University Hospitals Sussex
NHS Foundation Trust

Newborn Feeding

Maternity Protocol: MP072

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Manager responsible:	Amanda Clifton
Author:	Anouk Lloyd
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Contents

Key Principles

A protocol is a set of measurable, objective, standards to determine a course of action. Professional judgement may be used in the application of a protocol.

Scope

This guideline applies to all women, mothers, and babies receiving care from the Brighton & Sussex University Hospitals NHS Trust, Directorate of Women and Children's Health. Whilst this guidance uses the words women, mother and breastfeeding we also acknowledge that not all pregnant or birthing people identify as women or mothers and some choose to use the words chest and chest feeding. All staff should be respectful of with the use of chosen pronouns and language choices.

Responsibilities

Midwives, Nursery Nurses, Maternity Support Workers, Maternity Care Assistants, Paediatricians.

- To access, read, understand and follow this protocol.
- To clearly document any practice which deviates from the protocol and give rationale for doing so. This would only occur in exceptional circumstances.

Management:

- To ensure that the protocol is reviewed annually in line with Baby Friendly Initiative requirements.
- To ensure that the protocol is accessible to all relevant staff.
- To ensure that the protocol is available to service users on request.

1 Policy Statement and Rationale

The purpose of this protocol is to ensure that all staff at Brighton and Sussex University Hospitals Trust understands their role and responsibilities in supporting expectant and new mothers and their partners to feed and care for their baby in ways which support optimum health and well-being.

All staff are expected to comply with this policy. This Policy is based on the UNICEF Baby Friendly Initiative standards which are recognised as the standard for best practice in promoting, supporting and sustaining breastfeeding and early infant relationships.
The Policy is also supported by NICE guidance (April 2021) and sets out the Trust's process for supporting mothers who are both breast and formula feeding. This policy relates to Maternity, Neonatal and Paediatric Services.

2 Aims and Objectives

Breastfeeding is an important health issue and its positive impact on the short and long term health of mothers and newborns is well documented.

The aim of this breastfeeding protocol is to show the University Hospitals Sussex (Brighton and Sussex University Hospitals) commitment, to promoting, protecting, and supporting breastfeeding, by providing the highest standard of care, to support expectant and new mothers and their partners to feed their baby and build strong and loving parent-infant relationships. This is in recognition of the profound importance of early relationships to future health and well-being, and the significant contribution that breastfeeding makes to good physical and emotional health outcomes for children and mothers. This policy aims to ensure that the health benefits of breastfeeding and the potential health risks of formula feeding are discussed with all women so that they can make an informed choice about how they will feed their baby.

3 Outcomes

This policy aims to ensure that the care provided improves outcomes for children and families, specifically to deliver:

- An increase in breastfeeding initiation rates in Maternity and Neonatal Services
- An increase in the number of babies on the Neonatal Unit receiving breastmilk.
- An increase in breastfeeding rates at discharge and at 10 days
- Amongst mothers who choose to artificially feed, an increase in those doing so as safely as possible, in line with nationally agreed guidance.
- Improvements in parents' experience of care
- A reduction in the number of re-admissions for feeding problems

4 The purpose of the breastfeeding protocol

The purpose of this protocol is to promote breastfeeding and safe feeding practices by:

4.1 Ensuring that all staff understands their role and responsibilities in supporting expectant and new mothers and their partners to feed and care for their baby in ways which support optimum health and wellbeing; by providing a clear and concise framework within which staff must practice, with regards to newborn feeding. Any deviation from the protocol must be documented and justified. This would only occur in exceptional circumstances.

4.2 Familiarising new staff with the protocol within one week of appointment.

4.3 Performing a bi-annual review of this protocol, for updating and maintaining relevance.

4.4 Showing the trust commitment to promoting and protecting breastfeeding by making both the staff protocol readily available and client guidelines to the protocol visible in all relevant areas including areas that serve mothers and babies.

4.5 Creating an environment where women are more likely to initiate breastfeeding and to receive appropriate information, which is in line with government guidelines for exclusive breastfeeding for six months and as part of a mixed diet, through to two years and beyond, if this is what they wish.

4.6 Providing a programme of education for all staff appropriate to their position. New employees will receive an induction day within six months of starting employment. All staff must attend all breastfeeding training and complete the workbook and meet with a BFI Key trainer within six weeks of attending the BFI induction day.

4.7 A curriculum for all training will be available and should be audited with regards to uptake, and training standards.

4.8 Forbidding the promotion of artificial milks, bottles, teats and dummies in line with the WHO Code for the Marketing of Artificial Milk and other breast milk substitutes.

4.9 Ensuring that literature provided by the Trust is not sourced from artificial milk companies or containing of any adverts or promotional products pertaining to newborn feeding.

5 Definitions

The infant feeding policy covers breastfeeding and formula feeding. Breastfeeding can be defined as giving human breastmilk to infants to meet their nutritional needs. The nutrients in breastmilk are unique and provide optimal health and immunological benefits for both

mother and child. Infant formula is a food manufactured, usually from modified cow's milk, to support growth of infants under 6 months of age. It is an artificial substitute for feeding infants and does not provide the same health outcomes as breastmilk.

6 Care standards

This is the care the Trust is committed to giving each and every expectant mother and new family. It is based on the UNICEF UK Baby Friendly Initiative standards for both Maternity and Neonatal Services and relevant NICE guidance.

6.1 Pregnancy

6.1.1 All women will be given the opportunity to discuss feeding and caring for their baby with a midwife in the pregnancy, on a one to one basis or with their partner. How and when this happens may vary from mother to mother. It may be appropriate to begin this conversation quite early on in the pregnancy and thread it through the rest of the care, incorporating different topics as the mother approaches the end of her pregnancy. It is recommended that the following topics have been covered by 34 weeks:

- The value of connecting with their growing baby in utero.
- The value of skin to skin for all mothers and babies.
- The importance of responding to their baby's need for comfort, closeness and feeding after birth, and the role that keeping their baby close has in supporting this.
- Feeding, including:
- Finding out what the mothers thoughts and feelings are, with regards feeding and caring for her baby.
    - An exploration of what parents already know about breastfeeding.
    - The value of breastfeeding as protection, comfort and food.
    - Getting breastfeeding off to a good start.

6.2 Information given should be supported with the off to a Good Start leaflet and Building A Happy Baby leaflet, directions to the BSUHT maternity website: https://www.bsuh.nhs.uk/maternity/

6.3 When women have a medical condition which may affect the physiology of lactation, an appropriate plan should be made with the mother and midwife (or Infant Feeding Midwife) to assist the initiation and maintenance of lactation. Antenatal women will not be shown how to make up a bottle of manufactured milk.

6.4 **Birth**

6.5 All women will be offered uninterrupted Skin to Skin contact with their baby in an unhurried environment. This should last at least an hour or until after the first feed, or until mother wants to end skin to skin (early cessation should not be prompted by the midwife).The midwife providing care should document in the maternal notes the occurrence and length of time of skin to skin contact.

6.6 All women must be given the opportunity to feed their baby whilst on labour ward (or at home) following delivery while the baby is skin to skin and showing signs of readiness to feed. Assistance should be offered by the midwife providing care, or a support worker.

6.7 When women choose to formula feed they will be encouraged to offer the first bottle feed in skin contact. Subsequent formula (bottle) feeds should also be encouraged in skin contact.

6.8 Transfer to the postnatal area should not interfere with skin to skin. Women should be encouraged to continue putting the baby skin to skin over the next few days by the health professional or support worker providing care. Allowances should be made for the postnatal area being cooler, and the baby suitably covered whilst in skin to skin.

6.9 When it has been necessary to separate mother and baby due to clinical need then skin to skin should be achieved as soon as possible. Partners can also give their baby skin to skin.

7 Skin to skin safety considerations

Vigilance of the baby's well-being is a fundamental part of postnatal care immediately following and in the first few hours after birth. For this reason, normal observations of the baby's temperature, breathing, colour and tone should continue throughout the period of skin-to-skin contact in the same way as would occur if the baby were in a cot (this includes calculation of the Apgar score at 1, 5 and 10 minutes following birth). Care should always be taken to ensure that the baby is kept warm. Observations should also be made of the mother, with prompt removal of the baby if the health of either gives rise to concern.

Staff should have a conversation with the mother and her companion about the importance of recognising changes in the baby's colour or tone and the need to alert staff immediately if they are concerned.

It is important to ensure that the baby cannot fall onto the floor or become trapped in bedding or by the mother's body. Mothers should be encouraged to be in a semi-recumbent position to hold and feed their baby. Particular care should be taken with the position of the baby, ensuring the head is supported so the infant's airway does not become obstructed.

Notes – Mothers

Observations of the mother's vital signs and level of consciousness should be continued throughout the period of skin to skin contact. Mothers may be very tired following birth, and so may need constant support and supervision to observe changes in their baby's condition or to reposition their baby when needed.

Many mothers can continue to hold their baby in skin to skin during perineal suturing, providing they have adequate pain relief. However a mother who is in pain may not be able to hold her baby safely. Babies should not be in skin to skin contact with their mothers when they are receiving Entonnox or other analgesics that impact consciousness.

Notes – Babies

All babies should be routinely monitored whilst in skin-to-skin contact with mother or partner.
Observation to include:

- Checking that the baby's position is such that a clear airway is maintained: Observe respiratory rate and chest movement and 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.

Always listen to parents and respond immediately to any concerns raised

8 Support for breastfeeding

8.1 Mothers who are enabled to achieve effective breastfeeding according to their needs (including appropriate support with positioning and attachment, hand expression and the signs of effective feeding). This will continue until the mothers are feeding confidently. If a baby does not feed spontaneously in the first four hours of life, or does not spontaneously feed again within 6 hours of life, the "care of the baby who is reluctant to feed" flowchart (Appendix 4) will be instigated.

Mothers will have the opportunity to discuss breastfeeding in the first few hours after birth as appropriate to their own needs and those of their baby. The discussion will include information on responsive feeding and feeding cues. Mothers and babies will not be routinely separated on the wards.

A formal feeding assessment will be carried out using the breastfeeding assessment tool in Badgernet and as often as required, with a minimum of 2 assessments in the first week, and always to include;

- prior to discharge from hospital (or leaving house if homebirth)
- first postnatal visit by community midwife
- day 5

The rationale for doing this is to adequately assess breastfeeding in a standardised manner, to ensure effective feeding and the wellbeing of mother and baby.

