Postnatal Ward Handbook

An aide-memoir for managing common neonatal problems on the postnatal ward

Updated:	**Neonatal Consultants**
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University Hospitals of Leicester NHS
NHS Trust

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1. Introduction and Who Guideline applies to

This guideline is aimed at all Health care professionals involved in the care of infants within the Perinatal Directorate.

This handbook provides information about the Postnatal and Labour Ward duties of the Post graduate doctors in training/ other medical professionals and ANNPs. It is also intended to be a guide to dealing with problems on the Postnatal Wards. It is *not* intended to be a textbook of neonatal problems.

There will be a Tier 2 professional allocated to covering the Postnatal Wards and Labour Ward to ask about investigations and on-going management. All infants in whom a specialist referral may be indicated will require a medical review and a referral letter.

There are patient information sheets for many of the conditions discussed here and these should be offered to parents. Please ensure that the General Practitioner is notified of any concerns via completion of appropriate discharge paperwork for any baby when ongoing follow up is planned.

There are detailed neonatal service guidelines to many of the problems discussed in this handbook it is important to refer to them as they contain more comprehensive information where necessary

Please discuss with the supervising Tier 2 Professional or ITU Service Consultant regarding any infant in whom a specialist referral is thought appropriate

Related documents;

- Neonatal Transitional Care UHL Neonatal Guideline
- Newborn Infant Physical Examination (NIPE) UHL Maternity and Neonatal Guideline
- NPulse Oximetry Screening for the Newborn Infant UHL Obstetric Guideline
- Weighing of Well Term Babies UHL Obstetric Guideline
- Thermal Protection of the Newborn UHL Obstetric and Neonatal Guideline
- Unaccompanied Babies Standard Operating Procedure UHL Maternity Guideline
- Hypoglycaemia - Neonatal UHL Neonatal Guideline
- Polyhydramnios UHL Neonatal Guideline
- Antibiotics for Neonatal Infection UHL Neonatal Guideline
- Group B Streptococcus in Pregnancy and the Newborn UHL Obstetric Guideline

- Anti D Immunoglobulin UHL Obstetric Guideline
- Brachial Plexus Injury UHL Neonatal Guideline NNU
- HIV Screening and Management in Pregnancy UHL Obstetric Guideline
- Immunisations UHL Neonatal Guideline
- Hepatitis B Screening in Pregnancy UHL Obstetric Guideline
- Hepatitis C Screening in Pregnancy UHL Obstetric Guideline.
- Neonatal Herpes Simplex UHL Neonatal Guideline
- Chickenpox in Pregnancy UHL Obstetric Guideline
- Chicken Pox Exposure UHL Childrens Hospital Guideline
- Syphilis in Pregnancy UHL Obstetric Guideline
- Substance Misuse in Pregnancy UHL Obstetric Guideline

2. The Postnatal Wards (PNW)

Helpful tips

Babies who meet the criteria for on-going transitional care on the postnatal ward (see separate Neonatal Transitional Care UHL Neonatal Guideline) will require admission, daily updates and discharge completed on the BadgerNet system.

Babies that are seen on delivery suite or the Postnatal wards that require treatment and investigations (blood tests, scans, follow-up, etc.) should have this documented in their own set of baby notes.

If babies come to NNU for any procedure, however short the stay (e.g. Insertion of cannula for IV antibiotics) they must be formally admitted to the BadgerNet system. The Ward Clerk and the Neonatal assistants should also be notified so the relevant actions can be taken.

Whenever possible Child health care records (red books) should be completed prior to discharge from NNU to the Post-natal wards regardless as to whether the baby is still receiving treatment.

Please inform neonatal assistants of ALL babies put onto newborn observations charts.

Body map to be updated on the day of discharge for all babies who have received care by the neonatal team. For example to document bruising from cannula attempts

The following babies should be seen by the neonatal team on the PNW

- Infants in whom there is a concern
- Infants receiving transitional care
- Infant NIPE where a paediatric check has been specified according to guidance Newborn Infant Physical Examination (NIPE) UHL Maternity and Neonatal Guideline
- Infants discharged from NNU

There are neonatal nursing assistants who will assist in the routine daytime work on the PNW. They will make sure that the trolley contains any equipment and documentation that you require.

When there is no neonatal assistant cover, the Tier 1 professional allocated to the PNW should carry the neonatal nursing assistant bleep to ensure that the pathology/laboratories know who to contact with abnormal results in addition to completing "BadgerNet todays daily summary form" and any other documentation

Please also see the Neonatal Transitional Care UHL Neonatal Guideline for further information on babies receiving neonatal care/ input on the PNW.

2.1 Fetal Alerts

Some neonatal problems are diagnosed antenatally. In these cases an information sheet is sent to the neonatologists and scanned into the neonatal alert folder on a shared drive. NNU Clinical Information (\\uhldata04\data3\Women's, Perinatal & Sexual Health\Neonatal) (V:).

This information sheet often includes a ***proposed management*** plan.

If you do not have access to the fetal alerts drive this can be requested through http://iamweb and the request network resources tab

Person authorising your request – (any of the following) JDA's, any line manager
Drive – NNU Clinical Information
Letter – V:
Name a person with access – Anyone you know with access (Consultants or ANNPs)

2.2 Newborn and Infant Physical Examination (NIPE)

Almost immediately after a baby is born they should have an examination to ensure they have no gross physical abnormalities. This is carried out by one of the health professionals attending the birth.

The detailed newborn examination should normally be undertaken within the first 72 hours after birth following verbal consent from parents to perform the examination. The aim of this examination is to detect less obvious conditions or abnormalities.

The infant check comprises of;

- Review of antenatal risk factors in particular:
    - Risk of congenital heart disease highlighted on antenatal scans or 1st degree relative (parent or sibling) with heart abnormalities
    - Risk factors for developmental dysplasia of the hip (1st degree relative with DDH, breech presentation during pregnancy even if born cephalically)
    - Risk factors for inherited eye conditions such as retinoblastoma or cataract (1st degree relative)
- It is important to review whether there is a neonatal alert for a suspected fetal anomaly.
- Examination of the infant to detect congenital concerns
- Dysmorphic infants
- Developmental Dysplasia of the hip
- Cataracts
- Heart murmurs
- Cleft lip and palate
- Genital concerns e.g. hypospadias/undescended testes

Highlighting infants that need further assessment:

- Risk factors for sepsis
- Jaundice
- Feeding
- Reassuring parents about normal variations and discussing their concerns

- Counselling parents
- Back to sleep campaign
- Immunisation

The results of this check are recorded on the NIPEsmart screening website (see NIPE smart user guide Appendix 1) https://nipe.northgate.thirdparty.nhs.uk/S4N/nhsbaby

There is an e-learning package available and those individuals performing and recording NIPE examinations should have evidence of completing this. (https://www.e-lfh.org.uk/)

Any infant that is clinically unwell needs a Tier 2 review and may require admission to the neonatal unit for further assessment.

2.3 Pulse-oximetry screening of the newborn

All newborns >34 weeks gestation who are cared for on the postnatal wards are part of the pulse oximetry screening programme. They should have their saturations checked in the first 2-4 hours of life as per the guideline.

NPulse Oximetry Screening for the Newborn Infant UHL Obstetric Guideline

2.4 The Well Normal Term Infant (Term defined as >37 weeks gestation)

The following is a very brief guide to feeding, weight loss and normal physiological observations in the well normal term infant of > 2.5Kg.

Feeding

Breast feeding;
Breast feeding should be initiated within 1 hour after delivery as this promotes release of prolactin and stimulates milk production. Breast fed infants tend to feed more frequently than bottle fed infants.

It is normal for some term newborns to only take a couple of breastfeeds on the first day. If the baby is otherwise well, this should not prompt the health care team to offer bottle feeds

Bottle feeding;
Where there has been an informed parental choice to bottle feed or a there is a medical indication e.g. maternal HIV infection then a bottle feed should have been offered within 8 hours of birth.
A volume ***guide*** for the first few days of life is below:

Day 1:	50 ml/kg
Day 2:	75 mls/kg
Day 3:	90 mls/kg
Day 4:	100 mls/kg
Day 5:	150 mls/kg
Day 6 onwards:	150 mls/kg

Weight

It is normal for infants to lose weight over the first 5-7 days of life and they are expected to have regained their birth weight by 2 weeks of age. A weight loss of up to 10% of their birth in this period is within normal limits.
Weight loss 8.1%-10% should trigger full assessment and feeding assessment
Please also see Weighing of Well Term Babies UHL Obstetric Guideline

Urine and Stools

The infant should pass urine and meconium stool within 24 hours of birth. If a baby has not opened bowels before discharge safety netting advice around normal time frames should be given prior to discharge.

Normal Observations

Temperature	36.5-37.5°C
Pulse Rate	100-160 beats per minute
Respiratory Rate	30-60 breaths per minute

2.5 Newborn early warning trigger and track (NEWTT2)

Indications to use NEWTT2 chart
• As per Maternity Group B Streptococcus guideline. Please refer to flowchart in GBS guideline
• Infant of diabetic mothers
• PROM > 48hrs (Refer to guideline, appendix 8)
• Maternal temp > 37.8°C + additional risk factors

Baby needing advanced resuscitation but with APGAR 9 at 10min
• Stable term IUGR with birth weight < 2.0 kg
• Baby >4.5kg
• Baby with birthweight on or below 2nd centile

The NEWTT2 chart should be completed for any infant who requires 2 or 4 hourly observations (e.g. feeding, hypothermia).

