GUIDELINE

Nutrition Room Protocols

Scope (Staff):	Nursing, Medical and Allied Health Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

Contents

Aim

To ensure safe handling, storage, transport, and administration of neonatal feeds within the Neonatology Unit.

Risk

Breast milk and infant formula must be managed safely to prevent contamination and transmission of infection and to ensure that each individually prescribed neonatal feed is safely administered to its intended recipient. Breast milk and infant formula are excellent mediums for the growth of bacteria, and poorly cleaned expressing and feeding equipment can be a source of infection. Inadequately cleaned and disinfected shared equipment can pose a risk for disease transmission.

See Neonatal Nutrition Room Guidelines for all Nutrition Room Food Safety practices.

Neonatal Feeds

Breast milk is recommended for infants[1] and unless medically contraindicated, own mother's milk is always the preferred feed.

When unavailable, infants born <32 weeks gestation and/or <1500 grams receive pasteurised donor human milk (PDHM), until a corrected age of 34 weeks, subject to parent consent. Refer to Pasteurised Donor Human Milk guideline.

When breast milk is unavailable, parent consent is obtained to feed infant formula.

Fortified Breast Milk and Enriched Infant Formula

Preterm infants, and medically and surgically compromised term infants, have higher nutrition requirements compared to healthy infants born at term and neonatal feeds are often routinely fortified or enriched to support infant health and development.

A multi-component breast milk fortifier ± a protein and energy supplement are routinely used to fortify preterm breast milk feeds; when unavailable, preterm formula is fed.

Term infant formula ± a protein and energy supplement are routinely used to fortify breast milk (MOM) fed to compromised, older infants ≥37 weeks; when breast milk is unavailable, a concentrated term formula may be fed – referral to the neonatal dietitian is recommended (See Table 1). Refer to Table 3 for estimated nutrient composition of Standard Neonatal Feeds.

Pasteurised Donor Human Milk (PDHM)

See Pasteurised Donor Human Milk (PDHM) for ordering and obtaining PDHM.

Ordering Neonatal Feeds from the Nutrition Room

Enter Feed Type (EBM, PDHM, Preterm Formula, Term Formula or other feed), Fortification Level (Preterm 1, Preterm 2, EBM 3.5 kJ, or other level of fortification), Feed Volume and all other information about enteral feeds into the green section on right side of the iSOFT ICM Nursing Chart Handover DIET- scroll down to find NUTRITION ROOM and enter details in the lower green box.

Refer to Food Safety Guideline 11 - Ordering Neonatal Feeds from the Nutrition Room

Table 1. Fortified Expressed Breast Milk and Formula Feeds

Feed	Fortification	Target population	Consider fortification	Target volume	Target protein	Target Energy
					g/kg	kcal (kJ)/kg
ROUTINE PRETERM FEED						
Preterm 1	EBM/PDHM + Human milk fortifier	<37 wk GA	Consider from 80 mL/kg	At least 170 mL/kg	4.0 (-4.5)	140
Preterm 2	EBM/PDHM + Human milk fortifier + protein powder	<37 wk GA	When tolerating Preterm 1 but receiving PDHM, growing poorly or fluid restricted	160 mL/kg Higher volumes may be required	4.0 (-4.5)	140
Preterm Formula	Nil	<37 wk GA		<160 mL/kg	4.0 (4.5)	140
Refer to neonatal dietitian if preterm feeds are not supporting the needs of individual infants						
ROUTINE TERM FEED						
EBM/PDHM 3.5 kJ	EBM + Term Formula	≥37 wk GA	After tolerating EBM	At least 170 mL/kg	2.3	140-150
EBM/PDHM 3.85 kJ	EBM + Term Formula	≥37 wk GA	**Fluid restricted**, after tolerating EBM 3.5 kJ	160 mL/kg, higher volm may be required	2.4	140-150
EBM/PDHM 4.2 kJ	EBM + Term Formula		**Fluid restricted and growing poorly** on EBM 3.85 kJ	150 mL/kg	2.5	140-150
TF 3.5 kJ	Term Formula 16.0%	≥37 wk GA	After tolerating TF (>35 wk) or PTF (<35 wk)	At least 170 mL/kg	2.7	140-150
TF 3.85 kJ	Term Formula 17.7%	≥37 wk GA	**Fluid restricted**, after tolerating TF 3.5 kJ	160 mL/kg	2.8	140-150

