Ashford and St. Peter's Hospitals
NHS Foundation Trust

Guideline for Taste and Smell

Neonatal Developmental Care

Amendments			
Date	**Pages**	**Comment (s)**	**Approved by**
July 2019		**New Guideline**	

Primary Author: **Jo Leonard**

NICU Developmental Care Team

Contact for comments: **Sr Nora Chin**

Status: Approval date: 22 July 2019

Ratified by: Neonatal Guidelines Group

Review date: July 2024

Executive summary

Aim:

To provide a framework for encouraging positive taste and smell experiences for all babies cared for in the St Peter's Neonatal unit.

Clinical practice:

Positive taste and smell experiences

- During a nasogastric feed a baby can be offered a pacifier if they are awake and looking to suck. They can have the pacifier coated in colostrum/mum's expressed breast milk (MEBM) or a clean, gloved finger to suck which is coated in MEBM. This encourages and develops the sucking reflex for neonates, especially those who are premature and may not be quite ready to take suck feeds. (**Pacifier is preferred – consent from parents must be sought and documented in the NAP folder).**
- Kangaroo care can be offered and is a key activity to encourage bonding between the baby and parent and offers the baby exposure to their parents' scent, so it becomes familiar.
- Parents can leave their scent on a muslin cloth/soft toy which can be left next to the baby in their cot/incubator. Encourage the parent to have the cloth/soft toy next to them on their skin for a minimum of 30 mins or they could sleep with it overnight. This can then be used for the baby to lie on or be placed next to them. Caution should be made with soft toys that they do not obstruct the infants' airway or have cold/hard objects. Also, measures should be taken to make sure the cloth or soft toy is hygienic, so should be washed at 60 degrees before being placed near the infant. Mother's should take care not to transfer any breast milk onto the cloth/toy as it increases bacteria numbers.
- The muslin cloth/soft toy should be replaced regularly.
- Wherever possible mouth care should be a positive experience for babies and should be performed with colostrum or MEBM instead or sterilised water. This provides the baby with early exposure to MEBM. If a baby has vomited, mouth care should be offered to remove the unpleasant, acidic taste from their mouth.

Negative taste and smell experiences

- Exposure of babies to unpleasant tastes and noxious smells should be minimised. Infants have been seen to turn away and refrain from noxious smells at 26-28 weeks gestation.
- With the above in mind staff and parents should avoid using scented hand cream before touching the baby and avoid wearing strong perfume/aftershave.
- After using hand sanitiser gel, hands should be allowed to dry before touching the baby or putting hands into an incubator as the alcohol can be strong smelling if hands are not dry.
- Alcohol wipes should be opened outside an incubator and allowed to aerate before being used.
- Sensitively explain to parents/visitors that smoke residue on clothing can be harmful to babies and be irritating to their eyes and airways. Advice should be given about the risks of smoke exposure and how this can be minimised. Encourage parents to change into a hospital gown before doing kangaroo care if there is a concern or delaying kangaroo care until smell has resided. Ensure any clothing/blanket that the baby uses have been washed and dried in a smoke free environment.
- Medicines – many medicines are administered orally on the neonatal unit, especially as the baby is preparing for discharge. Consideration should be taken as to how this can be made as positive/least distressing for the infant as they often have an unpleasant and strong taste. If the infant is having their medication orally then consider diluting it with MEBM, for example in 5mls and given by a teat. Avoid diluting it too much and do not give in an entire bottle feed as this can make the whole feed unpleasant for the baby and may lead to them not taking their feed as they may be unwilling to suck.

Contents

Appendices

See also: Any relevant trust policies/guidelines or procedures

Developmental Care guidelines on intranet

1. Introduction

1.1

- Smell and Taste are closely interlinked and one system will not fully function without the other.
- The nasal system starts developing from week 7-8 of gestation and by week 24 of gestation the foetus is able to detect smell.
- The swallowing reflex occurs from week 12 of gestation.
- Non-nutritive sucking begins at approximately 18 weeks gestation.
- The foetus is capable of tasting from approx. 17 weeks gestation onwards and is fully functional at around 28 weeks.
- Between 26-28 weeks the foetus will be sensitive to bitterness and by week 30 of gestation they will start to show a preference to certain taste, especially sweet tastes.
- When infants are born prematurely, they often lack positive taste experiences due to the need to be fed via a nasogastric tube.

