

Best Practice Guideline: Preparation and Handling of Expressed and Donor Human Milk, Powdered Formulae and Special Feeds in the Acute Neonatal Unit.

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For use in: EoE Neonatal Units
Guidance specific to the care of neonatal patients.

Used by: All members of the neonatal dietetic, infant feeding, nursing, nursery nursing teams

Key Words:

ANTT aseptic non touch technique
HMF human milk fortifier
DHM donor human milk
EHM expressed human milk
PIF powdered infant formula
RTF ready to feed
RTH ready to hang
BFI Baby Friendly Initiative

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Approved by:

Neonatal Clinical Oversight Group	
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Audit Standards:

- 100% powdered feeds are prepared according to the recipes produced by the dietetic team and stored, distributed and administered according to this guideline.
- 100% expressed human milk (EHM) feeds are prepared, stored, distributed and administered according to this guideline.
- 100% feeds are prepared using the East of England ANTT feed preparation prompt.
- Review of incident forms relating to feed preparation, storage, distribution and administration

Scope

The following is intended as guidance on the preparation, handling and administration of expressed/donor human milk and all powdered formulae/ special feeds in the acute neonatal units within the East of England Neonatal ODN.

Purpose of this document

This guideline seeks to incorporate available evidence and standards into practice with the aim of standardising and improving the management, processing and handling of milk feeds for infants within neonatal care.

Introduction

Human milk is the feed of choice for all infants, especially those born prematurely. Where human milk is not available in the healthcare setting, nutritionally appropriate ready to feed (RTF) formulas should be used in preference to reconstituted powdered products. RTF formulas are commercially sterile and remain free of microbiological contamination before opening, providing the container is intact and stored according to the manufacturer's instructions.

Where an appropriate RTF is not available infants may be prescribed feeds based on a powdered formula or supplement. These products, although manufactured to a high microbiological specificity, are not sterile and can be intrinsically contaminated with pathogens. [1]

Inappropriate preparation, storage and transportation of feeds can create an ideal environment for the multiplication of pathogens. Vigilance is therefore essential in all stages of feed production, particularly when preparing feeds for vulnerable infants and those born prematurely.

Concerns regarding the presence of pathogens in powdered infant formulae (PIF) [2] have required a change in feed preparation instructions as outlined in guidelines developed by the World Health Organisation [3]. In addition, the quality of water used in the preparation of feeds in the hospital setting needs to be monitored and controlled, as neonatal mortalities have been linked to *Pseudomonas aeruginosa* in water from contaminated taps. [4]

There is currently limited evidence based literature to support practice on feed preparation and handling in the hospital setting. This guideline therefore seeks to identify areas of potential concern and to give best practice guidance for the minimising of potential risk. Guidance is based on available scientific evidence and current best practice, including World Health Organisation guidelines [3] and the British Dietetic Association Paediatric Group 'Guidelines for the Preparation and Handling of Expressed and Donor Breast Milk and Specialist Feeds for Infants and Children in Neonatal and Paediatric health care settings', BDA 2019. [5]

EHM access, Family Integrated Care and BFI

As we move towards fully embedding Family Integrated Care principles and meeting BFI standards across neonatal care, infant feed storage and handling needs careful consideration in order to maximise parental access to their infant's milk feeds, whilst also ensuring safety, hygiene and security are paramount in any guidance seeking to ensure Family Integrated Care and BFI standards are met.

This need has been reflected in the responses received to a recent survey of parental attitude to access to milk on the neonatal unit, undertaken by the National Neonatal Dietitians' Group (NatNeoND). 59% of respondents felt parents should have unrestricted access to stored EBM but only if feasible and if safety is guaranteed. However, 55% also felt that only neonatal unit staff should have access on units where EBM is stored collectively in large fridges and freezers in a designated milk room, as is the case currently for most neonatal units in England.

While 49% of respondents strongly agreed that parents should have access to stored EBM at any time, 48% strongly agreed that parents having access to EBM belonging to others is a concern, and 98% strongly agreed that keeping the fridge/freezer at the correct temperature is important.

