# GUIDELINE FOR TASTE AND SMELL ON NEONATAL UNITS

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| | [https://www.asthma.org.uk/advice-trigger-smoking](https://www.asthma.org.uk/advice-trigger-smoking) |
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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.

Jodi.RN (2013) The profile of a preemie: The senses and your premature baby. [www.peekaboocu.net/2013/02/the-profile-of-a-preemie](http://www.peekaboocu.net/2013/02/the-profile-of-a-preemie)


Guideline for Taste & Smell on the Neonatal Unit

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1.0 Aim of Guideline Framework

To provide a framework for optimising the taste and smell experience of all babies cared for in Neonatal Units, in the Thames Valley and Wessex Neonatal ODN.

This guideline aims to fulfil the requirements in the Bliss Family Friendly Accreditation Scheme Audit Tool:
1.7A ‘Your unit has an evidence based guideline for optimising the olfactory environment for infants’.
1.7B ‘Your unit uses a range of strategies to optimise the olfactory environment for infants.’

2.0 Scope of Guideline Framework

The guideline applies to all Neonatal Units covered by Thames Valley & Wessex Neonatal ODN. This includes the following hospitals:

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2.7A ‘Your unit has an evidence based guideline for optimising the olfactory environment for infants’.
2.7B ‘Your unit uses a range of strategies to optimise the olfactory environment for infants.’

3.0 Guideline Summary

Positive taste and smell experiences

- Mouth care should be performed using colostrum or maternal breast milk.
- During a tube feed any baby who is awake and receptive should be offered the opportunity to taste the milk, even if they are not ready or able to have a sucking feed. This can be done by offering the baby a pacifier or gloved finger to suck which is coated with the milk.
- Encourage parents (particularly mothers) to leave their odour next to the baby. Using a muslin cloth or soft toy that has been inside the parental clothing, gaining parental scent. The cloth or item can then be place next to the baby, or if suitable, the baby can be laid on the flat cloth, or a
muslin can be used to line a baby's nest. Particular caution should be taken to keep the cloth/item hygienic.

- Help baby’s gain exposure to parental scent through skin to skin/ kangaroo care with their mother or father.
- Using vanilla scent therapeutically is not recommended for neonates. This includes the use of vanilla scented pacifiers which should not be provided by Neonatal Nits.
- Offer all parents the information leaflet on taste and smell.

**Negative taste and smell exposure**

- Staff and parents should allow alcohol hand sanitising gel to dry before touching the baby, or putting their hands into the incubator with the baby.
- Cleansing wipes containing alcohol or other chemical should not be opened inside the baby’s incubator. Instead they should be opened outside a baby’s incubator and approximately 30 seconds should elapse before taking the wipe into the incubator.
- Staff and parents should avoid using scented body/ hand lotion, perfume and /or aftershave.
- Smoke residue in clothes or on a parents skin can be irritating to a baby’s eyes or nasal passages, and exposure should be avoided.
- Parents should be informed of the risks of smoke exposure to their baby and given advice about how to minimise this.
- Many medicines have an unpleasant taste, and some are likely to make a baby gag or vomit if given orally.
  - Where possible these should be administered via nasogastric or orogastric feeding tube.
  - If the medicine is not too concentrated or unpleasant it can be given by putting 3-4 mls of milk into a teat with the medicine.
  - If necessary split into more frequent but smaller doses that can be managed by the baby.
  - If the medicine is very concentrated or unpleasant to taste, but the baby is bottle feeding, the medicine can be given into a larger volume of feed.

### 4.0 Guideline Framework

#### 4.1 Background Information

At birth the NICU environment provides the newborn with some of their earliest post- natal chemosensory experiences. Many of which will be noxious odours and unpleasant tastes. It is unclear what impact these negative chemosensory experiences will have in shaping subsequent chemosensory responses.

Current best practice- outlined in this guideline, aims to minimise a baby’s exposure to noxious odours and unpleasant tastes and to support early exposure to parent’s odour and opportunities for positive taste and oral sensory experiences.
Biology of taste and smell

Taken from Lipchock et al (2011), Graven et al (2008) and LLT (2011)
Flavour is a product of several sensory systems, most notable those of the chemical senses, taste and smell. Only a small number of taste qualities can be perceived by the tongue; sweet, salty, bitter, sour and savoury. However, smell sensations encompass thousands of diverse qualities, including the flavours noted above.

Taste occurs when chemicals come into contact with the taste receptors on the tongue, palate, throat epiglottis and oesophagus and send signals to the brain. Taste cells begin to form in the foetus in the 7th-8th week and are functionally mature by around week 17.