*Milk composition is variable between mothers; higher feed volumes may be required for infants growing poorly; alternative formulas or other modular feeds may be needed to manage specific medical conditions or to improve growth – refer to dietitian.

Collection and Storage of Breast Milk Expressed in the Neonatal Unit

Food Safety Guideline 3 – Collection and Storage of Breast Milk Expressed in the Neonatal Unit

Ensuring infants receive their own mother's expressed breast milk (EBM) requires strict adherence to Food Safety Guideline 3 to reduce the risk of incorrect administration of expressed breast milk and related potential risk of infection.

Collection, Storage and Transport of Breast Milk Expressed at Home and in the Neonatal Nursery

In keeping with the Neonatal Units Family Integrated Care Policy, mothers must be supported and educated to strictly adhere to Food Safety Guidelines 4 and 5 to safely express, label, handle their milk, to safely transport their milk expressed at home in insulated containers with frozen ice-bricks, and to safely store their milk using methods that preserve its immunological benefits and discourages the risk of contamination and bacterial growth.

Prior to being accepted into the Nutrition Room milk fridge or freezer, or being placed in a neonatal nursery milk fridge, bottles containing expressed milk must be wiped clean with a sanitising wipe and verified by nursing staff using a green dot sticker to mark compliance with verification criteria.

- Food Safety Guideline 4 – Collection, Storage and Transport of Breast Milk Expressed at Home
- Food Safety Guideline 5 – Receipt of EBM (MOM and PDHM) into the Nutrition Room

Mothers may deliver correctly labelled, verified containers of EBM to the following locations:

KEMH Nutrition Room: Business hours only - 06:00 -14:30 hours.

KEMH Neonatal Nurseries: Milk collection boxes are located on the bottom shelf in each Nursery milk fridge; milk is collected and delivered twice daily to the Nutrition Room at 0700 hrs and 1300 hrs.

PCH NICU: Milk fridge on the ward (collected and delivered twice daily to the Infant Formula Room at 11:00 hrs and 14:00 hrs)

Storage of EBM in the Hospital Setting

Food Safety Guideline 6 – Storage Procedure

Strict adherence to the stringent storage conditions outlined in Food Safety Guideline 6 is required for EBM that is to be fed to hospitalised sick and preterm infants. Table 2 outlines storage guidelines for use within the hospital setting. There is a limit to the amount of EBM the hospital can store for each infant.

Table 2. Hospital storage guidelines for expressed breast milk

EBM status	Nursery Room T°	Fridge < 4°C	Freezer – 18°C
Freshly expressed	4 hours	48 hours	3 months (12 months in deep freezer)
Defrosted in fridge	4 hours	24 hours	Do not refreeze
Defrosted in water < 37°	For completion of feeding	24 hours	Do not refreeze
Feed has been started e.g. Bottle feed EBM	For completion of feeding	Discard	Discard

Emergency Collection of Expressed Breast Milk

Neonatal Nursing Staff must strictly adhere to Food Safety Guideline 10 – Emergency Collection of EBM (MOM & PDHM), when accessing stored EBM out of hours for infant transfer or discharge.

Electric Breast Pump Hire (out of hours)

Follow these steps when arranging electric breast pump hire and returns:

- Collect 7 infant identification stickers from the nursery
- Collect the key for Nutrition Room from the PCA Room; page PCA to obtain access to the key.
- Enter the Nutrition Room, locate the equipment, form and booklet that are kept in the 'Out of Hours Cupboard' (not locked) which is labelled and immediately accessible on entering the Nutrition Room.
- Use a new 'HIRE OF BREAST PUMP – NUTRITION ROOM' form and verbally explain the conditions of loan agreement with the client hiring the equipment, complete all check boxes, record the pump's registration code (on the yellow sticker) under 'Equipment No', and document the client's mobile /contact number (as per example attached to the cupboard; NB duplicate form, 2 stickers required).