Before discharge home, breastfeeding mothers will be given information both verbally and on the Badgernet app about recognising effective feeding and where to call for additional help if they have any concerns. All mothers will be made aware of the importance of wet and dirty nappies in the baby, with an emphasis on changing stool from birth to day 5. Mothers will be advised to contact the community midwives if there is an absence of dirty nappies. Mothers should be directed to the 'Off to the Best Start' leaflet or The Mothers and Others Guide, demonstrating stool colour change.

All breastfeeding mothers will be informed about how to contact our 24hour support service, local support service for breastfeeding and directed to the postnatal booklet to access the updated breastfeeding drop in information and national helplines.

9 Responsive feeding

The term responsive feeding is used to describe a feeding relationship which is sensitive, reciprocal, and about more than nutrition. Staff should ensure that mothers have the opportunity to discuss this aspect of feeding and should reassure mothers that: breastfeeding can be used to feed, comfort and calm babies; breastfeeds can be long or short; breastfed babies cannot be overfed or 'spoiled' by too much feeding, and breastfeeding will not, in and of itself, tire mothers any more than caring for a new baby without breastfeeding. Most babies will feed between 8-12 times in 24 hours. UNICEF UK's responsive feeding info-sheet: unicef.uk/bf-responsive

10 Exclusive breastfeeding

10.1 Mothers who breastfeed will be provided with information about why exclusive breastfeeding leads to the best outcomes for their baby and why it is particularly important during the establishment of breastfeeding.

10.2 When exclusive breastfeeding is not possible, the value of continuing partial breastfeeding will be emphasised and mothers will be supported to maximise the amount of breastmilk their baby receives.

10.3 Mothers who give other feeds in conjunction with breastfeeding will be enabled to do so as safely as possible and with the least possible disruption to breastfeeding. This will include appropriate information and a discussion regarding the potential impact of introducing a teat when a baby is learning to breastfeed.

10.4 A full record will be made of all supplements given, including the rationale for supplementation and the discussion held with parents and should be completed on Badgernet.

10.5 Supplementation rates will be audited.

Modified feeding regimes

10.6 There are a number of clinical indications for short term modified feeding regime in the early days after birth. Examples include: preterm or small for gestational age babies and those who are excessively sleepy after birth. Frequent feeding, including a minimum number of feeds in 24hours, should be offered to ensure safety.

10.7 And hypoglycaemia protocol needs to be implemented as per: https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2010/10/hypo_policy.pdf

10.8 Babies that may require modified feeding regimes are identified as:

- Intrauterine growth restriction, or small for gestational age
- Infants of diabetic mothers
- Maternal beta blocker use
- Gestation <37 weeks at birth
- Moderate to severe birth asphyxia
- Hypothermia

11 Hand expressing

Hand expressing is a skill all women should be taught and can be invaluable in the early days of breastfeeding.
Women should be encouraged to read the trust guide to hand expressing and be offered colostrum syringes at 36 weeks antenatally.
All women should be taught the skill of hand expressing, along with breast massage within 6 hours of birth. It is also an ideal method of expressing milk in the first few days.
Colostrum is low in volume and may get lost in the pump.
Helping a mother to maintain her milk supply whilst providing colostrum for her baby can help build her confidence and help avoid unnecessary infant formula. Breastmilk flow is reliant on oxytocin, which can be inhibited by anxiety or embarrassment. If a mother has attempted unsuccessfully to hand express, ask a colleague to go through the technique again.
Ensure leaflets from Trust website my Pregnancy Matters and knitted breasts are taken to the bedside to assist demonstration.
When the baby is not breastfeeding because of illness, prematurity, or some specific breastfeeding problem, the initiation, establishment and maintenance, of lactation is dependent on expressing.

Women should be supported to express 8-10 times in 24hours including once at night in order to initiate and maintain lactation.

12 Using an electric breast pump

Breast massage followed by hand expressing 8-10 x in 24hrs should always be used in the first few days, as this is the best way to collect colostrum. However women who deliver extremely low birth weight babies or babies <34 weeks can combine hand expressing with early pump use, using the initiate/stimulation setting within 2 hours of birth. Research has demonstrated increased milk production when combining these methods. (Lussier 2015)

- On the second day, all women who are experiencing breastfeeding difficulties will be shown how to use an electric double pump, alongside continued hand expressing on the postnatal ward.
- Women will be informed that at least 8-10 expressions in 24 hours are required, including at least one night expression.
- While establishing lactation women are encouraged to express for 15 minutes. Milk flow may cease before this.
- Once full lactation is established women should be encouraged to express for at least 15 minutes but not more than 30 minutes.
- Women will be informed how to obtain suitable equipment. A hospital grade pump may be beneficial when expressing, in the longer term.

13 Supplementation

13.1 Breast fed babies should not be offered anything other than breast milk.

13.2 Artificial supplements should only be given where medically indicated with informed consent from the mother. The reason should be clearly documented in Badgernet by the midwife, ANNP or neonatologist providing care. When medically indicated artificial supplementation has been introduced, a plan to support breastfeeding/lactation and reduce artificial supplementation, should be put in place.

13.3 Any other supplementation which is not medically indicated must only be given if the mother has made a fully informed choice and alternative management strategies offered. All discussions with and decisions made by the mother should be clearly documented by the health professional providing care. Should the baby be given any supplement which is not medically indicated, as a result of informed choice by the mother, it is preferable to avoid a teat.

13.4 Where supplementation is medically indicated it is preferable to avoid artificial teats in a breast fed baby. A syringe, feeding cup, spoon or finger feeding can be used instead. Some babies receiving transitional or special care may be given supplementation by nasogastric tube.

13.5 Breastfeeding women will not routinely be shown how to make up artificial milk.

14 Syringe feeding (Appendix A – Patient Information leaflet)

For babies who aren't yet feeding at the breast, syringe feeding is used to give a baby small amounts (<2mls) of colostrum that would otherwise get lost in a cup.
To syringe feed safely, health professionals should teach this skill and support parents until they are confident to syringe feed their baby themselves.
The baby should be held in the mother's arms, slightly upright and a 1ml oral syringe placed gently in between the gum and the cheek. A little colostrum is gently dripped into the cheek cavity (no more than 0.2ml at a time), allow the baby to suck and swallow before continuing.
Move onto cup feeding once you have more than 2-5mls of colostrum. Babies should not be discharged home syringe feeding.

15 Cup feeding (Appendix A – Patient information leaflet)

Cup feeding may be an interim measure whilst supporting a baby to transition to the breast or providing breastfed babies with additional supplementation.
Cup feeding encourages the baby to practice tongue movements, enhances digestion by stimulating saliva and allows the baby to control the rate of milk given. It can be used when volumes are greater than 5ml.
It does not risk causing nipple confusion or babies imprinting onto a teat. Healthcare professionals should teach this skill and support parents until parents are confident to cup feed their baby themselves.
Volumes should be offered around 5-10mls each cup which can be refilled until the required volume has been taken and the overall volume documented. Cup feeding is a short term method of feeding and it is not routine policy to discharge a baby home cup feeding.
Babies have a need to suck and generally a teat may be offered around day five, as volumes have increased and the baby will have a chance to suck.

15.1 Contraindicated in:
- Infants with poor gag reflex, increases the risk of aspiration
- Babies who are lethargic and/or have very poor sucking reflex
- Babies who have marked neurological deficits

16 Safe Cup Feeding

- The baby should be awake and alert. Never cup feed a sleepy lethargic baby.
- Explain cup feeding to parents and gain consent
- Wash hands and gather feeding cup and EBM
- Wrap baby securely to prevent milk spillage
- Support the baby in a semi-upright position on your lap, to avoid the **RISK OF ASPIRATION**
- Place the brim of the cup at the corners of the baby's mouth, with it gently resting on the lower lip.
- DO NOT FORCE THE CUP INTO THE BABY'S MOUTH
- Tip the cup so that the milk is just touching the baby's lips
- **DO NOT POUR MILK INTO THE BABY'S MOUTH**
- Expect the baby to sip or lap the milk
- Keep the cup in contact with the baby's mouth, allowing the baby to feed and pause as it wants. This takes time
- Allow the baby to feed at its own pace

If the parents wish to offer cup feeds, risk of aspiration with unsafe positioning or pouring the milk should be discussed.

16.1 Parents wishing to cup feed at this time should be assessed as having understood safety issues and demonstrated a safe cup feed themselves.

- Discuss potential wastage of milk due to dribbling
- Ensure mothers receive on-going breastfeeding support, to ensure cup feeds are used only as short-term support of and not a replacement to breastfeeding.
- A management plan should be documented for any baby receiving milk by either cup or syringe.
- Consider teaching paced bottle feeding to mothers, whose babies haven't yet managed to feed exclusively at the breast.
- Paced bottle feeding is considered to help protect babies from developing a flow preference and imprinting on the teat.

17 Use of Dummies and Nipple Shields

17.1 Breastfeeding reduces the risk of cot death. The Lullaby Trust says that settling the baby to sleep with a dummy, even for naps, can reduce the risk of cot death. If breastfeeding do not begin to give a dummy until the baby is at least one month old or until breastfeeding is well established.

17.2 Dummy use has been negatively associated with both the exclusivity and duration of breastfeeding.

17.3 All breastfeeding women should be discouraged from using teats and dummies during the establishment of breastfeeding.

17.4 Health professionals providing care in the postnatal period should discuss with all women their own particular circumstances with regards to the establishment of breastfeeding and lactation, and the appropriate use of dummies, so as to ensure benefit from the positive aspects of dummy use without putting the breastfeeding relationship at risk. In this way parents can make an informed choice about the use of dummies. All discussions and decisions should be documented in the baby's notes by the health professional or support worker providing care.

17.5 Nipple shields should be avoided as they may cause problems. They should never be used in the first few days as full lactation is not yet established and breast drainage will not be sufficient for the newborns need, with inadequate stimulation of lactation. They must only be used under the guidance of a trained midwife with referral to a member of staff in a breastfeeding support post. Mothers should be made aware of the disadvantages and use discontinued as soon as possible. The emphasis should be on the establishment of lactation and ensuring adequate intake of milk in the baby. Use of nipple shields during the establishment of lactation is not recommended.

