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Neonatal Abstinence Syndrome Guideline

Summary statement: How does the document support patient care?	This provides evidence-based guidance for the care of newborns of birth parents known to have misused substances in pregnancy.
Staff/stakeholders involved in development:	Consultant Paediatrician/Neonatologist, Clinical Lead Nurse Paediatric Clinical Services, Neonatal Ward Sisters, senior midwives, Specialist neonatal pharmacist.
Division:	Women and Children's
Department:	Maternity
Responsible Person:	Chief of Service
Author:	J. Fozard, P. Sandhu and C. Stepney
For use by:	All University Hospitals Sussex (West and East) Medical and Midwifery staff involved in caring for neonates.
Purpose:	To provide evidence-based guidance on the assessment and management of babies of birth parents known to have misused substances in pregnancy
This document supports:	Maternity Standards
Key related documents:	Maternity Guidelines: Neonatal Resuscitation, Admission to Neonatal Unit, Newborn Feeding Information Leaflet '' Neonatal Abstinence Syndrome - Advice for Parents'' Drug withdrawal patient first leaflet
Approved by & date:	Joint Obstetric Guideline Group – 22nd December 2021 Integrated Neonatal and Paediatric Meeting – 20th December 2021 Date uploaded – 22nd March 2022
Ratified by Board of Directors/ Committee of the Board of Directors	Not Applicable – Divisional Ratification only required
Ratification Date:	Not Applicable – Divisional Ratification only required
Expiry Date:	December 2024
Review date:	June 2024
If you require this document in another format such as Braille, large print, audio or another language please contact the Trusts Communications Team	
Reference Number:	CG1127

Version	Date	Author	Status	Comment
1.0	January 2011	Neonatal Matron and Neonatal Managers	Archived	New Trustwide guideline
2.0	February 2011	CNST Lead Midwife	Archived	Administrative update
3.0	January 2014	Joint Obstetric Guideline Group	Archive	3 year review- Addition of care of birth parent and the baby where maternal antidepressants are taken
4.0	March 2018	Joint Obstetric Guideline Group and Consultant Paediatricians	Archived	Reviewed and change to anti-depressant withdraw guidance
5.0	December 2021	Paediatric Consultants, Neonatal Outreach Sisters, Neonatal Sisters	LIVE	3 yearly review. Guideline updated in line with new research and TMBU guidelines. Formatted to new Trust standard.

The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician.

If in doubt contact a senior colleague or expert.

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Neonatal Abstinence Syndrome Guideline

1.0 Aim

This guideline provides evidence-based guidance for staff for the assessment and management of Neonatal Abstinence Syndrome (NAS) of newborns of birth parents known to have used prescribed substances or/and non-prescribed substances in pregnancy.

2.0 Scope

This guideline applies to all paediatric, neonatal and midwifery staff caring for newborn babies at risk of NAS. All midwives and neonatal nurses should be aware of the signs, symptoms and assessment tools for NAS and are individually responsible for the birth parents and babies in their care.

3.0 Responsibilities

Midwives, Health Care Assistants, Neonatal staff, Paediatricians and Obstetricians:

- To access, read, understand and follow this guidance.
- To use their professional judgment in application of this guideline.

Management:

- To ensure the guideline is reviewed as required in line with Trust and National recommendations.
- To ensure the guideline is accessible to all relevant staff.

4.0 Introduction

70% of babies born to drug-dependant birth parents are affected in some way, even if the birth parent has decreased their drug dependency during pregnancy. Babies can withdraw from drugs that are both prescribed and that are illicitly used.

4.1 Abbreviations used in this guideline

IUGR - Intrauterine Growth Restriction	**SIDS -** Sudden Infant Death Syndrome
PPROM - Preterm, Prolonged Rupture Of Membranes	**USS -** Ultrasound Scan
LSD - Lysergic acid diethylamide	**SCBU -** Special Care Baby Unit
SSRIs - Selective Serotonin Reuptake Inhibitors	**NAS -** Neonatal Abstinence Syndrome
NON - Neonatal Outreach Nurse	

5.0 Effects of drug misuse on the foetus and newborn

Listed below are some of the illicit and prescribed substances which could precipitate neonatal withdrawal symptoms. Other known effects of taking these substances in pregnancy have also been mentioned. They may be known under different trade names (if prescribed) or street names if taken illicitly. If you are unsure what substance is being used, please speak with the on-call Pharmacist or consult www.addictioncentre.com or www.talktofrank.com for reference.