These findings have been used to develop a standard operating procedure for neonatal care that complements existing robust national guidance on EBM/formula storage and handling in hospital settings, and have been considered in the construction of these guidelines.(appendix 1)

Section 1: The milk kitchen

Infant feeds must be prepared in a specific location away from the bedside that has adequate space and equipment to ensure the preparation and delivery of safe feeds [6] using an aseptic non-touch technique (ANTT)[7]. During the preparation of all feeds there should be no other activity within the milk kitchen and access should be restricted to minimise the risk of cross infection and tampering of feeds. [5]

The milk kitchen layout should follow a logical flow though storage, production, and clean-up, with efficiency facilitated at each stage.

The facility should ideally include the following areas:

The storage area

- Should ideally be separate from the feed preparation area.
- Should be shelved and all feeds stored off the floor, preferably in locked cupboards.

- Should be at an ambient temperature(15-25°C or upto 30°C depending on climactic conditions). Temperature should be monitored and recorded daily on the Trust's ambient temperature proforma. Deviation outside these parameters should be reported to the Trust's Estate's department for review.
- A functional stock rotation system should be in place and expiry dates on products must be checked regularly.
- Cleaning materials should be stored away from feed storage.

The reception area

- Should have a sink with hands free taps and drying facilities.
- Should have an area for storage of disposable aprons and gloves for use in line with the East of England ANTT Feed preparation prompt (appendix 2)

The preparation area

- Should be cleaned and deep cleaned according to local guidance.
- Have a dedicated sink, drying facilities and antibacterial gel.
- A separate sink should ideally be available for cleaning equipment.
- Have closed, lockable cupboard storage for currently used feed products and equipment.
- Have sufficient space to accommodate the required service equipment –, eg fridges and freezers.
- The quality of water used in the preparation of feeds needs to be controlled and monitored, as neonatal mortalities linked to *Pseudomonas aeruginosa* in water from contaminated taps have been investigated (8,9)
- Waste bins must be covered, foot operated and emptied daily.

The clean-up area

- This can be a designated area within the milk kitchen.
- Preparation and clean up processes must be separated by time and space.

Equipment within the milk kitchen

- All equipment and utensils used in feed preparation must be designed either for single use, or made of a material which can be sterilized.
- Strong and persistent biofilms can form on surfaces such as steel, plastic, silicone and latex [8] therefore proper, thorough cleaning of equipment is essential to avoid *Cronobacter* spp biofilms contaminating subsequent feeds if not removed.
- All utensils and supplies used in feed preparation must be of a nature that is consistent with the implementation of the Trust's ANTT processes. This includes measuring devices, jugs, spoons and scales.
- Blenders are not to be used.
- Bottles and teats should ideally be single use. Where individualised named patient supply is practiced, a robust local sterilisation policy needs to be in place to prevent biofilm development.
- Jugs used for decanting boiling water should be washed with hot soapy water before sterilisation using the Trust's chosen sterilisation method.
- Scoops used for measuring PIF should be washed with hot soapy water before sterilisation using the Trust's chosen sterilisation method.

- All equipment used for EHM must be sterilised between uses using the Trust's chosen sterilisation method.

Fridges and freezers

- Dedicated fridges and freezers should be available for storage of feeds on each unit.
- Depending on the location of the milk storage fridge, dedicated storage baskets/ boxes/ locked boxes must be available for each individual infant's feeds and labelled accordingly.
- Fridges must be able to maintain a temperature of 2°C - 4°C at all times and be fitted with a suitable thermometer and probe to enable accurate measuring of temperature.
- Milk kitchen fridge and freezer temperatures should be checked and recorded twice per day using the Trust's milk fridge temperature monitoring record to avoid fluctuations in temperature. Any deviation is to be escalated in line with local Trust policy.
- Freezers must be able to maintain frozen EHM below -20°C at all times.
- Fridges and freezers should ideally have an adequate alarm fitted to alert temperature variation that sounds in the nurse's station and not just in the body of the fridge [7].

Personnel

- The production of accurate and safe feeds within the milk kitchen requires staff who have been appropriately trained in their role.
- The operational management of the milk kitchen should be the responsibility of a registered professional e.g. a Lead Nurse, BFI Lead, Senior nurse or Senior dietitian.
- All staff working in the milk kitchen should receive local manual handling ANTT and food hygiene training with additional competency training that enables the development of skills to produce feeds accurately.