18 Formula Feeding

Mothers who formula feed will be enabled to do so as safely as possible through offers of discussion about how to prepare infant formula, at home and also when out and about, using the NHS guide to bottle feeding. We do not recommend prep machines as they have safety concerns. Direct to First Steps Nutrition Website:
https://www.firststepsnutrition.org/infant-milks-overview

18.1 Mothers who formula feed will have a discussion about the importance of responsive feeding and be encouraged to:

- Respond to cues that their baby is hungry
- Invite their baby to draw the teat rather than forcing the teat into their baby's mouth
- Pace the feed so that the baby is not forced to feed more than they want to
- Recognise their baby's feeding cues that they have had enough milk and avoid forcing their baby to take more milk than the baby wants.
- Mothers should be advised that only First milks are advised for the first year of life.

18.2 Early postnatal period: support for parenting and close relationships:

- Skin to skin contact will be encouraged throughout the postnatal period
- All parents will be supported to understand a newborn baby's needs (including encouraging frequent touch and sensitive verbal/visual communication, keeping babies close, responsive feeding and safe sleeping practice).

- Mothers who bottle feed will be encouraged to hold their baby close during feeds and offer the majority of feeds to their baby themselves to help enhance the mother-baby relationship.
- Parents will be given information about local parenting support that is available.

19 Recommendations for discussing bed-sharing with parents

To aid discussions with families: https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2011/11/Caring-for-your-Baby-at-Night-A-Health-Professionals-Guide.pdf

Simplistic messages in relation to where a baby sleeps should be avoided; neither blanket prohibitions nor blanket permissions reflect the current research evidence.

The current body of evidence overwhelmingly supports the following key messages, which should be conveyed to all parents:

- The safest place for your baby to sleep is in a cot by your bed for the first 6 months of life.
- They need a clear sleep space, no pillows, quilts or duvets, bumpers, pod nests or sleep positioners
- Ensure baby's head is uncovered so they don't overheat
- If baby sleeps in sling ensure parents aware of TICKS guidance for safe use
- https://www.rospa.com/home-safety/advice/product/baby-slings
- Sleeping with your bay on a sofa puts your baby at greatest risk. It should never be done.

Your baby should not share a bed with anyone who is a smoker, has consumed alcohol, or who has taken drugs (legal or illegal) that make them sleepy.

The incidence of SIDS (often called 'cot death') is higher in the following groups:

- Parents in low socio-economic groups
- Parents who currently abuse alcohol or drugs
- Young mothers with more than one child
- Premature infants and those with low birthweight

Parents within these groups will need more face to face discussion to ensure that these key messages are explored and understood.

20 Guidance for the Management of the Reluctant Feeder (Appendix B flow chart)

20.1 To promote best practice in the care of newborn, healthy, term babies greater than 2.5kg, between 3rd and 90th centile.

20.2 If babies have any risk factors for hypoglycaemia they should be managed as per the Trust hypoglycaemia pathway.

20.3 Rationale

20.3.1 Babies need to feed at frequent intervals and healthy, term babies will wake and feed. The term "reluctant feeder" is applied to newborn babies who are too sleepy to attach and suck at the breast or who do not wake for feeds very often.

20.3.2 It is quite normal for term babies to feed infrequently in the first 24 hours. If a baby has not fed within the first four hours or is not effectively feeding within six hours, then it should be considered to be a reluctant feeder. This guidance is not for babies with an infrequent feeding pattern in the first 24-48 hours but those who are not waking for feeds at all.

20.3.3 Reluctant feeding is common behaviour for many healthy term babies in the first 24 hours of life and mothers will require reassurance if they are anxious. Early, prolonged skin to skin contact can minimise reluctance to breastfeed.

20.3.4 Normal healthy term newborns are at low risk of hypoglycaemia because of their physiological ability to adapt to a low enteral food supply in the first 24-48 hours. These babies are able to mobilise alternate fuel sources to protect normal brain function. It is essential to differentiate the healthy term neonate from the baby who is at risk of hypoglycaemia. Lack of interest in feeding can be the first sign of an unrecognised disorder or illness. For this reason it is important to monitor these babies closely and perform frequent Observations of vital signs to exclude underlying illness and signs and symptoms of hypoglycaemia.

These include:

- Jitteriness – repetitive, unprovoked movements of one or more limbs*
- Lethargy and/or hypertonia
- Feeding difficulties (poor suck/refusal to feed)
- Irritability and/or tremor
- Apnoea and cyanotic episodes
- High pitched cry
- Difficulty maintaining body temperature/hypothermia
- Coma and/or seizures

*jitteriness refers to a high frequency, generalised, symmetrical tremor of the limbs which are unprovoked and usually relatively fast. It is important to be sure that this movement is not simply a response to stimuli. Unlike seizures, jitteriness can usually be

stopped/controlled by holding the limb firmly e.g. Baby's arm held close to baby's chest. **Excessive or persistent jitteriness requires investigation.**

20.3.5 It is necessary to stimulate a good milk supply by early and frequent breastfeeding or expressing. This guideline aims to support all health professionals in providing consistent advice and in planning care and support mothers to become empowered to help promote and manage their babies feeding.

20.3.6 Babies may be slow to feed for a number of reasons; these include sedation, illness, birth trauma and missed opportunity for skin to skin contact. Babies who have had an instrumental birth, long augmented or difficult labour can deplete their glycogen stores. Babies that become cold also deplete their glycogen stores and being too cold can depress feeding behaviour. Thermoregulation should be monitored as per Trust Guideline 'Care of the Newborn Immediately after Birth' MP069.

20.4 What if the mother does not want to express and give colostrum?

20.4.1 The length of labour and type of birth may influence the mother's feelings about expressing. She may ask you to give formula instead. Obviously give consideration to cultural/personal choices. However remember that if her baby has not breastfed, she needs to express to initiate good milk supply. This is because prolactin receptors should be activated within 4-6 hours of the birth to enhance, long term milk production. Feeding or expressing soon after birth and frequently thereafter is associated with long term success in breastfeeding.

20.4.2 If a mother chooses not to express colostrum by hand or pump, and requests her baby receive a supplementary formula feed, the aim should be to ensure she is fully informed of the risks, benefits and alternatives of all the choices available to her. To enable informed choice, the mother has a right to know:

- Formula supplements are highly likely to negatively affect her milk supply
- Giving formula may impair the baby's ability to utilise ketone bodies and counter-regulate (De Rooy and Hawdon, 2002).
- There is a risk of possible allergic sensitisation of the baby to cow's milk protein
- It is known that, in genetically susceptible individuals, breastfeeding can have a protective effect on the later development of diabetes.

- When supplements are given with an artificial nipple (teat) they have been associated with breastfeeding problems such as incorrect sucking technique and breast refusal. Although some babies appear to be able to breastfeed successfully after having been given a teat, there are other babies for whom early introduction of a teat leads to breastfeeding cessation. Therefore it makes sense to avoid teats wherever possible while babies are learning to breastfeed.

- The discussion should take place in an unhurried manner and should be given sensitively, as it may not be easy for a new mother to hear. Ensure the mother understands that these are risks, not certainties. The discussion should be documented in the baby's records. Mothers should be aware that staff will respect her wishes and choices whatever she decides. Whilst in-patients, all supplemental feeds should be documented on Badgernet. If supplements are advised whilst doing a home visit this should documented on Badgernet. Families should be directed to the Guide to Bottle Feeding.

Any formula given should be appropriate to the baby's age i.e. day) 5-10mls per feed, day 1 10-15mls per feed, day 2 15-20mls per feed, day 3 20mls per feed. Formula top-ups should not exceed 20mls per feed once lactation is established.

21 Process for weighing Newborns

The process for weighing newborns is naked, on electronic scales, on a firm surface, ideally in the prone position to reduce stress. For consistency, where possible the same scales should be used. Ideally ask parents to take a photograph to avoid errors.
Weights should be documented on Badgernet and the Red Book, if available.

21.1 At birth

21.2 At around 72hrs of age (day 3), if an inpatient, and if thought to be clinically beneficial in terms of informing the feeding plan, or if risk factors are present. Occasionally this may be indicated whilst in the community if feeding problems are identified.

21.3 Day 5: Along with observation of a full feed and documentation of feeding assessment.

21.4 At day 10 or at next community appointment (Birth weight should normally have been re-gained by 14 days. PLEASE NOTE: Babies should be gaining weight at a minimum of 20g per day, from routine day 5 weight) Average daily gain is 25-30 grams per day.

21.5 Babies who have not regained their birthweight should not be discharged from midwifery care. Babies who are not back to birthweight by 3 weeks should be reviewed by their GP for faltering growth.

22 Identification of excessive weight loss

Neonatal weight loss in the first few days of life is part of normal physiological process where excess extra-cellular fluid is excreted. This weight loss has been expected to be up to 10% of the birth weight, although this expectation was never evidence based. Recent studies have indicated that normal weight loss in the majority of babies is more likely to be around 5-7% of birth weight (Dewey et al 2005, Macdonald 2003), however a small group of babies may be vulnerable to greater loss. Peak weight loss usually occurs around 72 hours.

Excessive weight loss (>8%) in healthy breastfed newborns results when there is ineffective milk transfer to the baby. The most likely reasons are:

- the baby is not latching to the breast effectively
- the baby is not feeding frequently enough or for long enough
- more rarely, it may be due to a medical condition or physical abnormality of either mother or baby (illness, infection).

In all but a very small minority of cases the problem can be overcome with good feeding management. If the problem is not corrected, suppression of milk production will result. In the first few days of life the problem is more likely to be one of milk transfer from mother to baby rather than milk supply. An underlying illness can in itself cause weight loss or may be the reason for poor feeding responses.

Infant weight is a late indicator of poor breastfeeding and close monitoring of the following would indicate poor breast milk intake prior to a weight loss occurring:

- Observing effective positioning and attachment
- Observation of the suck/swallow pattern of the baby throughout a feed
- Frequent assessment of urine output and stool frequency

23 Calculating weight loss

Calculation of percentage weight loss in infant
Actual weight loss ÷ BW × 100 = n%
Example:
BW of 3500g, weight on day 5 3140g = loss of 360g
360 ÷ 3500 × 100 = 10.2%

Weight loss of 8-10.0% Plan A should be commenced.
Weight loss of >10-12.0% Plan A and B
Weight loss of >12% Plan A, B and C (see below)
Please refer to Trust Guideline for the Prevention and Management of Excessive Weight Loss in Healthy Breastfed Newborns Appendix D

24 Action plans for weight loss (Appendix C)

24.1 Plan A 8-10% weight loss after 72hrs (or for older babies) (Appendix C)

24.1.1 Perform a full examination of the baby and re-check weights and calculations

24.1.2 Take a full breastfeeding history from the mother

24.1.3 Observe a full breastfeed – ensure effective positioning and attachment. Observe sucking pattern – short initial sucks change to deep rhythmic sucks with pauses and audible swallows from day 4-6 as milk volume increases. Ratio should be one to two sucks per swallow. Document the ratio. Complete the breastfeeding assessment form on Badgernet.