KING EDWARD MEMORIAL HOSP 1234567	Yellow registration sticker

- From the same 'Out of Hours' cupboard, take a breast pump and a bucket containing a steam steriliser bag and a new Double Kit that comes with a size 24 cup. If an alternate size cup is needed, also take a 'personal fit' size 21, 27, 30 or 36.
- Place the infant's identification sticker on the pump next to the yellow registration sticker.

- Provide the pink copy of the contract to the client and retain the white copy of the contract in the Nutrition Room for record keeping.
- Place white copy of the contract, together with the 3 spare infant identification stickers on the Nutrition Room desk by the computer.
- Provide the client with milk collection bottles and yellow EBM stickers and the booklet **'Expressing Breast Milk for Your Baby in the NICU'** (kept in 'Out of Hours Cupboard'), and provide verbal explanation of the expressing and storage instructions described on Page 4 of the booklet.
- Check the Client's understanding of all that has been provided and discussed.
- Lock Nutrition Room and return Nutrition Room key to PCA.

Return of Hired Electric Breast Pumps (Out of hours)

- When a breast pump is returned the staff member accepting the pump must write their full name/designation, the return date/time on a piece of paper and attach to the pump.
- Leave the infant's identification sticker on the pump.
- Place the pump in the container outside the Nutrition Room

Incorrect Breast Milk Administered to a Baby

The incorrect administration of breast milk to an infant is a significant clinical incident. Refer to Infection Prevention Policy Manuals:

- WNHS Incorrect Breast Milk Administered to a Baby (KEMH NICU)
- CAHS Incorrect Breast Milk Administered to an Infant PCH 3B

Specialised Medical Nutrition Products Post-Discharge

Specialised medical nutrition products (SMNP) should only be prescribed for infants after discharge when medically indicated. SMNP are substantially more expensive than standard formulae, unless available under the pharmaceutical benefit scheme (PBS).

Access to, and pharmacy-supply of, SMNP under the PBS in the public hospital system for a discharge patient or non-admitted patient is possible if the prescription fits the PBS criteria (e.g. Pharmaceutical Benefits Scheme (PBS) |).

The following discharge planning and procedures must be followed for any infant requiring a SMNP after discharge:

- The attending medical officer to liaise with a specialist consultation at PCH or at another public or private health facility, regarding the future medical and nutritional management of the infant after discharge and/or the transfer of patient care.

- Schedule a clinic appointment with the specialist consultant within one month of the infant's scheduled date of discharge.
- Notify Pharmacy at least one week prior to discharge that a month's supply of the SMNP will be required on discharge.
- Request up to one month's supply of the SMNP (charged to Neonatology), on approved PBS prescription paper at the time the discharge medications are requested (Note: the supply requested is calculated by the anticipated usage of the SMNP between the date of discharge and the date of the planned specialist review).
- Arrange adequate follow-up after discharge by the home-visiting nurse, attending consultant and the neonatal dietician for the interim period between discharge and the planned review by the specialist).

Related CAHS internal policies, procedures and guidelines

- Neonatal Nutrition Room Guidelines
- Enteral Feeding: Initiation and Progression Neonatology
- Pasteurised Donor Human Milk (PDHM)
- WNHS Incorrect Breast Milk Administered to a Baby (KEMH NICU)
- CAHS Incorrect Breast Milk Administered to an Infant PCH 3B

References and related external legislation, policies, and guidelines

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10. National Health and Medical Research Council. Nutrient reference values for Australia and New Zealand including Recommended Dietary Intakes. Canberra: Commonwealth of Australia; 2006.

This document can be made available in alternative formats on request.