The list below is not exhaustive. You should consult the birth parent themselves to ask them their expectations of the post-natal course and check their notes for clinic letters with recommendations for perinatal and postnatal care. Always speak with your senior if uncertain.

- Alcohol: heavy intake can result in foetal alcohol syndrome. This syndrome is not discussed in these guidelines.
- Amphetamines (speed, meth, crystal meth, crank, ice): Increased risk of premature birth, intrauterine growth restriction (IUGR) and placental abruption. The baby has an increased risk of sudden infant death syndrome (SIDS), cardiac problems and cleft lip. The baby may show agitation and tachypnoea. Most recover in a week.
- Antidepressants: Citalopram and sertraline result in a higher risk of premature birth. If two or more antidepressants are taken, the baby may start to show signs after the first 48 hours. These signs (jittery, poor feeding, irritability and respiratory distress) might last up to one month. Medication is not usually required.
- Benzodiazepines/Tranquillisers: If taken in the first trimester the baby has an increased risk of cleft palate. They may also display classic signs of withdrawal (outlined below).
- Cannabis: Babies may startle more easily but are usually easily comforted. There is a small increased risk of gastroschisis.
- Cocaine: There is an association with placental abruption and preterm, pre-labour rupture of membranes (PPROM). The foetus may suffer from intra-uterine growth restriction (IUGR). Intracranial haemorrhage and ischaemic lesions are more common. A Cranial Ultrasound Scan (USS) should be considered after birth.
- Ecstasy: Babies may be small for dates. There is an increased risk of both cleft palate and cardiac defects.
- LSD (Lysergic acid diethylamide), Magic mushrooms: There is no evidence that these drugs have any significant harmful effects on either the foetus or the pregnancy.
- Nicotine: low birth weight, increased risk of premature birth and jitteriness after birth. Note that babies do not usually need to be formally observed for symptoms of nicotine withdrawal.
- Opiates (heroin/methadone): There is an increased risk of premature birth and low birth weight. Babies may show withdrawal symptoms within the first 24 hours of birth. There is an increased risk of congenital heart defects, gastroschisis, spina bifida and glaucoma.

- Opioids as analgesics (codeine, dihydrocodeine, morphine, tramadol): may increase risk of cleft lip/palate and heart defects. Babies are likely to show withdrawal symptoms within the first 24 hours of birth.

6.0 Management during pregnancy, labour and postnatal period

6.1 Antenatal Care

Drug and alcohol dependent birth parents require the following antenatal care:

- The community midwife will signpost them to relevant resources (e.g. specialist midwives, One Stop clinics in the East) and literature e.g. *Family Assist*
- In selected and complex cases, a meeting with the designated Paediatric Consultant with a Neonatal Interest may be recommended. If so, an agreed plan of care should be in the parental notes, including recommendations for monitoring and/or admission to the neonatal unit.
- An invitation to visit the neonatal unit may be warranted if admission is anticipated after birth.
- An understanding that their baby will require observation in hospital for a minimum of 2 days after birth depending on the substance used (see section 7.2 for expected timeframes of symptoms of withdrawal). If signs of withdrawal are trending upwards the inpatient observation period will be extended (usually for 5 days if the baby settles and has not needed any pharmacological treatment).
- Administration of Hepatitis B vaccine for baby via the accelerated schedule (i.e first dose of the vaccine given at birth) if indicated. This should be determined antenatally
- Referral to Social Services following parental discussion.

6.2 Birth and perinatal care

When a baby is born to a birth parent misusing substances the midwifery team will inform social services and ensure there is a discharge planning meeting prior to discharge.

Opiate dependent birth parents should not be given Pethidine or Diamorphine as analgesia during labour as there is an increased risk of respiratory depression in the baby at birth.