24.1.4 Teach the mother how to do breast compressions whilst baby is feeding.

24.1.5 Ensure minimum of 8 feeds in 24 hours. Advice mother to initiate feeds every 2-3 hours if baby not showing feeding cues regularly. Show mother how to wake a sleepy baby. Start a feed chart via the breastfeeding diary (Appendix 2)

24.1.6 Skin to skin contact to encourage pre-feeding behaviour and effective breastfeeding

24.1.7 Observe for change in frequency and volume of urine and stool output, ensure changing stool pattern.

24.1.8 If a restricted lingual frenulum (tongue tie) is suspected book a clinic appointment via Badgernet or by email the antenatal clinic at RSCH or Maternity Office at PRH. Uhsussex.maternityadminprh@nhs.net or uhsussex.maternityadminrsch@nhs.net

24.1.9 If at any point illness is suspected refer immediately to SCBU or CASU

24.1.10 Offer visit/telephone after 24 hours to ensure stool and urine output are improving

24.1.11 Review at 24-48 hours. Consider re-weigh in 48hours if no change in frequency/amount of urine and stools and document. Minimal weight gain is 20g in a 24hour period. If weight increasing, continue to monitor and provide encouragement and support.

24.1.12 **After 48 hours if no weight increase, move to management plan B straight away.**

24.2 Plan B >10-12% weight loss of birth weight at 72 hours or for older babies with no/minimal improvement following management plan A (Appendix C)

24.2.1 Follow management plan A

24.2.2 Refer to the infant feeding team

24.2.3 Discuss with neonatal registrar for underlying illness. If baby is clinically well continue with plan B.

24.2.4 Perform a full set of observations. Examine baby and also look for signs of jaundice and document extent.

24.2.5 Commence a breastfeeding diary Appendix 2

24.2.6 Ensure breast compressions are being done effectively and throughout a feed

24.2.7 If babies are sleepy or have a poor suck, teach mothers 'switch nursing' technique*, which involves swapping the baby from one breast to the other and back each time the sucking pattern ceases to be a nutritive pattern (short term only)

24.2.8 Monitor and record urine and stool output noting frequency and colour.

24.2.9 Express breastmilk after each feed, ideally using a double electric breast pump and give to baby. Express for 15 minutes following feeds. Continue even when the flow of milk stops. Any milk expressed can be given as a top up following the next feed.

24.2.10 Visit at 24hours to ensure stool and urine output are improving and breastfeeding is more effective and/or frequent.

24.2.11 Ensure you are aware of any issues specific to the mother and have considered any potential impact on that individual situation.

24.2.12 Weigh again at 48hours, preferably on the same scales.

24.2.13 **If no increase in weight or only minimal increase (<20g day) or weight loss, move to Management Plan C straight away.**

*switch nursing technique is used for sleepy babies. Let baby feed at the breast until sucking and swallowing slows down then swap breasts. Do this throughout the feed. For short-term use only.

24.3 Plan C More than 12.% weight loss of birth weight at 72 hours or for older babies or no/minimal improvement following management plans A and B refer baby to CASU at RACH (RSCH) or SCBU <14 days (PRH). This is mandatory (Appendix C)

24.4 Follow management plan A and B plus:

24.4.1 Minimum of 8 feeds in 24 hours plus supplements of EBM each feed to rehydrate. If EBM is insufficient give adequate volume of formula for age of baby.

24.4.2 Express after and between feeds, using hand expressing, own pump or hospital grade pump, whichever yields most milk to increase supply.

24.4.3 Re-weigh in 24hours then weekly weights, until clear trend towards birth weight is demonstrated.

24.4.4 COMPLETE A DATIX

24.5 Treatment for babies requiring rehydration

24.5.1 All babies should be supplemented with expressed breast milk in the first instance. This would be done with a plan to protect the breastfeeding relationship and preserve breastmilk supply. Formula should only be used if insufficient volumes of expressed breastmilk are available whilst encouraging breastfeeding/expressing

24.5.2 A pragmatic approach would be to feed the baby between ½ of its fluid requirement as supplemental feeds whilst continuing to support lactation and breastfeeding.

25 Calculating milk volumes for supplementation (Appendix D)

Rationale for colostrum volumes in healthy term infant that will not latch due to tongue tie or other problems

As there is limited research available, the amount of expressed milk given should reflect the normal amounts of colostrum available, the size of the infant's stomach and the age and size of infant (The Academy of Breastfeeding Medicine, 2017). Several studies give an idea of intakes at the breast over time. None are indications of the mother's capacity to make milk. The number of feedings should be based on infant cues.

Average Reported Intakes of Colostrum **per feed** by Healthy, Term Breastfed Infants (Academy of Breastfeeding Medicine, 2017)

Time (hours)	Intake (ml per feed)
First 24 hours (Day 0)	2-10
24-48 (Day 1)	5-15
48-72 (Day 2)	15-30
72-96 (Day 3)	30-60

Boss et al (2018) found that the mean milk production of lactating women by 8 days postpartum is 650 mL/24 hours, and from 1 to 6 months of lactation the mean range for exclusively breastfed infants is between 750 and 800 mL/24 hours.

Volume of milk required in 24hrs mls/kg

Day 3	120mls/kg
Day 4	140mls/kg
Day 5 onwards	150mls/kg

This would equate to approximately 30mls of milk per feed for a 4kg baby on day 3 if feeding 3 hourly (120mls/kg). This supplement may also be given as 1 feed of 60mls approximately 6 hourly along with support of lactation and feeding. Larger supplements given less frequently may be more protective for breastfeeding and lactation. All feeds should be clearly documented on the feeding chart. Feeds should not be more than 6 hours apart in this group of babies and breastfeeding and/or breastmilk should be given in between formula feeds as frequently as possible. Breastmilk removal at night is important for lactation production.
Supplementation should reduce once breastmilk yield increases, baby's weight has increased and blood profile has normalised.

References;

Academy of Breastfeeding Medicine Protocol Committee.(2017) 'ABM Protocol # Hospital Guidelines for the Use of Supplementary Feedings in the Healthy Term Breastfed Neonate. Revised 2017'. *Breastfeeding Medicine Vol 12 (4)*
Boss, Melinda et al.(2018) 'Normal Human Lactation: closing the gap' *F1000Research* vol. 7 F1000 Faculty Rev-801. 20 Jun. 2018, doi:10.12688/f1000research.14452.12

26 Neonatal readmissions

The health professional admitting the baby into hospital should be responsible for completing the DATIX form. The Infant Feeding Specialist midwife with liaise with Clinical Governance regularly to analyse data on readmissions for excessive weight loss and resulting hypernatremia on an individual basis.

26.1 Babies readmitted to the postnatal ward
Readmitted with:

- >12% weight loss
- Sodium >150
- Complex feeding problems

26.2 Management Plan

- ANNP or Neonatologist will clinically review baby
- ANNP or neonatologist will discuss and agree a management plan with the mother and action a feeding plan accordingly. This should be clearly documented in the baby's notes.
- System for reporting all newborns readmitted to hospital with feeding problems in the first 28 days of life: admitting clinicians will complete DATIX form. For more information on how the Datix is then managed please see MD085 Maternity Risk Management Strategy Page 22, 14.6

26.3 Midwives providing care should:

- Commence checking and documenting wet and dirty nappies
- Contact Infant feeding team for on-going support
- Consider and support maternal physical and mental health

26.4 For women who are breastfeeding the management plan should be:

- BF responsively looking for early feeding cues, but at least 3hrly + top up volumes below (see below) via bottle
- Day 3 120ml/kg. Day 4 140 mls/kg. Day 5 onwards 150mls/kg. Depending on what the baby is taking from the breast, these volumes may exceed what a thriving breastfed baby would take and can have a negative impact on helping the mother to achieve exclusive breastfeeding. If the baby is seen to breastfeed well and it has been assessed that there has been good milk transfer, the volume of top up can be adjusted accordingly.)
- Midwife providing care should encourage and support women to continue to breastfeed and commence expressing (see expressing section)
- The quality and volumes of each feed should be documented in the baby's notes and on the feed chart.
- As the breastfeeding / lactation improves, mothers should be given a plan to reduce the volume of top ups and return to exclusive breastfeeding.

26.5 For women who are artificially feeding baby

- Artificially feed baby volumes below
- Day 3 onwards 150ml/kg
- The quality and volumes of each feed should be documented in the baby's notes and on the feed chart

Section 2

1 Babies requiring care in the neonatal unit

1.1 Parents with a baby on the neonatal unit are supported to have a close and loving relationship with their baby. All parents will:

1.1.1 Have a discussion with an appropriate staff member as soon as possible (either before or after their baby's birth) about the importance of touch, comfort and communication for their baby's health and development as soon as possible.

1.1.2 Be encouraged to provide touch, comfort and emotional support to their baby, throughout their baby's stay on the neonatal unit.

1.1.3 Be enabled to have frequent and prolonged skin to sin contact with their baby as soon as possible after the birth and throughout the baby's stay on the neonatal unit, providing the baby's condition allows.

1.2 This service recognises the importance of breastmilk for babies' survival and health. Therefore, this service will ensure that:

1.2.1 A mother's own breastmilk is always the first choice to feed her baby.

1.2.2 Mothers have a discussion regarding the importance of their breastmilk for their preterm or ill baby as soon as is appropriate.

1.2.3 A suitable environment conducive to effective expression is created

1.2.4 Mothers have access to effective breast pumps and equipment.

1.2.5 Mothers are enabled to express breastmilk for their baby, including support to:

- Express as early as possible after birth (ideally within two hours).
- Learn how to express effectively, including by hand and by pump, using breast compressions to optimise supply.
- Learn how to use pump equipment and store milk safely.
- Express frequently between 8-10 times in 24 hours, including once at night), especially in the first two to three weeks following delivery, in order to optimise long term milk supply.
- Overcome expressing difficulties where necessary, particularly where milk supply is inadequate, or if less than 750ml in 24hours is expressed by day 10.
- Stay close to their babies when expressing milk

- Use their milk for mouth care when their baby is not tolerating oral feeds, and later to tempt their baby to feed.

