Perinatal substance use: neonatal
Neonatal abstinence syndrome (NAS)

- Syndrome of drug withdrawal with non-specific signs in a baby following exposure to a variety of substances in utero
Neonatal withdrawal may be caused by inutero exposure to:

- Opioids
- Benzodiazepines,
- Selective Serotonin Reuptake Inhibitors (SSRIs)
- Alcohol and tobacco
- Amphetamines
Resuscitation

• Usual neonatal resuscitation as required
• Do not administer Naloxone
  ◦ In the neonatal period if baby has had in utero exposure to opioids
  ◦ May precipitate severe rapid onset of seizures
Symptomatic baby

• Clinical assessment and examination
• Review maternal history of licit/illicit substances
• Discuss substance use with woman
  ◦ May be undisclosed
• Consider admission to special care nursery
Symptomatic baby

- Supportive care
- Postnatal observations
- Finnegan scores
  - Score the average of baby’s behaviour since last scored
Clinical signs

• Suspect NAS if baby:
  ◦ Unsettled
  ◦ Irritable
  ◦ Has high pitched cry
  ◦ Jittery or has tremors
  ◦ Does not feed well +/- diarrhoea

• Signs may be caused by concurrent illness
Onset of withdrawal

- Heroin: between 24 and 72 hours of age (may be earlier)
- Methadone/Buprenorphine: between 72 hours to 7 days
- SSRI: Day 2 up to day 5–7
Differential diagnosis

- Infection
- Hypoglycaemia
- Hypocalcaemia
- Metabolic disorders
Clinical examination

• Conduct a full examination
• Consider concurrent illness
• Review risk factors for neonatal sepsis
• Investigate to exclude infection or metabolic disturbance
• Treat any identified illness
Preterm babies

• Less severe NAS related to:
  ◦ Developmental immaturity of specific opiate receptors/neurotransmitter function
  ◦ Reduced exposure time
  ◦ Reduced fatty deposits of drugs
Inter-hospital transfer

• If appropriate, transfer the antenatal woman to a higher level facility or

• If required, transfer woman and baby after birth to higher level facility
Management of substance withdrawal

• Use non-pharmacological management as first line treatment
• Use pharmacological treatment if withdrawal not adequately controlled
Supportive/non-pharmacological care

- Support rooming-in
- Minimise hunger—encourage breastfeeding
- Early response to baby cues
- Decrease environmental stimuli (e.g. light and sound)
- Cluster care—avoid over-stimulation
Feeding

• Individual risk-benefit analysis
• Breastfeeding not recommended if:
  ◦ HIV positive
  ◦ Using, alcohol, amphetamines, heroin, cocaine
• Encourage/support breastfeeding where possible
• Develop feeding safety plan woman
Breast milk

• Analgesic for baby
• Soothes agitated baby
• Helps meet higher caloric requirements
• Helps reduce stress response and increased vagal tone in woman
Formula feeding

• May be primary source of nutrition
• Usual education re:
  ◦ Preparation,
  ◦ Storage,
  ◦ Equipment cleaning
  ◦ Transport
Finnegan tool

- Most widely used assessment of opioid withdrawal in term babies
- May be used to aid assessment of other substance withdrawal
- Requires staff training and auditing to ensure reliability and scoring consistency
- Ensure inter- and intra-observer validation of scoring
Finnegan scoring

