

## DOCUMENT CONTROL

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|---|--------------------|--|---|
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| <b>NEONATAL ABSTINENCE SYNDROME – GUIDELINES FOR MANAGEMENT</b>   |                    |  |   |
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## 1. Introduction

This document sets out Northern Devon Healthcare NHS Trust's best practice guidelines for the management of Neonatal Abstinence Syndrome.

Neonatal Abstinence Syndrome (NAS) is the term used to describe the combination of signs and symptoms seen in infants born to mothers using drugs during pregnancy, whether opiates, alcohol or otherwise. They present with a clinical picture of central nervous system hyperirritability, gastrointestinal dysfunction, respiratory distress and vague autonomic symptoms (Lauren et al 2012).

Babies who are exposed to substances taken by their mothers during pregnancy may start life with a handicap. Their compromised intra-uterine life can affect their nutritional status, their growth and in some cases their intellectual ability. After birth they may go through withdrawal symptoms that affect their health and adaptation to extra-uterine life.

Multiple possible drug combination in maternal polydrug use may raise the risk in the developing fetus' (Belik; 2006).

NAS can be due to intrauterine exposure to many substances including-

- 1.1. **Opiates:** heroin or methadone is the most common (other less potent opiates such as dihydrocodeine and Diconal® can also cause a problem).
- 1.2. **Non Opiates:** Antidepressants, stimulants such as amphetamines, ecstasy or cocaine (caffeine & nicotine may also present with mild symptoms).
- 1.3. Sedatives such as benzodiazepines, barbiturates & alcohol.
- 1.4. Cannabis

## 2. Purpose

This Guideline aims to manage an infant who is at risk of Neonatal Abstinence Syndrome (NAS) and aims to maintain normal temperature, ensure adequate sleep patterns, reduce hyperactivity and excessive crying and motor instability and to ensure adequate weight gain. These babies may be nursed with their mothers on the postnatal ward unless they require treatment.

### 3. Definitions/Abbreviations

#### NAS

#### 3.1. Neonatal Abstinence Syndrome

#### IUGR

#### 3.2. Intrauterine Growth Restriction

#### MASH

#### 3.3. Multi- Agency Safeguarding Hub

### 4. Antenatal Management

- Low compliance with antenatal care can result in late pregnancy booking, reduced monitoring or pregnancy concealment.
- Discussion, consistent support, a named team midwife and drug management during pregnancy can improve outlook and gives the opportunity for perinatal planning, monitoring and support (Schempf. A. H 2007) (NICE 2010).
- Individual cases will be reviewed in the vulnerable pregnant women's group. This meeting is held monthly. It is chaired by the locality officer for early help and is attended by multi-agency professionals to ensure the families are adequately supported antenatally and postnatally.
- Accurate history is essential, with details of current and previous drug use (noting IV drug use at any time).
- Pregnant women are asked for their consent to screening for their Hepatitis B, C and HIV status.
- Follow guidelines for Hepatitis B Viral infection in Pregnancy and Hepatitis C in Pregnancy.
- Discuss Hepatitis B vaccine for the infant with the mother and make necessary arrangements.
- Additional Safeguarding Children issues should be acted upon with adherence to local policy.
- Details of discussions with clear documentation and written parent information are required and should include:
  - proposed length of hospital stay
  - proposed plan for baby's care and monitoring needed
  - consent for early urinalysis to check mother and baby's drug exposure (maternal urine sample prior to labour analgesia)
  - mothers' feeding intention

**These guidelines represent the standard plan for babies at risk of withdrawal. An individualised plan is only needed if there are additional features. Refer to Neonatal Lead.**

## 5. Social work input and Safeguarding Implications

Women, whose drug misuse is known before delivery, may need to have a multi-agency safeguarding hub (MASH) referral sent from their booking midwife or key worker from the drug team. This is not necessary for every women and needs to be assessed on an individual bases. A core planning meeting may be held, if appropriate, to discuss short and long term plans.