Expressed human milk equipment and facilities

- Feeding pumps should be available for all parents who need to use them.
- All expressing equipment should be sterilized or for single use only.
- All mechanical equipment should be cleaned and maintained regularly in line with local policy.
- Dedicated expressing facilities should be available throughout the hospital and parents given support on how to use expressing equipment by health care professionals training in the use of expressing equipment.
- See East of England Neonatal feeding policy. [Neonatal Feeding Policy - East of England \(eooneonatalpccsicnetwork.nhs.uk\)](http://eooneonatalpccsicnetwork.nhs.uk)

Section 2: Feed Preparation and Handling

Expressed human milk (EHM or EBM)

If it is not possible for an infant to breast/chest feed in hospital due to prematurity, infant or parental ill health, or parental wishes then the parent should be supported to express their milk. Where a parent expresses more milk than is immediately required for their infant, appropriate handling and storage is required. Expressing may take place both in hospital and at home. Local policy on the support and management of human milk expression, storage at home and transportation to hospital should be followed at all times.

Human milk storage – general

- EHM for babies in hospital should be collected in sterile containers provided by the hospital and which meet current health and safety standards with respect to plastic components. (10)
- Parents should be provided with containers in a range of sizes so that they can use those which most closely match the volume of milk being collected.
- Parents should be advised not to overfill containers and to leave room for milk to expand on freezing.
- EHM should be labelled with these minimum data:
 - Parent's name
 - infant's name and hospital number
 - location
 - date and time of expression

Human milk storage – prior to arrival at hospital

- EHM should preferably be refrigerated rather than frozen before transfer to hospital.
- Refrigerated EHM should be used within 48 hours of being expressed [9] and should be frozen immediately after expressing if transportation to hospital is not planned within the 48 hour window.
- Home fridges should be clean and operating between 2-4°C.
- Milk should not be stored in the fridge door.
- Containers should be double sealed in a plastic bag before being placed in a home freezer.
- EHM should be transported to hospital in a cool bag with frozen coolant blocks in order to maintain a temperature of <4°C.

Human milk storage – in hospital

- Storage fridges used for human milk (also opened RTF and made up PIF):
 - Ideally, individual rooms/ bays should have their own milk storage fridge. Where a fridge is shared by more than one family, milk should be stored in individual locked boxes or bottles sealed with tamper proof lids.
 - Where room/bay based fridges are not possible, large storage fridges should be housed outside of the milk kitchen environment and support individual locked boxes or tamper proof bottles for all infants.

- Where the storage fridge is located within a milk kitchen, the fridge needs to be lockable or housed in a locked room, and only accessed by staff. Labelled baskets/boxes can be used in this situation.
- Storage freezers should be lockable or housed in a locked room.
- Fridge/ freezer temperature management and monitoring should be in line with guidance detailed in the section on 'equipment'.
- Milk should be kept in the body of the fridge and not in the door.
- Avoid exposure of EHM to light except where necessary for feed preparation and feeding.
- Avoid unnecessary handling of feeds and store all expressions separately
 - do not 'pool' expressions.
- Different expressions should ideally only be mixed if a feed is being made up for immediate use.

Freshly Expressed EHM

- Freshly expressed human milk should be the feed of choice for all infants.
- Freshly expressed milk can be stored in an appropriate fridge for up to 48 hours after which, if not used, it should be discarded. This will include any time in the parents' own fridge or time spent in transportation.
- If it is known that the EHM is unlikely to be used within this time frame it should be frozen directly after expressing, and definitely within 24 hours.
- Fresh EHM may be kept at room temperature (up to 26°C) for up to four hours. [10] Any EHM kept at room temperature and subsequently not used within this time frame must be discarded.

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Frozen EHM

- Frozen EHM can be stored in a freezer at -20°C for up to three months for an infant who is in hospital.[11] Frozen EHM should always be used in date order, i.e. the oldest dated bottles used first. Strict stock rotation of EHM in the freezer is essential.
- Once an infant is discharged from hospital, safe storage time can be increased to six months at -20°C as long as the home freezing conditions are suitable.[12]
- Freezers should be defrosted every two months and should not be allowed to become overcrowded. Ice should not be allowed to build up and accumulate around containers.

