Neonatal Opioid Withdrawal Syndrome (NOWS)

Purpose:
To provide guidelines in the management of infants affected by substance use disorders through screening, linking families to treatment, rooming-in, breastfeeding, non-pharmacologic interventions, pharmacologic interventions, and safe discharge.

Guidelines:

1. **Neonatal Drug Screening**
   Perinatal patients receive substance use screenings at all acute hospital encounters. If the substance use screen is positive for any of the items listed below, a urine and meconium/umbilical cord drug screen may be collected from the infant to assist in the clinical management of the newborn:
   - Positive maternal verbal screen or toxicology screen at admission or during current pregnancy
   - Limited prenatal care
   - Abruption without other etiology
   - Preterm labor without other etiology
   - Unexplained IUGR
   - Vascular accident of the mother or newborn
   - Maternal behavior consistent with drug seeking behavior in the hospital
   - Neonatal abnormal neurobehavioral assessment
   - History of chronic pain
   - Symptoms of maternal drug withdrawal

   It is important to avoid racial/ethnic disparities in perinatal toxicology screening and consider the legal consequences related to screening, positive test results, and child protective services reporting
   - **Identifying Newborns At-Risk for Prenatal Substance Exposure (Supplement A)**

2. **Parent as Provider of Non-Pharmacological Interventions to infants with NOWS**
   a. Mother/baby couplet care (rooming-in) is our standard approach to well newborn care, throughout AAH. This approach allows non-pharmacologic intervention by the parents with the goal of decreasing the incidence and severity of NOWS symptoms for infants with in-utero substance exposure.
      - **Non-pharmacological interventions to decrease NOWS symptoms (Supplement B)**
   b. The provider should determine rooming-in eligibility based on the infant's clinical status/stability, maternal ability to provide infant care, and most recent maternal toxicology screening.
   c. Staff should provide appropriate printed educational information (see additional information section) to mother and other caregivers regarding NOWS and non-pharmacological interventions
   d. When parents and caregivers maximize the use of non-pharmacological interventions, there is a marked decrease in withdrawal symptoms, a shortened length of stay, increased breastfeeding rates, a decreased need for pharmacotherapy, and enhanced bonding between parents and their child.
   e. Mother or alternative caregiver is expected to stay with infant for the duration of the infant's hospital stay. If unable to meet this requirement, the infant will be transferred to an alternate setting for care.
   f. Upon mother's discharge from the Mother/Baby Unit, she may continue rooming-in with the infant. It is acceptable for the mother to take brief 1-2-hour breaks for self-care. Mother should arrange for an alternative caregiver to be present during her breaks.

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3. Breastfeeding/Nutrition

a. Breastfeeding should be encouraged in women who are stable on their opioid agonists, who are not using illicit drugs, and who have no other contraindications.
b. Women should be counseled about the need to suspend breastfeeding in the event of a relapse.
c. Shared decision making to initiate, continue, or discontinue breastfeeding should be individualized for each dyad with input from the health care team based on the mother's history including self-report of substance use, mother's intent to engage in and access to substance use disorder treatment, substance(s) in question, specificity of drug testing and existing evidence available regarding safety of substance in breastfeeding.
d. Breastfeeding recommendations from the Academy of Breastfeeding Medicine for the following substances will be followed:

Substance	Recommendations
Methadone	• For pregnant and postpartum women with opioid dependence in treatment, methadone maintenance has been the treatment of choice. • In contrast to other substances, concentrations of methadone in human milk and the effects on the infant have been studied. The concentrations of methadone found in human milk are low, and all authors have concluded that women on stable doses of methadone maintenance should be encouraged to breastfeed if desired, irrespective of maternal methadone dose. • Use of this drug is not a contraindication to breastfeeding.
Buprenorphine	• Buprenorphine is a partial opioid agonist used for treatment of opioid dependency during pregnancy. • Multiple small case series have examined maternal buprenorphine concentrations in human milk. All concur that the amounts of buprenorphine in human milk are small and are unlikely to have short-term negative effects on the developing infant. • Use of this drug is not a contraindication to breastfeeding.
Other opioids	• When use of narcotics during pregnancy is determined to be consistent with an opioid use disorder rather than a modality for short-term pain relief, consideration of initiation of maintenance methadone or buprenorphine is strongly encouraged. These mothers should be supported in breastfeeding initiation. • The health care team should weigh the benefits against the risks to help the family determine the appropriate course of care for the infant.

e. Consider increasing caloric intake to promote adequate weight gain.
    i. Higher calorie feeding may be required to meet the exceptional caloric needs of infants with NOWS, which can prevent the weight loss seen in these infants and allow for lower use of pharmacological treatment.
    ii. The higher calorie feeding is only needed at the onset of withdrawal and should be discontinued when weight gain is firmly established

4. **Opioid Exposed Newborns (OENs) Assessment and Care**

a. The infant is assessed for withdrawal signs and symptoms
    - **Eating, Sleeping, Consoling (ESC) Care Tool (Supplement C)**
    - **Eat, Sleep, Console (ESC) Algorithm (Supplement D)**
b. Assessments begin within 4-6 hours of birth and continue every 2-4 hours with infant care.
c. Assessments should reflect the infant's ability to eat, sleep, or be consoled since previous assessment.

d. Huddles should occur regularly. The people involved in the huddle should include the family, the bedside nurse and, if available, the social worker. The physician should huddle with the group at least once per day and whenever the addition of or changes in medication are being discussed.
e. Parents and other caregivers will be encouraged to provide non-pharmacological care (**Supplement B**) throughout the infant's recovery from NOWS.