If the baby is not assessed as being at risk of significant harm but the family is in need of additional support a Devon Assessment Framework (DAF) will be completed and advice, guidance and support requested from the Early Help co-ordination Centre.

## 6. Delivery

- Delivery should be advised to take place in hospital. Neonatal attendance at delivery is not a routine requirement but the neonatal team should be informed of the birth and monitoring for NAS on symptom chart commenced.
- In the event of baby needing resuscitation at birth Naloxone should be avoided due to risks of sudden onset withdrawal/seizures.

## 7. Postnatal management

### Responsibilities

It is the responsibility of the midwives and nurses to -

- 7.1. Give parent information on care of babies experiencing withdrawal symptoms, (available on the Trust intranet).
- 7.2. Use scoring tool if appropriate.
- 7.3. Observe the baby and report the withdrawal state to medical personnel.
- 7.4. Collect urine sample from baby within 48hrs to check drug exposure if possible (maternal consent required, check antenatal record of discussion)
- 7.5. Maintain confidentiality.
- 7.6. Liaise with social work department and other professionals.
- 7.7. Educate parents in caring for their baby.
- 7.8. If the baby requires medical notes it is the responsibility of the named midwife at time to photocopy any safeguarding information from the maternal medical notes and file into the infants medical notes (with the green safeguarding front sheet).

- 7.9.** Only admit to the neonatal unit if medically necessary. Any baby needing pharmacological treatment for withdrawal should be admitted to the neonatal unit.
- 7.10.** Once admitted to the SCU follow nursing care plan 15 for management of NAS

### **Breastfeeding and drug and alcohol misuse (NHS Evidence)**

- **Seek specialist advice if the woman is HIV positive or hepatitis C positive**
- Breastfeeding develops a bond between mother and baby, which may empower and motivate positive change on the part of drug-abusing parents, while decreasing the risk of future child maltreatment. Giving birth and then breastfeeding can be an empowering and life changing experience for a woman and may be the catalyst that causes her to stop her substance abuse.
- This should be considered along with concerns about the likelihood or degree of drug exposure the baby has if breastfed. If it is deemed safe for the parents to retain care of their infant education on safe breastfeeding practices should be included as a part of the rehabilitation plan. Refer to Hale. T. Medication and mothers' milk- (available in pharmacy and SCU) and consult with the paediatric pharmacist if unsure.
- Mother and baby separation should be avoided whichever feeding method chosen (Abraham, et al 2007 and Jansson at al 2008).
- The best interests of the baby are paramount in any decision to support breastfeeding.
- Advise maternal drug dosing post-breastfeeding times. Discuss with Paediatric pharmacist if unsure.

### **Other important notes**

- Most women who use heroin or other opioid drugs or substitution therapy (methadone) should be encouraged to breastfeed. If using other drugs, advice should be sought from the paediatrician in discussion with the woman regarding risks and benefits to the neonate. Mothers should breastfeed immediately before an opioid dose is taken (to avoid peak concentrations of the drug in breast milk).
- Some methadone passes into breast milk, and where a mother continues to use methadone after birth, her fully breastfed baby is likely to develop fewer withdrawal symptoms.
- Alcohol passes into breast milk at approximately maternal concentrations, and a baby's growth and development may be affected where the breastfeeding mother regularly drinks more than two units a day

## 8. Signs and Symptoms (See table 1)

### 8.1. Opiate withdrawal

*Heroin* has a short half-life and withdrawal occurs within 24 - 72 hours. Although delayed withdrawal may occur up to 6 days after birth.

*Methadone* has a half-life of between 36 - 48 hours and withdrawal begins within the first 48 hours after birth and up to 7 days later. NAS is more severe and longer in duration with these infants. Community midwives need to watch for late withdrawal. Methadone is the preferred drug during pregnancy in order to stabilise the mum and reduce the risk of intrauterine death.

### 8.2. Non-opiate withdrawal

Signs and symptoms are less pronounced. These drugs can have similar as well as specific symptoms.