For birth parents who have been using opiates in pregnancy (either misusing or taking opiate replacement treatment), do NOT give them Naloxone (Narcan). This will precipitate acute withdrawal in the baby and likely lead to severe seizures.

6.3 Administration of Hepatitis B vaccine and Immunoglobulin

If the birth parent has been using injected substances illicitly during pregnancy there is a high risk of both maternal and neonatal infection with Hepatitis B, C and HIV. All birth parents are tested for this at booking. Those who remain at continued risk for perinatal virus transmission

should be re-tested due to the risk of seroconversion. These babies should be offered the Hepatitis B vaccine at birth (accelerated schedule). This should be prescribed and administered by the paediatrician. This is then repeated at 4 weeks and 1 year of age. Please ensure this is arranged by completing documentation for the community team and forwarding it on to the relevant teams.

Note that high risk babies may also require the Hepatitis B immunoglobulin (HBIG). The need for the accelerated schedule and/or immunoglobulin should be very clearly documented in the antenatal plan. If there is any doubt, please consult a senior paediatrician.

6.4 Care on Postnatal Ward and Neonatal Unit

It is important to keep the birth parent and their baby together after birth where possible.

The parent should have been counselled antenatally about observation and investigations in the postnatal period. Discuss what they already know, note any antenatal recommendations and implement the following:

- Establish the duration and severity of the birth parent's substance use.
- Observe the baby on the postnatal ward for a minimum of 2 days. If the baby has symptoms of increasing drug withdrawal then seek paediatric review and consider admission to the neonatal unit.
- Start the Neonatal Abstinence Scoring Chart (Appendix 1) and file in the baby's notes. Start 2 hours after birth then review 2-4 hourly depending on the score. Electronic versions of the scoring chart can be used on the electronic patient records Badgernet Maternity and Metavision in the East.
- Administer additional medication if indicated and advised e.g. Hepatitis B vaccine via accelerated schedule, antiretroviral medication.
- Ask the birth parent for a urine sample for drug screening if recommended in the antenatal plan or if new illicit substances have been taken.
- Collect urine (up to 10ml from cotton balls in the nappy) from the baby for a toxicology screen if recommended in the antenatal plan AND if consent given by the parent. This might not be needed if parental sample is taken.

6.5 Breastfeeding

Establishing breastfeeding can be both physically and emotionally challenging. Parents involved with substance misuse or prolonged, prescribed medication might expect that they cannot breastfeed but this is usually not the case. Therefore we should encourage, support and facilitate breastfeeding or expressing breastmilk where it is safe to do so.

Specific considerations include:

- Methadone: Breastfeeding is safe if the birth parent received a prescribed and controlled maintenance dose throughout pregnancy and will continue to do so post-partum. Breastfeeding may decrease withdrawal symptoms in babies exposed in utero. Note that when the parent is ready to stop breastfeeding then this must be done gradually rather than abruptly to avoid precipitating withdrawal in the infant.
- Buprenorphine: Breastfeeding is safe but an antenatal recommendation from a neonatal consultant should confirm this.
- Benzodiazepines: the active metabolite nordiazepam has a long half-life and transmits to breastmilk. Breastfeed with caution as this has potential to cause lethargy, weight loss and jaundice. See section 8.3 for pharmacological management of benzodiazepine withdrawal.
- Codeine: The elimination of half-life of morphine (codeine's metabolite) is prolonged in newborn babies. The amount of morphine excreted into breastmilk is dependent on genetic factors so it is not possible to know who might excrete larger volumes of active metabolite. Therefore, breastfeeding is generally **not** considered safe with any codeine use lasting longer than 4 days at the lowest dosage.
- Cannabis: Cannabinoids found in breastmilk may affect an infant's motor development. Note that the act of smoking by any parent or caregiver can increase the risk of SIDS.
- Continued or unstable substance misuse: not safe to breastfeed.
- Suspected street or illicit drug use with no clear history: not safe to breastfeed until urine toxicology back.
- HIV in the birth parent: Breastfeeding is currently contraindicated in this group in the UK but this may be changing.
- Hepatitis B in the birth parent: Breastfeeding is safe if the baby receives the Hepatitis B vaccine at birth.

