ANMC Maternal Child Health Neonatal Abstinence Syndrome Guideline

Purpose: To standardize evaluation and treatment of the newborn who is at risk for Neonatal Abstinence Syndrome (NAS). The optimal care of the mother-infant dyad is provided by a nonjudgmental, multidisciplinary team that is well versed in the management of maternal substance abuse and NAS.

Definition of NAS: A group of problems that occur in a newborn who was exposed to addictive illegal or prescription drugs while in the mother's womb.

General: Chronic in utero exposure to a drug can lead to permanent developmental abnormalities. Signs and symptoms of withdrawal worsen as drug levels decrease, whereas signs and symptoms of acute toxicity lessen with drug elimination, with opioid exposure leading to the most clinically significant withdrawal.

Special Considerations: The clinical course in a neonate with NAS is difficult to predict and depends on the drug used, timing and amount of the drug last used by the mother, and maternal and neonatal metabolism and excretion. The prevalence of polysubstance abuse makes it even more difficult to diagnose and treat neonates experiencing withdrawal.

Nursery Provider (Physician or Nurse Practitioner) will be notified of maternal admission during Team Stepps shift report. If a consultation with the Nursery provider was not done prenatally, consider requesting one upon admission to L&D, if feasible due to maternal stage of labor.

Signs and Symptoms of Neonatal Withdrawal (Neonatal abstinence syndrome [NAS] refers to opiate withdrawal only):

Drug	**Signs and Symptoms**
Alcohol	Hyperactivity, crying, irritability, poor suck, tremors, seizures, poor sleeping patterns, hyperphagia, diaphoresis. (Onset of signs: 3-12 hours)
Barbiturates	Irritability, severe tremors, hyperacusis, excessive crying, vasomotor instability, diarrhea, restlessness, increased tone, hyperphagia, vomiting, disturbed sleep. (Onset of signs: 4-7 days)
SSRIs	Crying, irritability, tremors, poor suck, feeding difficulty, hypertonia, tachypnea, sleep disturbances, hypoglycemia, seizures. (Onset of signs: hours to days)
Opiates	Autonomic dysfunction, diarrhea, excessive sucking, excessive, high-pitched cries, GI dysfunction, hyperactive reflexes, hypertension, hypertonicity, ineffective feeding, irritability, jittery movements, mottling, respiratory distress, seizures, sleep disturbance, sweating, temperature instability, tremors, yawning. (Onset of signs: Short-acting opiates 24-36 hours, long-acting 5-7 days)
Cocaine	Abnormal sleep and feeding patterns, apnea, excessive sucking, excessive alertness, high-pitched cry, hypertonicity, irritability, tachycardia, tremors, hyperactivity. (Usually no signs of withdrawal, but may have behavioral abnormalities)

Marijuana	Fine tremors, hyperacusis, and prominent Moro reflex. (No clinical withdrawal)
Methamphetamine	Disorganized sucking and swallowing abilities, inconsolable frantic crying, increased metabolic rate, large insensible water loss, seizures, sleep regulation difficulties, tremors. (Onset of signs: 48-60 hours)
Diazepam	Apnea, hyperactivity, hyperreflexia, hypertonia, hypothermia, hypotonia, poor sucking ability, tachypnea, tremors, vomiting. (Onset of signs: 1-3 days)

1. Assess the neonate using the ANMC Neonatal Abstinence Scoring Sheet. (Appendix A) **This form is for opiate withdrawal only**. Do not awaken the infant to perform withdrawal scoring. Score the infant after feeding and while being held by parent/family member/staff member, if possible. A crying infant should be soothed and quieted before assessing muscle tone, Moro reflex, and respiratory rate.

1.1. For known maternal risk factors, a baseline score should be recorded within 4 hours of birth. For unknown risk, begin scoring when symptoms are present, after discussion with the provider.

1.1.1. Following the baseline score, infants should be scored every 4 hours if in the Mother Baby Unit (MBU) or Pediatric Unit, except when high scores indicate more frequent scoring. (In order to coordinate scoring with infants feeds, scoring may need to be done every 3-4 hours) If the infant is admitted to the Neonatal Intensive Care Unit (NICU), scoring should be every 3 hours.

1.1.2. Parents/caregivers should be educated and included in the scoring process, especially when they are rooming in with the infant and providing care.

1.1.3. If the infant's total score is 8 or greater, the scoring should be completed every 2 hours until a total score of 7 or less is obtained for a 24 hour period.

1.1.4. If the infant does not require pharmacologic treatment by 72 hours of age, scoring by staff members may be discontinued, but parents/caregivers are to be encouraged to continue to observe the infant for signs and symptoms of NAS as they have been taught. Nursing support of this independent parental evaluation will continue as needed. The infant can be discharged after an additional 24 hours of observation, and again, the parents/caregivers should be encouraged to continue to observe the infant at home and report any symptoms or concerns.