1.3 Where possible, breastfeeding babies should receive their non-nutritive sucking at the breast. There is evidence that non-nutritive sucking in this way improves breastfeeding outcomes.

1.4 In mothers absence or if non-nutritive sucking at the breast is not possible for medical reasons for e.g. CPAP and ventilation, it may be appropriate, with her permission and under the guidance of senior neonatal nurse to temporarily provide non-nutritive sucking with a dummy. In certain cases for e.g. when baby's fluid intake is restricted, non-nutritive sucking may be offered at the breast after mother has expressed and emptied her breasts or by a dummy

1.5 In cases where the baby has been using a dummy on the neonatal unit and is then transferred from the neonatal unit to the postnatal ward for transitional care, further dummy use will be discouraged so as to ensure any sucking, nutritive or non-nutritive is received at the breast so as to avoid sucking abnormalities which may complicate breastfeeding.

1.6 When supplementation is medically indicated, there must be a breastfeeding/lactation supportive plan put in place, with a plan for reducing supplementation as soon as possible.

1.7 A formal review of expressing is undertaken a minimum of four times in the first two weeks to support optimum expressing and milk supply.

1.8 This service will ensure that mothers receive care that supports the transition to breastfeeding, including support to:

1.8.1 Recognise and respond to feeding cues and use skin to skin contact to encourage instinctive feeding behaviour

1.8.2 Position and attach their baby for breastfeeding

1.8.3 Recognise effective feeding and overcome challenges when needed.

2 Valuing parents as partners in care whilst on the neonatal unit

2.1 This service recognises that parents are vital to ensuring the best possible short and long term outcomes for babies and therefore, should considered as the primary partners in care. The service will ensure that parents:

2.1.1 Have unrestricted access to their baby, unless individual restrictions can be justified in the baby's best interest.

2.1.2 Are fully involved in their baby's care, with all care possible entrusted to them.

2.1.3 Are listened to, including their observations, feelings and wishes regarding their baby's care

2.1.4 Have full information regarding their baby's condition and treatment to enable informed decision making.

2.1.5 Are make comfortable when on the unit, with the aim of enabling them to spend as much time as is possible with their baby.

2.2 The Neonatal unit will ensure that parents who formula feed:

2.2.1 Receive information about how to clean, sterilise equipment and make up a bottle of formula milk as safely as possible to minimise the risks of formula milk.

2.2.2 Are able to bottle feed using a safe and responsive technique.

3 Babies Receiving Special / Transitional Care

Babies at risk of hypoglycaemia should follow the hypoglycaemic pathway (see hypoglycaemia protocol *MP069 Care of the Newborn immediately after birth)*.
Breast milk will be the first choice of nutrition, other supplements may be necessary. When other supplementation is medically indicated, the lead health professional (midwife, ANNP or neonatologist) must give women full explanations and obtain informed consent. All conversations should be documented and a supplemental sticker completed for the notes for those babies on transitional care.

3.1 Advise mother where she can obtain a suitable pump for use at home

3.2 Continue to keep offering the breast. Use both prescriptive holds and biological nurturing. Avoid situations where baby and mother become upset at efforts to breastfeed

3.3 Where possible avoid a bottle in the first five days. After this, the larger quantities of breast milk required, may necessitate the use of a bottle

3.4 Give parents information about how to assess neonatal wellbeing, including expected number and volume of wet nappies and numbers of dirty nappies and colour of stool. Parents should be advised to ring the community midwives office if there are concerns re baby's urine or stool output.

3.5 Inform parents about local and national breastfeeding drop-ins, which provide ongoing support, and telephone advice.

3.6 Inform partner and family and friends so that they can provide support which, protects the breastfeeding relationship and allows mother to make her own choices

3.7 Staff should remain positive, in their attitude. As long as the mother is establishing a good lactation, the window of opportunity for breastfeeding remains open.

Section 3

1 Neonatal jaundice and supporting breastfeeding outside of the neonatal unit

Optimal Care of the Breastfeeding Newborn

1.1 The following advice and measures have been shown to:

- help to reduce the severity of physiological jaundice
- prevent its transition to a pathological condition which may threaten the breastfeeding relationship

1.2 Colostrum has a laxative affect, and early establishment of breastfeeding and the subsequent bowel stimulation helps to reduce the incidence and severity of physiological jaundice, meconium contains bilirubin which is reabsorbed through the neonatal gut

1.3 After delivery the midwife providing care at birth will:

- Help with the first breastfeed
- If the baby does not feed at birth the midwife providing care should show the mother how to hand express

1.4 If the baby is reluctant to breastfeed in the first two days, mother should be encouraged to hand express and offer the baby her colostrum in a syringe.

2 The presence of physiological jaundice from 2-3 days

2.1 The midwife providing postnatal care should advise mother to:

2.1.1 Arrange a transcutaneous bilirubin check (TCB) within 24hrs if no other concerns. If concerns regarding wellbeing or raised TCB refer to RACH/SCBU

2.1.2 Look for early feeding cues, and respond to them (responsive feeding).

2.1.3 If the baby is not waking spontaneously, wake baby every three hours and offer a breastfeed.

2.1.4 Seek advice from the midwife should the baby refuse to feed on two consecutive occasions.

2.1.5 Respond to feeding cues. Do not wait for the baby to cry for food.

2.1.6 Aim that the baby has 8-12 good feeds in 24 hrs

2.2 Advise to keep baby warm

2.3 The midwife providing postnatal care should show the mother:

2.3.1 How to wake a sleepy baby, in order to achieve a successful breastfeed

2.3.2 Optimise positioning and attachment so that breast drainage is optimal and assess adequate milk transfer by observing the suck and swallow pattern (ratio2:1)

2.4 Breast milk aids the conjugation and elimination of bilirubin, offer the second breast, once the first breast is drained.

3 Concerns about lactation

If there are concerns over lactation, the Midwife providing postnatal care should:

3.1 Suggest expressing after feeds to increase the amount of milk available at the next feed, and offer any EBM expressed, by cup

3.2 Offer additional support with breastfeeding by referring to the breastfeeding team

3.3 Ensure that mother knows how to seek advice on a 24 hr basis

3.4 Always refer to a paediatrician if the baby's condition gives rise for concern.

3.5 If the jaundice persists beyond ten days, refer for assessment but continue to support breastfeeding

4 Staff Rules

4.1 All staff must follow the International Code for the Advertising of Artificial Milk and all Breast Milk Substitutes. This prohibits the advertising or promotion of any artificial milk and associated equipment.

4.2 Employees should never recommend a particular brand of artificial of milk.

4.3 Evidence based information is available from First Steps Nutrition, a UK document which is published quarterly.

4.4 Artificial milk company representatives are only allowed on site by prior appointment with either, the Infant Feeding Midwife, named neonatal consultant or neonatal dietician.

5 Training and compliance

5.1 Please refer to the Training Needs Analysis document for details on staff training in relation to this protocol.

5.2 Please refer to the Monitoring and Auditing document for details on monitoring compliance for this protocol.

In addition there will be at least one annual audit of infant feeding outcomes, using the BFI Maternity Audit tool. Audit results will be reported to the Head of Midwifery.

6 Supporting Documentation and References

De Rooy L, Hawdon J. (2002) Nutritional factors that affect the postnatal metabolic adaptation of full-term small for gestational age infants. Paediatrics; 109:e42.

WHO Code of Milk marketing substitutes https://www.unicef.org.uk/babyfriendly/baby-friendly-resources/international-code-marketing-breastmilk-substitutes-resources/the-code/

Unicef Baby Friendly Resources: https://www.unicef.org.uk/babyfriendly/baby-friendly-resources/breastfeeding-resources/

Unicef Bottle Feeding: https://www.unicef.org.uk/babyfriendly/baby-friendly-resources/bottle-feeding-resources/

First Steps Nutrition Trust Infant milks Overview: https://www.firststepsnutrition.org/infant-milks-overview

Building a Happy Baby Leaflet: https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2018/04/happybaby_leaflet_web.pdf

Sleep Information: https://www.lullabytrust.org.uk/safer-sleep-advice/

Off to the Best start: https://www.unicef.org.uk/babyfriendly/baby-friendly-resources/breastfeeding-resources/off-to-the-best-start/

Academy of Breastfeeding Medicine: https://abm.memberclicks.net/assets/DOCUMENTS/PROTOCOLS/3-supplementation-protocol-english.pdf?fbclid=IwAR3fg5-2kXF5D4kCH0-PKk4SMVD_rAepDIyyNkYAOdeX4p0xz8ws9QFl8-c

NICE Faltering Growth-recognition and management of faltering growth in children 2017. https://www.nice.org.uk/guidance/ng75