Odours are recognised by the olfactory receptors, which are located on a small patch of tissue in the nasal cavity. They are stimulated during inhalation, but also when infants suck and swallow, as chemical constituents reach the receptors. These receptors are formed in the foetus by the 8th week of gestation and are functional as early as the 24th week.

In utero the foetus begins swallowing about the 12th week of gestation, with non-nutritive sucking occurring from around the 18th week. After 6 months of gestation amniotic fluid is also inhaled. This means that the inhalation and swallowing of amniotic fluid is the first chemosensory experience of the healthy fetus.

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.
4.2 Clinical Practice

To support the development of taste and smell

- Whenever possible mouth care should be performed using colostrum or maternal breast milk. This is understood to offer multiple benefits including
  - Offering the baby a positive oral experience.
  - Supporting early sensory development of taste and smell.
  - If colostrum is given the baby can absorb many of its advantageous constituents through the oral mucosa.

- For full details of best practice for mouth care - see Thames Valley and Wessex Neonatal ODN Guideline ‘Mouth care on the Neonatal Unit.

- Consider increasing the frequency of mouth care when a baby is known to be refluxing, as they likely to have old partially digested milk and acidic stomach contents come into their mouth as a result of their reflux.

- When a baby has vomited mouth care should be given to remove the unpleasant taste and acidity.

- During a tube feed if a baby is awake and receptive, they should be offered the opportunity to taste the milk, even if they are not ready or able to have a sucking feed. They will enjoy the taste of the milk, but can also begin to develop an association between the taste of the milk and the satiation of their appetite.

  - This can be done in a few ways;  
    - Offering the baby a pacifier to suck during the tube feed, the pacifier having first been dipped into the milk feed.
    - Offering the baby a gloved finger to suck- which has coated with milk first.

- When a baby is stable enough they will benefit from skin to skin kangaroo care with their mother or father. They are able to gain exposure to parental scent and through experience may begin to recognise and gain comfort from their parent’s familiar odour.

- Encourage parents (particularly mothers) to leave their odour next to the baby;
  - Select a suitable item for this purpose- a fabric square, muslin cloth, a soft toy, a special cloth doll designed for the purpose.
  - Ideally this item should be washed at 60°C before first use to reduce infection risk.
  - If a parents has a known infection concern (ie, they are MRSA +ve) then this technique is NOT suitable.
  - Parents should place the cloth on their clean skin, free from perfumed products and cigarette odours.
  - Leave cloth a minimum of half an hour to absorb parental odour- can be overnight.
  - A mother can place cloth near her breasts to obtain her odour but should not contaminate the cloth with milk.
  - The cloth or item can then be place next to the baby, or if suitable, the baby can be laid on the flat cloth, or a muslin can be used to line a baby’s nest.
  - Take care that the item does not obstruct the baby’s airway.
  - If parents use more than one cloth, these can be rotated between the baby and parent, enabling refreshing of the scent and washing as required.
  - Particular caution should be taken to keep the cloth/item hygienic if the baby is nursed in a humidified incubator, as there are concerns that bacterial growth may be encouraged on the cloth in a warm moist environment- although there is no clear evidence to support this.
Vanilla scent

- There is some documentation within the research literature of babies on neonatal units being deliberately exposed to the scent of vanilla (in a liquid form). This is based on the theoretical understanding that babies exposed to a vanilla scent exhibit less hypoxic events (e.g. desaturations, bradycardias or apnoea of prematurity) and/or are comforted by the scent, bringing about improvements in self-regulation and self-calming (Praud, 2015) (Edraki, 2013).

- There is currently no specific evidence based guidance for neonatal nurses advising how to safely utilise vanilla scent on the neonatal unit. So 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.

- What is available to neonatal units (and the general public) are pacifiers deliberately manufactured with a vanilla scent, marketed as ‘soothing’ for babies. A literature search revealed one concern about these products: Lawrence and Lawrence (2011) identify that babies (over 35 weeks gestation, who can differentiate between sweet and non-sweet tastes) can significantly prefer sucking on a vanilla flavoured pacifier to sucking on a nipple, so they advise that they are not used for breast feeding babies.

- From observation of babies in practice, some nurses within the Network have noted that babies can smell very strongly of vanilla after sucking on the vanilla scented pacifier, with the whole incubator or cot space smelling ‘sweet’. If the vanilla scent is concentrated around the baby in this way, then it seems there must be a risk that the vanilla scent will overpower other biologically important, but more subtle smells, such as colostrum or maternal/paternal scent.

