Practice Guidelines and Interventions to Improve Care of Infants with Neonatal Abstinence Syndrome

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This program has been developed solely for the purposes of describing nurse practitioner knowledge of practice guidelines and interventions to improve care of infants with neonatal abstinence syndrome, before and after participation in an online educational intervention with a one-month practice-change follow-up. The program is posted as a part of this project’s educational intervention and is intended only for such use. The study has been approved for this purpose by the Chamberlain College of Nursing Institutional Review Board. Please find the link to return to the survey at the end of the slides.
Rationale

- Evidence is mounting regarding perinatal outcomes specific to the infants and children of drug-dependent mothers (Cleary, 2012; Kaltenbach, 2012). Specifically, growing evidence has addressed the care of infants diagnosed with neonatal abstinence syndrome (MacMullen, Dulski, & Blobaum, 2014; Maguire, 2014). The role of the nurse in caring for infants with neonatal abstinence syndrome is vital to improving patient outcomes for these neonates (Murphy-Oikonon et al., 2010; Nelson, 2013).
Objectives

- Define neonatal abstinence syndrome
- Identify at risk infants
- Identify pharmacological treatment
- Identify non pharmacological treatment
- Understand proper use of NAS scoring tools (Finnegan's Tool)
Definition of Neonatal Abstinence Syndrome

- Neonatal abstinence syndrome (NAS) refers to a constellation of typical signs and symptoms of withdrawal that occurs in infants who have been exposed to, and have developed dependence on certain illicit drugs and/or prescription medications during fetal life. These symptoms are characterized by Central Nervous System (CNS) irritability, gastrointestinal dysfunction, respiratory dysfunction, and autonomic system (ANS) dysfunction.
Who is at risk for Neonatal Abstinence Syndrome

- Suspected or known infants of substance abusing mothers
- Self reporting
- Positive urine drug screen
- Documented history of substance use/abuse
- Infants who exhibit typical signs and symptoms of withdrawal
Substances That Cause Neonatal Abstinence Syndrome

• Opiates—including heroin, methadone, codeine, morphine, and other prescription painkillers—are a common cause of newborn withdrawal.

• Cocaine

• Benzodiazepines, including diazepam and clonazepam

• Barbiturates

• Marijuana

• Alcohol
Neonatal Abstinence Syndrome Scoring Protocol

• Initiate scoring within 2 hours of birth/admission to NICU

• Infants should not be awakened to obtain score

• Infant at high risk of opiate withdrawal $\frac{1}{2}$ to 1 hour after each feed

• The Finnegan Scoring tool is designed for full term infants

• Allowances must be made for preterm infants
### Finnegan Scoring Tool

#### Neonatal Abstinence Scoring System

<table>
<thead>
<tr>
<th>System</th>
<th>Signs and Symptoms</th>
<th>Score</th>
<th>PM</th>
<th>PM</th>
<th>Comments</th>
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<tbody>
<tr>
<td></td>
<td>Continuous High Pitched (or other) Cry</td>
<td>2</td>
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<td>Continuous High Pitched (or other) Cry</td>
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<td>Sleeps &lt;1 Hour After Feeding</td>
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<td>Sleeps &lt;2 Hours After Feeding</td>
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<td>Sleeps &lt;3 Hours After Feeding</td>
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<td></td>
<td>Hyperactive Moro Reflex</td>
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<tr>
<td></td>
<td>Markedly Hyperactive Moro Reflex</td>
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<tr>
<td></td>
<td>Mild Tremors Disturbed</td>
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<td></td>
<td>Moderate-Severe Tremors Disturbed</td>
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<td>Mild Tremors Undisturbed</td>
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<td>Moderate-Severe Tremors Undisturbed</td>
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<td>Increased Muscle Tone</td>
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<td>Excoriation (Specific Area)</td>
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<td>Myoclonic Jerks</td>
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<td>Generalized Convulsions</td>
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<td></td>
<td>Sweating</td>
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<td>Fever 100.4°-101°F (38°-38.3°C)</td>
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<td>Fever &gt; 101°F (38.3°C)</td>
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<td></td>
<td>Frequent Yawning (&gt;3-4 times/interval)</td>
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<td></td>
<td>Mottling</td>
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<td>Nasal Stiffness</td>
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<td>Sneezing (&gt;3-4 times/interval)</td>
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<td>Nasal Flaring</td>
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<td>Respiratory Rate &gt;60/min</td>
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<td>Respiratory Rate &gt; 60/min with Retractions</td>
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<td>Excessive Sucking</td>
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<td>Poor Feeding</td>
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<td>Regurgitation</td>
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<td>Projectile Vomiting</td>
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<td>Loose Stools</td>
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<td>Watery Stools</td>
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<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
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<thead>
<tr>
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<th>Initials of Scorer</th>
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Signs and Symptoms of Withdrawal

- Tremors (trembling)
- Irritability (excessive crying)
- Sleep problems
- High-pitched crying
- Tight muscle tone
- Hyperactive reflexes
- Seizures

- Yawning, stuffy nose, and sneezing
- Poor feeding and suck
- Vomiting
- Diarrhea
- Dehydration
- Sweating
- Fever or unstable temperature
Non-Pharmacological Interventions

- Swaddling
- Rocking
- Minimal Sensory or environmental stimulation
- Maintain temperature stability
- Feed
- Breastfeeding
Pharmacological Interventions

• Should be individualized based on Severity of withdrawal
  Infants specific toxin

• Should be initiated after starting the
  • Maximal supportive care fails
  • Finnegan Scoring
  • 3 consecutive score of 8 or greater
  • 2 consecutive scores of 12 or greater
Medications Used to Treat Neonatal Abstinence Syndrome

- Paregoric (No longer recommended)
- Tincture of Opium (No longer recommended)
- Morphine Sulfate
- Methadone
- Buprenorphine
- Phenobarbital
- Clonidine
Dosing of Medications to Treat Neonatal Abstinence Syndrome

- Morphine
  - Initial dose: 0.04mg/kg/dose every 3-4 hours
  - Increment dose: 0.04mg/kg/dose
  - Maximum dose: 0.2mg/kg/dose

- Methadone
  - Initial dose: 0.05mg-0.1mg/kg/dose every 6hrs
  - Increment dose: 0.05mg/kg/dose
  - Maximum dose: to effect

- Clonidine
  - Initial dose: 0.5mcg/1mcg/kg/dose every 3-6hrs
  - Maximum dose: 1mcg/kg/dose every 3hrs
Weaning Protocol

- The Finnegan Scoring System should provide a basis for weaning an infant from pharmacologic therapy.
- Maintain control dose of medication for 48-72 hours before weaning.
- Wean medication at the same time everyday.
- When the infant has received 24hrs of 0.05mg/kg every 4hrs and the clinical condition is stable the medication can be discontinued.
Parental Education

- Parental education is necessary throughout the hospitalizations
- Educational information on NAS should be reviewed with the parents throughout the hospitalization with goals.
- Address feeding problems and GI symptoms
- The well being of the parent should be emphasized
- Sleeping problems and how to manage them
- Proper methods for swaddling
Discharge Planning

- Length of hospitalization varies depending on the drug, severity of withdrawal, and social factors.
- All criteria for discharge of the newborn must be met
- Close follow up with primary care pediatrician
- Neurodevelopmental follow up
- Hearing and immunizations per AAP recommendations
References


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https://www.surveymonkey.com/s/SC7YYDF