THAMES VALLEY & WESSEX NEONATAL OPERATIONAL DELIVERY NETWORK

Guideline for Non-Nutritive Sucking

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Related documents	**References** Babylink (2014) Non-Nutritive sucking. The Neonatal Unit, Simpson Centre for Reproductive Health, The Royal Infirmary Edinburgh. www.babylink.scot.nhs.uk/…/nonnutritivesucking Duarte Roche et al (2007) A randomized study of the efficay of sensori-motor oral stimulation and non-nutritive sucking in VLBW infant. Early Human Development, Vol 83, no6, pp358-88. Dudley (2013) Non-Nutrtitive Sucking, Neonatal Unit Parent Information Leaflet. The Dudley Group NHS Foundation Trust. DGH ref DGH/PIL/00892 Foster.JP et al (2016) Non nutrititive sucking for increasing physiologic stability and nutrition in preterm infants (Review) Cochrane Library, Issue 10, CD001071 Greene.Z et al (2013) Oral stimulation techniques in preterm infnats- Internatinal research challenges. Journal of Neonatal Nursing Halfstom.M and Kielmer.I (2006) Non-nutritive sucking in the healthy pre-term Infant, Vol 60, No 1, pp13-24.

Harding.C (2009) An evaluation of the benefits of non-nutritive sucking for premature infants as described in the literature. Archives of disease in Childhood, Vol 94, pp636-640.

Harding.C, Law. J, Pring.T (2006) The use of non-nutritive sucking to promote functional sucking skills in premature infants: An exploratory trial. Infant Vol 2, No 6, pp238-43

Harding.C (2014) Non-nutritive sucking for infants: what are the issues? Infant, Vol 10, No 2, pp50-3.

Harding.C et al (2014) How does non nutritive sucking support infant feeding? Infant Behaviour and Development. Vol 37, no 4, pp457-64.

Jen-Jiuan et al (2012) Non-nutritive sucking and facilitated tucking relieve preterm infnat pain during heel stick procedures: a prospective, randomised, controlled crossover trial. International Journal of Nursing studies, Vol 49, no 3, pp300-9.

Lullaby Trust (2013) Sudden Infant Death Syndrome :A guide for professionals. Lullaby Trust. www.lullabytrust.org.uk

Lullaby Trust (2013) The Lullaby Trust : Evidence Base (SIDS) The lullaby trust. www.lullabytrust.org.uk

NHS (2019) Reduce the risk of sudden infant death syndrome. NHS Choice. www.nhs.uk/conditions/pregnancy-and-baby

Neiva.F et al (2014) Non-nutritive sucking evaluation in preterm newborns and the start of oral feeding: a multicenter study. CLINICS 69 (6), pp393-7.

NICE (2013) NTrainer® for developing non-nutrritive sucking in premature and newborn infants. Technology Alert. www.hsric.nihr.ac.uk

Pillai.Riddell.R et al (2015) Non pharmacological management of infant and young child procedural pain. The Cochrane Library.

Pimenta.H et al (2008) Effects of Non-nutritive sucking and oral stimulation on breast feeding rates for preterm, low birth weight infants: a randomiszed clinical trial. Jornal de Pediatra, Vol 84, No 5, pp423-7.

Pinelli J, Symington AJ. (2005) Non-nutritive sucking for promoting physiologic stability and nutrition in preterm infants. Cochrane Database of Systematic Reviews 2005, Issue 4. Art. No.: CD001071. DOI: 10.1002/14651858.CD001071.pub2. Publication Status: New search for studies and content updated

	(no change to conclusions.) Assessed as up to date 06 April 2010. Poore.M, Barlow.S, Wang.J, Estep.M and Lee.J, (2008) Respiratory treatment history predicts suck pattern stability in preterm infants, Journal of Neonatal Nursing, Vol 14, pp185-192. Pope.A and Walker.D (2014) Parent Information leaflet. Neonatal Non-Nutritive Sucking. Darent Valley Hospital. Dartford and Gravesham NHS Trust. UNICEF (2006) UNICEF UK Statement on dummy use, SIDS and breatstfeeding. The Baby Friednly Initiative. www.unicef.org.uk/babyFriendly/News-and-Research Warren.I (2010) Guidelines for infant development in the newborn nursery. St. Mary's Hospital, London.
Implications of race, equality & other diversity duties for this document	**This guideline must be implemented fairly and without prejudice whether on the grounds of race, gender, sexual orientation or religion.**