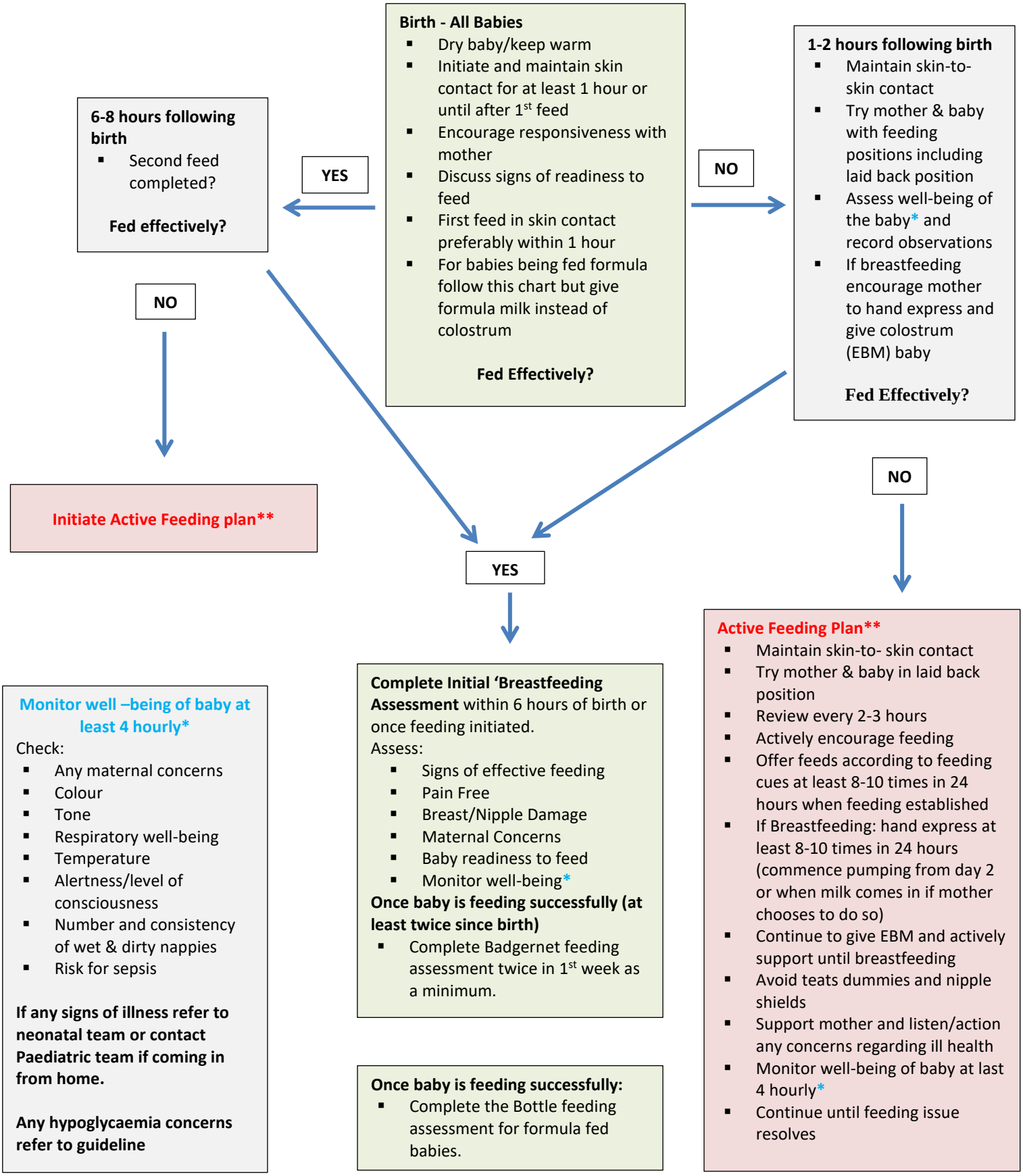
Appendices

1 Appendix A – Cup and syringe feeding PIL

cup and syringe feeding.pdf

2 Appendix B – Feeding flowchart

Management of feeding for all healthy term infants >37 weeks and >2.5kg.
Recognition and management of the reluctant feeder 0-24h



Management of feeding for all healthy term infants >37 weeks and >2.5kg.
Identification and management of the reluctant feeder more than 24 hours old

Day 1 (24 - 48 hours old) and not breastfeeding, continue to:

- Encourage long periods of skin to skin /laid back position
- Observe and document clinical signs of well-being 4 hourly: Colour, tone, alertness, temperature, general wellbeing, desire to feed, hunger cues
- Monitor urinary output and frequency and colour of stools
- Offer breast 2 - 3 hourly
- Hand express frequently 8-10 times in 24 hrs
- Give EBM, increase volume 5- 15 ml/feed or more if available
- If EBM volume is <5ml despite frequent hand expressing consider offering A/F top-up, 10-15mls/feed by cup.

Baby feeds?

YES

NO

Features suggesting a same day medical review to exclude hypoglycaemia or other illness*

- Not waking or showing signs of hunger
- Temperature outside of normal range (36.5°C – 37.4)
- Floppy, sleepy/ reduced responsiveness on handling
- Pallor
- Cool peripheries, mottling or slow capillary refill (> 2 seconds)
- Heart rate outside normal limits (100-160 beats per minute)
- Respiration rate outside normal limits (40-60 breaths per minute) or signs of increased work of breathing. Apnoea
- Abnormal cry
- Jitteriness can be normal but if persistent/recurrent and/or infant has other concerns consider hypoglycaemia or illness as a potential cause. Seizures require urgent review.

Concerns about baby wellbeing?*

- Refer to neonatal team/to paediatric team if coming in from home*

Day 2 (48 - 72 hours old) and not breastfeeding continue to:

- Encourage long periods of skin- to-skin /laid back position
- Observe and document clinical signs of wellbeing 4 hourly Colour, tone, alertness, temperature, general wellbeing, desire to feed, hunger cues
- Monitor urinary output and frequency and colour of stools
- Offer breast 2-3 hourly
- Express using pump, at least 8-10 times in 24 hrs
- Give EBM, increase volume to 15-30 ml/feed
- If EBM volume is small despite frequent expressing, consider offering formula supplement to make up the difference to 20ml/feed by cup
- Refer to infant feeding team

Responsive Feeding

Suggested volumes are an average. Increase feeding volumes daily to meet baby's needs. Some will take more, some less. Start small, more can be offered when baby cues.

3 Appendix C – Prevention and management of excessive weight loss in healthy breastfed newborns

Plan A 8-10% weight loss after 72hrs (or for older babies)

- Perform a full examination of the baby and re-check weights and calculations
- Take a full breastfeeding history from the mother
- Observe a full breastfeed – ensure effective positioning and attachment. Observe sucking pattern – short initial sucks change to deep rhythmic sucks with pauses and audible swallows from day 4-6 as milk volume increases. Ratio should be one to two sucks per swallow. Document the ratio. Complete the breastfeeding assessment form
- Teach the mother how to do breast compressions whilst baby is feeding
- Ensure minimum of 8 feeds in 24 hours. Inform mother to initiate feeds every 2-3hours if baby not showing feeding cues regularly. Show mother how to wake a sleepy baby. Start a feed chart via the breastfeeding diary (Appendix A)
- Skin to skin contact to encourage pre-feeding behaviour and effective breastfeeding
- Observe for change in frequency and volume of urine and stool output, ensure changing stool pattern.
- If a restricted lingual frenulum (tongue tie) is suspected book a clinic appointment by telephoning the antenatal clinic at RSCH
- If at any point illness is suspected refer immediately to SCBU or CASU

3.1 Offer visit or telephone call after 24 hours to ensure stool and urine output are improving.

- Review at 24-48 hours. Consider re-weigh in 48hours if no change in frequency/amount of urine and stools and document. Minimal weight gain is 20g in a 24hour period. If weight increasing continue to monitor and provide encouragement and support.

After 48 hours if no weight increase, move to management plan B straight away

Plan B >10-12% weight loss of birth weight at 72 hours or for older babies with no/minimal improvement following management plan A

- Follow management plan A plus
- Discuss with neonatal registrar for underlying illness. If baby clinically well continue with plan B.
- Perform a full set of observations. Examine baby and also look for signs of jaundice and document extent.
- Ensure skilled help with positioning and attachment. Refer to a more experienced colleague if necessary.
- Commence a breastfeeding diary (appendix 2)
- Ensure breast compressions are being done effectively and throughout a feed

- If babies are sleepy or have a poor suck, teach mothers switch nursing* technique, which involves swapping the baby from one breast to the other and back each time the sucking pattern ceases to be a nutritive pattern.
- Monitor and record urine and stool output noting frequency and colour.
- Express breastmilk after each feed and give to baby. Express for 15 minutes following feeds. Continue even when the flow of milk stops. Any milk expressed can be given as a top up following the next feed.

3.2 Visit at 24 hours to ensure stool and urine output are improving and breastfeeding is more effective and/or frequent.

- Ensure you are aware of any issues specific to the mother and have considered any potential impact on that individual situation.

- Weigh again at 48 hours, preferably on the same scales.

If no increase in weight or only minimal increase (<20g day) or weight loss, move to management plan C straight away.

*switch nursing technique swaps baby from one breast to the other and back each time the sucking pattern ceases to be a nutritive pattern.

Plan C more than 12% weight loss of birth weight at 72 hours or for older babies with no minimal improvement following management plans A and B

- Refer baby to CASU at RACH (RSCH) or SCBU (PRH) if <14 days. This is mandatory.

Follow management plan A and B plus:

- Perform a full set of observations. Examine the baby for signs of jaundice and document extent of jaundice. Observe urine and stool frequency.
- Minimum of 8 feeds in 24 hours plus supplements of EBM each feed to rehydrate plus appropriate formula supplementation when clinically indicated. Express after and between feeds, using hand expressing, own pump or hospital grade pump, whichever yields most milk to increase supply.
- Re-weigh in 24hours then weekly weights, until clear trend towards birth weight is demonstrated.
- Serum sodium <150 admit to SCBU/RACH commence feeding plan
- Serum sodium 150-170 admit to SCBU/RACH – IV or oral rehydration
- Serum sodium >170 admit to SCBU/RACH – IV rehydration

4 Appendix D – Calculating milk volumes for supplementation

Rationale for colostrum volumes in a healthy term infant who will not latch due to tongue tie or other problems.
As there is limited research available, the amount of expressed milk given should reflect the normal amounts of colostrum available, the size of the infant's stomach and the age and size of infant (The Academy of Breastfeeding Medicine, 2017). Several studies give an idea of intakes at the breast over time. None are indications of the mother's capacity to make milk. The number of feedings should be based on infant cues.
Average Reported Intakes of Colostrum **per feed** by Healthy, Term Breastfed Infants (Academy of Breastfeeding Medicine, 2017)

Time (hours)	Intake (ml per feed)
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24-48 (Day 1)	5-15
48-72 (Day 2)	15-30
72-96 (Day 3)	30-60

Boss et al (2018) found that the mean milk production of lactating women by 8 days postpartum is 650 mL/24 hours, and from 1 to 6 months of lactation the mean range for exclusively breastfed infants is between 750 and 800 mL/24 hours.

Volume of milk required in 24hrs mls/kg	
Day 3	120mls/kg
Day 4	140mls/kg
Day 5 onwards	150mls/kg

This would equate to approximately 60mls of milk per feed for a 4kg baby on day 3 if feeding 3 hourly (120mls/kg/day), and taking no breastfeeds. It may be prudent and protective of breastfeeding to give half this volume if the baby is breastfeeding and taking some milk and the infant requires a top-up only. Larger supplements given less frequently may be more protective for breastfeeding and lactation. All feeds should be clearly documented on the feeding chart. Feeds should not be more than 6 hours apart in this group of babies and breastfeeding and/or breastmilk should be given in between formula feeds as frequently as possible. Breastmilk removal at night is important for lactation production.
Supplementation should reduce once breastmilk yield increases, baby's weight has increased and blood profile has normalised.

