close outpatient follow-up.**
7. **Feed on demand. Infants exhibiting exaggerated hunger or increased caloric needs typically require higher density and/or more frequent feedings. Refrain, if possible, from waking between feedings.**
8. **Support non pharmacologic care throughout the hospital stay including:**

   Rooming in parental presence
   Skin to skin and holding
   Decreased stimulation (light, noise, and tactile) and limiting visitors
   Swaddling
   Use of pacifiers
   Ad lib feeding, consider hypercaloric feeds within the first 12 hours of life

BREASTFEEDING and NAS:

The AAP Committee on Drugs list methadone and buprenorphine as maternal medications compatible with breastfeeding. However, breastfeeding is not recommended for mothers using illicit drugs or multiple drugs and should be made on a case by case basis. If breastfeeding, consult lactation within the first 24 hours and consider supplementing with 24 calorie/ounce formula or fortifying the breast milk if there are signs of withdrawal or increased caloric requirement.

NAS management algorithm for the Mother-Baby Unit (4th floor)

DEFINITIONS FOR ESC

Eating: Poor feeding due to NAS is defined as unable to coordinate feeding within 10 minutes of hunger cues *OR* sustain feeding for at least 10 minutes at breast *OR* eat 10 mL by alternate feeding method. NOTE- Do not indicate Yes if poor eating is clearly due to non-opioid related factors (e.g. prematurity, transitional spittiness in first 24 hours)

Sleeping: Sleep < 1 hour due to NAS: infant is unable to sleep for at least one hour after feeding due to opioid withdrawal symptoms. Do not indicate Yes if due to non-opioid related factors (e.g. first day nicotine withdrawal or SSRI exposure, physiologic cluster feeding)

Consoling: Unable to console within 10 minutes: infant unconsolable despite infant caregiver/provider effectively providing any/all of consoling support interventions.

1. Review ESC behaviors since last assessment using the Newborn Care Diary with parents.
2. Optimize non-pharmacologic care: breastfeeding and/or hypercaloric feeds (at least every 3 hours), rooming-in, parental presence, skin-to-skin, holding, swaddling, ad lib feeding, quiet environment, limiting visitors.
3. If YES to any ESC item or "3's" for "Consoling support needed" (i.e., difficulty responding to all caregiver soothing efforts OR does not soothe within 10 minutes) perform team huddle with mother/parent and RN to determine non-pharmacological interventions that can be optimized
4. If infant continues to have "YES" for any ESC items or "3's" for "Consoling support needed" despite optimal non-pharmacologic care, perform team huddle with mother/parent, RN and infant provider.

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Morphine initiation: Consider initiating oral morphine after a full team huddle if:

- **Continues with "Yes" to any ESC item *or* "3s" for "Consoling Support" *AND***
- **Non-pharmacological care optimized to greatest extent *AND***
- **Non-NAS causes excluded (e.g., cluster feeding, SSRI, nicotine withdrawal in first 24 hours)**

Starting dose of neonatal morphine oral solution on Mother–Baby floor:

- **0.05 mg/kg/dose PO x 1 dose (use birthweight for dosing)**
- **Reassess ESC every 3-4 hours**

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Morphine escalation: If a full team huddle determines the infant:

- **Continues with "Yes" to any Esc item *or* "3s" for "Soothing Support" *AND***
- **Non-pharmacological care optimized to greatest extent *AND***
- **Non-NAS causes excluded (e.g., cluster feeding, SSRI, nicotine withdrawal in first 24 hours)**

Contact Neonatology for transfer and continued management of NAS (only one dose of morphine to be administered on the Mother-Baby Unit)

References:

1. Neonatal Drug Withdrawal: Clinical Report (2012). AAP Committee on Drugs and the Committee on Fetus and Newborn. *Pediatrics*, 129 (2) e540-e560.
2. Children's Hospital at Dartmouth-Hitchcock NAS Management Algorithm. Boston Medical Center Corporation, Dr. Mathew Grossman and Children's Hospital at Dartmouth-Hitchcock. 2017.

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Algorithms are not intended to replace providers' clinical judgment or to establish a single protocol. Some clinical situations may not be adequately addressed in this guideline. Clinicians should document management strategies. *Last revised April, 2018. For questions regarding this guideline, please contact the Medical Director of the Newborn Nursery or the NICU at MMC.*