Routine NEWTT2 charts are not required for:
• Term without risk factors for GBS (see guideline)
• Antenatal concerns (abnormal CTG, foetal bradycardia etc) but well baby
• Term baby with weight >10th centile but less than 4.5kg
• Grunting < 4 hrs (Review and admit if concerns)
• Maternal Hepatitis B, C, HIV
• One/two vessels in the umbilical cord
• Blood stained vomit (Investigate and admit if concerns)
• Green vomit (Investigate and admit if concerns)

Table 1: Assessments and monitoring recommended for every newborn baby

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	Recommendation	Frequency
Immediately following birth and within the first hour of life	**Follow recommendations for recording observations** given within national guidance (3, 4, 18) **Identify any risk factors** that require observations or intervention within the first hour of life such as management of early onset bacterial infection **Perform the initial midwifery examination** to detect any major physical abnormality and identify any problems that require referral	**NICE postnatal care, NICE intrapartum care and RC (UK) NLS guidance** **Prior to and following birth to enable timely intervention** **Once**
During skin-to-skin contact *Skin-to-skin contact is recommended for newborn infants within the first hour to promote thermoregulation, colonisation with maternal flora and biological nurturing*	For a significant minority of infants positioning for skin-to-skin contact may have contributed to sudden unexpected postnatal collapse and serious adverse outcome (7). The level of risk for sudden collapse during skin-to-skin contact is influenced by maternal body mass index, antenatal use of opiate medication, sedation and staff focus on other tasks. **Airway and breathing** - check the baby's position is such that a clear airway is maintained – observe respiratory rate and chest movement. Listen for unusual breathing sounds or absence of noise from the baby. **Colour** – the baby should be assessed by looking at the whole of the baby's body as the limbs can often be discoloured first. Subtle changes to colour indicate changes in the baby's condition. **Tone** – the baby should have a good tone and not be limp or unresponsive **Temperature** – ensure the baby is kept warm during skin contact	**Throughout every skin-to-skin contact**
1-2 hour of age	**Record body temperature** soon after the first hour (3). Target the temperature range 36.5-37.5°C.	**Until target reached**
Feeding and excretion	**Follow UNICEF guidance** providing information to assess infant feeding including frequency of feeds, wet and dirty nappies (19). Newborn infants considered suitable for early discharge should have a risk assessment completed by the maternity team that incorporates feeding establishment (3, 6). If there are any concerns regarding feeding, observations using the NEWTT2 tool are recommended with escalation for review as indicated. Bilious vomiting warrants immediate escalation.	**Continuous assessment with parent**
Jaundice	**Examine* all infants for jaundice** at every opportunity especially within the first 72 hours; if jaundiced monitor bilirubin and use gestational age charts to guide treatment (5). At risk groups include gestation <38 weeks, previous sibling requiring treatment, male, low birth weight, multiple birth and Asian ethnicity (1, 5). *skin, cornea, gums	At every contact

NICE: National Institute Clinical Excellence; RC (UK): Resuscitation Council UK ; HSIB: Healthcare Safety Investigation Branch; UNICEF: United Nations Children's Fund; ATAIN: Avoiding Term Admissions Into Neonatal Units

2.6 New Born Blood Spot Screening

The Newborn blood spot screening test is a test for a range of conditions where early detection can improve the outcome. This is usually done at 5 to 8 days of age. Further up to date information of the conditions currently part of the programme can be found at: [Newborn blood spot screening: programme overview - GOV.UK (www.gov.uk)]

2.7 Guidance for the timing of Newborn and Infant Physical Examination

The routine examination is performed between 0900hrs and 1700hrs prioritising those infants who are >24 hours of age. There is no contraindication in performing the check at <24 hours but families should be made aware of the limitations of performing the screen early particularly with reference to changes in circulation and pulmonary pressure over the first 24 hours of life.

Further details on the NIPE examination can be found Newborn Infant Physical Examination (NIPE) UHL Maternity and Neonatal Guideline.

Review any infant in whom there has been antenatal or perinatal concern earlier. All reviews should be documented with date, time, name, grade and legible signature in the baby's own medical record.

2.8 Infants Discharged from NNU

When infants have been discharged from the NNU the neonatal team should inform the PNW midwife in charge *and* the neonatal assistant. Infants that need further review should initially be reviewed and documented on a daily basis. Infants > 24 hours old should ideally have their infant check and discharge letter updated.

2.9 Role of the Neonatal Assistant

The Neonatal Assistants can be contacted on bleep 5460 (LRI) & 4467 (LGH). Their primary role is:

- An independent role for the newborn infant on the PNW
- To liaise with Medical and Midwifery staff in the examination and routine follow up of all babies.
- Further details of the NNA Role can be found in the Neonatal Transitional Care UHL Neonatal Guideline

It is the responsibility of doctors/ANNP responsible for the postnatal wards to ensure medical management plan.

2.10 Neonatal Assistant Clinic

To provide heel prick/venous blood collection for

- Babies from NNU
- Postnatal wards

Location

Level 2, Neonatal Unit, Kensington Building or Neonatal Unit LGH

Prerequisites

- Liaise with Neonatal Assistant

- Complete blood form
- Appointment to be made via Neonatal Assistant and parents prior to discharge

2.11 Feeding Concerns

There is a "rooming-in" policy (refer to Thermal Protection of the Newborn UHL Obstetric and Neonatal Guideline)

- Mothers have their babies by the side of the bed throughout the day and night.
- Babies must not be left unattended on the PNW at any time. If a baby is in the nursery on the PNW they should be accompanied by a member of staff. Please refer to the Unaccompanied Babies Standard Operating Procedure UHL Maternity Guideline
- The feeding policy is one of responsive feeding.
- Usually this means that a baby will be fed between 3 and 5 hours after the last feed. Breast-feeding babies may require much more frequent feeds at times.

The establishment of feeding in the first few days of life is one of the major challenges to mother and infant and requires skill and patience. The midwives are skilled in helping mothers to establish breast-feeding and this should be encouraged. The first feed should be promoted within 1 hour of delivery and breast fed infants tend to feed more often than bottle fed infants.

For further details on feeding please see Infant Feeding Policy UHL LLR and Childrens Centre Services.

2.12 Vomiting

Regurgitation after feeds is common in the newborn infant and is often misinterpreted as vomiting.

True vomiting should be assessed for the presence of bile or blood and the following diagnoses considered:

- Sepsis, UTI, opiate withdrawal
- Inborn error of metabolism
- Intestinal obstruction ***especially if bilious vomiting***
- Look for evidence of obstruction (volvulus, malrotation, atresia etc)

If the infant has any signs of these concerns, they should be admitted to the neonatal unit and further assessed.

2.13 Loose stools

Loose stools are common in neonates and breast-fed infants may produce as many as 12 explosive very fluid stools in a day. Indications for further investigation are below:

- Excessive weight loss
- History of contact with gastroenteritis
- Clinically unwell

2.14 Small for Gestational Age Infants

A definition of small for gestational age (SGA) infants is when the birth weight lies below the 10th centile. Being below the 10th centile can be normal but babies who are small need to be

reviewed. This may be due to intrauterine growth retardation (IUGR) and may be symmetrical or asymmetrical. There are a number of aetiological factors and these include:

- Congenital syndromes
- Intrauterine viral infection e.g. cytomegalovirus (CMV)
- Maternal placental insufficiency

SGA infants often have poor fat reserves and are less able to cope with intrapartum hypoxia and more likely to have problems with hypoglycaemia. The main concerns with SGA infants are listed below:

- Thermal care
- Hypoglycaemia
- Polycythaemia

Management

- Measure Occipital Frontal Circumference (OFC) and weight and plot in red book
- Is the baby symmetrically or asymmetrically small?
- What centile did the baby's birth weight fall on in the maternal customised antenatal 'grow' chart? OFC should be measured to the nearest 0.1cm.
- Examine carefully for congenital abnormalities and any signs of congenital infection such as petechiae, hepatosplenomegaly etc.
- Examine for signs of polycythaemia, jaundice or dehydration
- Encourage skin-skin contact and unlimited access to breast (if wants to breast feed).

2.15 Large for Gestational Age Infants

The birth weight of term infants continues to increase. Infants that are large for gestational age (LGA) are defined as > 97th centile and the main causes are listed below:

- Normal
- Infant of a diabetic mother
- Beckwith Wiedemann syndrome / other genetic overgrowth syndromes

2.16 Infant of Diabetic Mother

These infants are hyperinsulinaemic and are therefore at risk of hypoglycaemia in the first 48 hours of life. The main neonatal concerns are:

- Birth injury
- Respiratory distress
- Polycythaemia
- Hypoglycaemia
- Hypocalcaemia
- Feed intolerance

2.17 Prevention of hypoglycaemia

Encourage mothers to feed their babies as soon as possible (within 30 minutes of birth) and then at frequent intervals (2-3 hours).

Management

- Examine for signs of birth injury or congenital defects

- Pay particular attention to skin colour (plethora or cyanosis) and the cardiovascular and respiratory systems
- Feed 2-3 hourly until 2 consecutive pre-feed blood glucose levels are ≥ 2.6 mmol/litre
- Commence observations in line with NEWTT2

Babies of women with diabetes should be admitted to the neonatal unit if they have:

- Hypoglycaemia associated with abnormal clinical signs
- Respiratory distress
- Signs of cardiac decompensation due to congenital heart disease or cardiomyopathy
- Signs of neonatal encephalopathy
- Signs of polycythaemia and are likely to need partial exchange transfusion
- Need for intravenous fluids
- Need for tube feeding
- Jaundice requiring intense phototherapy and frequent monitoring of bilirubinaemia
- Been born before 34 weeks (or between 34 and 36 weeks if dictated clinically by the initial assessment of the baby and feeding on labour ward)

Babies of women with diabetes should not be discharged from hospital until they are feeding well and maintaining glucose levels. For most babies, this will be ≥24 hours.