- Based on these two concerns, it is recommended that units inform parents (who might be purchasing a pacifier for their baby) of these possible issues. Also units who purchase supplies of pacifiers for use on the neonatal unit, purchase the non-scented variety.

To minimise noxious taste and smell exposure

- Staff and parents should allow alcohol hand sanitising gel to dry before touching the baby, or putting their hands into the incubator with the baby.

- Cleansing wipes containing alcohol or other chemical should not be opened inside the baby’s incubator. Instead they should be opened outside a baby’s incubator and some time allowed for the excess alcohol/chemical to evaporate (approx. 30 seconds) before taking the wipe into the incubator.

- Staff and parents should avoid using scented body/hand lotion, perfume and/or aftershave which may be experienced by the baby as noxious or unpleasant.

- Where skin care preparations must be used on an infant’s skin- these should be removed promptly to minimise exposure.

Cigarette smoke

- Cigarette smoke on parent’s skin or clothes is an unpleasant smell and babies will be exposed to this if parents touch them after smoking. Especially if they cuddle them or do kangaroo care after smoking.

- Smoke residue in clothes or on a parents skin can be irritating to a baby’s eyes or nasal passages, and exposure should be avoided.

- There has been debate over the safety of e-cigarettes since they were introduced. Although they are generally thought to be less harmful than smoking real cigarettes, because they contain no tobacco, they do still contain the chemical nicotine and propylene glycol.
• Parents should be informed of the risks of smoke exposure to their baby and given advice about how to minimise this, including;
  o For parents to have two sets of clothing, one clean, smoke free set for wearing onto the neonatal unit and another set which they change into when they go to have cigarette.
  o If parents are unwilling to change all clothing before and after smoking, then as a minimum they should put on additional shirt/jumper or jacket when smoking, that is removed before entering the neonatal unit.
  o Parents to wash their hands after smoking and before touching the baby.
  o Parents should be encouraged to clean their teeth after smoking and before interacting closely with or kissing their baby.
  o Consider delaying cuddles and kangaroo care until an hour after a parent has smoke, especially if the baby will be indirect contact with smoke exposed clothing.
  o Encourage parents to prewash clothing/ materials brought in from home and dry them in a smoke free environment. Consider offering to wash them on the unit if a smoke free environment in not attainable at home.
  o If parents want information or support to quit smoking, then they should be put in touch with the appropriate local services; for example Midwife, GP, Health Visitor, Neonatal Unit- smoking cessation link, NHS website, NHS stop smoking campaign.

Discussing smoke exposure and parental/familial smoking should be done with sensitivity, as parents may feel they are being discriminated against, or pressurised not to smoke. In particular having a baby on the Neonatal Unit is experienced as stressful and distressing and many parents may be using smoking to help them cope with this situation.

To ensure information is passed to all parents/ families on this topic, but to avoid any sense of victimisation it is recommended that;

• Every parent is given a copy of written information about smoking and smoke exposure.
• When the leaflet is given out, staff should talk through the information on the leaflet with parents.
• It should be clearly documented in a designated place that the leaflet has been given to parents and a conversation held about the information.
• Staff will be able to see that the information has been given to parents and will not repeat a message that has already been received.

Medicines

• Many medicines have an unpleasant taste, and some are likely to make a baby gag or vomit (for example Nacl 30%) if given orally. Where possible these should be administered via nasogastric or orogastric feeding tube. When there is no tube in situ it is usually best to mix the medication with some milk to dilute the medicine and mask the taste. This can be done by;
  o If the medicine is not too concentrated or unpleasant it can be given by putting 3-4 mls of milk into a teat with the medicine, and allow the baby to take this small amount of milk with medicine in- before then having their usual breast or bottle feed. If the medicine is offered to the baby after they have completed their full feed, they may be unwilling to suck any more milk, and the medication will be late or not taken.
  o If the medicine is very concentrated or unpleasant to taste and the baby is solely breast feeding, then it will need to be administered as described previously, but perhaps split into more frequent but smaller doses, that can be managed by the baby.
  o If the medicine is very concentrated or unpleasant to taste but the baby is bottle feeding, the medicine can be given into a larger volume of feed. The disadvantage of this is that the baby has a less pleasant feeding experience due to the medicine contaminating the taste of the whole feed. The best solution would be to observe what milk volume a drug
needs to be in, so that the baby can comfortably take the feed without gagging or vomiting. If it is possible to retain a portion of the feed, to give to the baby without any medication in it, then that should be done and given as the second half of the feed, so that the baby can enjoy this taste, and be left with the more pleasant milk only aftertaste.