If you have concerns about any substance, please consult the Paediatric Pharmacist on-call or the LactMed database (link: www.ncbi.nlm.nih.gov/books/NBK501922). Always discuss these cases with your senior.

6.6 Birth parents taking prescribed psychotropic medications

Birth parents who have been prescribed psychotropic medication including antidepressants, mood stabilisers, anti-psychotics or benzodiazepines during pregnancy should have received advice as part of their antenatal care. The discussion should emphasise the importance of maintaining optimum parental mental health as this will have a positive impact on bonding with their baby. However there is uncertainty surrounding continued pharmacological treatment and the risks to the baby and this should be acknowledged.

Recommendations for the care of the baby should also be documented for the midwifery and paediatric teams to follow. Parents may be given the patient information 'Neonatal Abstinence Syndrome - A Guide for Parents' if indicated.

Specific considerations around anti-depressant medication include:

- Sertraline, citalopram and fluoxetine (all SSRIs, selective serotonin reuptake inhibitors) are the preferred antidepressants in pregnancy.
- Sertraline and citalopram are the preferred antidepressants in breastfeeding.
- 1 x SSRI can cause transient changes in muscle tone and jitteriness in the baby which should settle in 48 hours.
- More than 1x SSRI or multiple psychotropic medications- A hospital birth is recommended. The parent and baby should be observed in hospital for a minimum of 48 hours for signs of withdrawal.

6.7 Supportive measures for babies with symptoms of withdrawal

These non-pharmacological interventions are extremely beneficial in reducing NAS symptoms:

- Promote a calm environment- minimise external stimuli, bright lights, noise and stimulation.
- Frequent physical contact with parents- kangaroo care, skin-to-skin, massage, cuddling.
- Swaddling.
- Regular small feeds.
- Non-nutritive sucking e.g. on dummy or finger.

7.0 Neonatal Abstinence Syndrome

7.1 Signs of withdrawal in the baby

The signs and symptoms of a baby's withdrawal depend on the type of medication used in pregnancy, for e.g., non-opiate withdrawal tends to cause predominantly behavioural or neurological symptoms. The timing of symptoms depends on the pharmacology of the drug. Neonatal metabolism of the drug also plays a role.

Signs of withdrawal can be grouped into the following:

- Behavioural- difficulty settling/sleeping, high-pitched cry.
- Neurological- sucking/swallowing coordination, disorganised movement patterns, tremors, jitteriness, fits.
- Autonomic symptoms- temperature variability, tachypnoea, heart rate variability.
- Gastro-intestinal symptoms- colic, increased transit of milk resulting in sore bottom and even excess fluid losses.

The following are considered major symptoms:

- Convulsions
- Continuous high-pitched cry when undisturbed
- Tremors when undisturbed
- Hypertonicity

It is essential that these babies receive paediatric review and other causes of these symptoms such as sepsis, hypoglycaemia and electrolyte imbalance are considered.

7.2 Timing of the onset of symptoms of withdrawal

- 8 - 24 hrs: recent heroin use (IV or smoking), alcohol.
- 12-48 hrs: opiates with a short half-life, e.g. codeine, dihydrocodeine, oramorph, buprenorphine.
- 2-7 days: methadone.
- 1-6 weeks: diazepam. This should be managed as an outpatient.

Some babies who have been exposed to multiple drugs might develop withdrawal in phases over several weeks.

7.3 Principles of the management of neonatal withdrawal

- Babies should remain with their birth parent where possible.
- 'Routine' admission to neonatal unit is not required.
- Encourage and facilitate ongoing skin-skin contact with the birth parent.
- Employ supportive measures to help baby's symptoms.
- Tight swaddling in the cot can be helpful but be mindful of temperature control.

7.4 Assessment of withdrawal

The Neonatal Abstinence Score is based on The Modified Finnegan Chart. This lists 28 symptoms of withdrawal and is used to record changes in symptoms or to assess response to treatment. Note that this chart was designed to monitor symptoms of opiate withdrawal only. Therefore it might not be as helpful when assessing withdrawal from other medications (although it continues to be used for this).