- **Selective Serotonin Reuptake Inhibitors (SSRI)** symptoms can consist of mostly mild neurologic, autonomic, respiratory and gastrointestinal abnormalities, if these symptoms do not occur; an observation period of 48-72 hours on the postnatal ward is sufficient (Kieviet. N et al 2013).
- **Cannabis** withdrawal symptoms are typically mild, however heavy cannabis use is associated with IUGR and preterm delivery (Mactier. H (2013). Breastfeeding is contraindicated with current maternal cannabis use. Therefore mothers who use cannabis should stop breastfeeding. They can ask for advice to stop cannabis use if they wish to feed breast milk. (Hale. T 2012)(Garry et al 2009).
- **Amphetamines** cause vasoconstriction and hypertension which may result in foetal hypoxia. They do not produce a physical withdrawal; the only effect is low birthweight.
- **Cocaine** has a half-life of 30 - 40 minutes. Due to the vasoconstrictive effects of cocaine the problems encountered are placental abruption, preterm birth, low birth weight & IUGR; brain growth is also impaired and there can be under development of organs and limbs. Literature suggests that these infants are more prone to bowel atresia, necrotising enterocolitis, genitourinary anomalies, and permanent neurological abnormalities - attention deficit, increased aggression, developmental delay, and tremors. These signs are toxic effects of cocaine rather than withdrawal. Immediate withdrawal symptoms are tremors, poor feeding, hypertonia, poor sleeping patterns, drowsiness and lack of movement.

**Benzodiazepines:** the half-life of benzodiazepines is prolonged in the neonate due to its immature metabolism and symptoms may be delayed and prolonged possibly by up to 2 weeks. Withdrawal is similar to that of opiate withdrawal. There have also been some reports of facial abnormalities.

- **Alcohol foetal alcohol syndrome.** A recognised complication of alcohol abuse during pregnancy and is characterised by IUGR, microcephaly, dysmorphic features, abnormal palmar creases and mental retardation. Withdrawal is seen within the first 24 hours of life.
- **Caffeine.** Withdrawal includes feeding difficulties, vomiting, excessive crying, irritability, and poor sleep patterns. Onset may occur up to 5 days after birth and persist for weeks.
- **Nicotine.** 20 -30% of pregnancies are complicated by tobacco. Nicotine can cause intrauterine growth restriction (IUGR). The developmental impact of smoking include cognitive and behavioural problems such as attention deficit hyperactivity disorder (ADHD), conduct disorder, major depression and lower intelligence quota (IQ)
- **Ecstasy** use by the mother does not appear to cause withdrawal symptoms in the baby.

**Note:-** The pattern of withdrawal is often confused by poly drug use. A longer duration of treatment is common in users of multiple illicit drugs. Sex, race, Apgar score, or maternal age does not influence the severity of NAS. The dose of maternal methadone prior to delivery may influence the severity of abstinence syndrome in neonates. The decreased severity of abstinence in premature babies may relate to developmental immaturity of the CNS. Premature babies are likely to score higher for tachypnoea, high pitched cry and poor feeding, and lower for sleep pattern, tone, fever, stool pattern and reflexes.

## 9. Withdrawal Scoring Charts

NAS scoring allows us to measure the degree to which the newborn infant is experiencing symptoms and once treatment commences it allows the assessment of reduction of the symptoms.

The Neonatal Drug Withdrawal chart should be commenced within the first 4 hours after delivery to give a baseline assessment of the infants' behaviour. Subsequent assessments should be made 3 - 4 hourly depending on the behaviour / feeding pattern of the baby. Scoring should cover all symptoms present from the previous assessment and not just symptoms apparent at the exact time of scoring.