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Table 3 - Estimated Composition - Standard Neonatal Feeds

	*Preterm Milk	EBM PRETERM 1	EBM PRETERM 2	**Pasteurised Donor Milk	PDHM PRETERM 1	PDHM PRETERM 2	***Term Milk	EBM Term 3.5 kJ	EBM Term 3.85 kJ	EBM Term 4.2 kJ	Preterm Formula	Term Formula 2.8 kJ (12.7%)	Term Formula 3.5 kJ (16%)	Term Formula 3.85 kJ (17.6%)
	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL	100 mL
Protein (g)	1.27	2.71	3.05	1.01	2.45	2.79	1.00	1.34	1.50	1.68	2.90	1.28	1.62	1.78
Fat (g)	3.46	4.18	4.18	3.80	4.52	4.52	3.46	4.42	4.88	5.36	4.00	3.60	4.55	5.00
Carbohydrate (g)	7.34	8.62	8.62	7.60	8.88	8.88	7.66	9.58	10.49	11.45	8.10	7.18	9.07	9.97
Energy (kcal)	66	83	84	69	86	87	66	83	92	101	80	66	83	92
Energy (kJ)	274	347	353	287	360	366	275	349	384	421	335	277	350	385
Vitamin A (ug) (eq)	38	371	371	31	364	364	31	47	55	63	370	60	76	83
Vitamin A (IU)	127	1236	1236	103	1213	1213	103	159	185	213	1233	208	263	289
Cholecalciferol (Vit D) (µg)	0.1	3.6	3.6	0.1	3.6	3.6	0.1	0.4	0.6	0.7	3.7	1.2	1.5	1.7
Cholecalciferol (IU)	4	145	145	4	145	145	4	17	23	29	148	48	61	67
Vitamin E (mg)	0.42	4.18	4.18	0.49	4.25	4.25	0.49	0.69	0.78	0.88	3.60	0.74	0.93	1.02
Vitamin E (IU)	0.62	6.23	6.23	0.73	6.34	6.34	0.73	1.03	1.16	1.31	5.37	1.10	1.39	1.53
Vitamin K (µg)	0.23	7.75	7.75	0.25	7.77	7.77	0.25	2.04	2.89	3.78	6.40	6.70	8.46	9.31
Vitamin C (mg)	6.00	24.76	24.76	3.00	21.76	21.76	3.00	5.41	6.54	7.75	21.00	9.00	11.37	12.50
Thiamin (Vit B1) (mg)	0.01	0.15	0.15	0.02	0.16	0.16	0.02	0.05	0.06	0.07	0.14	0.10	0.13	0.14
Riboflavin (Vit B2) (mg)	0.05	0.23	0.23	0.04	0.22	0.22	0.04	0.06	0.08	0.09	0.20	0.11	0.14	0.15
Niacin (mg)	0.23	1.63	1.63	0.18	1.58	1.58	0.18	0.31	0.38	0.44	1.60	0.50	0.63	0.69
Vitamin B6 (ug)	19.50	143.50	143.50	13.00	137.00	137.00	13.00	27.72	34.65	42.02	94.00	55.00	69.47	76.40
Folic Acid (µg)	5.85	43.37	43.37	8.50	46.02	46.02	8.50	11.44	12.83	14.30	41.00	11.00	13.89	15.28
Vitamin B12 (µg)	0.08	0.26	0.26	0.04	0.23	0.23	0.04	0.09	0.11	0.14	0.23	0.18	0.23	0.25
Panthothenic Acid (mg)	0.25	0.89	0.89	0.22	0.86	0.86	0.22	0.31	0.36	0.40	0.80	0.35	0.44	0.49
Sodium (mg)	23.00	59.72	60.58	11.20	47.92	48.78	16.00	20.28	22.30	24.44	51.00	16.00	20.21	22.22
Sodium (mmol)	1.00	2.60	2.63	0.49	2.08	2.12	0.70	0.88	0.97	1.06	2.22	0.70	0.88	0.97