Guideline for Non-Nutritive Sucking

Contents

1.0 Aim of Guideline Framework

This guideline has been produced to direct staff in their care of neonates' resident on the Neonatal Unit. They are based on research findings and/or currently accepted best practice. For accessibility, the guidelines have been collated under distinct subheadings, in the order that information is likely to be needed in practice. However, the reader is advised to read the guidelines in full and to seek the advice and support of more senior or experienced colleagues, in the practice setting.

2.0 Scope of Guideline Framework

The guideline applies to all Neonatal Units and Maternity Units covered by Thames Valley & Wessex Neonatal Operational Delivery Network. This includes the following hospitals:

Thames Valley	
Buckinghamshire Healthcare NHS Trust	- Stoke Mandeville Hospital, Aylesbury
Frimley Health NHS Foundation Trust	- Wexham Park Hospital, Slough
Milton Keynes University Hospital NHS Foundation Trust	- Milton Keynes General Hospital
Oxford University Hospitals NHS Foundation Trust	- John Radcliffe Hospital, Oxford
Oxford University Hospitals NHS Foundation Trust	- Horton General Hospital, Banbury
Royal Berkshire NHS Foundation Trust	- Reading
Wessex	
Dorset County Hospital NHS Foundation Trust	- Dorset
Hampshire Hospitals NHS Foundation Trust	- Basingstoke
Hampshire Hospitals NHS Foundation Trust	- Winchester
Isle of Wight NHS Trust	- St Mary's Hospital
Poole Hospital NHS Foundation Trust	- Poole Hospital
Portsmouth Hospitals NHS Trust	- Queen Alexandra Hospital
Salisbury NHS Foundation Trust	- Salisbury
University Hospital Southampton NHS Foundation Trust	- Princess Anne Hospital
Western Sussex Hospitals NHS Foundation Trust	- St Richard's Hospital, Chichester

3.0 Guideline Framework

3.1 Background Information

Non-nutritive sucking (NNS) is when a baby sucks on a pacifier (non-nutritive tool), empty breast or gloved finger. The baby does not receive any nutritional intake or fluid, but gains in other ways e.g. self regulation and organisation, and relief of pain. It is often a useful precursor to breastfeeding and is beneficial for sick and preterm babies.

In utero a 28-33/40 fetus produces rhythmic bursts of NNS. The foetus' abilty to suck and swallow gradually develops until by 35-36/40 (post conceptual age) there is an increase in organisation and regulation of the central nervous system and the sucking rhythm matures. Babies who are born prematurely miss out on this opportunity to practice and develop their sucking and swallowing skills in utero, so by offering them NNS we can help them to gain this valuable skill.

The Cochrane report (2005) established that with NNS there was a decreased time in hospital for neonates, and no short term negative outcomes. Many other pieces of research since have shown that there are benefits to NNS.

The clinical rationale for using non-nutritive sucking (NNS) is to offer infants who have not fully established oral feeding the benefits of NNS. Also for infants to gain from its ability to relieve pain, offer comfort and aid to self regulation.

3.2 Why use Non–Nutritive Sucking?

- It reduces behavioural distress during painful procedures.
- It helps babies to self regulate, improving organised state and physiological stability especially during tube feeding.
- NNS provides a developmentally supportive response to behavioural cues.
- It is useful to help pacifier and for calming and soothing an infant.
- It may also provide an easier or more rapid transition from nasogastric to oral feeds increasing organisation and efficiency of sucking.
- It can also increase the positive association between sucking and satiation.
- Digestion of enteral feeds is facilitated by NNS. It is hypothesised that gut motility is increased during NNS therefore decreasing abdominal distension and likelihood of vomiting.
- Preterm babies are given a chance to practice sucking skills as they would do in utero.
- NNS can be used in cases of Neonatal Abstinence syndrome for comforting the withdrawing baby.
- NNS can be a short term comfort for babies who cannot feed for medical reasons.
- NNS may relieve the distress of a crying baby, who is affecting their respiratory status by continued crying i.e. RDS or TTN. It may be most appropriate to offer NNS, rather than have them continue to cry and compromise their breathing.
- Oromotor development may be disrupted in infants with respiratory distress who are routinely subjected to abnormal tactile stimulation of sensitive peri and intra-orbital tissues. This occurs during extended periods of intubation or cannulation with CPAP/ Vapotherm prongs or nasal Oxygen cannulae. NNS may assist in reducing or overcoming the negative effects of these abnormal stimulation experiences.