**Table 1 – Typical system disturbances in NAS**

|  | MILD  | MODERATE  | SEVERE   |
|--|---|---|--|
| <b>CNS</b>                               | Increased muscle tone, cry, irritable<br>Sleep disturbance, mild tremors when disturbed | High pitched cry, agitation, tremors when undisturbed, desire to feed frequently        | Severe tremors, inability to settle post feed, frantic sucking constant high pitch crying, Seizures*                     |
| <b>Metabolic, Vasomotor, Respiratory</b> | Yawning<br>Sneezing<br>'Snuffly'  | Mild pyrexia $\leq 37.6^{\circ}\text{C}$<br>Hypoglycaemia<br>Tachypnoea<br>Blocked nose | Sweating, pyrexia over $37.6^{\circ}\text{C}$<br>Tachypnoea with nasal flare/recession, skin mottling excess weight loss |
| <b>Gastrointestinal</b>                  | Poor feeding, regurgitation, sore nappy area  | Excessive sucking<br>vomiting<br>Loose stools, skin excoriation                         | Poor feeding ability, severe vomiting<br>diarrhoea, worsening skin excoriation   |

If the baby is exhibiting moderate system disturbances as above for **2 consecutive** sets of post-feed observations, or has severe symptoms evaluation for drug treatment will be needed. Avoid abrupt breast feeding discontinuation.

## 10. Non pharmacological management of withdrawal

These babies are extremely responsive to external stimuli. The baby is fractious and distressed when over stimulated and withdrawal symptoms can increase in severity with environmental or physical stimulation. It is important to adopt a positive approach toward the parents involving them in the care of their baby and helping them to see positive responses from their baby.

Various nursing interventions can be used to manage these babies;

| Symptom                              | Intervention  |
|--------------------------------------|---|
| <b>High pitched cry/irritability</b> | <ul style="list-style-type: none"> <li>• Soothe infant by swaddling, holding firmly and close to the body, preferably before he/she is out of control.</li> <li>• The use of a baby carrier can be encouraged.</li> <li>• Smooth slow rocking and gentle talking.</li> <li>• Non-nutritive sucking with a pacifier.</li> </ul>                  |
| <b>Inability to sleep</b>            | <ul style="list-style-type: none"> <li>• Reduction of environmental stimuli (noise, light, smell).</li> <li>• Organise care to minimise handling.</li> <li>• Swaddle</li> </ul>   |
| <b>Frantic sucking of fists</b>      | <ul style="list-style-type: none"> <li>• Use mittens to prevent skin trauma from sucking blisters.</li> <li>• Offer pacifier for non-nutritive sucking.</li> </ul>  |
| <b>Nasal stuffiness</b>              | <ul style="list-style-type: none"> <li>• Aspirate nasopharynx PRN.</li> <li>• Treat with saline nasal drops.</li> <li>• If hindering feeding rest between sucking.</li> </ul>   |
| <b>Tachypnoea</b>                    | <ul style="list-style-type: none"> <li>• Check rate and character of respirations frequently.</li> </ul>  |
| <b>Poor feeding</b>                  | <ul style="list-style-type: none"> <li>• Feed small amounts more frequently.</li> <li>• Maintain fluid and calorie intake required for infant's weight</li> <li>• Consider tube feeding to maintain hydration.</li> <li>• Wrap securely during feed and reduce stimuli to allow baby to organise itself.</li> </ul>                             |
| <b>Regurgitation/ vomiting</b>       | <ul style="list-style-type: none"> <li>• Measure intake.</li> <li>• Observe nappies for urine output.</li> <li>• Weigh baby frequently.</li> <li>• Elevate head of the bed.</li> <li>• Consider IV feeding if vomiting persists and signs of dehydration appear.</li> <li>• Nurse baby prone or lateral to help toleration of feeds.</li> </ul> |
| <b>Loose stools / Sore bottom</b>    | <ul style="list-style-type: none"> <li>• Frequent nappy changes to prevent sore bottom.</li> <li>• Use barrier cream as necessary.</li> <li>• Observe for dehydration.</li> </ul>   |
| <b>Hypertonicity of limbs</b>        | <ul style="list-style-type: none"> <li>• Change infant's position frequently.</li> <li>• Put baby in a side lying position and flex the spine as well as the head to bring the infant out of the hyperextended position.</li> <li>• Place a soft towel in between the knees to abduct the legs and reduce muscle tone.</li> </ul>               |

