

**Enteral Feeding of Preterm & Growth Restricted Infants
 Full Clinical Neonatal Guideline – Joint Derby and Burton**

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Target health care professionals: Staff of the Derby Children’s Hospital Neonatal Unit

Patients to whom this applies: Preterm infants who are <34 weeks gestation at birth
 Infants ≥ 34 weeks gestation at birth who are critically unwell

Key words: enteral feeding, breast milk, infant formula, breast milk fortifier

All guidelines are recommendation for routine clinical practice. The interpretation and application of the guidelines for individual patient care remains the responsibility of the individual professional.

If in doubt, contact a senior colleague. If there are any questions about the content of the guideline that do not affect the immediate care of patients, contact the guideline author.

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1. Introduction

Own mother's breast milk is the optimal feed for infants, best delivered via the infant suckling on the breast. However, infants in the neonatal unit may be too premature or too unwell to do this. Alternative feeding strategies are therefore required for optimising nutrition for preterm and/or critically unwell newborn infants.

1.1 Aim and Purpose

- To ensure optimal feeding for infants who are too preterm and/or too critically unwell to breast feed so that all infants received optimal nutrition to promote growth and development
- To ensure preterm infants are fed according to a standardised feeding regimen
- To minimise the risk of necrotising enterocolitis (NEC) and late-onset sepsis (LOS) among preterm and unwell infants

1.2 Background

The European Society of Paediatric Gastroenterology and Nutrition (ESPGAN) suggests that preterm infants should receive the quantity and quality of nutrients needed to achieve growth similar to foetal growth coupled with satisfactory functional development (1).

Nutrition is important in the newborn infant to ensure adequate post-natal growth and development and improve developmental outcomes. Deficient postnatal growth is associated with poor neurological outcomes for both appropriately grown and growth restricted preterm infants (2) and while rapid post-natal growth (catch-up) does not improve neurological outcomes (2) rapid weight gain in childhood increases the risk of cardiovascular illness in adult life (3).

The evidence-base for providing nutrition and outcomes in the pre-term, growth-restricted and sick term infants is limited. However, studies have demonstrated reduced incidence of necrotising enterocolitis when a standardised feeding regime for the introduction and increasing of enteral feeds is used in the neonatal intensive care (4).

2 Nutrition of infants in the neonatal unit

2.1 Type of milk

The use of maternal breast milk is recommended in all infants. Mothers of preterm infants should be encouraged to start expressing milk as soon as possible after delivery. Expressed breast milk in preterm infants results in reduced nosocomial sepsis, reduced incidence of NEC, and better developmental quotients.

Only in circumstances where breast milk is not available despite adequate support to the mother, preterm babies can be given infant formula. For infants born at <34 weeks' gestation and <1.8kg, specialised preterm formula should be used. The infant formula of choice used in Derby neonatal unit is Nutriprem 1.

Infants born at ≥ 34 weeks' gestation or ≥ 1.8 kg birth weight should be given usual term infant formula milk as per parental choice. Specialised preterm formula may be used in some infants with such as those with intrauterine growth restriction after discussion with the Service Consultant.

2.1.1 Nutrition

Preterm babies require 110 – 135 calories/kg and 3.5-4.5 g/kg of protein per day (1). Requirement of term born infants are lower: calories 100kcal/kg and 2g/kg protein per day. Macronutrient quantities in 100ml of the different milks available are given in Table 1.

Table 1. Macronutrient content of milk (1, 5)

Milk (100ml)	Energy (kcal)	Protein (g)	Fat (g)
Human breast milk	67	1.3	4.2
Preterm human breast milk	65	1.5	3.5
Human milk with breast milk fortifier*	83	2.5	4.2
Term formula milk	66	1.3	3.4
Nutriprem 1	80	2.6	3.9
Nutriprem 2	75	2	4

*based on adding 1 sachet of Nutriprem BMF® to 50 ml of expressed breast milk

2.2 Starting and advancing enteral feeds

2.2.1 Infants ≥ 34 weeks gestation

These infants can usually start nutritive feeds immediately after birth. Minimal enteral feeding is not required.

