

Chapter 18: Neonatal Opioid Withdrawal Syndrome (NOWS)

Ann Ebert, Pharm D

Definition: Due to withdrawal from in-utero opioid exposure

- Occurs in infants with chronic exposure to opioids in utero-maternal. Opioid use is frequently accompanied by use of other substances such as nicotine, alcohol, benzodiazepine, and marijuana
- CNS irritability in infants can also occur following exposure to nicotine and SSRIs

Clinical Presentation

- Signs of abstinence occur in 60%-80% of infants exposed to opiates
- Symptoms can begin within 24 hours of birth for short acting opiates and within 3-7 days for longer acting drugs, like methadone.
- **Neurologic signs:** hypertonia, excessive suck, tremors, hyperreflexia, irritability, high-pitched cry, poor sleep, rarely seizures
- **Autonomic dysfunction signs:** yawning, sneezing, nasal stuffiness, low-grade fever, sweating, skin mottling
- **Gastrointestinal signs:** diarrhea, vomiting, poor feeding, poor weight gain

Eat -Sleep-Console Assessment

- Begin ESC assessment at 24 hours of life
- Assess after feeding/cares (~ every 3-4 hours)
- If infant experiences withdrawal symptoms, a caregiver huddle will be called to discuss
- Pharmacologic therapy may be indicated if enhanced sensitive care guidelines are not working to control symptoms

Treatment

- Non-pharmacologic (sensitive care) begin ASAP after birth
 - Gentle handling, quiet environment, swaddling, pacifier, skin to skin
- Pharmacologic: The goal of pharmacologic therapy is to have the baby feeding well without vomiting and diarrhea, gaining weight, decreased irritability, and sleeping between feeds as appropriate for age without undue sedation.
- Refer to ESC algorithm for treatment details

- Note: Breastfeeding is contraindicated when women continue to use illicit drugs such as cocaine, heroin, and marijuana

Reference:

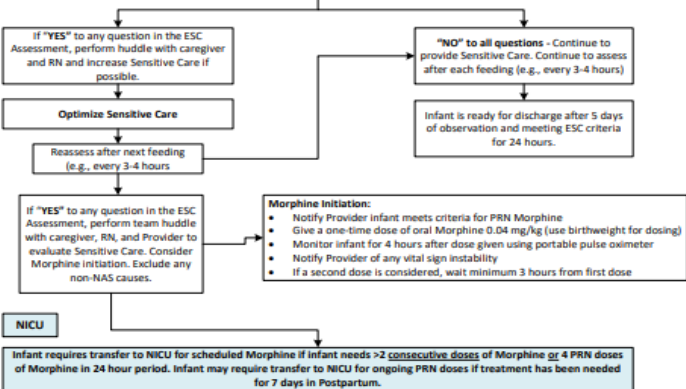
1. Patrick SW, Barfield WD, Poindexter BB; Committee on Fetus and Newborn; Committee on Substance Use and Prevention. Neonatal Opioid Withdrawal Syndrome. *Pediatrics*. 2020;146(5):e2020029074.
2. Grisham, Lisa M. NNP-BC; Stephen, Meryl M. CCRN; Coykendall, Mary R. RNC-NIC; Kane, Maureen F. NNP-BC; Maurer, Jocelyn A. RNC-NIC; Bader, Mohammed Y. MD Eat, Sleep, Console Approach, *Advances in Neonatal Care*: April 2019 - Volume 19 - Issue 2 - p 138-144
3. Kocherlakota, P. Neonatal Abstinence Syndrome. *Pediatrics* 2014; 134 (2); e547-e561.
4. Agthe AG, Kim GR, Mathia KB, et al Clonidine as adjunctive therapy to opioids for neonatal abstinence syndrome: a randomized, controlled trial. *Pediatrics*. 2009;123(5):e849-e856
5. McQuenn K, Murphy-Oikonen J. Neonatal abstinence syndrome. *N Engl J Med*. 2016;375:2468-2475

Eat, Sleep, Console Care Model

Provide Sensitive Care immediately following birth.
Using the Eat, Sleep, Console (ESC) model, assess infant for signs of withdrawal **starting at 24 hours** of life.
ESC Assessments are on-going. Minimally one ESC Assessment occurs each 8 hour shift or more often as indicated by the infant.
Assess infant after feedings, preferably while skin-to-skin or held swaddled by family or caregiver.

- ESC Assessment:**
- Is poor feeding due to NAS? **YES or NO**
 - Is sleep <1 hour due to NAS? **YES or NO**
 - Unable to console in 10 min? **YES or NO**

Review ESC behaviors which have occurred since last assessment, using **Newborn Care Diary** with family or caregiver.



* If "YES" to any question in the ESC Assessment, huddle with caregiver and RN and increase Sensitive Care if possible.

- Morphine Initiation:**
- Notify Provider infant meets criteria for PRN Morphine
 - Give a one-time dose of oral Morphine 0.04 mg/kg (use birthweight for dosing)
 - Monitor infant for 4 hours after dose given using portable pulse oximeter
 - Notify Provider of any vital sign instability
 - If a second dose is considered, wait minimum 3 hours from first dose

Weaning morphine:

- When infant is stable on medications for 24 hr, begin to wean morphine by 10% of the maximum dose daily if "NO" to ESC assessment
- Discontinue morphine when absolute dose is less than or equal to 0.04 mg

Weaning clonidine:

- When infant stable off morphine for 24 hr ("NO" to all ESC questions) – begin lengthening clonidine interval q3h → q6h → off every 24 hr if continues with "NO" to all ESC questions

Failed weaning:

- If infant has "YES" to any question in the ESC assessment despite optimal Sensitive Care after weaning or discontinuing morphine, give one-time dose of previously effective morphine – if infant continues with "YES" to any question – increase to previously effective dosing regimen and maintain for a minimum of 24 hrs

Discharge criteria:

- Monitor for minimum of 24 hr off morphine and/or clonidine prior to discharge