3.3 Practice Guidelines

- Explain to parents the value of NNS as a therapeutic intervention and provide a written information leaflet.
- Whenever possible obtain consent to use pacifiers before offering NNS and document this. There may occasionally be an urgent medical or therapeutic need for NNS where there will be no time to gain consent. Parents should be informed afterwards when and why this occured and consent gained for future episodes.

- NNS can be offered as a soon as a baby shows an interest or ability to suck. This could be as early as 24 weeks gestation.

3.3.1 For the Preterm Neonate

- If a baby has never been fed, a pacifier can be offered if the baby is awake and their behavioural cues indicate they may be receptive to a sucking experience. Allow the baby to suck for a long as it wishes.

3.3.2 For the Tube Fed Neonate

- Offer a pacifier 5-10 minutes before a tube feed will be taking place.
- Offer the pacifier during and after a tube feed as well. Until the baby does not appear to want it any more.

3.3.3 For the Breast Fed Neonate

- When a baby who will be breast fed begins to establish regular breastfeeding, the use of NNS as a deliberate intervention will narurally delcline, as the baby's cues for feeding will be responded to with a breast feed being offered.

- Although breaast feeding and sucking on a breast require different feeding techniques, it would still be appropriate to offer NNS when a baby's mother was not availale to breast feed.

3.3.4 For the Bottle Fed Neonate

- Baby's who will be having a bottle feed can be offered a pacifier as they begin to wake before a feed, whilst their bottle is being prepared. This can enable the baby to establish himself into a quiet awake state, before beginning the sucking feed
- If the baby is showing early feeding cues, the aim should be to offer the baby a feed, not to give NNS.
- When bottle feeding is fully established a pacifier will not be required for deliberate NNS around feeds, but can still be used for comfort.

3.4 General Guidelines

- Do not force the pacifier into a baby's mouth. Instead, gently touch the tip to the babys upper lips. If the baby then opens its mouth the dummy may be 'guided in' slowly along the roof of their mouth as they suck, to ensure it is sitting on top of the toungue.
- The baby may require assistance to keep the pacifier in it's mouth.
    - Try laying the baby laterally to support the baby to bring its hands up to its mouth.
    - If the baby is nested, the shape of the bedding may help to support the pacifier, however the baby must be able to move the pacifier from their mouth.

- Mothers may offer the breast immediately after expressing, providing the infant with an empty breast to use for NNS. This provides the infant with warmth and comfort as it suckles at the empty breast. However, this method will not be suitable for babies who are strictly nil by mouth, such as with necrotising enterocolitis or oesphageal atresia as a small amount of milk may be ingested.
- Advice should be sought from Speech and Language therapy, before offering NNS to babies with neurological or structural anomalies, eg oral-facial clefts or oesophageal atresia.
- Position baby in the incubator so that he/she can suck his/her own fingers if he/she wishes.
- Ensure NNS is offered to a baby as a therapeutic intervention and not indiscriminately or for long periods of time just to keep them quiet or make them wait for a feed.
- Consider offering NNS during skin-skin and kangaroo care. Encourage breast feeding mothers to express afterwards, as close contact with the baby may have boosted milik supply, by increasing prolactin production.
- As a method of pain relief offer the baby a pacifier shortly before, during and after a painful procedure until the baby is in an organised state again. If oral sucrose is available, the sucrose and pacifier can be offered in conjunction. A pacifier dipped in milk is also a useful pain reliever, for babies who are allowed milk orally.
- Other methods of consolation should be considered (e.g. containment/ holding) if a baby is reluctant to partake in NNS.
- Document in the careplan when NNS has been used, its effects and the baby's preferences.
- Offer parents written information at discharge, which includes the Lullaby Trust's guidance about the use of pacifiers when a baby goes to sleep, to reduce sudden infant death risk.