When assessing and diagnosing withdrawal consider:

- Is there any other reason that the baby could be unsettled? (hypoglycaemia, infection/ meningitis).
- What is the feeding pattern?
    - Consult your senior if you are unsure of the normal patterns of breastfeeding.
    - Pay attention to excessive feeding or dribbling.
- What is the sleeping pattern?

    - How long does the baby settle for?
    - Is the baby asleep or awake and upset?
- How is the baby's birth parent?
    - Their anxiety or worry can impact on your assessment.
- A full examination paying attention to baby's response to handling, neurology (tone, position, reflexes) and movement pattern.

If the pattern or the timing of onset of symptoms does not fit with the drug history, consider an alternative diagnosis or a change in the substances misused in pregnancy.

7.5 Using the Neonatal Abstinence Scoring Sheet

- The first score should be recorded two hours after birth (baseline score). This score should reflect all infant behaviour observed from birth up to this time.
- Following the baseline score all infants should be scored at 4 hourly intervals, except when high scores indicate more frequent scoring.
    - If the infant's total score is 8 or more, scoring is increased to 2 hourly and continued for 24 hours from the last total score of 8 or higher.
    - If the 2 hourly score is 7 or less for 24 hours then 4 hourly scoring intervals may be resumed.
- The score sheet allows for 2 hourly scoring over the 24-hour period.
- A new sheet should be started at the beginning of each day.
- Scoring is dynamic and summative. This means that all symptoms observed during the scoring interval (i.e. over the preceding hours) should be included in the point total
- If pharmacotherapy is required the infant is scored at 2 - 4 hourly intervals throughout the duration of the therapeutic period.
- If after cessation of pharmacotherapy the score is less than 8 for the following 3 days then scoring can be discontinued.
- If after cessation of pharmacotherapy the score is 8 or more on 2 occasions then scoring should be continued for the following 4 days to ensure there is no late onset of symptoms.

There are limitations of this scoring tool. Some of the symptoms are on the spectrum of normal baby and normal breastfeeding behaviour which makes it difficult to be objective. Practically, it does not account for the variability in scores between different professionals. Those who have limited experience of scoring might record observations at a point-in-time rather than a summative assessment over the previous hours.

8.0 Treatment of Neonatal Abstinence Syndrome

8.1 Non-pharmacological treatment

Please see section 6.7 for supportive measures you can use. Reassure the parent that some signs are to be expected and that if treatment is indicated, you will start it straight away to ensure baby's comfort.

8.2 When to admit to a neonatal unit and start pharmacological treatment

If the NAS score is greater than or equal to 8 for 2 scores or greater than or equal to 12 for 1 score, admit to a neonatal unit for further monitoring. Discuss this with the Paediatric/Neonatal Consultant and the neonatal nurse-in-charge. If the high scores persist despite supportive measures, pharmacological treatment should be started.

Some situations may warrant neonatal unit admission regardless of the NAS score:

- Excessive vomiting, diarrhoea or feeding dysfunction requiring IV or NG treatment.
- Safeguarding or other team concerns.
- Parental self-discharge.

The aim of treatment is to ensure the baby is comfortable and to achieve normal infant behaviour.

8.3 Starting morphine in opiate withdrawal

See Appendix 3 for a flowchart outlining the information below:

- Start morphine sulphate 125 micrograms/kg/day 4 times a day (current concentration is 100 mcg/mL).
- If after 36 hours (6 doses) the baby is still scoring 8 or more or has not achieved a "normal" sleeping or feeding pattern, increase the dose by 25%.
- If the baby is sleepy or has poor feeding, decrease the dose by 25%.
- If baby vomits within 20 minutes of medication, repeat the full dose.
- If baby vomits within 20-40 minutes of medication, give half the prescribed dose.
- Monitoring (until the baby has been on a stable morphine dose for 36 hours) should include:
    - 6 hourly observations including HR and RR.
    - Apnoea monitor (rare possibility of apnoea with excessive dose).
    - NAS scoring with frequency guided as per section 7.5.

