East of England Neonatal Operational Delivery Network

Techniques for the addition of human milk fortifiers to human milk.

This document recommends two techniques for adding fortifier powder to human milk (fresh / frozen & thawed / donor). These techniques are not the same as manufacturer's guidelines, but provide the most successful methods for ensuring complete and effective dissolving of fortifier. They are techniques employed by a number of trust, and have been practically assessed by members of the National Neonatal Network Dietitian's Group to ensure maximum dissolvability.

Pre-preparation guidance

Fortifier should be added to human milk in accordance with the East of England ODN Preterm Enteral Feeding Guidelines. EOE enteral-feeding-guideline and the ODN ANTT Milk Kitchen Prompt contained in the East of England Milk Kitchen Guidelines EOE preparation-and-handling-of-ebm-dbm-and-pif

1. Collect human milk and sachet(s) of fortifier. If using frozen milk defrost using the Trust's chosen thawing method. Check infant's name, DOB, hospital number and expiry date of milk
2. Check best before date on sachet(s) of fortifier.
3. Gather required equipment: 5ml syringe, gallipot/paper weigh-boat and appropriate syringes/bottle for storing milk
4. Weighing containers should ideally be single use. If using re-usable weighing containers, use one for each baby for a period of 24 hours then sterilise using the unit's chosen sterilisation process.
5. Syringes should be single use only.
6. Fortifier should never be mixed into preterm formula.
7. Breast milk should not be vigorously shaken as the resultant frothing disrupts the fat globules and has a negative impact on the energy density of the milk.

Technique 1: Weighed Fortification.

The Weighed Fortifier technique is for use with warmed milk for immediate use. Do not store fortified milk that has been previously warmed – any feed left after an hour of commencing an oral feed should be discarded.

Preparation guidance:

1. Switch calibrated digital scales on, place weighing container/gallipot/paper weigh-boat on scales and press TARE to zero.
2. Calculate the amount of Human Milk Fortifier required using 0.04g per mL of feed (see example table below).
3. Weigh out the amount of fortifier required into a single use weighing container/gallipot/paper weigh-boat.
4. Add the weighed amount of fortifier to the measured volume of warmed human milk (try to avoid weighing container /paper weigh boat making contact

with the bottle neck), swirl gently to ensure fortifier is dissolved. Do not shake as this disrupts the fat globules in the milk.
5. Label the bottle in accordance with the EOE feed preparation guideline.
6. Discard the paper weigh-boat, or wipe the weighing container with Clinell Universal Wipes. Wipe the scales with Clinell Universal wipes and allow to air dry.
7. Discard opened sachets of fortifier unless it is to be used to make up other feeds which are due at the same time.

Example calculations

1g (per sachet) divided by 25mL (of milk) = 0.04g/mL. To obtain total weight of fortifier needed, multiply by feed volume (mL)
(If fortifier is required at half strength, halve the total grams needed).

Feed volume (mL)	Multiply by 0.04	fortifier needed (full strength)
10	10 x 0.04	0.4g
18	18 x 0.04	0.74g
30	30 x 0.04	1.2g
38	38 x 0.04	1.52g

Technique 2: Fortifier Concentrate

The fortifier concentrate technique is for use with cold milk where aliquots of fortified milk are to be stored for future use.
To prevent wastage, make up the smallest volume as possible. Fortified milk can be stored in a refrigerator for up to 12 hours, after which any remaining feed must be discarded.
Fortifier concentrate is made up in multiples of 25ml, depending on the volume of feed required.

Preparation guidance (scale for multiples of 25ml):

1. Take the bottle of human milk and gently invert a few times. DO NOT WARM THIS MILK.
2. For every multiple of 25mL, using a 5ml syringe, measure out 5ml human milk into a sterile gallipot.
3. Add 1 sachet of fortifier for each 5ml human milk in the gallipot. Gently swirl the mixture and allow to sit while preparing the feed bottle.

4. For every multiple of 25mL, measure out 20mls of human milk into the sterile bottle (22.5ml if using half strength)

5. Label the syringe/bottle as "fortified milk" as detailed in the EOE Milk Kitchen guidelines, including date of fortification and time of expiry (12 hours)

6. Return to the concentrate solution. Take the plunger out of the syringe and with the tip of the syringe, gently stir until all the powder is dissolved, ensuring no residue of the powder remains on syringe. This will make approximately 5ml of concentrate solution

7. Add the concentrate solution to the measured volume of human milk (5ml concentrate +20ml measured human milk =25ml full strength fortified human milk).
(2.5ml concentrate + 22.5ml measured human milk = 25ml half strength fortified human milk.)

8. Store either in the bottle (having replaced the lid) or in prescribed feed volumes drawn up into individual labelled syringes.

9. Any syringes/bottles not for immediate use must be stored in the fridge designated for this purpose at temperatures recorded ≤4°C in line with the EOE Milk kitchen guidelines.

Adapted in part from the Once for Scotland Guidance on Addition of Multi-Nutrient Fortifier
Acknowledgement – Sara Clarke and Katie Hay NatNeoDT Group.