- **Refer to guideline on the prevention** Hypoglycaemia - Neonatal UHL Neonatal Guideline

Hypoglycaemia

There is detailed guidance based on the BAPM framework for practice on the identification and management of hypoglycaemia in those babies who are at risk. This has not been duplicated here and can be found at: Hypoglycaemia - Neonatal UHL Neonatal Guideline

2.18 Polyhydramnios

The Aetiology of polyhydramnios:

- Fetal malformations and genetic disorders (8 to 45 percent)
- Maternal diabetes mellitus (5 to 26 percent)
- Multiple gestation (8 to 10 percent)
- Fetal anaemia (1 to 11 percent)
- Other (e.g., congenital viral infection, Bartter's syndrome, hydrops fetalis, neuromuscular disorders)

Management

Most women with polyhydramnios will deliver healthy babies with no problems. However idiopathic polyhydramnios may be a warning sign of a birth defect in the baby such as oesophageal atresia. The routine passage of a NG tube to confirm patency of the oesophagus is not indicted.

Refer to Polyhydramnios UHL Neonatal Guideline for further details on management

2.19 Managing Infants requiring antibiotics on the postnatal wards

Antibiotics may be started empirically where there are perinatal risk factors for infection. The Antibiotics for Neonatal Infection UHL Neonatal Guideline contains full details of criteria for commencement of antibiotics in line with NICE Guidance for the Management of Early Onset Neonatal Infection.

If a baby is commenced on antibiotics a sepsis booklet should be completed and maintained throughout their treatment course. They also require admission and daily records on BadgerNet of their care. At the time of discharge the parents should receive a discharge letter from BadgerNet detailing the care their baby has received.

All infants that are on antibiotics but remain on the PNW should be on a NEWTT2 chart and reviewed by the postnatal junior doctor/ ANNP on a daily basis. Their care should be documented under a transitional care admission on BadgerNet with the location listed as PNW. They may be discharged home on the day that they complete the course as long as there are no on-going clinical concerns

Advice for parents at discharge

Women identified as 'at risk' of neonatal GBS infection should be advised of the signs of neonatal GBS infection prior to discharge home with their baby. If they have received antibiotics they should receive a GBS parent information leaflet and a record of this being given should be made in the sepsis pathway booklet.
Group B Streptococcus in Pregnancy and the Newborn UHL Obstetric Guideline

2.20 Identification of GBS colonisation after delivery

Occasionally a genital tract swab or MSU taken antenatally or during labour will be subsequently reported postnatally indicating maternal GBS colonisation. Management of the baby should depend on the age of the baby and any additional risk factors present.

Baby less than 24 hours old

Still in hospital
Review baby on postnatal ward

Baby at home
Review Early Onset Sepsis Antibiotics for Neonatal Infection UHL Neonatal Guideline.
If this suggests no active treatment, or observation only, inform the community midwife and GP and ask them to advise the mother and undertake review of the baby.

If the guideline suggests that a septic screen and antibiotic treatment is required then offer **readmission to the paediatric ward** so that the baby can undergo appropriate evaluation and/or treatment.

Baby more than 24 hours old

Still in hospital
Review the baby on postnatal ward

Baby at home
Inform community midwife and GP and ask them to advise the mother and undertake review of the baby

All of the above advice relates to clinically well babies. Unwell babies should receive urgent medical attention regardless of age, risk factors and whether or not they are still in hospital.

90% of early onset neonatal GBS infection will occur in the first 24 hours. Typical signs include grunting, lethargy, irritability, reluctance to feed, rapid/slow heart rate, low blood pressure, high/low temperature, rapid/slow breathing and cyanosis.

2.21 Jaundice
(Refer to Jaundice in Newborn Babies UHL Obstetric Guideline)

Neonatal jaundice is common and occurs as a normal physiological event in up to 60% of full term infants. There are two main aims of identifying jaundice:

- To prevent bilirubin encephalopathy (kernicterus)
- To identify medical causes of jaundice

It is important to be aware of the mother's blood group as this may indicate whether the infant is at risk of haemolytic disease of the newborn.

Management

- Relevant history includes a family history of spherocytosis, raised maternal blood group antibodies, excessive bruising at delivery
- A full examination of the neonate should be performed paying particular attention to signs below:
    - General heath, signs of infection
    - hydration
    - Hepatomegaly, splenomegaly
    - Concealed haemorrhage e.g. cephalohaematoma

Remember: Infection can exacerbate hyperbilirubinaemia

- If a baby requires treatment for jaundice a discharge letter should be completed **and a photocopy of the treatment chart should be made and placed in the baby' red book for communication purposes with the GP, HV and Midwife.**

  Further details can be found in the Neonatal Transitional Care UHL Neonatal Guideline

Measuring the bilirubin level

The bilirubinometer can be used in babies with a gestational age >35 weeks and >24 hours of life. If the bilirubin is greater than 250 µmol/l and/or within 50 µmol/l of the treatment line then this should be checked by taking a blood sample (can be processed on the gas machine). Should the infant be above the treatment threshold do not delay starting phototherapy whilst awaiting this result.

If an infant is requiring phototherapy then treatment should be guided by blood measurements (gas machine or laboratory samples.)

Early Jaundice

Jaundice within the first 24 hours must be fully assessed and ***a bilirubin level taken.*** They should be considered for ***immediate phototherapy*** and a repeat SBR should be taken at 4 hours to document the rate of rise of bilirubin.

These infants should also be investigated for haemolytic disease of the newborn and the following tests should be performed

- Blood Group / Direct Antibody Test (DAT), (see below), FBC and film / reticulocyte count
- Septic screen unless known cause
- Depending on the rate of rise, Monitor bilirubin 4-6 hourly
- Consider G6PD (EDTA bottle, particularly in infants from the Asian community)
- If a baby is **DAT positive and required treatment for jaundice (phototherapy) or other evidence of haemolytic jaundice** (HB, film for RBC morphology, SBR, haematocrit, G6PD etc.)
    - Commence folic acid supplements
    - Arrange to check FBC and SBR by Neonatal Assistants within 2 weeks
    - Neonatal Assistant clinic- The blood results are discussed with SCBU Tier 2 Professional
    - On-going Folic acid and neonatal consultant clinic follow up only for those who have clinical or haematological evidence of haemolysis.

Remember: Jaundice within the first 24 hours is pathological and must be investigated.

Physiological jaundice

This is the most common type of jaundice (diagnosis of exclusion) and can be exacerbated by feeding difficulties and dehydration.

Treatment

The main treatment for hyperbilirubinaemia is phototherapy and the guidelines for phototherapy treatment in term infants can be found in the NICE 2023 guidance nice.org.uk/cg98. There are also charts on which bilirubin results can be plotted to guide treatment.

An exchange transfusion should be considered in any infant that has a bilirubin of > 400 micromoles / l. These infants should be admitted to NNU and fully investigated and managed according to unit Jaundice guidelines.

Rhesus negative Mothers

Rh negative mother's should have received prophylactic anti D in pregnancy reducing the risk of Haemolytic disease in the newborn.

Routine anti-D prophylaxis can give false positive DAT; therefore routine cord and neonatal bloods should not be taken for DAT. However DAT and other investigations should be done in all Jaundiced Infants and in those at risk or suspected to have haemolysis.

Direct Antibody Test

The routine testing of all cord and neonatal blood was discussed and a decision to cease routine testing approved at the Women's and Perinatal Clinical Governance committee and the Women's and perinatal Transfusion Committee.

A Direct Antiglobulin test is performed on the babies of mother with known blood group antibodies and babies where haemolysis may be indicated by other parameters such as jaundice or anaemia.

Cord blood samples are taken for group and typing to decide if a mother requires subsequent anti D in the postnatal period as follows:

If the baby is Rh-D negative, Anti-D is not indicated and that should be documented in the notes and Pathway.
If the baby is Rh-D positive, 500 IU anti-D Ig should be administered IM to previously non-sensitised Rh-D negative women, within 72 hours of the delivery after obtaining informed consent from her.

This is of importance to the neonatal team because:

- If a cord blood sample is not collected for any reason, a heel prick sample from the baby should be obtained as soon as possible to check Rh status (BCSH c, 2006).
- If a sample cannot be obtained, the baby should be assumed to be Rh-D positive for the purpose of administration of anti-D Ig.

Please see maternity Anti D Immunoglobulin UHL Obstetric Guideline on the UHL policy & guidelines website for more information.

Prolonged jaundice

All term infants that remain jaundiced at 2 weeks of age (3 weeks if born before 34 weeks) should be evaluated for the presence of ***pale stools or dark urine*** and investigated to exclude a conjugated hyperbilirubinaemia.

Please see Jaundice - Prolonged UHL Childrens Hospital Guideline for assessment and investigation guidance, available on the UHL policy & guidelines website.

2.2 Dysmorphic Infants

An isolated dysmorphic feature is a common normal finding. The association of more than one feature should make one consider a specific genetic syndrome.

Management

Examine the infant thoroughly paying particular attention to:

- Identifying dysmorphic features
- Cardiovascular system
- Perform appropriate genetic testing based on discussion with the ITU Service Consultant
    - At least 2 mls of blood must be placed in a lithium heparin tube and an EDTA sample for DNA storage and sent to the clinical genetics lab (at weekends this can be stored in fridge and sent on Monday morning).
- Do not separate mother and baby unless there is a life-threatening anomaly.

Discussion with the genetics team will help to clarify which of the evolving genetic tests will be most appropriate to perform based on your clinical suspicion of a potential diagnosis. Please email the service consultant details of the tests sent to ensure appropriate follow up is in place.
All babies where genetic testing is sent should have a set of medical notes with full documentation of reason for testing and documented discussion with the family.

Do not send blood for genetic analysis OR refer to clinical geneticists without the knowledge of the ITU service consultant.