Thawing and warming of human milk

- Water free methods of thawing should be used in order to prevent contamination of feeds by waterborne organisms.
- Bottles of thawing milk should carry additional labelling identifying date and time removed from the freezer, date and time of expiry (i.e. 24 hours later)
- Frozen EHM can be thawed either by :
 - Placing in the fridge to thaw slowly (up to 12 hours)
 - At room temperature if required quickly (0.5 - 4 hours) taking care to check regularly and transfer to fridge once almost thawed.
- Use a waterless warmer on NICU where short notice volumes are required.

- Thawed milk should be stored in the fridge and used within 12 hours of complete thawing (i.e. no visible ice crystals) or within 24 hours of the frozen container being placed in the fridge.
- Human milk should be brought to room temperature within 30 minutes of removal from the fridge.
- Tap water and microwave ovens should not be used in the thawing or warming process.
- Thawed EHM should be swirled gently prior to feeding.
- EHM/DHM fed continuously via tube should hang for a maximum of four hours. Containers and giving sets should be changed every four hours if continuous feeding.[13] EHM/DHM delivered continuously via a syringe driver should have the syringe held vertically in order to maximise delivery of fat globules which rise to the surface of milk.

Fortified human milk

- Human milk fortifier and any other additives should be added to EHM in accordance with the East of England ODN Preterm Enteral Feeding Guidelines using the East of England ANTT Feed preparation prompt (appendix 2)
- All additives should be added as close to the time of a feed as possible, although fortified feed can be stored at 2-4°C for up to 12 hours if necessary.[14]
- Human milk fortifier should never be mixed into preterm formula.

Donor human milk

- Where insufficient EHM is available, pasteurised donor human milk (DHM) is an alternative option, and is the first line alternative for preterm infants. DHM is accessed from either the Rosie Donor Milk Bank or the Herts Milk Bank in line with NICE guidance on the management of donor milk banks [15].
- Storage, thawing and handling of DHM should be carried out in exactly the same way as that used for EHM.
- Once thawed DHM should not be stored for more than 24 hours at 4°C or lower. Feed not used in this time is to be discarded.

Administration of EHM/DHM/fortified feeds

- All EHM/DHM/fortified feeds must be appropriately labelled and double checked prior to administration. This can be performed by either a parent and HCP or two HCPs.
- Feeds for bolus administration should never be decanted from the storage fridge into other bottles for transportation to the bedside.
- Where feed frequency is >2 hourly all feeds should ideally be stored in a labelled 'one bottle per feed' format.
- Where feed frequency is one hourly feeds should be stored in four hourly volumes for cot side administration via syringe.
- Up to four hours of feed can be retained at the cot space as long as it has not been warmed.
- When feeding continuously a four hour aliquot of feed is to be taken to the bedside, double checked and decanted into the appropriate container for administration. The label on the bottle is to be removed and transferred to the reservoir prior to the bottle being discarded.

- The named carer/ nurse must verify the feed label against the infant's feed regimen prior to administration.
- All administered feeds should be entered on the infant's fluid balance chart.
- Any feed left after an hour of commencing an oral feed should be discarded.
- Feeds taken to the ward area and not used must never be returned or given to another patient.

Section 3: Feed Preparation and Handling

Powdered infant formulae (PIF)

Powdered infant formulae should only be used where no suitable sterile ready to feed or ready to hang formulation is available. The appropriate preparation and handling of PIF for infants in the neonatal setting is essential for the safe delivery of accurately constructed feeds.

Gold standard practice as detailed by the WHO 2007 [3] state that where possible PIF should be made up fresh for immediate consumption. The impractical nature of this recommendation within the healthcare environment, with its associated infection risk secondary to increased footfall within the preparation area was however recognised and further recommendations were given for the making up of PIF in the institutional setting. Key elements of these recommendations include:

- Modified feeds are to be made for a period of 24 hours only.
- An aseptic technique is to be adopted at all times.
- Tamper proof lids are recommended for all prepared feeds in the healthcare setting.
- Clinical incident reporting should take place where any stages of the feed preparation process does not meet the standards set by local guidance.