- Slower establishment of enteral feeding may be considered in specific clinical situations, such as critically ill infants e.g., high inotrope requirement
- Suspected or proven NEC e.g., significant abdominal distension treated as NEC
- Intestinal obstruction

2.2.2 Infants < 34 weeks gestation

2.2.2.1 Minimal Enteral Feeding

Minimal enteral feeding is defined as volumes of milk feeds (10-15 ml/kg/d) and should be started within first 24 hours of life. Early enteral feeding at such volumes does not aim to meet the nutritional needs of the infant and should be given in conjunction with parenteral nutrition.

Early enteral feeding stimulates gastrointestinal maturation and may reduce the time taken to achieve full enteral feeding. Cochrane meta-analysis investigating the role of minimal enteral feeding showed that although some trials reported that minimal enteral nutrition reduced time taken to establish full enteral feeds, meta-analyses of all available data did not show a statistically significant effect; however, the data revealed that there are no adverse effects of early minimal enteral feeding including NEC and all-cause mortality (6).

Mother's own breast milk should be used for minimal enteral feeding whenever possible. All mothers of preterm infants should receive information about expressing breast milk and should be supported to do so. Minimal enteral feeds with mother's colostrum should be given to preterm infants as soon as available. If mother's milk is not available, consider minimal enteral feeds with preterm term formula milk after 24-48 hours.

In infants <34 weeks who are IUGR (<2ND centile) and/or have A/REDF, minimal enteral feeds should be started as soon as possible if mother's expressed breast milk is available. Delay for 24 hours if mother's milk is not available or while awaiting mother's milk may be acceptable.

2.2.2.1.1 Contraindications of minimal enteral feeds

- Intestinal obstruction

Respiratory distress, sepsis, hypoglycaemia, umbilical lines are **NOT** contraindications for minimal enteral feeds.

Recommendation:

- **All preterm infants should be given minimal enteral feeds with mother's own breast milk within 24 hours of birth.**
- **Minimal enteral feeds should be given as 1ml/kg every 2 hours.**

2.2.2.2 Advancing enteral feed

Cochrane systematic review of slow (15-20 ml/kg/d) vs. fast (30-35 ml/kg/d) feed advancements in preterm infants showed that fast increment does not increase the risk of NEC, mortality, or interruption of feeds and leads to faster attainment of full feeds and regain of birth weight (7).

Evidence suggests that delaying advancement of enteral feeding does not prevent NEC.

2.2.2.2.1 High risk infants: Slow advancement in enteral feed volumes

- Infants < 28 weeks gestation (up to 27 weeks + 6 days), or
- Birth weight < 2nd centile, or
- Infants with evidence of significant perinatal asphyxia

Babies at high risk of NEC may benefit from a more cautious approach to advancing enteral nutrition. Minimal enteral feeding should be started within the first 24 hours and continued until infant is ready for advancing enteral feeds. Most infants should tolerate feed increments after 24 hours of minimal enteral feeding without an increased risk of NEC although there is limited evidence for the safety of fast feed advancements in extremely preterm and/or growth restricted infants. Hence, a slower feeding schedule is suggested (Table 2).

2.2.2.2.2 Moderate-low risk of NEC: Fast advancement in enteral feed volumes

- Infants ≥ 28 weeks gestation at birth, and
- Birth weight ≥ 2nd centile

Minimal enteral feeding should be started within 24 hours and feed volume increments can be started after 24 hours of minimal enteral feeding. As demonstrated by Morgan et al. (7) these infants can safely tolerate a faster rate of feed increments as suggested in Table 3.

The more mature, well grown infants in this group may not require 24 hours of minimal enteral feeding and may tolerate quicker feed advancements.