3.5 Pacifiers

There are few recommendations as to which type of pacifier to use, however, those that do exist are ;

- Pacifiers for neonatal use come in different sizes to suit the variety of patient sizes, follow the guidance on the packaging and see if a baby seems comfortable with the size offered.
- As baby's grow the size of pacifier they are being offered should be increased as it is better for an infant to maintain a wide mouth posture for later developments and breastfeeding rather than the tiny pursed attachment round a teat that has become too small for them. If the baby prefers the small one then explain to parents why it is important the baby move on to the next size up.
- A variety of pacifier shapes should be used if a baby has long term reasons for requiring NNS, for example they unable to feed orally. After 4-8 weeks a baby habituates to the pacifier shape and it will not be of benefit for hypersensitivity or oral aversion. Such babies should be under the care of the Speech and Language Therapy Department.
- Do not make makeshift pacifiers, especially by plugging teats with cotton wool/objects, due to the risk of inhaling fibres or inhaling objects.
- All pacifiers should be latex free.
- Provide individualised pots which are labelled with the infant's name and date. The cleaning and storage of pacifiers should be carried out as per each individual Unit's policy.
- A gloved finger can be used as a short term NNS tool for pain management and NNS. The glove used should be latex free and if parents are present their permission should be gained or them invited to provide the NNS themselves.
- If the baby is under the care of the Speech and Language Therapy Team, they may be given a pacifier that is a particular shape to suit the problems they have. For any baby without specific

problems, no particular shape of pacifier is required- although the size of the pacifier is important, as mentioned previously.

3.6 Pacifier Use and Sudden Infant Death Syndrome

- Routine use of a pacifier has been associated with lower rates of SIDS when settling a baby to sleep, so you may be asked by parents about whether the neonatal unit advises they use a pacifier for their baby.
- It is not currently clear how using a pacifier confers protection, the evidence for it is not strong, and there are concerns that pacifier use may interfere with the establishment of breastfeeding. There is also concern that infants are at greater risk of SIDS if they usually use a pacifier, but have not been given their pacifier on a particular night.
- The NHS website and Lullaby Trust current advice is;
    - It is possible that giving a pacifier at the start of sleep reduces the risk of SIDS.
    - If you do you a pacifier, don't start until breastfeeding is well established, usually around 1 month of age.
    - If a baby uses a pacifier as part of their routine, it should be given for every sleep period.
    - Gently withdraw use of a pacifier between 6-12 months of age, before possible adverse effects (otitis media, dental malocclusion, abnormal tongue position for speech/ feeding) occur.

3.7 Parents Information Leaflet

A Parent's Guide - s*ee appendix 1*.

Version Control:

Version	Date	Details	Author(s)	Comments
1	October 2010		SCNQCG	TV&W Neonatal Board approved
2	October 2013	Reviewed	SCNQCQ	TV&W Neonatal Board approved
3	August 2016	Revised Guideline reviewed with TV&W Lead Nurses and TV&W Development Care Leads – update presented with the new Parents Information Leaflet v1 to TV&W Neonatal ODN Governance Group on 13 Oct '16 for approval.	TVN Care Quality Group	Approved subject to comments received.
4	June 2019	Guideline revised and parents leaflet reviewed. Awaiting governance group ratification	TVWNODN, QCG	Ratified by Governance 04.12.2019
Review Date:	**December 2022**			

Thames Valley & Wessex Pathway

Non-Nutritive Sucking: Information for parents

What is non-nutritive sucking?

- Babies typically have two different types of sucking pattern, nutritive sucking and non-nutritive sucking. Nutritive sucking enables babies to suck milk to support their nutrition. Non-nutritive sucking happens when babies suck without taking any milk.

- A baby has a natural instinct to suck and it is important for your preterm or ill baby to have the opportunity to develop their sucking skills before they are old enough or well enough to take all of their milk feeds by themselves.

- Your baby can be given the opportunity to do non-nutritive sucking by offering them a dummy or pacifier to suck on.