References
Academy of Breastfeeding Medicine Protocol Committee.(2017) 'ABM Protocol # Hospital Guidelines for the Use of Supplementary Feedings in the Healthy Term Breastfed Neonate. Revised 2017'. *Breastfeeding Medicine Vol 12 (4)*
Boss, Melinda et al.(2018) 'Normal Human Lactation: closing the gap' *F1000Research* vol. 7 F1000 Faculty Rev-801. 20 Jun. 2018, doi:10.12688/f1000research.14452.12

5 Appendix E – Transcutaneous bilirubin monitoring

Use serum bilirubin measurement for babies:

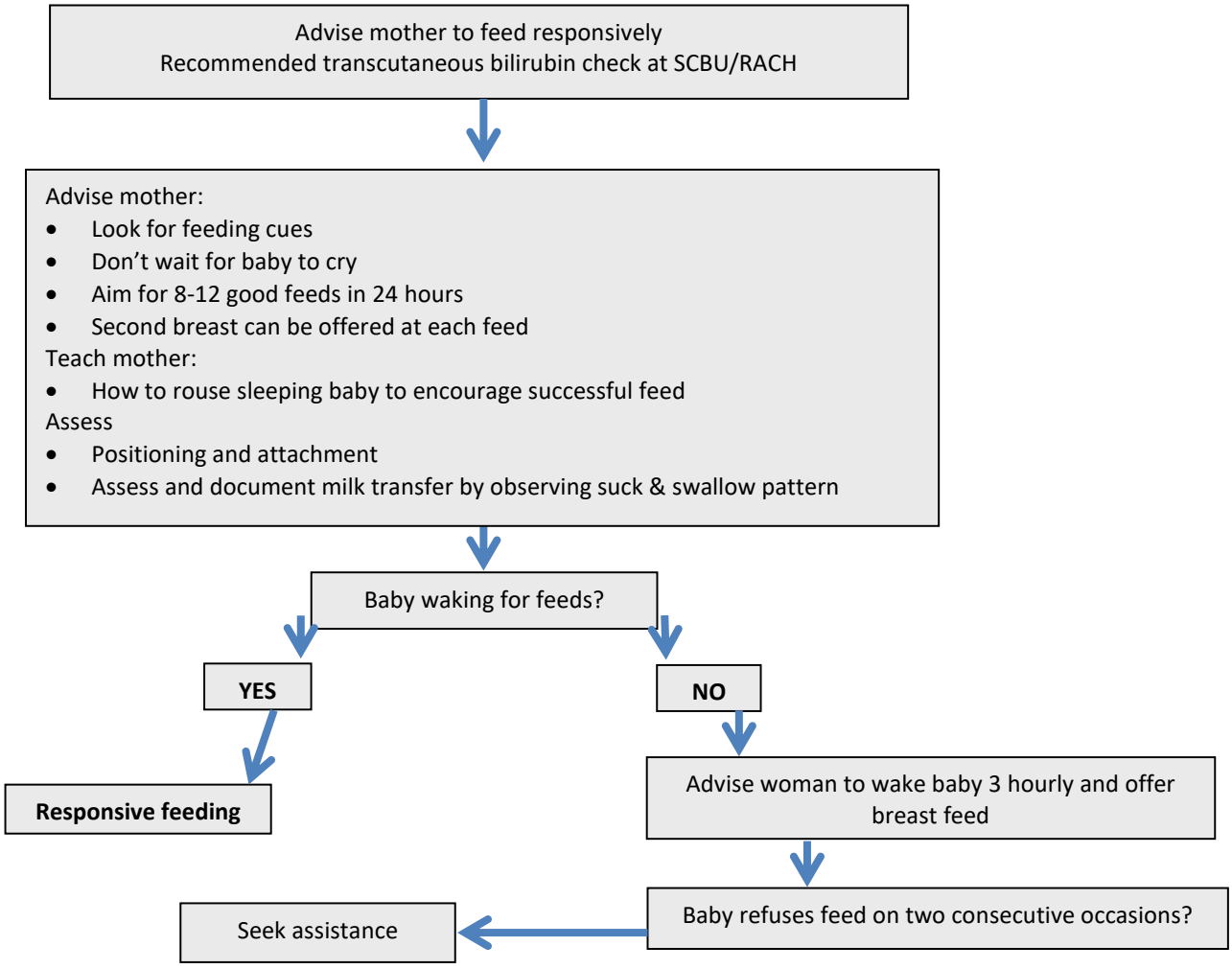
- in the first 24 hours of life **or**
- who have a gestational age of less than 35 weeks.

In babies who have a gestational age of 35 weeks or more, and who are over 24 hours old:

- Use a transcutaneous bilirubinometer to measure the bilirubin level
- If a transcutaneous bilirubinometer is not available, measure the serum bilirubin
- If a transcutaneous bilirubinometer measurement indicates a bilirubin level greater than 250 micromol/litre, measure the serum bilirubin to check the result
- Use serum bilirubin measurement if bilirubin levels are at or above the relevant treatment thresholds for their age, and for all subsequent measurements.

Do not use an icterometer to measure bilirubin levels in babies.
Do not measure bilirubin levels routinely in babies who are not visibly jaundiced

Appendix E - Management of physiological jaundice (from 2-3 days)



6 Appendix F - Breastfeeding Specialist Contact Details

Name	Title	Contact Number	Email
Anouk Lloyd	Infant Feeding Specialist Midwife	07900716090	Anouk.lloyd@bsuh.nhs.uk

All referrals to the Infant feeding team should be done via Badgernet. Otherwise email: uhsussex.specialistbreastfeedingbsuh@nhs.net

7 Appendix G - Tongue Tie

Tongue Tie (Ankyloglossia)
Division of Tongue Tie (Frenulotomy) to Assist Newborn Feeding

7.1 Introduction – Breastfeeding is the optimal way for a baby to feed, and not doing so increases health risks for life for both mother and baby. The UK government and the World Health Organisation (WHO) recommend six months exclusive breastfeeding. The National Institute of Health and Clinical Excellence have issued guidelines for the diagnosis, management and treatment of tongue tie in breastfed babies. The guidelines do not specifically cover bottle fed babies, but may apply to them also.

Only those who are a registered health professional and have successfully completed an approved training may undertake the division of tongue tie.

7.2 Effects of Tongue Tie on Infant Feeding

Babies may present with a range of problems including:

- Difficulty or inability to attach to the breast
- Constantly slipping off the breast
- Excessive weight loss
- Slow or no weight gain
- Constant or very frequent feeding
- Unsettled baby
- Difficulty taking the teat in a bottle fed baby
- Excessive dribbling in a bottle fed baby
- Prolonged feeding in a bottle fed baby
- Slow weight gain in a bottle fed baby
- Prolonged jaundice

Mothers often complain of:

- Sore nipples
- Painful breastfeeding
- Engorgement or mastitis
- Poor milk supply
- Exhaustion from constant breastfeeding

Some of these problems are commonly seen during the early breastfeeding period when a mother has not been assisted to position and attach her baby correctly for breastfeeding. When tongue tie is present these problems persist regardless of skilled help, and may result in a mother deciding to stop breastfeeding before she is ready to do so.

Assessment for tongue tie is not part of the check of the newborn and should only be performed as part of the overall assessment for feeding problems. A full tongue tie assessment should only be made by a health professional who is a tongue tie practitioner and has been approved to perform this role by the trust. However in the presence of feeding problems, staff who have been trained in the use of the BTAT/TABBY Tool (Appendix H) may, if confident to do so, perform a full feeding assessment followed by a TABBY assessment. If the assessment scores 6 or below and there are persistent feeding problems then a referral can be made to the tongue tie clinic for a full assessment.

Adequate tongue movement is essential for successful breastfeeding. Approximately 10% of babies are born with a significant lingual frenulum. They do not all need snipping. If the lingual frenulum is short and limiting tongue movement to the extent that feeding is affected, then frenulotomy is indicated.

The signs for tongue tie are one or more of the following:

- The tongue appears shortened or flattened at the front.
- The normal tongue groove is increased on protrusion
- The tongue does not extend beyond the lower gum, when the mouth is open.
- The tongue tips down on extension
- Elevation of tongue is restricted with digital examination.
- The sides of the tongue rise well above the tip when the tongue is elevated creating a heart shaped or butterfly appearance.
- Finger cupping is poor or absent on digital examination of suck.

The assessment of tongue movement is the most important part of diagnosis but the extent of the frenulum and whether it is diaphanous (elastic) or short and thick are also key observations.

When tongue tie is suspected, the baby should be referred to a tongue tie practitioner who will make the definitive assessment, diagnosis, and clinical decision as to whether or not a frenulotomy is indicated.

The parents should not be given the impression that a frenulotomy will definitely be performed

7.3 Referral

The baby must be less than 12 weeks old at the time of making the appointment. Older babies should be referred to: Uhsussex.ttbrightonsurgeons@nhs.net

There is often provision to offer assessment and frenulotomy to babies who are on the postnatal ward and having difficulties with feeding that are not resolved by help with positioning and attachment. Assessment must be made by a Trust approved tongue tie practitioner.

There must be a feeding problem that has not been resolved despite help with positioning and attachment.

Babies who are breastfeeding well and thriving, and the mother is comfortable should not be referred, regardless of the appearance of the tongue.
Concerns about eating, speech, the aesthetics or dental decay in the future are not appropriate referral criteria for this clinic and these babies should be referred to the GP for guidance.

Referral can be made by G.P's, ANNP's, midwives, nursery nurses maternity support workers, health visitors, or the mother can self-refer, provided feeding has been assessed by a health worker, skilled in the support of infant feeding.

Appointments are made on Badgernet or by emailing the referral form (appendix J) to the Maternity Office PRH or Antenatal Clinic RSCH uhsussex.maternityadminrsch@nhs.net or uhsussex.maternityadminprh@nhs.net

Clinics are held every Friday 1.30 – 4.30pm at RACH and every Wednesday 9.30 – 12.00 at PRH antenatal clinic.

Parents should not be given the impression that a frenulotomy will definitely be performed Advise parents to contact the antenatal clinic at RSCH if they no longer require the appointment, so that it can be reallocated.

7.4 Management whilst waiting for appointment

Even when there is a tongue tie, improving positioning and attachment will often help to make the mother more comfortable. An exaggerated attachment technique may help the breastfed baby.
Put breastfeeding plan in place and educate mother to signs of effective feeding and support with literature e.g. NHS Off to The Best Start
If baby/mother unable to feed, advise breast expression to maintain lactation and provide food for the baby. Start hand expressing as soon as possible after birth between 8-10 times every 24hrs including once at night. A breast pump can be started from day 2.