Potassium (mg)	50.00	98.40	100.11	44.20	92.60	94.31	50.00	67.94	76.38	85.35	120.00	67.00	84.62	93.06
Potassium (mmol)	1.28	2.52	2.56	1.13	2.37	2.42	1.28	1.74	1.95	2.18	3.08	1.71	2.16	2.38
Calcium (mg)	27.50	103.10	104.24	25.80	101.40	102.54	26.40	38.45	44.12	50.14	116.00	45.00	56.84	62.51
Calcium (mmol)	0.68	2.57	2.59	0.65	2.54	2.56	0.66	0.96	1.10	1.25	2.90	1.13	1.42	1.56
Phosphorus (mg)	14.00	58.00	58.00	13.40	57.40	57.40	12.40	19.36	22.64	26.12	77.00	26.00	32.84	36.11
Phosphorus (mmol)	0.45	1.87	1.87	0.43	1.85	1.85	0.40	0.62	0.73	0.84	2.49	0.83	1.05	1.15
Magnesium (mg)	3.10	7.10	7.10	3.40	7.40	7.40	3.40	4.74	5.37	6.04	8.30	5.00	6.32	6.95
Magnesium (mmol)	0.13	0.29	0.29	0.14	0.30	0.30	0.14	0.14	0.14	0.14				
Iron (mg)	0.03	1.83	1.83	0.03	1.83	1.83	0.03	0.24	0.34	0.45	1.80	0.80	1.01	1.11
Zinc (mg)	0.28	1.24	1.24	0.23	1.19	1.19	0.23	0.39	0.47	0.55	1.20	0.60	0.76	0.83
Iodine (µg)	7.50	20.18	20.18	7.50	20.18	20.18	7.50	11.52	13.41	15.41	28.00	15.00	18.95	20.84
Manganese (µg)	0.40	6.48	6.48	0.36	6.44	6.44	0.35	1.69	2.32	2.99	12.00	5.00	6.32	6.95
Copper (µg)	31.00	75.00	75.00	25.00	69.00	69.00	25.00	37.31	43.11	49.27	83.00	46.00	58.10	63.89
Chloride (mg)	42.50	74.62	74.62	30.90	63.02	63.02	30.90	42.38	47.78	53.52	76.00	42.87	54.14	59.55
Chloride (mmol)	1.20	2.11	2.11	0.87	1.78	1.78	0.87	1.20	1.35	1.51	2.14	1.21	1.53	1.68
Selenium (ug)	1.50	4.30	4.30	1.50	4.30	4.30	1.50	2.04	2.29	2.56	4.80	2.00	2.53	2.78
Taurine (mg)	4.00	5.88	5.88	4.00	5.88	5.88	4.00	5.26	5.85	6.48	6.30	4.70	5.94	6.53
Inositol (mg)		4.32	4.32		4.32	4.32		1.20	1.77	2.37	20.00	4.50	5.68	6.25
Biotin (ug)	0.50	3.78	3.78	0.60	3.88	3.88	0.60	1.14	1.39	1.66	4.00	2.00	2.53	2.78
Choline (mg)	15.50	23.58	23.58	16.00	24.08	24.08	16.00	18.68	19.94	21.28	20.00	10.00	12.63	13.89
Carnitine (mg)	0.85	3.33	3.33	0.85	3.33	3.33	0.85	0.85	0.85	0.85	3.10	0.00	0.00	0.00
Molybdenum (ug)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		0.00	0.00	0.00
Chromium (ug)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		0.00	0.00	0.00
Chromium (ug)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		0.00	0.00	0.00

Total CHO incorporates oligosaccharides; Energy calculated using bioavailble protein and total CHO.

Preterm milk: Boyce 2016; ESPGHAN 2022; Koletzko 2021

Donor milk: Gates 2023; NHMRC NRV 2006 ; ESPGHAN 2022

Term milk: Gidrewicz 2014; NHMRC NRV 2006; ESPGHAN 2022