Practical preparation points

- PIF or decanted feeds should only be used if there is no suitable sterile ready to feed/ ready to hang formulation available.
- Footfall within the milk preparation room should be kept to a minimum by adopting a 12/24 hour feed preparation strategy rather than a "feed by feed" approach.
- The milk preparation room should be closed for access when PIF feeds are being made.
- New sterilised or disinfected mixing equipment should be used for every feed.
- In order to prevent cross contamination, feeds should be prepared in an order in accordance with the degree of modification made to the formulation, using an individualised sterilized scoop/spoon for each prescription.
- Ie 1st amino acid based formulas. 2nd extensively Hydrolysed formulas 3rd whole protein formulas.
- PIF feeds should be made up before any human milk containing feeds are prepare.
- Staff who have received the required training as detailed in section 1, rather than parent, should ideally make PIF. The exception being pre-arranged training sessions for parents new to formula feeding in advance of discharge.

Feed recipes, instructions and labels

All specialist feed recipes must be constructed by a registered and appropriately trained paediatric/ neonatal dietitian as clearly written, signed instructions on a milk room record card.

Labels should be generated and contain the following data:

- the patient's name and ward
- hospital number
- type of feed and volume
- additions made
- 'for enteral use only'

Water used to reconstitute PIF

- PIF should be reconstituted using previously boiled tap water, taken from the cold tap, cooled to 70°C for all infants under 12 months of age. [3] This equates to boiling one litre of water and leaving to cool, covered, for 30 minutes.
- The addition of hot water (70°C) to PIF could activate bacterial spores that may be present in the powder (particularly *Bacillus cereus*). However this likelihood is minimised if the reconstituted feed is cooled rapidly and refrigerated at $\leq 4^{\circ}\text{C}$ [16]
- Commercially sterile water can be used to reconstitute PIF following the above guidance (ie boiled and cooled), whereas commercial bottled water should not be used as they often contain high levels of minerals.

RTF infant formulas, ready to hang feeds and concentrated liquid supplements

- Manufacturer's expiry dates and seals to be checked.
- The top of any container should not be touched whilst the required amount is measured out accurately.
- Opened liquid feeds to be stored in the fridge in original containers according to the manufacturer's instructions and labelled with baby's name, identity number, expiry date and time.
- Opened liquid feeds can be stored in the fridge for 24 hours.

Powdered formula and supplements

- Manufacturer's expiry dates to be checked.
- Measure either by individualised sterilized scoop for each prescription, or by weight using one sterile scoop per feed type, paper weigh boats and scientific scales accurate to one decimal places.
- Scoops found in newly opened tins should not be used until they have been sterilized.
- All opened containers of ingredients must be covered, labelled with an expiry date and stored in a clean secure closed, preferably locked, cupboard location.
- Once opened dry ingredients should be used within four weeks of opening or sooner if defined by manufacturer's instructions.
- Prepared PIF should never be frozen and thawed as freezing can cause irreversible physical changes. [17]

Feeds containing probiotics

- Probiotics are live organisms which colonise the gastrointestinal tract and offer some protective benefits to infants and children.
- They should not be used in preterm infants or term infants who are immunocompromised.
- Probiotics are de-activated by hot water, therefore the manufacturer's reconstitution instructions fall outside of the WHO/FAO guidelines [3]
- Where indicated feeds containing probiotics will continue to be made up in the milk kitchen following these guidelines. Probiotic activity will therefore be deactivated.

Chilling and storage of PIF

- Made up feeds should never be stored for longer than 24 hours.
- Feed should be cooled rapidly and refrigerated at $\leq 4^{\circ}\text{C}$ until used.
- In healthcare establishments producing large numbers of feeds, a blast-chiller is recommended. A blast-chiller should cool feeds to $\leq 4^{\circ}\text{C}$ within 15 minutes. Without a blast-chiller, feeds are cooled by placement in a container of cold or iced water ensuring that the level of the cooling water is below the lid of the bottle/container. Once cooled, the containers are dried and stored in a dedicated refrigerator with an alarmed temperature gauge.
- Hospital storage fridges used for PIF, RTF and human milk:
 - Ideally, individual rooms/ bays should have their own milk storage fridge. Where a fridge is shared by more than one family, milk should be stored in individual locked boxes.
 - Where room/bay based fridges are not possible, large storage fridges should be housed outside of the milk kitchen environment and support individual locked boxes for all infants.
 - Where the storage fridge is located within a milk kitchen, the fridges needs to be lockable or housed in a locked room and only accessed by staff. Labelled baskets or boxes can be used in this situation.
- Prepared feeds should be kept in the body of the fridge and not in the door.
- Where feed frequency is >2 hourly all feeds should be stored in a labelled 'one bottle per feed' format.
- Where feed frequency is one hourly feeds should be stored in four hourly volumes for cot side administration via syringe.
- Continuous feeds (PIF) should be stored in four hourly aliquots.

