

Early administration of Buccal Colostrum to sick and premature infants admitted to the NNU

Background

Colostrum is milk produced in the first few days after delivery. It is rich in immuno-protective, anti-infective agents and growth factors such as immunoglobulin A, cytokines, APP Lysozymes, lactoferrin, and epidermal growth factor. Together, these chemokines and trophic agents protect the infant from infection, stimulate the development of the gastrointestinal tract and modulate the immune system, especially in preterm infants.

Colostrum produced by mothers who deliver preterm infants has a higher concentration of immunologically active factors compared to colostrum of mothers who deliver at term gestation. When administered directly onto the oral mucosa colostrum may provide benefits by acting in several ways; by stimulating the oropharyngeal-associated lymphoid tissue system, by systemic absorption of protective factors through the buccal mucosa inducing systemic immune responses, by acting as barrier preventing microbial adhesions to the mucosa and enhanced the development of the gastrointestinal tract.

Preterm infants are at a particularly high risk of late onset sepsis (LOS) and necrotising enterocolitis (NEC) which can lead to death, increased morbidities, prolonged hospital stay, increased cost of care, and worse long term outcomes among survivors. Administration of buccal colostrum in the first few days of life is safe, feasible, prophylactic measure against sepsis, NEC and ventilator associated pneumonia.

Recent studies have found a reduction in time to full feeds and a higher incidence of prolonged breast milk feedings in infants whose mother's provided colostrum for buccal administration in the first few days of life.

Administration of buccal colostrum is a safe practice used to provide the benefits of colostrum to all sick and preterm infants who cannot access oral breast feeds and can be used even in the critically-ill, ventilated, fragile infants. Colostrum is placed in the buccal cavity by a syringe or gloved finger. Colostrum is not swallowed by the infant but it is absorbed locally by the buccal mucosa.

See WMNODN film on 'early expressing and benefits of colostrum'

This guideline presents a safe and practical procedure for administration of buccal Colostrum to sick and preterm infants. It should be used in conjunction with other infant feeding and oral care guidelines.

2 Aim

To enable preterm and/or sick infants to receive mother's own colostrum via buccal administration.

Patient Group

- Preterm infants (born <34 weeks gestation) admitted to the NNU
- or
- Any infant admitted to NNU who is not receiving feeds such as infants on respiratory support and/or inotropes, infants receiving therapeutic hypothermia and infants with a surgical condition contraindicating feeding (e.g. gastroschisis, oesophageal atresia +/- fistula, duodenal atresia).

3 Babies who don't require buccal colostrum

- Any contraindication for receiving mother's own milk, such as maternal HIV infection
- Oral breast feeding as these infants will receive colostrum orally as first few feeds after birth

4 Procedure

- All mothers anticipating delivery of an eligible infant should be informed about the benefits of colostrum. Give written information, Network Buccal Colostrum Leaflet, and signpost to the WMNODN film on 'early expressing and benefits of colostrum'. They should be advised to express as soon after delivery as possible, ideally within one hour. This information must also be included in antenatal counselling, wherever possible.
- Administration of buccal colostrum should ideally be initiated as soon as colostrum is available, ideally within 2 hours of birth
- Only the mother's own colostrum should be used
- Fresh colostrum should be administered when available. Stored colostrum may be used in order of expression if fresh colostrum unavailable (as per the guidelines for breast milk storage). Avoid freezing colostrum due to degradation of the bioactive compounds – endeavour to give ALL colostrum expressed.

4.1 Steps of administration

All colostrum and MEBM should be stored and handled as per unit or Network Breast Milk Storage and Handling Guidelines.

1. Provide mother with labelled sterile containers/enteral syringes for colostrum collection. Labels should identify the infant's name, infant's hospital number, date of birth and the date and time of colostrum expression. Colostrum can be collected in appropriately labelled 1 or 2 ml enteral syringes.
2. Wearing clean gloves put a maximum of 0.3 ml of mother's colostrum in a 1ml enteral syringe, cap and label it with infants name, hospital number, date of birth & date and time of expression. At the infant's bedside, verify that the medical records on the colostrum container match those on the infant's record chart.
3. Perform mouth care as routine.
4. Remove the cap of the syringe and gently insert the tip of the syringe into the infant's mouth along the right side and directed posteriorly towards the oropharynx. Administer a maximum of 0.15 ml of colostrum slowly. Place the syringe along the left side and deliver another 0.15 ml of colostrum by the same procedure.