- Start within 2 hours of birth
- Score 4–6 hourly 30–60 minutes after feeds
- Assign only one score for each sign in each of the three sections
- Score reflects behaviour since previous assessment
- Do not disturb baby to assess signs
- Make allowances if baby preterm
<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>SIGN</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central nervous system</td>
<td>Excessive high pitched cry</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Continuous high pitched cry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sleeps &lt; 1 hour after feeding</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sleeps &lt; 2 hours after feeding</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sleeps &lt; 3 hours after feeding</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Hyperactive Moro reflex</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Markedly hyperactive Moro reflex</td>
<td>3</td>
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<tr>
<td></td>
<td>Mild tremors disturbed</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Moderate–severe tremors disturbed</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Mild tremors undisturbed</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Moderate–severe tremors undisturbed</td>
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<tr>
<td></td>
<td>Increased muscle tone</td>
<td>2</td>
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<tr>
<td></td>
<td>Excoriation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Myoclonic jerks</td>
<td>3</td>
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<tr>
<td></td>
<td>Generalised convulsions</td>
<td>5</td>
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<tr>
<td>Gastrointestinal disturbances</td>
<td>Excessive sucking</td>
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<tr>
<td></td>
<td>Poor feeding</td>
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<tr>
<td></td>
<td>Regurgitation</td>
<td>2</td>
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<tr>
<td></td>
<td>Projectile vomiting</td>
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<tr>
<td></td>
<td>Loose stools</td>
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<tr>
<td></td>
<td>Watery stools</td>
<td>3</td>
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<tr>
<td>Respiratory/vasomotor</td>
<td>Sweating</td>
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<tr>
<td>disturbances</td>
<td>Fever 37.3 to 38.3 °C</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fever 38.4 °C and above</td>
<td>2</td>
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<tr>
<td></td>
<td>Frequent yawning &gt; 3–4 in half hour</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mottling</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nasal stuffiness</td>
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</tr>
<tr>
<td></td>
<td>Sneezing &gt; 3–4 in half hour</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Nasal flaring</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Respiratory rate &gt; 60/minute</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Respiratory rate &gt; 60/minute and retractions</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL SCORE</strong></td>
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<td></td>
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<tr>
<td><strong>SCORER’S INITIALS</strong></td>
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</tbody>
</table>
Scoring

2 consecutive scores $\geq 12$

OR

3 consecutive scores average $\geq 8$

Admit to SCN and
Commence pharmacotherapy
Morphine

- Opiate of choice
- Less likely to have seizures
- Less likely to require treatment with second line agent
- Duration of treatment may be less
Phenobarbitone

• Use as an adjunct to Morphine when NAS not controlled
• Initial treatment where substance/s used by woman:
  ◦ Unknown or polysubstance
  ◦ Alcohol (intoxication at birth)
  ◦ SSRI or sedatives (Benzodiazepines)
Paediatric review

- Early and daily consultation
- When showing signs of NAS
- If commencing Morphine or Phenobarbitone
- When receiving maximum dose of medication
- Exclusion of other causes not possible
Discharge planning

• Assess for safe discharge of baby
• Minimum 5 days in hospital for opioid withdrawing baby
• Minimum 3 days in hospital for SSRI exposed baby
Discharge plan

- Feeding plan
- Home medication if appropriate
- Child safety plan
- Parent education
- Immunisations
- Community referrals & paediatric follow up
Contraindications to discharge

• Court order
• Excessive weight loss
• Less than 5 days old if opioid exposure
• Suspected neglect or abuse
• Suspected home violence
• Ongoing assessment of withdrawal
Relative contraindications to discharge

- Woman has limited ability to care for baby
- Inadequate home support/refusal to accept help
- Problematic drug or polysubstance use
- Erratic behaviour/mental health issues/psychological distress
Child protection issues

• Increased risk of:
  ◦ Poor health and wellbeing outcomes
  ◦ Exposure to maternal high risk behaviours
  ◦ Being subjected to social issues

• Not all babies have involvement of child protection services
Child safety

• Raise concerns if:
  ◦ Continued IV or other illicit drug use
  ◦ Suspected baby neglect
  ◦ Domestic violence
  ◦ Non-compliance with management
  ◦ Other issues identified
Immunisation

If woman is:

- Hepatitis B surface antigen (HBsAg) positive

OR

- Hepatitis B status unknown and urgent serology not available

Administer to baby:

- Hepatitis B immunoglobulin within 12 hours of birth and
- Hepatitis B vaccination within 24 hours of birth