**Documentation – Parents Information Booklet see Appendix 1**

- All parents should be informed of the risk to the baby from smoke exposure, from family or friends. They should be given advice about minimising the exposure for the baby, whilst it is on the neonatal unit. Staff should document in an agreed place that this information has be given both in written and verbal form.

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**Review Date:** February 2019
Taste and Smell

Information for Parents

- Babies cared for on the neonatal unit can miss out on the positive taste and smell experiences that the healthy full term baby will experience.
- If your baby is born early, they will also have missed some time in the womb, tasting and swallowing amniotic fluid—experiencing different tastes as their mother eats different food.
- These experiences are important in their development, helping them to:
  - Recognise their parents’.
  - Enjoy a range of tastes and smells.
  - Encourage a sense of pleasure in eating and drinking.
- Babies cared for on the Neonatal Unit often experience unpleasant smells and tastes, from medicines, disinfectants and cleaning solutions, which they appear not to enjoy.
- These unpleasant experiences have been found to make some babies breathe less, hold their breath or change their heart rate.
- Where possible we try to reduce these unpleasant experiences and enable positive tastes and smells in their place.

You can help your baby learn about and enjoy their sense of taste and smell.
Enjoying Taste and Smell

- Give your baby mouth care to freshen their mouth using milk so they enjoy a positive taste.

- Ask your baby's nurse to show you how to do mouth care. They can also give you a written information leaflet explaining what to do and why.

- If you are able to express your colostrum or breast milk to use for mouth care, the baby can also benefit from its many special health properties.

- Your baby may gain comfort from your smell, and will learn to recognise your smell, if you leave your odour next to your baby using a muslin cloth, or special cloth doll/toy.
  - Whatever item you choose to leave with the baby should be washed at 60°C before use to kill any germs.
  - Ensure you have clean skin, ideally without unnatural smells such as perfume, aftershave or cigarette smoke.
  - Tuck the cloth in your clothing, against your skin, for at least half an hour, ideally overnight.
  - Mums may want to place the cloth between their breasts, but should make sure it does not actually get breast milk on it.
  - The cloth (or toy/doll) can then be placed near your baby's nose and mouth ensuring they have space to breathe.
  - If you use a muslin cloth the baby can be laid on the cloth, have it tucked over them like a blanket or used to line the nest that they lie in.
  - The cloth needs to be washed regularly to be certain it is clean and hygienic. Many parents will have more than one cloth and rotate them, so the cloth is always clean and their scent fresh.
Avoiding less enjoyable tastes and smells

- When you rub alcohol gel onto your hands to clean them, wait 30 seconds for it to dry before touching your baby or putting your hands into the incubator. This allows the alcohol to evaporate, reducing the unpleasant smell.

- Avoid using scented body lotion, perfume or after shave whilst spending time with your baby in hospital. The strong smells are not enjoyed by early or sick babies and will mask your natural smell.

- Avoid using a vanilla scented pacifier for your baby. Its scent may mask other enjoyable smells such as your natural smell, or the smell of breast milk.

- When nurses and doctors use medical products near your baby, such as alcohol wipes, they should wait at least 30 seconds after opening the wipe, before putting them near your baby, to allow the worst of the smell to evaporate.
Cigarette Smoke

- Babies are aware of cigarette smoke on people’s skin and/or clothing and do not enjoy the smell or taste of it.
- Smoke residue in clothing or on someone’s skin can cause irritation to a baby’s eyes or nasal passages.
- Babies will be exposed to this cigarette smoke when a smoker, touches, cuddles or does kangaroo care with a baby after smoking.
- E-cigarettes are felt to be less harmful to babies, but still contain chemicals such as nicotine and propylene glycol which a baby can be exposed to.
- People who smoke and who will be in contact with your baby are advised to:
  - Wear a jumper/shirt/jacket to smoke in, and then remove this before entering the nursery in the Neonatal Unit.
  - Wash their hands after smoking and before touching the baby.
  - Consider delaying cuddles and kangaroo care until an hour after they have smoked, especially if the baby will be in direct contact with the smoke exposed clothing.
  - If someone who smokes is bringing in clothes or bedding for the baby, try to ensure the items are washed first and dried in a smoke free environment.

If you or someone you know would like to give up smoking you can be given information, advice and support to do this. Please ask your baby’s nurse, midwife or doctor for more information or go to

www.quitnow.smokefree.nhs.uk

Parent Information Booklet compiled by:
Thames Valley & Wessex Neonatal Developmental Care Leads Group
Chaired by Carol Buxton