|                |   |
|----------------|---|
|                | <ul style="list-style-type: none"> <li>• Use regular warm baths and gentle massage with passive limb exercises if tolerated.</li> <li>• Slow gentle handling.</li> </ul>                                      |
| <b>Tremors</b> | <ul style="list-style-type: none"> <li>• Change position frequently to prevent excoriation use barrier cream if needed.</li> <li>• Minimise handling.</li> <li>• Support limbs during care giving.</li> </ul> |

Parents should be taught and encouraged to use these interventions to enable them to be in control of the care of their baby.

If the infant is not being nursed on its back an apnoea monitor should be applied.

## 11. Pharmacological management of symptoms

Withdrawal symptoms are reduced when drugs from the same group are reintroduced Current drug treatment in the UK for babies with moderate to severe symptoms commonly use the following options:

**Table 2 – Drug Treatment of NAS**

| PROBLEM                      | DRUG TREATMENT OPTIONS  |
|------------------------------|---|
| <b>Opiate withdrawal</b>     | <p><b>Morphine Sulphate as oral solution</b><br/>100micrograms/ml</p> <p>40micrograms/kg/dose 4 hourly</p> <ul style="list-style-type: none"> <li>- Increase dose 20 - 40micrograms/kg/dose 8 hourly until symptoms controlled</li> <li>- Suggested maximum100micrograms/kg/dose</li> </ul> <p>[Cochrane review 2005 suggests addition of Phenobarbitone may reduce symptom severity]</p> |
| <b>Non-Opiate withdrawal</b> | <p><b>Phenobarbitone</b><br/>20mg/kg orally loading dose</p> <ul style="list-style-type: none"> <li>- maintenance dose 24hours later 4-5mg/kg daily in 2 divided doses</li> </ul> <p><b>Chlorpromazine</b><br/>500 micrograms/kg 6hourly orally</p> <p>[Cochrane review suggests poor evidence to support Chlorpromazine use]</p>   |

|   |  |
|---|--|
| <b>Seizure management</b> <ul style="list-style-type: none"> <li>- any seizures should be fully investigated as per local seizure management guideline</li> <li>- Respiratory monitoring</li> </ul> | <b>Morphine Sulphate</b> (for opiate withdrawal)<br>100microgrmas/kg stat dose oral/IV according to clinical status <ul style="list-style-type: none"> <li>- If on maintenance Oramorph consider increasing dose</li> </ul> <b>Phenobarbitone</b><br>Loading dose 20mg/kg oral/ IV if status <ul style="list-style-type: none"> <li>- maintenance dose 24 hours later 5mg/kg/day in 2 divided doses</li> </ul> |
|---|--|

### Control period and weaning process options

- Decrease dose not dose interval time. Discuss weaning difficulties with Consultant.

**Table 3 – Weaning regimen**

| DRUG                     | WEANING REGIMEN   |
|--------------------------|---|
| <b>Morphine Sulphate</b> | After 24-48 hours of symptom control reduce dose by 10-20% (of original/maximum dose) each 24-48 hours as tolerated until dose of 20micrograms/kg reached then reduce frequency until 40micrograms/kg/day/stable to discontinue |
| <b>Phenobarbitone</b>    | After 24-48 hours stability reduce dose by 2mg/kg/dose 48 hourly as tolerated   |
| <b>Chlorpromazine</b>    | After 48 hours stability reduce dose by 100-200 micrograms daily  |

## 12. Hepatitis B Immunisation

- 12.1. Infants born to hepatitis B positive mothers.** These vaccinations should be recorded on the new infant hepatitis B vaccination personal child health record sheet (PCHR) available on the Special Care Baby Unit, Bassett ward and Delivery Suite. It will be the responsibility of the paediatrician who administers the vaccine to complete this sheet after the first vaccination within 24 hours of delivery and insert this into the PCHR, copy to GP and a copy placed into the paediatric box on Bassett ward. The remaining monovalent vaccinations (at 4 weeks and 12 months) will be the responsibility of general practice to administer and record.