8.4 Morphine weaning regime

- When baby's dose is stable (36 hours of normal infant behaviour with NAS score less than 8) commence weaning by reducing the dose by 5 micrograms/kg twice a week. This can be re-calculated by the Neonatal Outreach Nurse who can inform caregiver. It takes 3-4 reduced doses before the baby might notice anything, if at all.
- Make the reduction in the late afternoon or evening. Then any behaviour changes will be the following day when parents can offer extra cuddles or more frequent feeds.
- When the dose is reduced to 15 micrograms/kg per dose then reduce dose intervals to TDS, BD, OD and then stop.
- Note that a baby's dose should not be changed 36 hours prior to discharge.
- The usual length of morphine treatment is 1-2 months.
- Depending on the dose at discharge, the Neonatal Outreach Nurse (NON)/specialist follow-up team may wish to consider reducing the dose at a higher rate. This is after discussion with the Paediatric consultant.

8.5 Non-opiate Withdrawal

Alcohol withdrawal - phenobarbitone 20mg/kg as a once only dose.

Benzodiazepine withdrawal - symptoms usually occur between 10 days and 6 weeks of age. If symptoms occur earlier, consider alternative diagnosis or other substances use in pregnancy. Potentially affected babies should be seen in outpatients 2 weeks after discharge.
If symptoms occur:

- Start chlorpromazine at 2 mg/kg/day divided into three doses.
- Increase to 3 mg/kg/day after 36-48 hours if baby remains unsettled.
- Increase or decrease dose by 25% if baby is either too sleepy or still unsettled.
- Maximum dose is 6 mg/kg/day.

If chlorpromazine is unavailable phenobarbitone can be used as an alternative option.

NAS score (4 hourly in inpatient setting)	Action
8 or more for 2 scores	Phenobarbitone 15mg/kg PO or IM stat Then 6mg/kg/day in 2 divided doses PO
8 or more despite phenobarbitone 6mg/kg/day	Phenobarbitone 8mg/kg/day in 2 divided doses PO
8 or more despite phenobarbitone 8mg/kg/day	Phenobarbitone 10mg/kg/day in 2 divided doses PO
8 or more despite phenobarbitone 10mg/kg/day	No further increment. Monitor cardio-respiratory function

Table 1: titration of phenobarbitone in benzodiazepine and barbiturate withdrawal

When withdrawal symptoms settle the dose can be reduced rapidly under the advice of a consultant.

Barbiturate withdrawal - use the regime described in Table 1. When the score falls below treatment level for 48 hours, reduce the dose by 2mg per dose every 4th day or longer.

9.0 Discharge Planning and follow-up

A baby is safe to discharge when they have stable NAS scores, display normal sleeping and feeding patterns and have had no change in morphine dose for 36 hours.

- Antenatal plan - check all tasks have been achieved.
- Discharge planning meeting- ensure this had MDT attendance and all tasks actioned.
- Medication - document a clear weaning schedule in discharge summary. Order TTO's in good time. Prescribe an adequate quantity to last until the next clinic appointment.
- Discharge summary- document a coherent plan for monitoring, ongoing pharmacological treatment and follow-up in the community. Ensure copies sent to all professionals involved.
- Social support - ensure this is in place.
- Safeguarding - ensure the local team and social services are notified of any concerns.
- Parental/carer safety-net advice- provide ample opportunity for parents to discuss what symptoms to expect, how to manage them and features which should prompt review in hospital. This will be supplemented by the information leaflet in Appendix 2
- Contact details for parents - Neonatal Outreach Nurse (NON) to provide information leaflet in Appendix 2.
- Open access - arrange this for the Paediatric ward by speaking with their ward clerk/matron. Parents should be given the phone number for the ward.
- Community follow-up - Neonatal Outreach Nurse (NON) to visit at least once a week and provide telephone follow-up. They will also monitor growth, discuss feeding and keep the consultant up-to-date with weaning. Ensure close liaison with health visitor.
- Outpatient follow-up - request consultant clinic appointment for 2 months after discharge.

10.0 Providing Patient Information

Midwives, Neonatal Nurses and Paediatric doctors are responsible for explaining to parents the reasons for monitoring.

The patient information leaflet 'Neonatal Abstinence Syndrome' (from Family Assist) should be given in the antenatal period.