2.23 Down's syndrome

Antenatal screening does not detect all cases of trisomy 21; current screening gives a risk rather than an absolute diagnosis. The main differential diagnosis includes congenital hypothyroidism and this can also coexist.

Management
Review maternal notes for information about maternal age, antenatal screening, and family history.

The Senior Medical Doctor/ Senior ANNP should examine the infant for the signs of Down syndrome which include:

- Hypotonia / brachycephaly / low set ears / single palmar crease
- Examine cardiovascular system carefully
    - pre + post ductal oxygen saturations
    - Arrange ECG looking specifically for the superior axis of an AVSD
    - Inform attending consultant neonatologist
- Look for signs of polycythaemia and send a FBC and Film
- Confirm karyotype by sending 2 mls of blood in a lithium heparin tube to clinical genetics for a rapid FISH for Trisomy 21.
- Inform attending neonatal consultant

If Down's syndrome is confirmed:

- Perform thyroid function tests and a FBC and Blood Film
- Go through Leicester Partnership Care Pathway paperwork with parents
- Discuss with the cardiologists regarding timing of cardiac echo. If a murmur is present then this needs to be considered prior to discharge from hospital.
- Complete SPA (Single point of access) referral
- Complete discharge letter

- Complete Down's checklist
- Neonatal Follow Up in 6-8 weeks

DO NOT routinely refer Down's babies to Clinical Geneticists. A clinically normal infant does not need to have chromosomes sent just because there was a high risk on antenatal screening.

2.24 Heart murmurs

It is common to hear a systolic murmur shortly after birth but several papers have suggested that up to 50% of neonatal heart murmurs may indicate underlying heart conditions of which the commonest are patent ductus arteriosus, branch pulmonary stenosis or tricuspid regurgitation. It is also important to remember that not all congenital heart disease will be associated with a heart murmur. It is important to identify those infants that will need further investigation. If a cardiology referral is needed complete the referral form

One of the main concerns is to ***identify obstructive left sided lesions*** that may be ***duct dependent*** e.g. Coarctation of the aorta / hypoplastic left heart / interruption of aortic arch as well as severe cyanotic heart disease requiring early intervention.

Management

The aim is to identify those infants that require further investigation and follow up and a full examination of the infant should be performed paying particular attention to:

- Dysmorphic features
- Cyanosis
- Brachial pulses / femoral pulses
- Tachypnoea / hepatosplenomegaly

If there are clinical concerns then the infant should be admitted to the neonatal unit for further clinical evaluation.

Isolated systolic murmur with normal femoral pulses

- Perform an ECG and ensure pre and postductal oxygen saturations have been done
- If infant is to be discharged then discuss the infant with the Tier 2 or Consultant.
- If the results are normal arrange an **Neonatal Out Patients Appointment** for 6 weeks
- Ensure baby has a set of medical notes with evaluation and plan documented. Baby will need a discharge letter
- If abnormal d/w cardiology re Echocardiography and further plan

Parents should be made aware of symptoms/signs of concern and given information leaflet on heart murmurs.

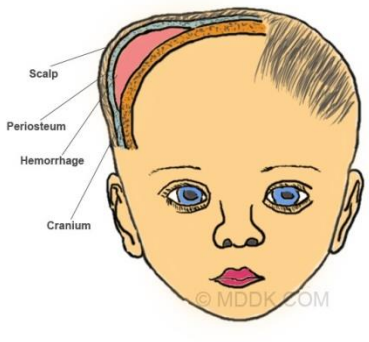
Other referral criteria to cardiology (when there is a normal cardiovascular examination)

- 1st degree relative with congenital cardiac condition
- There is an antenatal plan to assess for cardiac problems

2.25 Skeletal abnormalities

Congenital skeletal abnormalities are common and may occur in isolation or in association with dysmorphic syndromes or neuromuscular disease. Birth injuries may also affect the skeletal system.

Cephalohematoma



This is a sub periosteal collection of blood and it is most commonly found over the parietal bone

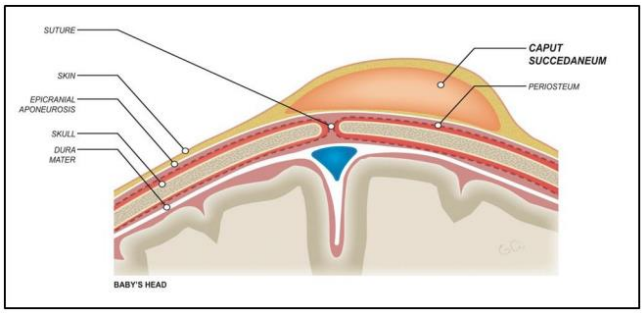
They have the following features:

- **Usually Unilateral**
- **Do not cross suture lines**
- **Spontaneously resolve**

Although these usually resolve by 6 weeks they may persist for longer with calcification prior to resolution.

Cephalohematoma : Showing the Scalp, Periosteum, Hemorrhage and Cranium courtesy of Google image https://mddk.com/cephalohematoma.html *no copyright infringement intended*

Caput Succedanuem (Chignon)



This is commonly associated with a ventouse extraction and has the following features:

- Variable scalp position
- ***Do*** cross suture lines
- Spontaneously resolve

Image courtesy of https://media.starship.org.nz/practice-recommendation-for-neonatal-subgaleal-haemorrhage/Neonatal_Subgaleal_Haemorrhage_Oct_2018.pdf *no copyright infringement intended*

It is also important to be aware that ventouse extraction has been associated with subaponeurotic (***subgaleal***) haemorrhage. The bleeding in this situation can be extensive and result in neonatal shock secondary to hypovolemia.

Subgaleal haemorrhage

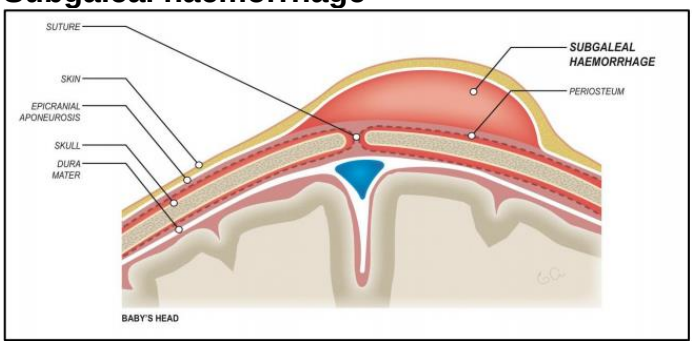


Image courtesy of https://media.starship.org.nz/practice-recommendation-for-neonatal-subgaleal-haemorrhage/Neonatal_Subgaleal_Haemorrhage_Oct_2018.pdf *no copyright infringement intended*

If you suspect a subgaleal bleed (boggy, expanding swelling which crosses suture lines) then an urgent senior review is required and consideration of intracranial imaging .

2.26 Developmental Dysplasia of the Hip (DDH)

The following are the main risk factors for DDH:

- Family history (first degree relative i.e. sibling or parent) of DDH,
- Breech up to and after 36 weeks (including those babies delivered cephalically following an ECV

Management

Screening for risk factors

- Arrange USS Hips (6weeks) for all those infants with the above risk factors.
- In cases of multiple pregnancy scans to be arranged for all infants if one is breech.

Clinical management

- Examining the hip joint properly requires you to examine each side separately while stabilising the other side and examination needs to be firm.
- Examine for clues to DDH such as asymmetrical skin creases
- Examine for limited abduction (dislocated hip that is unable to relocate)
- Perform Ortolani and Barlow's tests
    - If you have any doubt ask Senior to review
- Clicky hips will need USS hips to be performed within 8-10weeks in the absence of other risk factors (UK NSC 2011) A direct referral will be made to hip clinic if this scan is abnormal
- Refer dislocatable or dislocated hips immediately to Orthopaedic Consultants via email to baby scan clinic within 2/52 weeks – babyscanclinic@uhl-tr.nhs.uk

Hips in which there are concerns should not be repeatedly re examined

2.27 Talipes equinovarus

- Foot is plantar flexed and deviated to the midline

Postural/ Positional talipes

- Passive manipulation should return feet to neutral position
- No intervention required

Fixed Talipes equinovarus

- Fixed position
- Check for spina bifida
- Refer for Hip USS as risk of DDH
- Email to named orthopaedic consultant
- Email to Orthopaedic specialist Service

Talipes Calcaneo valgus

- Foot is dorsiflexed and everted
- Check for spina bifida
- Refer for Hip USS as risk of DDH
- Email to named orthopaedic consultant
- Email to Orthopaedic specialist Service

2.28 Spinal dysraphism

The term "spinal dysraphism" refers to congenital abnormalities of the spine that are characterised by midline defects. Spina bifida and myelomeningocele are "open" forms of spinal dysraphism while a skin covering protects "closed" or occult lesions. In these closed lesions it is important that the skin is examined carefully for clues to any underlying abnormality.

Management
The neonatal spine should be examined for:

- Focal hair patches, subcutaneous lipomas, capillary haemangiomas, lumbar dermal sinus, scoliosis

Associated abnormalities include:

- Asymmetry of leg or buttocks or foot deformities

If a spinal dysraphism (mass, discoloration, hairy patch) MRI indicated and this should be discussed with the neonatal consultant.

Sacral Pits

Sacral cutaneous pits are common. Those that lie below the natal cleft are usually benign and do not require further investigation or review.