2. Scope

2.1 This guideline in relevant to all staff caring for babies across neonatal intensive care, transitional care and maternity.

3. Purpose

3.1 This guidelines aims to facilitate a common approach to the management of babies admitted under neonatal care. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

3.2 This guideline is subject to regular review to ensure ongoing evidence based practice.

4. Duties and responsibilities

4.1 All individuals responsible for the care of premature infants have a duty to be familiar with developmental care practices.

5. Background to Policy

Fetal taste and smell

Studies have shown that foetuses can detect different tastes and flavours in the amniotic fluid and will alter swallowing frequency in response to different solutions introduced to the amniotic fluid. Flavours transmitted into the amniotic fluid from the mother's diet appear to be detected by the foetus, as shortly after birth infants will respond differently to flavours experienced in the amniotic fluid. Preterm birth does not accelerate any of the early sensory development processes but can retard or interfere with the sensory development when exposed to stimuli, which are of intense, unusual character, or out of order in the genetically coded sequence. For example;

- The first few months of life are an essential part of the flavour learning process for humans and during this period the sensory experience of the high-risk neonate are drastically different from those of a typical infant, lacking continuity with prenatal sensory experiences.
- When fed by nasogastric or orogastric tube, infants have a relatively constrained olfactory and flavour experience in the context of feeding because their nutrition bypasses the oral and nasal cavities.
- Infants are also exposed to (and learn about) unpleasant or noxious odours including disinfectants, antibacterial compounds and cleaning solutions. Research studies have found a cortical response is elicited to odours that preterm infants often encounter in the neonatal unit. However, the long-term consequences of this altered sensory environment remain unknown.
- Detrimental responses have been noted to noxious odours, including reduced respiratory rate, periodic apnoea and increased heart rate. Studies have shown that biologically meaningful odours such as amniotic fluid, colostrum, breast milk are soothing to infants particularly when obtained from the baby's own mother. It is felt that introducing mothers' scent may prove beneficial to preterm and term infants by eliciting a suck reflex and reducing crying.

Vanilla

Over the last few years there has been a lot of discussion with regards to the use of vanilla in the neonatal unit. Research such as Praud (2015) and Edraki (2013) worked on the hypotheses that babies exposed to the scent of vanilla are more clinically stable and comfortable which helps self-regulation and self-soothing.
Research by Neshat et Al (2016) showed that whilst breastmilk made a notable difference when used before a painful stimulus, the scent of vanilla made no difference with regards to saturation levels and heart rate and as there is currently no specific evidence based guidance for neonatal nurses advising how to safely utilise vanilla scent on the neonatal unit, at present the use of vanilla scent appears to be an area for further research, and not a practice for implementing onto the neonatal unit.
It should also be advised by clinical staff to parents, to avoid vanilla scented pacifiers as they can mask other more important smells such as the parent's natural scent and the smell of breastmilk.

Vanilla scented pacifiers have also noted to have a sweet taste, which can lead to babies preferring to suck on them rather than the nipple when breastfeeding, which leads to nipple confusion and does not support mother-baby bonding.

6. Approval and Ratification

6.1 This guideline will be approved and ratified by the Neonatal Guidelines Group.

7. Dissemination and Implementation

7.1 This guideline will be uploaded to the trust intranet 'Neonatal Guidelines' page and thus available for common use.
7.2 This guideline will be shared as part of ongoing education within the Neonatal Unit for both medical and nursing staff.
7.3 All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

8. Review and Revision Arrangements

8.1 This policy will be reviewed on a 5 yearly basis.
8.2 If new information comes to light prior to the review date, an earlier review will be prompted.

