

# NEONATAL ABSTINENCE SYNDROME

Neonatal abstinence syndrome (NAS) remains a critical public health issue associated with significant medical, economic and personal burdens. The multidisciplinary team of Children's Minnesota NICU has the expertise to manage any baby experiencing NAS; including those with complex needs or requiring pharmacologic treatment.

Newborns may experience symptoms of withdrawal from a number of substances, but the most common ones are opioids, such as heroin or methadone. Exposure to these substances may cause poor intrauterine growth, premature birth, seizures, birth defects or other problems. Symptoms of withdrawal may begin as early as 24–48 hours or as late as 5–10 days.

## Care of the newborn with suspected opiate exposure

- **Assessment:** Newborns who are known to have been exposed to opiates in utero should be observed in the hospital up to 7 days, depending on the maternal substance.
- **Lab testing** on urine, meconium, umbilical cord. Specimens should be collected as early as possible following delivery or upon learning that the baby had been exposed to opiates before birth.
- **Abstinence scoring:** at least q 3–4 hours after feeding. Three consecutive scores of 8, or two consecutive scores of 12, signify that the newborn may be in need of pharmacologic treatment. Lower scores may be treated successfully with comfort cares and attentive maternal care. Morphine and Methadone are common pharmacology agents used to treat NAS. Consider consult with neonatology if newborn needs pharmacologic treatment.
- **Admission of newborns previously discharged** include those with maternal substance abuse, positive neonatal drug screen, tremors, hyperirritability, wakefulness, abnormal hearing sensitivity, hypertonicity, seizures, diarrhea, diaphoresis, feeding problems.
- **Differential diagnosis should be ruled out** with newborns who appear in withdrawal. Consider the following: CBC, electrolyte panel, glucose, calcium and magnesium, thyroid function testing.
- **Additional monitoring:** assess temperature, respiratory status (apply oximetry and apnea/bradycardia monitor), observe for hyperirritability, seizure or tremors, high pitched cry, hyperactivity, tight muscle tone, and frantic, uncoordinated sucking.

## FINNEGAN SCORING HELPFUL HINTS • Central Nervous System Disturbances

### Crying

1. **Normal** crying is usually self-controlled by self-consoling measures — sucking on fingers/fist or infant quiets within 15 seconds of comfort measure — holding, rocking, pacifier, feeding, etc.
2. **Excessive High-Pitched:** infant unable to stop crying after 15 seconds of using self-consoling measures, or up to 5 minutes of caregiver intervention. If these signs are present, infant should be scored 2 whether cry is high-pitched or not.
3. **Continuous High-Pitched:** infant unable to use self-consoling measures or cries intermittently or continuously for > 5 minutes despite caregiver intervention. If these signs are present, infant should be scored 3 whether cry is high-pitched or not.

### Sleep

1. Score sleep interval based on when infant wakes on their own. (Newborns on a 3-hour feeding schedule should not be scored if caregiver wakes them earlier than 3 hours for feedings)
2. Score only the longest sleep interval between scoring. (i.e., if infant sleeps 30 minutes, wakes and then sleeps 1.5 hours score for “sleeps <2 hours”)
3. Score all sleep the same whether in swing or being held. This should increase consistency of scoring.

### Tremors

1. Tremors are synonymous with jitteriness (a few often observed during sleep)
2. Score undisturbed AND disturbed, not one or the other (i.e., undisturbed: 1 + disturbed: 2 = total of 3)
  - Undisturbed: asleep or at rest in bed while quiet and alert (provide 2 one-minute periods during exam)
  - Disturbed: being handled
3. Choose ONLY ONE level of severity:
  - Mild: hands and feet
  - Moderate/severe: arms and legs

## Discharge considerations, planning and readiness

- Newborn should have Finnegan abstinence scores that remain consistently less than 8 for 48 hours prior to discharge.
- Complete a social work evaluation that includes family/social history, availability of family support, risk level of illicit drug/substance use by care provider, risk for noncompliant newborn care, need for Child Protective Service involvement.
- Obtain a signed release that allows information about newborn to be sent to home care and pediatrician.
- Complete a home care referral request for a visit within three days of discharge.
- Schedule newborn to be seen by pediatrician and/or home care nurse within three days of discharge.
- Include on discharge summary:
  - Known history of maternal drug/substance use including prescription/illicit drugs
  - Maternal/newborn toxicology results
  - Summary of newborn's withdrawal symptoms and abstinence scores for
  - 48 hours prior to discharge
  - Medication dosing/taper if newborn has required pharmacological support

## Moro Reflex

1. **Normal:** Slight jitteriness when initiating Moro reflex; a few repetitive involuntary jerks of clonus (especially when sleeping) is normal.
2. Score pronounced jitteriness and clonus if present during and after initiation of Moro reflex.

## Muscle Tone

1. Examine when quiet alert or awake and moving, not asleep or crying.
2. Comfort before scoring if crying.
3. May need to use more than one assessment: pull to sit, upright suspension or flexion and extension.

## Excoriation

1. Score if excoriation noted on chin, nose, cheeks, elbows, back of head or toes. Red diaper area from loose stools should not be scored here — it is accounted for when scoring loose stools.
2. Continue scoring until red marks are gone.

## Myoclonic Jerks

1. Twitching in muscles on face or extremities.
2. Single or multiple jerking movements of arms and legs (not hands and feet).

## Convulsions

1. **Generalized:** “tonic seizures” tonic extensions or jitteriness of all limbs not stopped by touching or flexing of the limbs
2. Seizure activity may accompany CNS irritability in 2–11% of infants exposed to opioids. In general, seizures occurred at 10 days of age and were generalized motor symptoms.
3. Subtle seizure activity (i.e., staring, involuntary rapid eye movement, chewing, rowing or bicycling) should be scored using the generalized category.

*Disclaimer: This guide is designed for general use with most patients; each clinician should use his or her own independent judgment to meet the needs of each individual patient. This guide is not a substitute for professional medical advice, diagnosis or treatment.*