Management

- Simple dimples below the natal cleft -No Investigation
- Simple dimples above the natal cleft, base not seen senior medical review.
- No imaging required is required if less than 2.5 cms from anus, less than 5mm diameter
- MRI required if high enough (LS junction for dorsal dermal sinus)
- Dorsal dermal sinuses occur at the lumbosacral junction. There is often a misconception around seeing the base for which there is no evidence to suggest association with pathology.
- If there is a dimple and association (anorectal malformation etc) MRI indicated

2.29 Accessory Digits (Polydactyly)

In the past rudimentary accessory digits used to be removed by the neonatal team. This is no longer appropriate and the infants should be referred to Consultant plastic surgeon. The baby will need their own set of notes and a discharge letter with management plan documented.

2.30 Fused digits (syndactyly)

These infants should be examined for other associated abnormalities as there are a variety of "syndromes" associated with syndactyly.

- Refer to consultant plastic surgeon at LRI
- Refer to Clinical Genetics if concern. (Isolated syndactyly do not need genetic referral)
- The baby will need their own set of notes and a discharge letter with management plan documented

2.31 Facial Nerve Palsy

A lower motor neurone facial nerve palsy can occur following delivery. Particularly at risk are those babies delivered by forceps. Most will resolve but follow up should be arranged in the neonatal clinic for 6 weeks after discharge. If the baby has an inability to close the eye on the affected side lubricant for the eye should be prescribed.

2.32 Brachial nerve injury

(Brachial Plexus Injury UHL Neonatal Guideline NNU)

Brachial nerve injury occurs as a rare complication of childbirth and the incidence is rising because of the increase in birth weight. The other risk factors are listed below:

- Multiparous mother
- Shoulder dystocia
- Assisted delivery / prolonged second stage

The pattern of injury depends on nerves of the brachial plexus that are involved and the association of Horner syndrome suggests that all of the roots have been affected. The severity depends on the type of nerve injury and this will range from neuropraxia (stretching) to avulsion (complete separation). **The pattern and extent of nerve injury will affect the degree of recovery and whether neurosurgery is indicated.**

Management

- Examine for Horner syndrome / bony injury / pattern of nerve injury
- CXR including upper limb on affected side - to assess diaphragm / clavicle and humerus
- Urgent Physiotherapy assessment within 2 weeks
- Neonatal outpatient clinic (OPA) 6 weeks

2.33 Clavicular Fractures

Clavicular fractures can result following any type of delivery but are more commonly seen following operative deliveries or those complicated by shoulder dystocia. They can be difficult to diagnose but may present with reluctance to move the arm on the side with a fracture, tenderness on palpation over the clavicle during the NIPE, swelling or discomfort on handling. They can be diagnosed on an x-ray if there is strong suspicion of a fracture and rarely require treatment other than simple analgesia. If there is a confirmed fracture on imaging this should be discussed with the paediatric orthopaedic team and neonatal consultant follow up can be discussed with the service consultant.

2.34 Renal tract abnormalities

(Refer to Congenital Abnormalities of the Kidney and Urinary Tract UHL Neonatal Guideline)

A significant number of renal tract abnormalities are detected before birth on the antenatal ultrasound scan (1.4 - 7.6 per 1000 live births). It is important to be aware that some abnormalities may be missed if scanning is only performed in the early part of pregnancy. Investigation of the antenatally diagnosed child is aimed at delineating the abnormality, identifying obstruction and preserving renal function.

All antenatally detected abnormalities of the renal tract must be investigated postnatally and followed up.

The following renal abnormalities can be detected:

- Structural abnormalities of the ureters and bladder such as hydronephrosis
- Dilatation of the ureters may be:
    - Transient or permanent
    - Mild - Severe
    - Obstructive or non-obstructive due to vesico-ureteric reflux.
    - Unilateral or bilateral
    - Associated with normal or abnormal renal function (may be reversible or
    - irreversible)
- Abnormalities of renal substance, e.g. cysts

Management on PNW
All infants with antenatally diagnosed renal problems should have an antenatal alert in the maternal notes and saved on the foetal alert drive that describes the management plan.

Bilateral hydronephrosis in a male infant may indicate posterior urethral valves and requires an assessment and renal USS evaluation whilst still an inpatient.

Do not routinely book MCUG/DMSA/MAG3 etc without the discussion with the attending consultant neonatologist.

2.35 Single umbilical artery

The infant should be examined carefully for dysmorphic, skeletal, neurological and cardiac concerns. No intervention needed if the single vessel cord is an isolated concern.

2.36 Umbilical Hernia

These are more common in Afro-caribbean infants and the overwhelming majority will spontaneously resolve.
No neonatal intervention or follow up is required.

2.37 Cleft lip and palate

During the NIPE examination the palate should be inspected as per RCPCH Best Practice Guidance Palate examination: Identification of cleft palate in the newborn October 2014 https://www.rcpch.ac.uk/sites/default/files/2018-04/2015_palate_examination_-_best_practice_guide.pdf

Assess feeding and presence of other features consistent with Pierre- Robin Sequence, refer to the Cleft Lip and Palate team in Nottingham.

Send Blood tests for 22q deletion and stored sample for further analysis should it be indicated (EDTA for DNA storage and Li heparin)

Please arrange Neonatal Consultant Follow up in 6-8 weeks.

The Cleft Team will arrange for the family to be visited in hospital, usually within 24 hours of birth.

2.38 Neonatal Teeth

Mobile natal teeth need to be removed to prevent aspiration

Please refer to the maxillofacial team who will kindly review the baby

Visible teeth beneath the gums are of no consequence.

2.39 Tongue Tie

Identification of a tongue tie in a baby is a common finding. Its link with poor feeding and treatment via tongue tie division is controversial and therefore surgical intervention should only be discussed if there is proven failure to establish feeding with appropriate support and after a period of observation. The Leicester Neonatal Service do not routinely recommend division of tongue tie.

Further information can be found:
Division of ankyloglossia (tongue-tie) for breastfeeding (nice.org.uk)
Tongue-tie - NHS (www.nhs.uk)

2.40 Cataracts

Congenital cataracts are an uncommon but important congenital anomaly to detect. They may occur as an isolated finding or as part of a systemic disease and there is often a positive family history. The cataracts may be unilateral or bilateral and to allow normal visual development it is important that surgery is performed by 3 months of age. A delay in treatment leads to amblyopia.

The main causes are listed below:

- Congenital infection
  - Rubella / toxoplasmosis / varicella / syphilis
- Metabolic disease
  - Galactosaemia
- Genetic syndromes
  - Autosomal dominant/recessive
  - Cockaynes syndrome (Autosomal recessive)
  - Lowes syndrome (X linked with renal tubular acidosis)

Management

The examination of the eye involves using an ophthalmoscope to clearly view the cornea, iris and pupil and to obtain a red reflex on reflecting the fundi.

Other features that should be specifically looked for include

- Dysmorphic features
- Signs of congenital infection
- Micropthalmia

The investigations that should be considered are below:

- Urine for CMV / TORCH serology
- GAL-1-PUT
- Urine organic acids and Serum amino acids

The infant should be discussed with a paediatric ophthalmologist and early ophthalmological review arranged.

2.41 Urogenital concerns

The urogenital examination in a male infant should include examination for inguinal herniae, assessment that both testes are descended and examination of the penis for epispadias and hypospadias. The commonest abnormalities are hypospadias and undescended testes. The genitalia of a female infant should be examined to document normal female anatomy.

Circumcision

Routine circumcision is not performed at UHL.

Circumcision should be postponed in any infant in whom there are concerns e.g. sepsis, jaundice, family history of coagulation concerns.

Hypospadias

Hypospadias is a contraindication to circumcision. All parents should be informed of the importance of not having their child circumcised

This is the most common abnormality and describes opening of the urethral meatus on the ventral aspect of the phallus. There is a wide variation in severity although the majority are mild and the associated absence of ventral foreskin leads to the appearance of a hooded posterior foreskin.

In all cases

- Consider as ambiguous genitalia if testes impalpable (see below guidance on ambiguous genitalia)
- Refer to Paediatric urologist

Epispadias

This is a rare type of malformation of the penis in which the urethra ends in an opening on the upper aspect (the dorsum) if the penis. This abnormality can be associated with bladder extrophy.

- Discuss with paediatric urologist
- Perform MSU / renal function tests
- Commence infant on Trimethoprim
- Consider performing karyotype
- Admit to NNU if bladder extrophy

Hydrocele

An isolated hydrocele will resolve spontaneously and the infant does not require follow up.

- Examine for inguinal herniae
- Palpate testes and trans illuminate
- Record on NIPE examination
- Refer to GP for follow up examination as part of 6-8 week check

Vaginal Bleeding

This is common and occurs because of oestrogen withdrawal in female infants. No action needed.

Pink Urine

This is common in babies and occurs because of urates in the urine. Assess feeding and hydration but likely no action needed.

2.42 Disorders of Sex Development (DSD)

Differences or disorders of sex development (DSD) are a wide range of conditions with diverse features and pathophysiology that most often present in the newborn or the adolescent. Newborns with DSD usually present with atypical genitalia.
Optimal care of children with suspected DSD need experienced multidisciplinary team (MDT). These infants should be discussed with the Tier 2 professional and the Service Consultant.

At the point of discharge a clear letter outlining investigations, referrals and required follow up should be completed These babies do not need an admission on Badger unless meeting the criteria for Transitional care for other reasons (see guideline). All babies having investigations for DSD require their own set of notes.

Which patients need to be investigated?