Handling and warming of PIF

- Feeds should only be removed from the storage fridge prior to each feed.
- Once removed from the fridge feeds should not be kept at room temperature for more than four hours.
- Residual previous day feeds should be discarded.
- Feeds should only be warmed immediately prior to feeding, ideally using a waterless bottle warmer or, if bottle warmers are not available, by bringing to room temperature within the ward environment.
- Water warming techniques are not recommended, however if absolutely necessary the following guidance must be adhered to:
 1. Bottle to be placed in a stable container of warm water.

2. Water should never be allowed to touch the teat base or lid.
3. Feeds should never be left to warm for more than 15 minutes.
 - Microwave ovens should never be used for warming feeds.
 - Infant formulae should never be kept warm in bottle heaters or thermoses.

Administration of PIF feed

- Feeds for bolus administration should never be decanted into other bottles.
- When feeding continuously a four hour aliquot of feed is to be taken to the bedside, checked against the infant's name band and decanted into the appropriate container for administration. The label on the bottle is to be removed and transferred to the reservoir prior to the bottle being discarded.
- The named carer/ nurse must verify the feed label against the infant's name band and feed regimen prior to administration.
- All administered feeds should be entered on the infant's fluid chart.
- Any feed left after an hour of commencing an oral feed should be discarded.
- Continuous PIF or modular feeds should not be hung for more than four hours. Giving sets and reservoirs are to be changed every four hours.
- Feeds taken to the ward area and not used must never be returned or given to another infant.

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Appendix 1 National Neonatal Dietitian's Group statement

The Management of Milk Feeds on the Neonatal Unit

Standard Operating Procedure

As we move towards meeting BFI standards and fully embedding Family Integrated Care principles across neonatal care, consideration needs to be given to maximising a parent's ability to freely access their infant's milk. However, at the same time, we need to ensure existing national guidelines for the handling, storage and preparation of milk feeds are followed, and that safety, hygiene and security are paramount considerations in any local/network guidance developed for use on the neonatal unit.

A recent survey undertaken by the National Neonatal Dietitian's Group (NatNeoRD) showed that parents want free access to their baby's feeds, but only where it is feasible and where safety of individual milk supply can be ensured.

Milk kitchen/ feed preparation areas are considered food facilities within the institutionalised setting, and as such are governed by the same Environmental Health and Infection Control standards applied to food service provision. They are by definition, controlled access areas where footfall should be kept to a minimum and where users have received appropriate training in manual handling, food hygiene, and in the case of the neonatal milk kitchen environment, the use of the Aseptic non-Touch Technique (ANTT).

This SOP relates to ALL feed types, including ready to feed formulas and powdered infant formulas and human milk.

Access to milk feeds:

- Storage options (in order of preference) are as follows:
- **Individual fridges in cot spaces or nursing bays.**
 - Locked box to be used in bay area fridges if constant supervision of the fridge cannot be guaranteed.
- **Large communal fridges outside of the milk preparation area.**
 - Locked boxes to be used for all families to store their baby's milk feeds.
- **Large communal fridges within a milk preparation area.**
 - Fridge should be locked, or behind a locked door, with nurse access only.
 - Milk feeds can be stored in labelled baskets or boxes.
- Fridges to be maintained at a temperature between 2 - 4°C at all times.
- Fridges to have temperature control monitors with alarms that alert at the nurses station, not just in the body of the fridge.
- An escalation policy should be in place for the management of out of range fridge temperatures.
- Particular care should be taken to monitor small individual fridges where maintenance of required temperature range can be challenging.
- Fridges are to be used solely for the storage of milk feeds.
- Freezers are to be locked with nurse access only.

- A programme of parental education to be in place that includes at minimum: hand washing / rotation of milk stock supply / ANTT principles for milk preparation / cleaning of preparation space / double-checking at point of feed administration.