1.1.5. **It is important to remember that scoring with this tool is dynamic, not static.** This means that any signs and symptoms of withdrawal present during the 3 or 4 hour scoring interval need to be recorded on the scoring tool.

1.2. If the symptom occurred at any time during the current scoring interval, include the score. Place a "0" in the column after the symptom if it is not seen during the scoring period.

1.2.1. To increase parental involvement, the Cerner scoring flow sheet should be reviewed with the parents and they should be given the opportunity to ask any questions they have and be encouraged to share any concerns. To improve the accuracy of scores and to help the parents understand they are vital in their infant's care, they will be encouraged to participate in each scoring assessment as they are with the infant consistently.

1.2.2. The infant should not be scored while it is in a hungry, disturbed state. If the infant is crying, be sure that he/she has been well fed and cuddled prior to scoring to prevent a score that only represents the baby's hungry state.

1.3. Total Score**:** Add up all the scores in the column and place the total score in the appropriate box. Clinical symptoms that appear continuously, such as RR > 60 or regular poor feeding should be included in the total score.

1.4. Adjusted Score: The adjusted score is used when a symptom is identified that is expected to occur independently of withdrawal symptoms, due to a pre-existing condition (e.g. high respiratory rate in infant with Transient Tachypnea of the Newborn (TTN)). The decision to adjust the score should be made after discussion with the health care team during rounds and the rationale documented in a problem-oriented note. An adjusted score cannot be achieved with the Cerner program, so to document an adjusted score, omit the applicable symptom (e.g., tachypnea due to TTN); then document the reason the symptom was not included in the score.

1.4.1. Scores $\geq$ 8 may indicate withdrawal.

1.5. Scoring should continue every 4 hours (again, please coordinate the timing of scoring with feeds) until discharge from the MBU or Pediatric Unit. Scoring will continue every 3 hours in the NICU per provider discretion. Continue to include the parents/caregivers in the scoring process.

1.6. When an initial NAS score of $\geq$ 8 is obtained, a second nurse should evaluate the infant to ensure score consistency.

1.7. The "**Rule of 24**": Notify the pediatric provider for 3 consecutive scores averaging $\geq$ 8, or 2 consecutive scores averaging $\geq$ 12. Pharmacological intervention should be considered when the total of the consecutive scores averages $\geq$ 24.

Table 1. Neonatal Abstinence Scoring Sheet

NEONATAL ABSTINENCE SCORING

DATE: _____ WEIGHT: _____

System	Signs and Symptoms	Score	TIME AM / PM	Comments
Central Nervous System Disturbances	Excessive high-pitched cry	2		
	Continuous high-pitched cry	3		
	Sleeps < 1 hour after feeding Sleeps < 2 hours after feeding Sleeps < 3 hours after feeding	3		
		2		
		1		
	Hyperactive Moro reflex	2		
	Markedly hyperactive Moro reflex	3		
	Mild tremors when disturbed	1		
	Moderate-severe tremors when disturbed	2		
	Mild tremors when undisturbed	3		
	Moderate-severe tremors when undisturbed	4		
	Increased muscle tone	2		
	Excoriation (specific areas)	1		
	Myoclonic jerks	3		
	Generalized convulsions	5		
Metabolic/ Vasomotor/ Respiratory Disturbances	Sweating	1		
	Fever < 101(37.2-38.3C)	1		
	Fever >101 (38.4Cand higher)	2		
	Frequent yawning (> 3-4 times/interval)	1		
	Mottling	1		
	Nasal stuffiness	1		
	Sneezing (> 3-4 times/scoring interval)	1		
	Nasal flaring	2		
	Respiratory rate > 60/min	1		
	Respiratory rate > 60/min with retractions	2		
Gastrointestinal Disturbances	Excessive sucking	1		
	Poor feeding	2		
	Regurgitation	2		
	Projectile vomiting	3		
	Loose stools	2		
	Watery stools	3		
	Total Score			
	Initials of Scorer			

Note. *Adapted from "Drug Withdrawal in the Neonate" by S. M. Weiner & L. P. Finnegan. In* Merenstein & Gardner's Handbook of Neonatal Intensive Care, 7th Edition *(pp. 201–222), by S. L. Gardner, B. Carter, M. I. Enzman-Hines, & J. A. Hernandez. St. Louis: Mosby. Copyright 2010 by Elsevier Limited. Adapted with permission.*

2. Family involvement should be emphasized, ideally starting prenatally. After birth, separation of mother and infant should be avoided unless medically indicated. Engaging parent participation is the best treatment modality.

    2.1. Postnatal rooming-in is effective in reducing the need for pharmacologic treatment of NAS and decreases the duration of treatment when it is needed. Maintaining maternal-infant contact in this high-risk population is crucial, both for the benefits of skin-to-skin care for physiologic stability and in the bonding needed for psychosocial stability.