- All infants with 'atypical genitalia'- fusion of labioscrotal folds, palpable gonad in labioscrotal fold, clitoromegaly
- Isolated perineal hypospadias
- Isolated micropenis – stretched penile length of < 2.5 SD from the mean/stretched penile length < 2cms in newborn
- Familial hypospadias
- Girls – isolated clitoromegaly – irrespective of gestation, length of clitoris > 8 mm needs assessment

First tier investigations in infants:

1. **Karyotype**-(QF-PCR for rapid detection of Y- and X-specific markers)
2. **17 OHP** – after 36 hours of life
3. **Glucose and electrolytes –** serial measurement after 36 hours of life to monitor for potential adrenal crisis – electrolyte abnormality do not become abnormal before 4 days of life
4. **Urine steroid profile (USP)–** random spot urine sample before treatment is commenced
5. **Pelvic ultrasound-** to determine the appearance of the internal genitalia
6. **Androgens**: Androstenedione and Testosterone
7. **Cortisol** – baseline or stimulated cortisol – can be difficult to interpret
8. **Serum LH, FSH**

- Discuss with paediatric endocrinologist for further investigation and management

Undescended Testes
Screen positive requiring Urgent senior paediatric review

- Bilateral impalpable testes,
- Unilateral impalpable testis with or without hypospadias
- Unilateral palpable testis but not located in the scrotum, with hypospadias

Treat as ambiguous genitalia especially if associated with micropenis until proven otherwise and instigate above investigations.

Bilateral undescended testes is sometimes an indication of 11 beta OH deficiency

Screen positive requiring non-urgent review

• Bilateral palpable testes but not located in the scrotum, without hypospadias
• Unilateral palpable testis but not located in the scrotum, without hypospadias

If palpable in the inguinal canal, without hypospadias record on NIPE and GP to review at 6-8 weeks if still a concern refer to Paediatric Surgical Team.

Micropenis

- Defined as stretched penile length of < 2.5 SD from the mean/stretched penile length. This is classically < 2cms in the term newborn
- A very small normally formed organ may indicate a hypogonadotrophic state. Examine testes
- Neither testis palpable
- See DSD advice above
- Both testes palpable
- Discuss with endocrinologist and Paediatric urologist

Anteriorly placed anus

An anus which is felt to be placed anteriorly should be reviewed by a Tier 2 professional and if on-going concern discussed with the paediatric surgical team

Inguinal Hernia

Inguinal hernia are more common in extremely preterm infants.

- Examine testes
- Ensure that hernia are reducible
- Discuss with surgical team
- Do not discharge until plan is made. Likely to need surgical intervention before discharge.
- Complete a discharge letter on ICE and ensure a set of notes is created for the baby.

Infants with inguinal herniae should not be sent home unless they have been discussed with a senior surgeon.

2.43 Maternal Thyroid Disease

Thyroid disease is common and maternal hyperthyroidism or hypothyroidism may have implications for the development of normal thyroid function in the neonate.

Babies born to mothers with hypothyroidism
This is only of a risk to the baby if the mother has a history of treated/burnt out hyperthyroidism therefore:

- Check maternal autoantibodies:
    - Thyroperoxidase antibodies may be positive or negative, these are not harmful to baby
    - TSH receptor antibodies may be positive if hypothyroid due to treatment of Grave's disease

Management of babies whose mothers are hypothyroid

- If antibody negative or thyroperoxidase antibody only positive routine newborn examination and blood spot only

- If TSH receptor positive/ history of previous hyperthyroidism treat as per maternal hyperthyroidism

Babies born to mothers with hyperthyroidism

Check maternal TSH receptor antibody status

If mother does not have TSH receptor antibodies and is clinically well no further action is needed.

Routine thyroid screen on newborn blood spot only.

Risk of neonatal thyrotoxicosis if:

Current maternal thyrotoxicosis on anti-thyroid medication or previous radioiodine/surgery with positive TSH receptor antibodies

Or evidence of previous neonate with thyrotoxicosis or fetal thyrotoxicosis

These babies need careful examination for signs of hyperthyroidism:

- Goitre
- Foetal tachycardia (> 160 beats per minute at rest), irritability, poor weight gain and failure to thrive
- Rarely thrombocytopenia, hepatosplenomegaly, jaundice.
- If there is clinical concern thyroid function and antibody tests should be sent.

Discuss with neonatal consultant and consider admission to NNU

If well infant:

- Observe for 48 hours on the PNW with daily documented examination by the postnatal ward Tier 1 professional

- Arrange TFTs and Thyroid Antibodies to be sent between day 5 and 10 and create a discharge letter on ICE. Babies should have their own set of notes.
- Advise parents of the above signs and symptoms of thyrotoxicosis

PARENT INFORMATION

CONGENITAL HYPERTHYOIDISM

Your baby has a small chance of becoming unwell with an overactive thyroid gland during the first few weeks. If your baby develops the following problems please take them to be reviewed at your local Children's Emergency Department or A&E immediately.

- Unsettled despite regular feeding
- Poor weight gain
- Irritability
- Jitteriness
- Staring eyes
- Vomiting
- Diarrhoea
- Sweating

A thyroid function blood test is not necessary / has been arranged for **(delete as appropriate)**:

Date / time..... Location .....

2.44 Maternal HIV infection

Refer to HIV Screening and Management in Pregnancy UHL Obstetric Guideline

An antenatal alert form should have been sent to the neonatal team prior to delivery.
This should be saved on the fetal alert drive.

Under NO circumstances should mother be documented as HIV positive on ANY forms or in the red book

Zidovudine should be started within 6 hours of birth if indicated on the antenatal plan

Venous EDTA bloods to be taken on day 1 on postnatal wards and inform laboratory between 9-4 pm that mothers EDTA sample is also due to be received.

Follow up should be arranged with the Paediatric Virology Team and a discharge letter completed at discharge detailing any medication and follow up plans

Refer to BBI specialist midwife and BBI specialist paediatrician

2.45 Maternal Hepatitis B Infection

Please see Immunisations UHL Neonatal Guideline & Hepatitis B Screening in Pregnancy UHL Obstetric Guideline

All pregnant women and people are offered antenatal screening for hepatitis B. The hepatitis B virus has three major structural antigens: surface antigen (HB_sAg), core antigen (HB_cAg), and e antigen (HB_eAg). A higher level of infectivity is associated with a mother that is HB_eAg positive and negative for the antibody to HB_e.

All mothers who are HbsAg positive are infective for hepatitis and a fetal alert should have been completed with a postnatal plan for the baby following delivery.

An infant born to a mother that is hepatitis B positive is at risk of developing chronic active hepatitis or hepatocellular carcinoma as a young adult. This risk can be reduced with immunisation in infancy.

All babies England are now offered vaccination against Hepatitis B in the routine immunisation schedule but some at risk infants will need additional vaccination at the time of birth.

There is additional risk if a mother is found to be e antigen positive and anti HBe negative and in addition to vaccination these babies should receive Hepatitis B Immunoglobulin. The need for this should have been highlighted antenatally and the product ordered. It should be available on delivery suite.

In **ALL** babies:
Document clearly in maternal and hospital notes the injections that have been given including batch number and site of injection.
Babies whose mothers have isolated Hepatitis B are followed up by the GP after their vaccination in hospital. If co-infection with Hepatitis C, HIV or on-going risk factors e.g. IV drug use then arrange follow up with Paediatric Virology.

If indicated Hepatitis B passive immunisation with immunoglobulin should be given as soon as possible after birth (ideally within 24 hours).

Babies should have venous bloods taken prior to first vaccine being given not cord bloods. The follow up vaccine appointment will be made by Children's HIV Specialist Nurse and Specialist Support Nurse once notified about delivery. Please inform Specialist Support Nurse with the relevant details, unit no, DOB, vaccine or immunoglobulin batch no given who will then visit the women with these details prior to discharge.

Complete H1 form and email to lpt.childhealthrecords@nhs.net

Send copy to GP, and email BBI specialist paediatrician and BBI specialist Midwife

2.46 Maternal Hepatitis C infection

Hepatitis C (HCV) is a blood borne virus and the factors influencing its mode of transmission remains an area of investigation. Neonatal transfer has been reported in 5% of pregnancies, but can be as high as 25% if the mother is also HIV positive. Japanese studies (where a much more severe HCV genotype is prevalent) showed that only 6% of the babies born to HCV positive mothers contracted hepatitis C. Mother to baby transmission of HCV may be increased if the mother is also infected with HIV or HBV. The likelihood of transmission from breast milk is also very small and therefore breastfeeding is not contraindicated. Perinatally acquired hepatitis C infection is a serious disease that eventually leads to chronic hepatitis and there are no current treatments or vaccinations that can prevent that. Please refer to Hepatitis C Screening in Pregnancy UHL Obstetric Guideline.

Management

The current antenatal incidence of hepatitis C is between 0.7 – 1% in this country and hepatitis C is not yet routinely screened for on antenatal serological testing at this hospital.

If a mother is known to be hepatitis C positive:

- Check for results of HIV and Hep B serology
- Check midwifery notes for any evidence of maternal IV drug use
- Organise a referral letter to paediatric virologist who will then arrange blood tests in 3 months.
- ***The diagnosis on Discharge letter should read "Maternal blood borne infection"***
- Refer to BBI specialist paediatrician

2.47 Herpes Simplex Infection

See Neonatal Herpes Simplex UHL Neonatal Guideline for specific guidance on management of baby's at risk of this infection.

Neonatal herpes can be acquired during delivery and occurs secondary to maternal genital herpes in 85% of cases (this maybe asymptomatic maternal infection). The incidence of neonatal HSV born to mothers with active herpes is estimated at 50%. There are four presentations:

- Localised (skin, mouth, eyes)
- Generalised (liver, adrenals, lungs, brain)
- Pneumonitis
- Meningoencephalitis

Infants are at increased risk if the mother has primary active herpes and they were delivered vaginally or by LSCS after rupture of membranes. If the mother has recurrent herpes the risk to the baby is significantly reduced. The presence of active lesions at the time of delivery is of importance.