Alternatively expel a maximum of 0.15ml colostrum onto a gloved finger and gently insert gloved finger into the infant's mouth along the right side and directed posteriorly towards the oropharynx. Massage the colostrum into the gum from the gloved finger. Repeat on the left side.

Do not use a swab as this will absorb colostrum leaving little to be absorbed by the infant.

5. Avoid oral suction for 30 min
6. Monitor the vital signs of the infant throughout the procedure.
7. Repeat the procedure **every 3 hours for a maximum of 48 hours.**
8. If there is excess colostrum this can be given via the N/OGT alongside the administration of buccal colostrum volumes and recorded as enteral feed volumes
9. Record the procedure on the infant feeding record chart.
10. If feeds are commenced, the oral colostrum should be given first and then the OG/NG feed. Oral volumes should be recorded separately and not included as part of the feed volume.

11. Record any adverse effects on the chart and in the medical notes.
12. Parental involvement in the administration of buccal colostrum is recommended. Nursing staff may teach and supervise them to give colostrum by either route.

5 Information for parents

- Parents should be shown the WMNODN film on 'early expressing and benefits of colostrum' www.swmmnn.org.uk/media/
- Give verbal information about the multiple benefits of mother's colostrum/milk for their sick or preterm infant, preferably antenatally
- Give written information to - Network Buccal Colostrum Leaflet
- Advise the mother to start expressing milk as soon after delivery as possible. Encourage mothers to express colostrum within an hour of delivery or as soon as possible and a minimum of 8 times per day. . (www.swmmnn.org.uk/guidelines/).
- Inform the parents that colostrum is initially expressed in small volume

6 For further information please contact:

Sara.clarke1@nhs.net

7 References

- DIANE L. SPATZ, P. R. F., AND TARYN M. EDWARDS, BSN RNC 2009. The Use of Colostrum and Human Milk for Oral Care in the Neonatal Intensive Care Unit. *National Association of Neonatal Nurses E-News*.
- RODRIGUEZ, N. A., MEIER, P. P., GROER, M. W. & ZELLER, J. M. 2009. Oropharyngeal administration of colostrum to extremely low birth weight infants: theoretical perspectives. *Journal of Perinatology*, 29, 1-7.
- SEIGEL, J. K., SMITH, P. B., ASHLEY, P. L., COTTEN, C. M., HERBERT, C. C., KING, B. A., MAYNOR, A. R., NEILL, S., WYNN, J. & BIDEKAIN, M. 2013. Early administration of oropharyngeal colostrum to extremely low birth weight infants. *Breastfeeding Medicine: The Official Journal of the Academy of Breastfeeding Medicine*, 8, 491-5.
- LEE et al. 2015. Oropharyngeal colostrum administration in extremely preterm infants: an RCT. *Paediatrics*, vol 135, no 2, p. e 357., 1098-4275
- RODRIGUEZ NA. CAPLAN MS. 2015. Oropharyngeal administration of Mother's milk to prevent NEC in ELBW infants. *The journal of perinatal and neonatal nursing* 81-90.
- NAUSF AW, OJHA S, DORLING J. 2015. Oropharyngeal colostrum in preventing mortality and morbidity in preterm infants. *Cochrane database of Systematic Reviews*. Issue 10
- SNYDER R, et al., (2017), Early provision of oropharyngeal colostrum leads to sustained breast milk feedings in preterm infants, *Pediatrics and Neonatology*
- ABD-ELGAWAD M, Eldegl H, Khashaba M, Nasef N. Oropharyngeal Administration of Mother's Milk Prior to Gavage Feeding in Preterm Infants: A Pilot Randomized Control Trial. *JPEN J Parenter Enteral Nutr*. 2020;44(1):92-104. doi:10.1002/jpen.1601
- TAO J, Mao J, Yang J, Su Y. Effects of oropharyngeal administration of colostrum on the incidence of necrotizing enterocolitis, late-onset sepsis, and death in preterm infants: a meta-analysis of RCTs. *Eur J Clin Nutr*. 2020;74(8):1122-1131.
- MA A, Yang J, Li Y, Zhang X, Kang Y. Oropharyngeal colostrum therapy reduces the incidence of ventilator-associated pneumonia in very low birth weight infants: a systematic review and meta-analysis. *Pediatr Res*. Published online March 2020:1-9.
- Optimising Early Maternal Breast Milk for Preterm Infants: A Quality Improvement Toolkit BAPM November 2020