There is a separate leaflet for babies requiring admission to a neonatal unit.

11.0 Audit /Monitoring

Suggest auditable points:

Antenatally

Have drug and alcohol dependent birth parents had:

- Invitation to visit the neonatal unit if admission anticipated?
- Met with the designated Paediatric Consultant?
- A documented agreed plan of care has been made including recommendations for monitoring and/or admission to the neonatal unit. Including likely length of stay in hospital and observations?
- Documented discussion of Hepatitis B vaccine for baby via the accelerated schedule (i.e first dose of the vaccine given at birth) if indicated?
- A referral to Social Services following parental discussion?

- When a baby is born to a birth parent misusing substances have the midwifery team informed social services to ensure there is a discharge planning meeting prior to discharge?
- Was the birth parent asked for a urine sample for drug screening if recommended in the antenatal plan or if new illicit substances suspected?
- If recommended in the antenatal plan, and consented to by the birth parent, was urine collected from the baby for a toxicology screen?
- If more than 1x SSRI or multiple psychotropic medications are being taken by the birth parent, was the baby observed in hospital for a minimum of 48 hours for signs of withdrawal?

Neonatal Abstinence Scoring chart:

- Has the Neonatal Abstinence Scoring Chart been started 2 hours after birth then reviewed 2-4 hourly depending on the score?
- If the infant's total score was 8 or more, was the scoring is increased to 2 hourly and continued for 24 hours from the last total score of 8 or higher?
- If the 2 hourly score is 7 or less for 24 hours then were 4 hourly scoring intervals resumed?
- If pharmacotherapy was required was the infant scored at 2 - 4 hourly intervals throughout the duration of the therapeutic period.
- If after cessation of pharmacotherapy the score was less than 8 for the following 3 days then scoring was the NAS chart discontinued appropriately?
- If after cessation of pharmacotherapy the score was 8 or more on 2 occasions then was scoring continued for the following 4 days to ensure there is no late onset of symptoms?

Discharge Planning and follow-up:

- Has a Discharge planning meeting taken place?
- Is a clear weaning schedule documented?
- Is there a Discharge summary documented and has been sent to all professionals involved?
- Has social services been informed of any concerns?
- Has the information in patient information leaflet and contact details for Neonatal Outreach Nurse (NON) been documented as given?
- Has Open access been arranged?
- Has an Outpatient follow-up been requested for 2 months after discharge?

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Appendix 1: Neonatal Abstinence Scoring Chart

Please complete or Affix Patient Label Unit No:..... NHS No:..... Surname..... Forenames.....	NHS Western Sussex Hospitals NHS Foundation Trust Ward..... **Neonatal Abstinence Scoring Chart** (adapted from Finnegans LP 1000)

System	Signs and Symptoms	Score	Time/Date						Comments
Central Nervous System Disturbances	Excessive high pitched (or other) cry	1							
	Continuous high-pitched (or other) cry	1							
	Sleeps <1 hour after feeding	3							
	Sleeps <2 hours after feeding	2							
	Sleeps <3 hours after feeding	1							
	Mild tremors when disturbed	1							
	Moderate-severe tremors when disturbed	1							
	Increased muscle tone	1							
	Excoriation (specific area)	1							
	Myoclonic jerks	1							
	Generalised convulsions	1							
Metabolic/Vasomotor/ Respiratory Disturbances	Sweating	1							
	Hyperthermia 37.2-38°C	1							
	Hyperthermia >38°C	1							
	Frequent yawning (>3-4 times/scoring interval)	1							
	Mottling	1							
	Nasal stuffiness	1							
	Sneezing (>3-4 times/scoring interval)	1							
	Nasal flaring	1							
	Respiratory rate >60/min	1							
	Respiratory rate >60/min with recession	1							
Gastrointestinal Disturbances	Excessive sucking	1							
	Poor feeding	1							
	Poor co-ordination	1							
	Regurgitation	1							
	Projectile vomiting	1							
	Loose stools	1							
	Watery stools	1							
	Total Score								
	Initials of Scorer								

NAS Score	**Action**
Score average = 0-8	No medication required, score 4 hourly
Score average = 8 or more	Score 2 hourly until score is <7 for 24 hours
Score average = >8 for 3 consecutive scores >12 for 1 score	Medicate as protocol Score 2 hourly until score is <7 for 24 hours

Appendix 2a: Neonatal Abstinence Syndrome Leaflet (UHSussex West)

Neonatal Abstinence Syndrome Information Leaflet

During pregnancy, drugs travel across the placenta to the baby. When the baby is born, the supply of drugs to the baby is stopped and so the baby can show signs and symptoms of withdrawal.