5. **Pharmacologic Treatment**
   a. If NOWS is not controlled by maximum non-pharmacological treatment, pharmacologic treatment should be considered. A standardized protocol for initiation and weaning of pharmacotherapy is associated with a shorter duration of opioid treatment, shorter inpatient hospitalization, and less adjunctive drug therapy.
      - **ESC Algorithm with Pharmacologic (Morphine) Interventions (Supplement E)**
      - **ESC Algorithm with Escalated Pharmacologic Interventions (Supplement F)**
   b. Neonatology consultation and team huddle with parents are performed prior to the initiation, escalation, or weaning of pharmacological treatment.
   c. Conducting ESC assessment and infant monitoring per hospital policy should continue until discharge

6. **Coordinating a Safe Discharge**

Federal law requires that all infants determined to be affected by maternal substance use must have a plan of safe care in place on discharge from the birth of hospital. Discharge planning should ideally begin during the antenatal period. Safe discharge will focus on child vulnerability, adult protective capabilities, and safety factors. If withdrawal signs or symptoms are minimal, then a comprehensive discharge plan that addresses maternal substance use treatment, a safe environment for both mother and baby, and parenting and community support.

a. Discharge Criteria

- **Observation Period:**
  - Infants exposed to opioids in utero who do not require pharmacological treatment should be observed in the hospital for at least 3 to 7 days after birth (see Supplement A) to monitor for the development of withdrawal symptoms. The length of monitoring may vary based on factors such as the specific opioid exposure and the infant's response to non-pharmacological interventions.

Opioid	**Time to Onset of Symptoms**
Heroin	24-48 hrs
Methadone	48-72 hrs (can be delayed up to 5-7 days)
Buprenorphine	36-72 hrs
oxycodone, hydrocodone, Morphine, Codeine, hydromorphone, Tramadol	24-48 hrs
Extended-release oxycodone	36-72 hours
Fentanyl	12-24 hrs

  - Infants who required pharmacological treatment should be monitored for a minimum of 48 hours after completing the medication wean to assess for rebound withdrawal symptoms before discharge.
- **Feeding and Weight Gain:**
  - Infants should feed well and demonstrate consistent weight gain over at least 2 consecutive days, particularly for those who required medication for the treatment of NOWS.
- **Social Work Consultation:**
  - A social work consultation should be completed to assess the family's readiness and ability to care for the infant post-discharge.

- **Department of Children and Family Services (DCFS) Clearance:**
  - If applicable, clearance from DCFS should be obtained to ensure a safe home environment for the infant.
- **Pediatrician Follow-up:**
  - A follow-up appointment with a pediatrician should be scheduled within 24-48 hours after discharge to ensure continuity of care and to monitor the infant's progress.
- **APORS (Adverse Pregnancy Outcomes Reporting System) Report:**
  - An APORS report should be completed, if required by the institution or state regulations, to track and monitor cases of NOWS.
- **Discharge Summary:**
  - A comprehensive discharge summary report should be prepared, including information on the infant's course of treatment, response to interventions, and follow-up care plan.

b. Outpatient referrals

- High Risk NICU follow up Clinic
- WIC (Supplemental Nutrition Program for Women, Infants, and Children)
- DCFS for discussion with custody as needed
- Early intervention program
- Home health nurse

References

1. Harris, M, Schiff, DM, Saia, K, Muftu, S, Standish, KR & Wachman, EM (2023). Academy of Breastfeeding Medicine Clinical Protocol #21: Breastfeeding in the Setting of Substance use and Substance Use Disorder (Revised 2023). Breastfeeding Medicine, 18:10, 713-A-25
2. Mascarenhas, M., Wachman, EM, Chandra, I, Xue, R, Sarathy, L & Schiff, DM (2024). Advances in the Care of Infants With Prenatal Opioid Exposure and neonatal Opioid Withdrawal Syndrome. Pediatrics, 153:2, 1-11.
3. Slymon, MD, Simpson, A., Herendeen, P (2023). Eat Sleep Console for the Management of Neonatal Abstinence Syndrome: A Process and outcomes Evaluation. Journal of Pediatric Health Care, 37:4, 402-413.
4. Young, LW et al. (2023). Eat, Sleep, Console Approach or Usual Care for Neonatal Opioid Withdrawal. New England Journal of Medicine, 388:25, 1-12.
5. Wachman, E., Whalen, B, Minear, S., MacMillan, K., Grossman, M. Caring for opioid exposed newborns using the Eating, Sleeping, Consoling (ESC) Care Tool (2018). Instructor Manual, 2nd edition.

Additional information

1. MW Region Care of Pregnant Patients Affected by Substance Use Disorder v.1 (policytech.com)
2. Educational materials for parents: Mothers and Newborns affected by Opioids – Neonatal Initiative – Illinois Perinatal Quality Collaborative (ilpqc.org)
3. Skills: Neonatal Opioid Withdrawal Syndrome (Neonatal) - CE/NCPD (elsevierperformancemanager.com)