Advise on volumes of milk according to the age of the baby. If giving expressed milk, use a cup in the first five days, after this time a bottle may be used.

It should be possible to avoid large weight loss, if an adequate lactation is established.
Artificial milk should only be used if the mother is unable to express sufficient breast milk.
Mothers experiencing difficulties with breastfeeding due to tongue tie will require emotional as well as practical support in order to continue breastfeeding whilst they wait for the assessment appointment.
Bottle feeding babies will usually manage without intervention, small more frequent feeds, may help.
Any baby with suspected tongue tie who is not feeding well or whose weight loss/gain, or general condition gives cause for concern should be seen by a paediatrician.

7.5 Procedure

On arrival parents take a seat in the waiting area. If the mother is breastfeeding then she should attend the appointment. If the baby is artificially feeding then the carer must bring a dummy and or bottle feed.
A detailed feeding and relevant medical history is taken. Frenulotomy is contraindicated if there is a family history of bleeding disorders for which the baby has not been investigated. In these cases refer the parents to the baby's GP for further guidance.
The baby should have had Vitamin K, at birth. If this is not the case, refer to GP for paediatric referral for further guidance.
After hand washing and putting on gloves an examination of the baby's mouth is made, to exclude other anomalies that may affect feeding.
The presence of tongue tie is confirmed or excluded following full assessment.
Discussion takes place between the practitioner and the parents. If there is not a tongue tie present, alternative help with the feeding is offered. If there is a tongue tie the procedure for frenulotomy is explained including any possible complications.
Parents are given time to ask any questions and to decide whether to proceed to frenulotomy if diagnosis is confirmed.
If proceeding with frenulotomy the parents are encouraged to remain with the baby and be involved by holding the baby. The equipment is placed ready. The baby is placed on a flat surface.
The baby is swaddled firmly in a towel, sheet or blanket. The assistant's hands are placed either side of the baby's head on the baby's shoulders to ensure that the baby's arms are held firmly in position. After hand washing and putting on gloves the practitioner stretches the frenulum using left index finger, the lower lip is protected and pushed down by the left thumb. The frenulum is divided using appropriate scissors, being careful to snip in the midline so as not to damage the underneath of the tongue and cause bleeding, not to snip too low and damage salivary glands but to divide deeply enough to prevent regrowth of the frenulum. Usually one snip is sufficient but occasionally two or three may be necessary.
The wound is compressed using a swab. The baby is quickly unwrapped and handed to the mother for a feed. Feeding the baby immediately will calm the baby, help to control any bleeding and reassure the mother.
Breastfeeding mothers are helped with the positioning and attachment.

7.6 Problems

If there is excessive bleeding or any immediate problems:

- Refer to paediatrician or ANNP
- If at home, apply pressure and call for an ambulance.
- Please see guidance below from the Association of Tongue Tie Practitioners for the control of excessive bleeding post frenulotomy.

Guideline for the management of bleeding post frenulotomy

A small amount of bleeding post division is common and to be expected. Allowing the baby to feed treats this best, as feeding will compress the floor of the mouth.
If there is an unusual amount of bleeding after division, it is likely to be dark venous bleeding. Bright red arterial bleeding is very rare.

1. Hold baby in an upright position. Put some gauze on the raw diamond under the tongue and hold in place firmly with one finger, taking care not to place any pressure under baby's chin as this can obstruct the airway. *Moistening the gauze with sterile water, cooled boiled water, or breastmilk will help prevent the clot sticking to the gauze and being removed when the gauze is removed.* Continue to press for at least 10 timed minutes. Ensure that the airway is maintained. Keep baby warm and calm. Walking round whilst carrying baby, rocking, white noise, music, fresh air, toys, etc. can be used to distract and help calm baby.

2. If the gauze becomes soaked while you are pressing, you are not pressing in the right place. Replace the gauze and check you are pressing under the tongue on the raw diamond, but now press with two fingers, side by side, to ensure you are pressing on the outer edges as well as the centre. Continue pressure for at least 10 timed minutes

3. Do not continually remove the gauze to see if the bleeding has stopped – wait for at least 10 minutes and then look.

4. If bleeding persists apply pressure for a further 10 minutes using gauze

5. In a controlled, hospital environment, with suitable monitoring, put a few drops of adrenaline (1:1000, 1:10000 and 1:100000, or lignocaine 1% with 1:100,000 adrenaline have all been used) on a gauze swab and press for 5 minutes on to the wound. There is no correct dose, but the potential side-effects of systemic absorption need to be considered when choosing the dose to use.

6. Rebound bleeding is a risk with adrenaline so tranexamic acid can be used as an alternative or after the application of adrenaline. Soak gauze in tranexamic acid and apply for 5 minutes.

7. If all this fails, you will have to invoke surgical help… Silver Nitrate, electrocautery and suturing are options at this point
This group of babies have had a long period of sublingual pressure followed by some form of surgery. This causes considerable oedema and some oral aversion, so they need to be kept under very close supervision, potentially as an inpatient for several days, until they are

feeding normally. A prompt naso-gastric tube for initial stress-free feeds is very useful and avoids an unnecessary IV line.

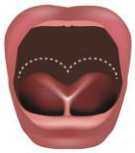
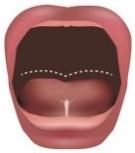
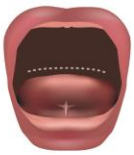
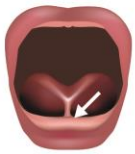
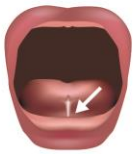
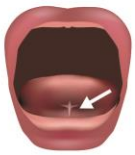
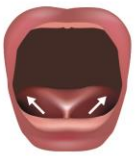
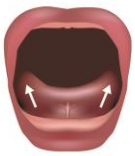
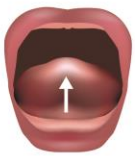
7.7 References

Interventional Procedures Advisory Committee. Overview of Division of Ankyloglosia (tongue Tie) in babies with difficulty breastfeeding.2005. NHS.NICE
Division of Ankyloglossia (Tongue Tie) for breastfeeding (IPG 149) Dec 2005. NHS. NICE.
Association of Tongue Tie Practitioners www.tongue-tie.org.uk
Control of Bleeding Post Tongue Tie Division M.Griffiths. Association of Tongue Tie Practitioners 2020

8 Appendix H - BTAT/TABBY TOOL

	0	1	2	Score
Tongue tip appearance	Heart shaped	Slight cleft /notched	Rounded	
Attachment of frenulum to lower gum ridge	Attachment at top of gum ridge	Attached to inner aspect of gum	Attached to floor of mouth	
Lift of tongue with mouth wide (crying)	Minimal tongue lift	Edges only to mid-mouth	Full tongue lift to mid-mouth	
Extension of tongue	Tip stays behind gum	Tip over gum	Tip can extend over lower lip	

TABBY Tongue Assessment Tool

	0	1	2	SCORE
What does the tongue-tip look like?				
Where it is fixed to the gum?				
How high can it lift (wide mouth)?				
How far can it stick out?				

9 Appendix I – Antenatal Hand Expressing

Background

Colostrum is the optimal source of nutrition for newborns. However, some infants are at risk of receiving manufactured milk before colostrum in the first few days after the birth, due to a number of medical conditions and possible barriers to early breastfeeding.

Antenatal hand expression and storage of colostrum during pregnancy can reduce the need for/amount of manufactured milk given to at risk infants.

Desired outcome

To raise the profile on the value of breast milk, the normality of hand expression and reduce the need for manufactured milks; thereby ensuring that all newborns including those at higher risk will, benefit from the best possible nutrition and reduce the risks associated with using manufactured milks.

Issues to Consider

- Nipple stimulation at term may assist with cervical ripening (up to 45 minutes three times a day)
- Nipple stimulation will not augment labour.
- Women successfully breastfeed whilst pregnant
- There is no significant relationship between nipple stimulation and inducing labour.

In recognition that nipple stimulation may cause uterine contractions/Braxton Hicks it is recommended that women:

- Commence daily expression at 36 weeks
- Start with 3-5 minutes each breast
- Total time 5-10 minutes, build up to 3 times a day
- Stop if hand expressing causes contractions, before 37 weeks.
- Mothers admitted in established preterm labour may hand express.

Equipment

- Knitted breast/diagram of breast for teaching
- Leaflet on hand expressing
- 1ml oral syringes for collection of any colostrum expressed
- Zip lock food bags to put syringes in
- Labels (mothers' name, date of birth and date of expression)
- Patient information leaflet antenatal hand expressing

Frozen colostrum should be put immediately in the freezer on arrival at hospital as once defrosted must be used within 12 hours

hand expressing breast milk .pdf

10 References and resources

Unicef Video clip of expressing: https://www.unicef.org.uk/babyfriendly/baby-friendly-resources/breastfeeding-resources/hand-expression-video/

Unicef Breastmilk Expression Checklist: https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2016/10/Assessment-of-breastmilk-expression-checklist-2017.pdf

Expressing and Storing Breastmilk – The Breastfeeding Network: https://www.breastfeedingnetwork.org.uk/publications-leaflets/

Global Health Media: How to Express Breastmilk Video: https://www.youtube.com/watch?v=axQi5PqRZ0M

Antenatal Hand Expression: A Critical Review of the literature. Chapman.T (2012) Midwife. 10.1016 2013

Antenatal Hand Expression: Women with diabetes: Outcomes from a retrospective cohort study. Soltani,H.et al (2012) International Breastfeeding Journal 7 (18) 1-5

Diabetes and Antenatal Hand Expression: A pilot project to inform the development of a random controlled trial. Forster,D. et al (2009). Midwives 2 209-214.

Lussier. Mary M. etal. 2015. Daily Breastmilk Volume in Mothers of Very Low Birth Weight Neonates: A Repeated-Measures Randomised Trial of Hand Expression Versus Electric Breast Pump Expression. Breastfeed Med. 2015 Jul-Aug;10(6):312-7.doi:10.1089/bfm.2015.0014.PMID:26204125

British Association of perinatal Medicine: Optimising Early Maternal Breast Milk for Pre-Term Infants: A Quality Improvement Toolkit. Nov 2020. https://hubble-live-assets.s3.amazonaws.com/bapm/redactor2_assets/files/755/BAPM_Preterm_MBM_Toolkit_Final_for_publication.pdf