        2.1.1. In addition to education related to well-baby care, parents will be educated in the signs and symptoms of withdrawal, the infant's expected course both in the hospital and after discharge, as well as the importance of their role in the management of NAS.

3. Non-pharmacologic, supportive treatment is the foundation of management for NAS. Strategies for supporting the parents/caregivers in meeting the needs of their infant may include the following:

    3.1. Provide comfort interventions to help the infant achieve and maintain a supported, calm, behavioral state.

    3.2. Promote cuddling and skin-to-skin Kangaroo care, if appropriate.

    3.3. Offer a pacifier.

    3.4. Encourage swaying and rocking the infant as calming techniques.

    3.5. Decrease simulation at the first signs of distress.

    3.6. Calm the infant who is crying by holding him firmly to the body and gently rocking.

    3.7. Tightly swaddle the infant to avoid auto-stimulation. Caution: Use a light blanket to Reduce the risk of elevated temperature.

    3.8. Maintain bed space as dark and quiet as possible to minimize environmental stimuli.

    3.9. Feed the neonate on demand. Begin feeding the infant as soon as awake and manifesting hunger cues. Do not wait until the infant has become disorganized and reached an inconsolable behavioral state.

        3.9.1. Breast milk is the optimal source of nutrition for infants of opioid-dependent mothers. Breastfeeding enhances maternal/infant bonding, decreases neonatal abstinence severity, and improves mother's adherence to treatment and abstinence. These mothers should receive encouragement, as well as any education and assistance necessary to support breastfeeding, provided she is enrolled in a substance abuse treatment program (e.g., methadone), or under the care of a provider (e.g., long term pain management) and provided there are no other contraindications such as ongoing illicit drug use, HIV infection, or lack of prenatal care. Again, rooming-in is the best way to facilitate breastfeeding.

        3.9.2. A lactation consultation should be ordered.

3.10. Frequently burp the infant and monitor during the feeding for increased stress.

3.11. While breastfeeding is encouraged, the infant's caloric needs may be high. Hyper-caloric supplementation may be required (22-24 kcal/ounce).

4. Pharmacologic treatment may need to be used when supportive treatment is not adequate, withdrawal scores are high, or withdrawal symptoms severe. (Please see separate Neonatal Withdrawal Syndrome Initiation Orders or call Pharmacy)

4.1. It is recommended that pharmacologic treatment be initiated when using the Finnegan Neonatal Abstinence Screening Tool (FNAST) if:

4.1.1. The infant receives a total score of $\geq$ 8 on 3 consecutive scorings, or,

4.1.2. The average of any three consecutive scores is $\geq$ 8.

4.1.3. The total score is $\geq$ 12 on 2 consecutive scorings, or,

4.1.4. The average of any two consecutive scores is $\geq$ 12.

4.1.5. Withdrawal scores < 8 can be managed with supportive measures like swaddling and non-nutritive sucking; however, when scores reach 8 or greater, pharmacologic management should be added to the use of supportive measures.

5. Transfer from postpartum unit.

5.1. Reasons for transfer to the pediatric unit may include, but are not limited to:

5.1.1. Need for pharmacologic management.

5.1.2. High census on the postpartum unit limiting room availability, and when pediatric census and staffing allow.

5.2. Transfer to NICU should be reserved for medical indications as this will severely impede parental involvement. The sensory atmosphere of the NICU also poses the risk for escalation of symptoms in the newborn.

5.3. Refer to ANMC staffing guidelines when no parent/caregiver is present to care for the infant.

6. A social work consult should be ordered on any mother presenting with known or suspected illicit drug use, or with a history of chronic use of prescribed pain medications or medications provided through a treatment program. This should be ordered early in the mother's hospitalization to ensure adequate time to obtain information and resources that are available for her and her infant. This will also help ensure adequate time if a child protective investigation is indicated.

7. A physical therapy (PT) consultation should be considered as the infant will need ongoing developmental assessments throughout the first year of life. PT can also instruct parents in infant massage to aid in parent/infant bonding and supportive therapy.

8. Infants at risk for withdrawal should remain hospitalized for 3-5 days depending on whether the opiate used in pregnancy was short or long-acting. Frequent follow-up appointments should occur after discharge. Ongoing caregiver education related to NAS scoring of the infant should be occurring throughout hospitalization and should be reinforced at discharge. The Infant Learning Program should be recommended to the family. Ensure Office of Children's Services (OCS) follow-up and/or ongoing maternal treatment after discharge.

9. **References:**

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9.6. Finnegan, LP. Neonatal Abstinence Syndrome: Assessment and Pharmacotherapy. In: Nelson N, editor. Current Therapy in Neonatal-Perinatal Medicine. 2 ed. Ontario: BC Decker. 1990