9. Document Control and Archiving

9.1 Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Neonatal Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

10. Monitoring compliance with this Policy

Measurable Policy Objective	Monitoring/ Audit method	Frequency of monitoring	Responsibility for performing the monitoring	Monitoring reported to which groups/ committees, inc responsibility for reviewing action plans
Compliance with policy	Weekly developmental care ward rounds		Developmental care team	

11. Supporting References / Evidence Base

Other Documents
Guidelines:

- Guideline for Gustatory and Olfactory environment on the neonatal unit. Frimley Park Hospital
- Guideline for Taste and Smell on Neonatal Units. Thames Valley and Wessex Neonatal Operational Delivery Network
- Developmental Care Guidelines for Neonates. North Devon Healthcare

References

- Bartocci.M et al (2001) Cerebral hemodymanic response to unpleasant odours in the preterm newborn measured by near– infrared spectroscopy. Paediatric Research. Vol 50, No 3, pp324-30.
- Beauchamp, G K and Pearson, P.1991. Human development and umami taste. Physiol Behav. 49(5):1009-12.
- Berk, L.E. (2000) Child development (5th ed) Needham Heights; Allyn and Bacon.
- Bliss (2015) Bliss Family Friendly Accreditation Scheme, 1st edition. Bliss Publications. London. www.bliss.org.uk
- Browne J Chemosensory Development in the Fetus and Newborn. December 2008 Newborn and Infant Nursing Reviews 8(4):180-186
- Dulson.P (2014) Guideline for Family Centred Developmental Care V1.2. The Northern Neonatal Network. www.nornet.org.uk
- Eichel, M. and Coughlin, M.E. (2007) Developmentally Supportive Care, An evidence- based self-study module (2nd ed.) Murrysville: Children's Medical Ventures, LLC.
- Graven.S and Browne.J. V (2008) Sensory Development in the Fetus, Neonate and Infant: Introduction and Overview. Newborn and Infant Nursing Reviews. Vol 8, No 4, pp169-72.
- Hadley, L.B., West W., Turner A. and Santangelo Developmental and behavioural characteristics of preterm infants. Santa Rosa: NICU INK.
- Holditch-Davis, D., Blackburn, S.T. and Vandenberg, K. (2003) Newborn and Infant Neurobehavioural Development. In C. Kenner and J. Wright Lott (Eds.). Comprehensive Neonatal Nursing: A Physiologic Perspective (rd ed.) (pp. 236-284). St. Louis: W.B. Saunders.

- https://www.asthma.org.uk/advice-trigger-smoking
- http://www.babycentre.co.uk/x25008143/is-it-safe-to-use-ecigarettes-around-my-baby#ixzz3qgJ2LtHL
- http://www.bbc.co.uk/news/health-31146418
- http://www.madeformums.com/news-and-gossip/cigarettesmoke-in-your-clothes-could-harm-your-baby/1751.html
- https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2014/02/Guide-to-the-Unicef-UK-Baby-Friendly-Initiative-Standards.pdf
- Jodi.RN (2013) The profile of a preemie: The senses and your premature baby. www.peekabooicu.net/2013/02/the-profile-of-apreemie
- Laudert.S et al (2007) Implementing potentially better practices to support the neurodevelopment of infants in the NICU. Journal of Perinatology, Vol 27, S75-S93.
- Lawrence. R and Lawrence.R (2011) Breastfeeding: A guide for the medical profession. (7th Ed) Elsvier, Mosby.
- Lipchock.S.V, Reed.D.R and Mennella.J.A (2011) The gustatory and olfactory systems during infancy: Implications for development of feeding behaviours in the high risk neonate. Clinical Perinatology. Dec, Vol 38, No 4, pp627-41
- LLT (2011) Sensory Development Life's little treasures foundation. http://lifeslittletreasures.org.au.prematurityresources/support-for-famillies
- Marlier L and Schaal B. 2005. Human newborns prefer human milk: conspecific milk odor is attractive without postnatal exposure. Child Dev. 76(1):155-68.
- Mennella.J.A et al (2001) Prenatal and postnatal flavour learning by human infants. Paediatrics. June 2001, Vol 107, No6, E88. pp1-12.
- Merenstein, G.B. and Gardner, S.L. (Eds). (2002) Handbook of Neonatal Intensive Care (5th ed.). St. Louis: Mosby.
- Mitra.E et al, (2013) Olfactory stimulation by vanillin prevents apnea in premature newborn infants. Iranian Journal of Pediatrics, Vol 23, No 3, pp261-68.
- Mizuno K, Mizuno N, Shinohara T, and Noda M. 2004. Mother-infant skin-to-skin contact after delivery results in early recognition of own mother's milk odour. Acta Paediatr. 93(12):1640-5.
- NANN (2014) Age-appropriate care of the premature and critically ill hospitalised infant. National Association of Neonatal Nurses. www.nann.org