The milk kitchen /milk preparation area:

- The milk kitchen is a controlled access area, where footfall needs to be kept to a minimum to reduce infection risks and maintain security.
- The milk kitchen should have a lockable door or a facility to control access during times of feed preparation.
- All powdered feeds and ready to feed formulas should be stored in locked cupboards.
- Staff using the milk kitchen should receive mandatory manual handling and food hygiene training and complete a knowledge and skills framework for making up of powdered infant formulas.
- All feeds are prepared using an ANTT approach.
- All feeds are labelled in line with local policy.
- A cleaning and deep cleaning SOP is in place, with regular audit of practice.
- Where a formula feed is required, this should always be in a ready to feed (RTF) liquid format.
- Powdered infant formulas (PIF) are to be used only where no equivalent RTF is available.
- Staff and not parents should ideally perform day to day preparation of PIF.
- In order to reduce footfall within the milk kitchen, and minimise infection risks, PIF should be made up in 12 or 24 hours aliquots, and preferably not on a feed-by-feed basis.
- PIF should be stored in individual feed volumes when fed >2 hourly and in 4 hourly aliquots for hourly feeds.
- Local/network guidelines for the storage, handling, preparation and administration of milk feeds should be in place and audited regularly.
- Where guidelines are not available the national guidelines developed by the British Dietetic Association should be followed.

British dietetic Association. (2019) Guidelines for the Preparation and Handling of Expressed and Donor Breast Milk and Specialist Feeds for Infants and Children in Neonatal and Paediatric Health Care Settings [BDA-guideline-for-storage-and-handling-of-EBM-and-DBM.pdf](#)

World Health Organisation. (2007) Safe preparation, storage and handling of powdered infant formula guidelines. [9789241595414_eng.pdf \(who.int\)](#)

National Neonatal Dietitians Group (NatNeoRD)

February 2024

Peer reviewed by:

Environmental Health Department and Clinical Microbiology, March 2024

Appendix 2: East of England ODN ANNT Milk Kitchen Prompt

- **The prompt must be used every time a milk feed is to be prepared.**
- **EBM / DBM must be used within 24 hours from the start of the defrosting process**
- **Fresh EBM can be used for 48 hours from being expressed.**
- **EBM / DBM must not be used after being out of the fridge for longer than four hours.**

Actions required:

Feeds for each baby are stored in separately labelled trays and have been double checked for type of milk and expiry with a second member of staff or parent prior to commencing preparation.

Only one baby's tray is to be out / in use at one time.

1	Hair has been tied back and there is strict adherence to local Trust uniform policy.
2	Hands have been washed following correct hand hygiene technique.
3	A separate area for the preparation of the feed has been allocated and cleaned according to local policy: The separate area can include the milk kitchen counter or a separate stainless steel trolley.
4	Single use sterile receptacles, syringes and bungs have been collected ready for use. Labels have been prepared.
5	A clean disposable apron is being worn.
6	Hands have been decontaminated immediately prior to feed preparation using the correct hand hygiene technique.
7	Feed and any additives have been prepared using aseptic non touch technique
8	Non sterile gloves have been worn throughout the preparation of the feed.
9	A maximum of four hours worth of feed was prepared in each container. Up to 24 hours of feeds were prepared and stored in the refrigerator.
10	Each patient's milk is stored in a separate basket/locked box, marked with their details and the time of milk preparation.
11	Gloves, aprons and equipment used for feed preparation have been discarded after use according to local policy.
12	Following milk preparation hands have been washed following correct hand hygiene technique.

Exceptional Circumstances Form

Form to be completed in the **exceptional** circumstances that the Trust is not able to follow ODN approved guidelines.

Details of person completing the form:	
Title:	Organisation:
First name:	Email contact address:
Surname:	Telephone contact number:
Title of document to be excepted from:	
Rationale why Trust is unable to adhere to the document:	
Signature of speciality Clinical Lead:	Signature of Trust Nursing / Medical Director:
Date:	Date:
Hard Copy Received by ODN (date and sign):	Date acknowledgement receipt sent out:

Please email form to kelly.hart5@nhs.net requesting receipt.

Send hard signed copy to:

Kelly Hart, EOE ODN Office Manager

Box 402

Rosie Hospital

Robinson Way

Cambridge University Hospital

Hills Road

Cambridge CB2 0SW