2.48 Chickenpox

Varicella (chicken pox) is the primary infection with Varicella Zoster Virus (VZV). The incubation period is 14-21 days. Chickenpox can have potentially life-threatening complications like pneumonia, hepatitis, encephalitis, maternal death, fetal varicella syndrome and varicella infection of newborn. If a woman or person develops chickenpox in the first 28 weeks of pregnancy, they have a small risk of developing fetal varicella syndrome and this should have been discussed with them.

Women and people who have developed chickenpox in pregnancy should have been referred to a fetal medicine specialist at 16-20 weeks or 5 weeks after infection for detailed ultrasound examination of the fetus and discussion. Please review the results of any such imaging. The mother may have undergone an aminocentesis to detect varicella DNA in the amniotic fluid and this result if available should be discussed with a virologist.

The highest risk to the baby of contracting chicken pox in the newborn period occurs in the last trimester of pregnancy. Ideally, a minimum of 7 days should elapse between onset of rash and delivery providing continuing the pregnancy does not pose any additional risk to mother or baby. The baby is at high risk of varicella infection which has significant morbidity and mortality. The risk of acquiring this is highest if maternal infection occurs in the last 4 weeks of a pregnancy.

Any baby who has been exposed in this scenario should have their management discussed with the virology consultant and the attending neonatal consultant. It likely that those infants most at risk will require:

- Testing for Varicella and their immunological response to potential exposure
- Aciclovir while awaiting results of virology testing
- Varicella immunoglobulin to decrease the impact of any potential infection
- Source Isolation from other babies and mothers

Please see Chickenpox in Pregnancy UHL Obstetric Guideline and the Chicken Pox Exposure UHL Childrens Hospital Guideline for the management of children with chicken pox exposure

2.49 Mothers who have tested positive for Syphilis in Pregnancy

Please refer to Syphilis in Pregnancy UHL Obstetric Guideline

- Babies at risk should have been highlighted through the fetal alert system and a management plan proposed.
- Bloods to be taken prior to discharge- 1 ml white top bottle
- Test requested “Treponemal Serology”
- Clinical Details “Maternal blood borne disease”

Under no circumstance should Mum be documented as having “Syphilis” on forms or in Red book

2.50 Antenatal Parental Concerns

Antenatal maternal concerns include:

- Maternal/Paternal drug or alcohol abuse
- Previous concern regarding safeguarding issues
- Social Service concerns

These babies should have been highlighted antenatally through an 'A form' and a fetal alert may be available on the shared drive with details of a postnatal plan for mother and baby. It is important that the attending Consultant is made aware of these concerns and that the situation is discussed with the Social Services via the hospital safeguarding team before discharge is agreed. A planning meeting may need to be arranged prior to discharge.

If you have new safeguarding concerns that become apparent postnatally which have not been highlighted in pregnancy these must be raised via the hospital safeguarding team verbally and followed up in writing by completion of an A form.

Further details are available via Insight:
http://insitetogether.xuhl-tr.nhs.uk/Divisions/Corporate/Safeguarding-Children/Pages/default.aspx

Maternal Substance Misuse

Key Points:
1. A paediatric alert form should have been completed on each mother where there is known, habitual substance misuse and who are under the care of the specialist midwife for substance misuse. This should be sent to the neonatal unit and a copy filed in the patient's hospital notes.

2. It is important to note the results of antenatal serology testing and social circumstances as well as the drugs and dosages to which the fetus was exposed during pregnancy

3. Infants should be managed on the postnatal wards where at all possible

4. All **at risk** infants should remain in hospital for at least 72 hours of observation following birth. This **does not** apply for mothers and babies where there are no on-going concerns about substance misuse e.g. those who may have used in the past, but are not doing so currently.

5. Little is known about NAS in preterm babies and responses are likely to be different from those in term infants. As yet there is no recognised method of identifying signs and symptoms or defining severity of withdrawal.

6. Note that there may be additional diagnoses in NAS infants – ***Do Not Assume all symptoms are due to withdrawal.***

7. If develops persistent symptoms of withdrawal despite conservative measures discuss with Neonatal Consultant further management. Very few babies require pharmacological intervention.

Narcan (Naloxone) must not be given to infants of drug (opiate) abusers as it may precipitate seizures

Please see Substance Misuse in Pregnancy UHL Obstetric Guideline

Maternal Antidepressant Use

Neonates that have been exposed to maternal SSRI have previously been observed on the postnatal ward for up to 72 hours due to concerns of poor adaptation including persistent pulmonary hypertension of the new born. A retrospective review conducted in 2022 of 211 infants born to mother's receiving SSRI showed that they did not require admission to the neonatal unit. In addition, all 143 available pulse oximetry screening tests were satisfactory. Current advice, therefore, is to discharge infants exposed to maternal SSRI following satisfactory pulse oximetry screening in line with NEWTT2 recommendations. Safety netting advice should be given to all parents including information to not assume symptoms such as jitteriness and irritability are due to withdrawal and advice to seek medical review for any developing symptoms. .

Maternal Prescribed Medication and Breast Feeding

Some prescribed medications may have implications for breastfeeding predominantly cytotoxic drugs. Up to date information on the amount of drug bioavailable in milk and signs and symptoms of toxicity in the infant can be obtained from the UHL pharmacy team They may seek additional advice from the UK Drugs in lactation advisory service (UKDILAS)

UKDILAS is available during the centres' main opening hours - 09:00 am until 17.00 pm, Monday to Friday, excluding Bank Holidays.
To contact the service:

- Telephone: 0116 258 6491
- Email: ukdilas.enquiries@nhs.net

We should encourage and actively support breast feeding. There are very few medications which taken would completely contraindicate breast feeding. A mother should NOT be told that breast feeding is contraindicated until all the facts about her treatment are known and while this information is obtained she should be supported to express her milk so as not to adversely affect her milk supply.

2.51Skin concerns

There are many skin rashes and marks that occur in the early neonatal period. Most of these are benign and do not cause significant concerns

Skin tags

Pre auricular skin tags.
Ensure has screening audiology before discharge
Consider referral to Plastic Surgeon if significant

Paronychia

This is infection of the nail bed and is potentially serious.
Culture affected area.
Give 5 days of oral flucloxacillin
If infant unwell admit for infection screen and use systemic antibiotics.

Umbilical discharge with periumbilical flare

Swab affected area
Consider giving 5 days of oral flucloxacillin or 48 hours of IV antibiotics followed by oral antibiotics to complete a 7 day course if systemically unwell

Umbilical Granulomas
Please see:
PT-Understanding-umbilical-granuloma-FINAL-VERSION-10.8.22.pdf (ihv.org.uk)

Erythema toxicum
Also known as erythema neonatorum or neonatal urticaria. This is of no clinical significance. It consists of tiny "pustules" containing eosinophils surrounded by polygonal areas of erythema. They are most common on the trunk and rather rare on the limbs and appear about the second day of life, peak at 4 days and then subside.

Cutis Marmorata

Cutis marmorata is a reticulated mottling of the skin that symmetrically involves the trunk and extremities. It is caused by a vascular response to cold and generally resolves when the skin is warmed. A tendency to cutis marmorata may persist for several weeks or months, or sometimes into early childhood. No treatment is indicated.

Harlequin Colour Change

Harlequin colour change occurs when the newborn lies on his or her side. It consists of erythema of the dependent side of the body with simultaneous blanching of the contralateral side. The colour change develops suddenly and persists for 30 seconds to 20 minutes. It resolves with increased muscle activity or crying. This phenomenon affects up to 10 percent of full-term infants, but it often goes unnoticed because the infant is bundled. It occurs most commonly during the second to fifth day of life and may continue for up to three weeks. Harlequin colour change is thought to be caused by immaturity of the hypothalamic centre that controls the dilation of peripheral blood vessels.

Transient Neonatal Pustular Melanosis

Transient neonatal pustular melanosis is a vesiculopustular rash that occurs in 5 percent of black newborns, but in less than 1 percent of white newborns. In contrast with erythema toxicum neonatorum, the lesions of transient neonatal pustular melanosis lack surrounding erythema. In addition, these lesions rupture easily, leaving a pigmented macule that fades over three to four weeks. All areas of the body may be affected, including palms and soles.

Clinical recognition of transient neonatal pustular melanosis can help doctors avoid unnecessary diagnostic testing and treatment for infectious aetiologies. The pigmented macules within the vesicopustules are unique to this condition; these macules do not occur in any of the infectious rashes. Gram staining of the pustular contents will show polymorphic neutrophils and, occasionally, eosinophils.

Acne Neonatorum

Acne neonatorum occurs in up to 20 percent of newborns. It typically consists of closed comedones on the forehead, nose, and cheeks, although other locations are possible. Open comedones, inflammatory papules, and pustules can also develop. No treatment is usually necessary.

Milia

Milia are 1- to 2-mm pearly white or yellow papules caused by retention of keratin within the dermis. They occur in up to 50 percent of newborn. Milia occur most often on the forehead, cheeks, nose, and chin, but they may also occur on the upper trunk, limbs, penis, or mucous membranes. Milia disappear spontaneously, usually within the first month of life, although they may persist into the second or third month.

Congenital Dermal Melanocytosis (Blue spot)

Very common and of no clinical significance other than the importance of clear documentation on the body map in the red book to ensure they are not mistaken for bruises after discharge.

2.52 Sticky Eyes

The naso-lachrymal duct may not canalise completely until after 6 months of age and this leads to poor drainage of tears and sticky eyes. In these cases regular cleaning with sterile (boiled then completely cooled) water may be appropriate.