- Neshat H, Jebreili M, Seyyedrasouli A, Ghojazade M, Hosseini MB, Hamishehkar H. 2016. Effects of Breast Milk and Vanilla Odors on Premature Neonate's Heart Rate and Blood Oxygen Saturation During and After Venipuncture. Pediatr Neonatol. 57(3):225-31.
- Nishitani S, Miyamura T, Tagawa M, Sumi M, Takase R, Doi H, Moriuchi H, and Shinohara K. 2009. The calming effect of a maternal breast milk odor on the human newborn infant. Neurosci Res. 63(1):66-71.
- Praud.J-P (2015) Effects of vanilla on hypoxic intermittemt events in premature infants. Clinical Trials.gov www.clinicaltrials.gov/ct2/show/record/NCT02630147
- Schaal, B., Hummel, T. and Soussignan, R. (2004) Olfaction in the fetus and premature infant: Functional status and clinical implications. Clinics of Perinatology, 31(2): 255-259.
- Sizun.J and Browne.J (2005) Research on Early Developmental Care for Preterm Infants. John Lilley and Company, Surrey
- Warren. I., (2005) Foundation Toolkit for Family Centred Developmental Care. Bliss
- Warren, I. and Bond, C. (2010) A Guide to Infant Development in the Newborn Nursery (5th ed.). London: The Winnicott Foundation.

APPENDIX 1: EQUALITY IMPACT ASSESSMENT

Equality Impact Assessment Summary

Name and title:
Policy:

Background • Who was involved in the Equality Impact Assessment
Neonatal guidelines group
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
The group considered the effect of the policy on the various groups within our neonatal population; and staff employed, including race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation and age.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
The policy in inclusive
Conclusion • Provide a summary of the overall conclusions
No adverse features of the policy identified
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
The policy is suitable for implementation.

APPENDIX 2: CHECKLIST FOR THE REVIEW AND APPROVAL OF DOCUMENTS

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.
Title of the document:
Policy (document) Author:
Executive Director:

		Yes/No/ Unsure/ NA	Comments
1.	**Title**		
	Is the title clear and unambiguous?	**Y**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**Y**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**Y**	
	Is the purpose of the document clear?	**Y**	
	Are the intended outcomes described?	**Y**	
	Are the statements clear and unambiguous?	**Y**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**Y**	
	Who was engaged in a review of the document (list committees/ individuals)?	**Y**	Neonatal guidelines group
	Has the policy template been followed (i.e. is the format correct)?	**Y**	
4.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	**Y**	
	Are local/organisational supporting documents referenced?	**Y**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**Y**	
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?		
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Y**	
	Does the plan include the necessary training/support to ensure compliance?	**Y**	
7.	**Process for Monitoring Compliance**		

		Yes/No/ Unsure/ NA	Comments
	Are there measurable standards or KPIs to support monitoring compliance of the document?	**NA**	
8.	**Review Date**		
	Is the review date identified and is this acceptable?	**Y**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?	**Y**	
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	Y	

Committee Approval (Neonatal Guidelines Committee)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	 Dr M. S. Edwards	**Date**	July 2019
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			