It is important to also remember there are other reasons why the baby can be unsettled (e.g. illness, colic, milk allergy).

Babies showing signs of withdrawal are stabilised on oral morphine and are able to be discharged home when symptoms are minimal and the morphine dose has been unchanged for 36 hours.

After 2 weeks of age any new withdrawal signs are unlikely to be due to withdrawal unless we are reducing the morphine dose.

As well as giving the morphine, there are other things you can do to help baby:

- Swaddling (loosely)- decreases sensory stimulation
- More frequent smaller feeds
- Increased support –increasing confidence in handling baby
- Education-teaching comforting and interacting techniques, massage and relaxation baths
- Carrying babies around more or just holding them to help settle.

The symptoms of colic can be similar to those of withdrawal. Babies with colic are usually unsettled for a small part of the day (usually the evenings) whereas a withdrawal baby can be unsettled for the 24 hour period.

Morphine will be prescribed by the hospital to go home with baby. Our approach is to not reduce the dose too soon. Baby needs to settle at home and get used to their new environment. It will be prescribed to be given 4 times a day. Don’t ever change the morphine dose yourself. The Neonatal Outreach Nurse will visit regularly and will be responsible for a repeat prescription.

It is best to reduce the dose in the late afternoon or evening, so if baby is a little more unsettled, it will be during the following day when it is easier to give a few extra cuddles!

For any questions/advice please call Neonatal Outreach Sister:

07825 831019 (SRH Hannah), or 07825 831020 (Worthing Claire)

Appendix 2b: Neonatal Abstinence Syndrome Leaflet (UHSussex East)

Neonatal Abstinence Syndrome Information Leaflet

During pregnancy, drugs travel across the placenta to the baby. When the baby is born, the supply of drugs to the baby is stopped and so the baby can show signs and symptoms of withdrawal.

It is important to also remember there are other reasons why the baby can be unsettled (e.g. illness, colic, milk allergy).

Babies showing signs of withdrawal are stabilised on oral morphine and are able to be discharged home when symptoms are minimal and the morphine dose has been unchanged for 36 hours.

After 2 weeks of age any new withdrawal signs are unlikely to be due to withdrawal unless we are reducing the morphine dose.

As well as giving the morphine, there are other things you can do to help baby:

- Swaddling (loosely)- decreases sensory stimulation
- More frequent smaller feeds
- Increased support –increasing confidence in handling baby
- Education-teaching comforting and interacting techniques, massage and relaxation baths
- Carrying babies around more or just holding them to help settle.

The symptoms of colic can be similar to those of withdrawal. Babies with colic are usually unsettled for a small part of the day (usually the evenings) whereas a withdrawal baby can be unsettled for the 24 hour period.

Morphine will be prescribed by the hospital to go home with baby. Our approach is to not reduce the dose too soon. Baby needs to settle at home and get used to their new environment. It will be prescribed to be given 4 times a day. Don’t ever change the morphine dose yourself. The staff at the One Stop Follow-up outpatients clinic will be responsible for a repeat prescription.

It is best to reduce the dose in the late afternoon or evening, so if baby is a little more unsettled, it will be during the following day when it is easier to give a few extra cuddles!

For any questions/advice please call a member of the specialist services:
Specialist midwives Anna Ferguson, Nikki Tuck, Royal Sussex County Hospital 01273 696955 ext 67583, mobile 07795 498509
Neonatologist Dr Neil Aiton, ANNP Jamie Blades; RSCH 01273 696955 ext 64195 (secretariat)

Appendix 3: Morphine Weaning Flowchart