- 12.2. Infants who are due to go home from maternity to an ‘at risk’ lifestyle situation (where the mother is not hepatitis B positive but there are risk factors in the household).** The schedule for these infants is one hepatitis B monovalent vaccination at delivery, then onto the routine childhood immunisations; Hexavalent vaccination with no boosters. The first monovalent hepatitis B vaccination should be given on maternity and should be recorded on the ‘other immunisation’ page of the PCHR. Please note the rationale for administering this.

## 13. Discharge Planning

- Discharge planning should be commenced during the antenatal period. If there are no signs of withdrawal after 48-72 hours the infant can be discharged medically. The reason for this prolonged stay is to take into consideration the length of time taken for withdrawal symptoms to present especially with methadone abuse.
- If signs of withdrawal occur then duration of admission will be determined by symptoms.
- Discharge planning is undertaken according to normal unit policy. All agencies will be informed including the Community Drug Team key worker where one has been involved with the mother.
- If it is felt necessary, a discharge planning meeting should be held prior to discharge, attended by the Paediatrician, Health visitor, team midwife Neonatal outreach nurse & Social worker (if involved). This is to ensure that the baby is cared for in the most appropriate environment and that the correct support is planned for the baby and family/carers once discharged to the community.
- Infants receiving treatment could be considered for discharge home; into a stable home environment, once requiring 100mcg of morphine 4 hourly. This discharge would be supported by the neonatal outreach service. The infant would have a plan of reduction in place and the dose and condition of the infant would be reviewed every 48 hours and discussed with the parents/carers, neonatal outreach nurse and the paediatricians; with a view to wean the morphine dose as infant condition allows.

## 14. Monitoring Compliance with and the Effectiveness of the Guideline

### Standards/ Key Performance Indicators

Key Performance indicators on which to base care in the Special Care Unit are:

- Nice Neonatal Quality Standards
- NHS Toolkit for High Quality Neonatal Services
- National Neonatal Audit Programme
- NHS Standard Contract for Neonatal Critical Care

## Process for Implementation and Monitoring Compliance and Effectiveness

- Staff are informed of revised documentation. There is an expectation that staff are responsible to keep updated on any improvements to practice and deliver care accordingly.
- Data is collected by use of Badger data base and can be used to generate output for clinical and operational benchmarking.
- Data is used for the following purposes, BAPM neonatal dataset (2012), Neonatal Critical Care Minimum Data Set, National Neonatal Dashboard, National Neonatal Audit Programme, Mothers and Babies Reducing Risk through Audits and Confidential Enquiries (MBBRACE) Dataset and South West Neonatal Network Dashboard.
- Non-adherence to the guideline is reported by use of the Datix system. Incidents are monitored and reviewed by the neonatal governance team and action plans made if required. Individual cases are discussed at handover, on ward rounds and weekly on grand rounds and are used for learning in safeguarding supervision.
- Further discussion and reviews occur at directorate meetings, neonatal/paediatric governance meetings and ward meetings. Learning and action plans are cascaded at these meetings and improvements implemented. Key findings and learning points will be disseminated to relevant staff.
- Length of stay of these infants are monitored using badger data base and via exception reporting to the South West Neonatal Network.

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## 16. Associated Documentation

- Care of babies experiencing withdrawal symptoms
- Developmental care guidelines for neonates
- Hepatitis B viral infection in pregnancy guidelines
- Hepatitis C in pregnancy guidelines
- Pain and stress for neonates – guidelines
- Parent Information for Care of Babies Experiencing Withdrawal Symptoms
- Safeguarding Children Policy