If there is a purulent discharge:

- Only swab (gram stain and culture, chlamydia (special container)) if treating with topical antibiotics
- Start Chloramphenicol treatment
- If Gonococcus is seen start systemic penicillin and review sensitivities
- If Chlamydia is diagnosed treat with tetracycline drops and oral erythromycin for 10 days
- In the case of gonococcus or Chlamydia the mother should be seen in referred to the GU clinic

DO NOT SWAB AND WAIT FOR RESULTS

2.53 Coagulation concerns

Haematemesis

This may occur soon after delivery and is usually due to swallowed maternal blood. If bleeding is not considered to be maternal do the following:

- Admit infant to the neonatal unit
- Perform following investigations
- FBC / clotting studies / group and X-match (fresh blood).
- Give Vit K if not previously administered by IM route.

Rectal Bleeding

Some babies have a little fresh blood in their stools usually from an anal fissure and malaena may represent swallowed maternal blood or bleeding from higher up the GI tract:

Following review if clinical concern about the baby:

- Admit infant to the neonatal unit
- Consider Surgical Cause
- Also consider cows milk allergy / lactose intolerance / meckel's diverticulum.

If there is profuse bleeding:

- Refer to Paediatric Surgeon
- Do the following investigations:
- FBC / clotting studies / group and X-match (fresh blood).
- Give Vit K if not previously administered by IM route.

NEC can present in term babies and should be included as a differential diagnosis in any baby who is in any way unwell.

Haemoglobinopathies

Babies born to parents who have known carrier status for the common haemoglobinopathies should have a fetal alert with a plan of care with regard to post-natal testing outlined within.

Electrophoresis: 1 EDTA sample drawn on day 1 if paediatric alert received by SCAT team (Special Haematology, Email link person, Letter to SCAT team, LRI)

3. Education and Training

None

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Adherence to the use of NEWS	Audit of compliance	NNU Consultant	Annual	Local audit group
Postnatally diagnosed Group B strep in mother and outcomes for babies	Audit	NNU Consultant	Annual	Local audit group
Babies antenatally exposed to SSRIs, to ensure adapted guidance for observation continues to be safe.	Audit	NNU Consultant	Annual	Local audit group
All newborn babies have a full newborn assessment by a midwife or paediatrician as soon as possible after birth. The newborn assessment is documented within the mother's Intrapartum notes. Where there are suspected deviations from the norm, these are referred to the neonatal team for further assessment, investigation or treatment	Retrospective case note review	Senior midwives for Intrapartum Services	Quarterly	Maternity Governance Group Neonatal Q&S Group

5. Supporting References

Neonatal Transitional Care UHL Neonatal Guideline
Newborn Infant Physical Examination (NIPE) UHL Maternity and Neonatal Guideline
NPulse Oximetry Screening for the Newborn Infant UHL Obstetric Guideline
Weighing of Well Term Babies UHL Obstetric Guideline
Thermal Protection of the Newborn UHL Obstetric and Neonatal Guideline
Unaccompanied Babies Standard Operating Procedure UHL Maternity Guideline
Hypoglycaemia - Neonatal UHL Neonatal Guideline
Polyhydramnios UHL Neonatal Guideline
Antibiotics for Neonatal Infection UHL Neonatal Guideline
Group B Streptococcus in Pregnancy and the Newborn UHL Obstetric Guideline
Anti D Immunoglobulin UHL Obstetric Guideline
Brachial Plexus Injury UHL Neonatal Guideline NNU
HIV Screening and Management in Pregnancy UHL Obstetric Guideline
Immunisations UHL Neonatal Guideline
Hepatitis B Screening in Pregnancy UHL Obstetric Guideline
Hepatitis C Screening in Pregnancy UHL Obstetric Guideline.
Neonatal Herpes Simplex UHL Neonatal Guideline
Chickenpox in Pregnancy UHL Obstetric Guideline
Chicken Pox Exposure UHL Childrens Hospital Guideline
Syphilis in Pregnancy UHL Obstetric Guideline
Substance Misuse in Pregnancy UHL Obstetric Guideline

GOV.UK March 2024 https://www.gov.uk/government/publications/newborn-and-infant-physical-examination-programme-handbook/newborn-and-infant-physical-examination-screening-programme-handbook

6. Key Words

Fetal alerts, NEWTT2, NIPE, Pulse-oximetry, Transitional care

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The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

Contact and review details			
Guideline Lead (Name and Title) Jane Gill – Consultant Sumit Mittal – Consultant medical guidelines lead			**Executive Lead: Chief Medical Officer**
Original Author/s: V Kairamkonda, Consultant Neonatologist			
Details of Changes made during review:			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**

2004	**1**		
2008	**2**		
2011	**3**	E Boyle, Consultant Neonatologist	
2015	**4**	J Behrsin, Consultant Neonatologist	
2020	**5**	Neonatal Guideline Meeting Neonatal Governance Meeting	
June 2023 **Dec 2023** **Jan 2024**	**6**	Neonatal Guideline Meeting Neonatal Governance Meeting Maternity guidelines group	Added - Newborn weight loss 8.1% -10% triggers assessment Updated feeding guide in line with the weighing term babies guideline Added monitoring recommendations for all newborns Added polyhydramnios management section Actions following identification of GBS post-delivery review parameters changed from <48 &>48 hrs to <24 & >24 hrs Jaundice, Outpatient follow up with NNU Cons in 6-8 weeks replaced with - on-going folic acid & NNU Cons follow up only for those who have clinical or haematological evidence of haemolysis. Dysmorphic features added genetic testing advice. Cardiology referral process updated Updated disorders of sexual development Reformatted throughout
September 2024	**6**	Updated in line with agreed changes made across the CMG in line with NEWTT2 & NHS England Newborn examination	Pulse oximetry 2-4 after birth in line with local guideline update Reference to NEWS replaced with NEWTT2 Testes examination referrals updated in line with NHS England April 2024

Appendix 1 – Standard Operating Procedure for Outpatient Referrals for follow up from the Postnatal Wards

Scope: This SOP is intended for all doctors, ANNPs and Neonatal Nursing Assistants (NNAs) who work on the postnatal wards at LRI and LGH.

Key Points:
1. Referrals are the joint responsibility of doctors, ANNPs and NNAs.
2. Clear communication is needed between team members to ensure that all necessary referrals are generated in a timely manner before or at the point of discharge (e.g. using the Pando system or ward diaries)
3. Referrals can be generated using the contact details and forms in this guideline
4. Copies of the completed referrals sent by email should be printed out, signed and dated by the sender and filed in the baby's notes
5. Referrals that need to be completed by hand should be scanned to create a pdf copy which can be emailed and the original signed dated and filed in the baby's notes.
6. Immediate clinical management is not covered by this document- see condition specific guidelines (linked below).

Background:
When reviewing babies on the postnatal wards it is often necessary to refer them for further investigations and/or follow-up after discharge. Referrals may be generated from antenatal alerts, NIPEs or new clinical issues that arise during the baby's admission to the postnatal ward. It is important that these referrals are made in a timely manner to prevent babies' follow up being delayed or missed.

Types of Referrals:

- Babies who require neonatal consultant follow-up (to be discussed with the service consultant prior to referral)
- Babies born to mothers with blood-borne infections
    - Hepatitis B
    - Hepatitis C
    - HIV
    - Syphilis
- Babies born to mothers with sickle cell or thalassaemia
- Babies with renal tract abnormalities (refer to guideline on congenital abnormalities of the renal tract for further information on managing these babies)
- Babies with a cleft palate (antenatally or postnatally diagnosed)
- Extended hearing screening referral for babies with high gentamicin levels or significant congenital ear abnormalities
- Babies with abnormalities found on the NIPE:
    - Cardiology referrals (e.g. murmurs)
    - Urology referrals (e.g. hypospadias)
    - Orthopaedic referrals (e.g fixed talipes)
    - Accessory or fused digits
    - Dislocatable/dislocated hips (follow the correct referral pathway)
    - Ophthalmology
- Family, Young Persons and Children's Services with confirmed Trisomy 21

Referrals to other teams e.g. haematology, need to be arranged directly with the corresponding team via their on-call service.

Referral Process:

Once a need for a referral has been identified, a discussion should take place between the NNA and the doctor or ANNP covering the postnatal ward to identify which team member will complete the referral. Referrals are the responsibility of the whole clinical team, not just the Neonatal Assistants.

All referrals should be made in a timely manner, preferably before the baby is discharged home and always before the notes are sent to filing or the secretaries. If the baby remains on the postnatal ward then it should be clearly documented on Pando whether the referral has been completed or is still pending.

Once done, a copy of the referral form should be printed out, signed and dated including the date and time of being emailed including the name of the person emailing and filed in the baby's notes.

It is important to note the email address and name of the person sending the referral if by email as this provides an auditable trail if referrals go astray.

Referral Forms:

All team-specific referral forms can be found in a specific folder on the Teams channel and in. Paper copies may be available in the NNAs room on ward 5. If they cannot be accessed at the time of the referral then there is a generic template referral form.

Contact details:
Type of Referral Referral Form Contact Details

- Cardiology Cardiology referral form (Appendix 1) Email referral to: paediatriccardiologyteamreferrals@uhl-tr.nhs.uk
- Cleft palate team Via phone following birth of antenatally diagnosed baby, or on discovery of the cleft postnatally Contact 0115 969 1169 Ext 79730 On-call cleft nurse specialist via QMC switchboard Tel: 0115 924 9924
- Dislocatable/dislocatedhips – see PNW guideline for details if hips are dislocatable Generic referral form. Email baby's details to: babyscanclinic@uhl-tr.nhs.uk
- Accessory or fused digits Plastics referral form (For Mr Yii) (or use generic referral) formEmail referral to: patricia.brady@uhl-tr.nhs.uk Patient pathway coordinator
- Extended Hearing Screening for high gentamicin levels or congenital ear abnormalities Send details via email Email to: eds.audiology@uhl-tr.nhs.uk
- Family, Young Persons and Childrens Services FYPC form (Appendix 1) Email FYPC form to: fypc.referrals@nhs.net