What are the benefits of non-nutritive sucking?

Research has shown that the use of a dummy for babies who are receiving tube feeds can have the following advantages;

- It can provide a soothing experience during a painful or uncomfortable procedure.

- By offering non-nutritive sucking to your baby before, during and after a procedure, such as having a blood sample taken, non-nutritive sucking can reduce the amount of stress your baby experiences. Other methods used to soothe a baby include containment holding, rocking, skin to skin contact, breast feeding and talking softly to your baby. All these methods can be used during painful procedures to minimize the distress your baby may experience.

- Babies having non-nutritive sucking have been shown to transition from tube to full oral feeding faster, have a shorter hospital stay and some research suggests may have better weight gain.

- Your baby may be being fed through a tube as they are not ready to take all their feeds by themselves. By offering a dummy during a tube feed, your baby will learn to associate the experience of sucking with a feeling of a full tummy.

- Research shows that babies regulate their breathing better if they are allowed to suck on a dummy. It has also been found that babies who require oxygen

have improved oxygenation during tube feeds, if partaking in non-nutritive sucking.

Are there any concerns about using a dummy for non-nutritive sucking?

- The benefits for babies far outweigh any disadvantages that there might be, however, whether you use a dummy or not is your decision.
- There used to be a concern that babies may not establish breastfeeding well, if they are asked to swap between sucking on a breast and a bottle teat or dummy. However, this is now felt by professionals, not to be a problem for most babies.
- Also, when a baby does non- nutritive sucking there is no transfer of milk, and as yet no research to show that there is any confusion experienced by babies receiving non-nutritive sucking. By continuing to express whilst waiting for oral feeding to be established you can ensure that you will have adequate milk for when your baby is ready to feed at the breast.
- If you are planning to breastfeed your baby, there is a concern that offering the baby a dummy to suck on may hide the signals they are displaying that they are ready to breastfeed. If this happens regularly and the baby is offered a breastfeed less often, then a mother's breast milk supply could go down. However the team will be available to help and support you with this.

Choosing to give your baby a dummy.

- Staff will always ask for your consent before offering your baby a dummy.
- Your baby's dummy will be kept in a named pot next to their incubator/cot. The nursing staff will tell you how to keep it clean and hygienic, as this varies according to the infection control guidance in your hospital.
- Your baby can suck on a dummy for a few minutes before, during, and then after an uncomfortable procedure, until they are in a calm and relaxed state again.
- Allow your baby to suck on a dummy for a few minutes prior to a tube feed, and then during and after the feed, for a short time.
- Brush the dummy against your baby's top lip; if they want to suck they will open their mouth. Aim the dummy towards the roof of your baby's mouth and place it on top of their tongue and hold it in place until they have a strong suck.

- Your baby will probably spit the dummy out when they no longer need it, in which case it should be stored in their dummy pot.
- As your baby starts to feed more by mouth, the needs for a dummy will decrease.
- Once full feeds are achieved your baby should be content and settled and the dummy can be removed completely if you wish.

Reducing the risk of Sudden Infant Death by use of dummies

- A number of research studies have shown that if a baby routinely uses a dummy their risk of sudden infant death (SID) is lowered.

- This has led some parents to offer their baby a dummy every time they are settling the baby to sleep.

- It is not currently clear how using a dummy has this beneficial effect, and the evidence for it is not strong. There is also concern that infants are at greater risk of SIDS if they usually use a dummy, but have not been given their dummy on a particular night.

- The NHS website and Lullaby Trust current advice is;

    - It is possible that giving a dummy at the start of sleep reduces the risk of SIDS.

    - If a baby uses a dummy as part of their routine, it should be given for every sleep period.

    - Gently withdraw use of a dummy between 6-12 months of age, before possible adverse effects (glue ear, dental malocclusion) occur.

    - Do not force the baby to take a dummy or put it back in if the baby spits it out.

    - Don't use a neck cord to attach the dummy to the baby, and do not put anything sweet on the dummy.

If you have any questions or concerns regarding the use of non-nutritive sucking and dummies please ask a member of staff.

Thank you

Parent Information Booklet compiled by:

Thames Valley Neonatal Quality Care Group
Chaired by Katherine Reed