

Fortification of expressed breast milk in Newborn Intensive Care Unit (NICU)

Procedure Responsibilities and Authorisation

Department Responsible for Procedure	NICU
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Target Audience	Nurses, Nurse practitioners, Clinical Nurse Specialist, Registrars, Senior medical officers
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Procedure Review History

Version	Updated by	Date Updated	Summary of Changes
3	Maggie Rainbow	Nov 2012	3 yearly review
4	Robyn Hills	Jul 2015	
5	Robyn Hills	Oct 2015	3 yearly review & Product change
6	Robyn Hills	Nov 2016	Product change
7	Robyn Hills	Sep 2019	Changes in duration of storage, terminology of artificial milk formula

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1 Overview

1.1 Purpose

To outline the steps to prepare and give Human Milk Fortifier and expressed breast milk

Note: Human milk is considered to be the best for preterm infants because it provides antibodies, enzymes, hormones and growth factors.

1.2 Scope

Waikato District Health Board (DHB) staff working in the Neonatal Intensive Care Unit (NICU)

1.3 Patient group

Babies in NICU

1.4 Indications:

- Human Milk Fortifier (HMF) may be required to provide extra nutrition needed to achieve growth because preterm breast milk may contain insufficient nutrients to achieve growth rates in rapidly growing premature infants.
- If a baby is born <32 weeks or birthweight <1800g and is tolerating at least 120ml/kg/day of milk, HMF may be introduced, and will continue until discharge.

1.5 Contraindications

- Suspected Necrotising Enterocolitis (NEC)
- Jejunal feeding

1.6 Exceptions

Parents reserve the right to decline the administration of HMF

1.7 Definitions

EBM	Expressed breast milk
Human Milk Fortifier (HMF)	Breast milk fortifiers are made from processed cows' milk protein with added nutritional supplements. The protein from the cows' milk is broken down (hydrolysed) into small fragments. This makes it easy to dissolve and also means that the fortifier does not contain whole proteins, which makes it extremely unlikely that the baby will develop cows' milk allergy.
Uses of HMF	<ul style="list-style-type: none"> • To provide extra nutrition to achieve growth in premature infants who have insufficient growth rates and whose weight is less than 1800 grams. • To provide trace elements for premature infants

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Some babies may have difficulty tolerating the high mineral content of the fortifier. Occasionally we will stop the fortifier or use it at half strength for a short period of time. Usually tolerance improves after a few days and full fortifier can be introduced again.

2 Clinical Management

2.1 Competency required

- Registered nurse who has completed LII orientation.
- Enrolled nurse who has completed LII orientation and is under the direction and delegation of a registered nurse.

2.2 Equipment

- **1g sachet** of HMF per 25mL breast milk (i.e. standard preparation is 4g + 100mL EBM)

2.3 Procedure

1. Obtain parental consent

- Prior to HMF supplementation being commenced, consent from parents is required because HMF is a cow's milk based product.
- Give parents the pamphlet *Human Milk Fortification: Information for parents* (C1254HWF).
- Document on admission/discharge form (A177OHWF) to indicate parent's consent has been obtained.

2. HMF prescribed by authorised/delegated prescriber

- Check that HMF has been prescribed by an authorised/delegated prescriber because HMF has high osmolality and contains nutritional supplements that may impact on electrolyte balance.

3. Adding HMF

- Perform hand hygiene.
- Collect the correct breast milk and check to ensure correct EBM is administered to the correct baby according to the NICU Nursing Procedure: *Labelling, handling, storage, transport and administration of human milk* (2771).
- Measure required volume EBM into appropriate container.
- Collect appropriate number of fortifier sachet(s) – **1g sachets**.
- Add **1g** sachet per 25mL into container of measured EBM.

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- Secure lid and shake vigorously to ensure fortifier powder is mixed thoroughly.
- Label with medication additive label – date, time and amount of HMF added to the volume of EBM to prevent the administration of fortified milk made up >4 hours prior.

4. Storage of fortified milk

- Ideally only make up the volume of breastmilk and HMF required for each feed.
- If continuous feeding only make up the 4hrly volume.
- If there is any Expressed Breastmilk and HMF remaining after a feed, keep in the fridge for a maximum of 4 hours to provide an optimal storage environment.

5. When Formula is required

- Formula is not to be given at the same time as Expressed breast milk and HMF due to the impact on osmolality.
- If there is sufficient EBM for all feeds give HMF and EBM at every feed.
- If there is not enough EBM available for full feeds collect enough EBM for a full feed then give only EBM and HMF at a feed. Use formula at other feeds until there is enough EBM available for another EBM and HMF feed.

2.4 Potential complications

- Increased osmolality of milk feed
- Intolerance of feed

3 Patient information

Pamphlet: Human Milk Fortifier (HMF): Information for parents

4 Audit

4.1 Indicators

- No HMF is administered without a valid prescription
- No HMF is administered without a signed consent – document consent in clinical records.
- The dilution of HMF aligns with this procedure.

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5 Evidence base

5.1 References

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- Nestle Nutrition (May, 2015. BCG2-H NNZ0002). *Nestle Nutrition hospital portfolio: Pre-term/low birth-weight management*.
- Radbone, L. (2018). East of England Neonatal Network Enteral Feeding of Preterm Infants on the Neonatal Unit. Retrieved March 29, 2019 from www.nnuh.nhs.uk/.../enteral-feeding-of-preterm-infants-regional-network-document/
Staffordshire, Shropshire and Black Country Neonatal Operational Delivery Network and Southern West Midlands Neonatal Operational Delivery Network (2018). Nutrition and enteral feeding. Neonatal Guideline 2017-2019. Retrieved on June 20, 2019 from <https://www.networks.nhs.uk/...newborn/neonatal-guidelines/neonatal-guidelines-201...>
- Starship Hospital (2019). Breastfeeding: What is breast milk fortifier? Retrieved on Sep 3, 2019 from <https://www.starship.org.nz/what-is-breast-milk-fortifier/>

5.2 Associated Waikato DHB Documents

- Waikato DHB [Breastfeeding](#) policy (Ref. 0132)
- Waikato DHB [Artificial Milk Formula Feeding for Infants](#) policy (Ref. 1901)
- Waikato DHB NICU Nursing: [Labelling, handling, storage, transport and administration of human milk](#) procedure (Ref. 2771)
- Waikato DHB NICU Medical: [Enteral Feeding: standardisation of feeding in Newborn Intensive Care Unit \(NICU\)](#) protocol (Ref. 1196)

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