Table 2. Advancements in enteral feeding: Slow increase

Day of feeding	Volume per feed	Increment in feed volume (ml/kg/day)	Total feed volume for the day (ml/kg/day)
1	1 ml/kg 2 hourly	12	12
2	2ml/kg 2 hourly for 12 hours 3ml/kg 2 hourly for next 12 hours	18	30
3	4ml/kg 2 hourly for 12 hours 5ml/kg 2 hourly for 12 hours	24	54
4	6ml/kg 2 hourly for 12 hours 7ml/kg 2 hourly for 12 hours	24	78
5	8ml/kg 2 hourly for 8 hours 9ml/kg 2 hourly for 8 hours 10ml/kg 2 hourly for 8 hours	30	108
6	11ml/kg 2 hourly for 8 hours 12ml/kg 2 hourly for 8hours 13ml/kg 2 hourly for 8 hours	36	144
7	14ml/kg 2 hourly for 8 hours	32	168

Notes:

- Tropic feeds at volume of 1 ml/kg 2 hourly (as in Day of feeding 1) should be continued until it is safe to advance enteral feed volumes.
- Feeds can be given when UAC/UVC are in situ.
- Feeds increment per feed is always by 1m/kg.
- Feed increments are every 12 hours from Day of feeding 2 to 4 and then every 8 hours.
- In breast milk fed infants, once the infants have achieved 150-180 ml/kg/day feed volumes (between day of feeds 6 and 7), consider adding breast milk fortifier. For those on preterm formula, increase feed volumes over 150ml/kg/day if indicated due to slow growth. At 150m-180l/kg/d volume, human breast milk with added fortifier or preterm infant formula should be sufficient to meet the preterm infants' nutritional requirement.
- Continue parenteral nutrition and reduce volume of parenteral nutrition when enteral feed volumes exceed 70 ml/kg/day (day of feed 4-5) or the combined fluid volume intake exceeds 150ml/kg/day unless higher fluid volumes are needed for other clinical indications.

Table 3. Advancements in enteral feeding: Fast increase

Day of feeding	Volume per feed	Increment in feed volume (ml/kg/day)	Total feed volume for the day (ml/kg/day)
1	1 ml/kg 2 hourly	12	12
2	2ml/kg 2 hourly for 8 hours 3ml/kg 2 hourly for 8hours 4ml/kg 2 hourly for 8 hours	30	42
3	5ml/kg 2 hourly for 8 hours 6ml/kg 2 hourly for 8hours 7ml/kg 2 hourly for 8 hours	30	72
4	8ml/kg 2 hourly for 8 hours 9ml/kg 2 hourly for 8 hours 10ml/kg 2 hourly for 8 hours	36	108
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- Continue parenteral nutrition and reduce volume of parenteral nutrition when enteral feed volumes exceed 70 ml/kg/day (day of feed 4-5) or the combined fluid volume intake exceeds 150ml/kg/day unless higher fluid volumes are needed for other clinical indications.

Recommendation:

- Increase enteral feeds by 1 ml/kg as per schedule as soon as infant is stable

2.3 Feed intolerance

Intolerance of feed is defined as:

- NG aspirates >2ml/hr in infants <750g or >3ml/hr in infants >750g (2)
- Significant abdominal distension
- Significant vomiting
- Bile-stained aspirates (green coloured aspirate)

Frequent stopping for enteral feeding should be avoided. If the infant has large volume aspirates only, consider reducing feed volume for 1-2 feeds and then increasing again. The decision to stop enteral feeds should be taken only where there are one or more of the above features present or if there are other concerns about NEC.

Recommendation:

- **Monitor for feed intolerance but avoid frequent interruptions in enteral feeding.**

2.4 Method of Feeding

Infants of less than 34 weeks gestation often do not have the developmental co-ordination required to suck and swallow appropriately. These infants require placement of an intra-gastric tube to provide enteral nutrition.

There is no evidence to support the use of enteral feeding tubes inserted via the nose (nasogastric) vs. those inserted orally (orogastric) (8). Oro-gastric tube may be preferable as they are less likely to compromise respiration.

Infants should not be fed via the transpyloric route unless specifically indicated as in some rare circumstances. Transpyloric feeding is of no benefit and may even be harmful (9). Please refer to the Children's Hospital Guideline G118 for details on transpyloric feeding.

In individual cases, as a consultant decision, infants may be continuously fed via an appropriately placed and radiologically confirmed naso-jejunal tube. Caution must be practiced in administering any oral medication via the naso-jejunal route which should be only after consultation with the pharmacist.

As infants mature and progress to oral feeding the use of cup feeds can also be a beneficial bridging technique between intra-gastric and breast feeding. **See guideline FF 10.**

Recommendation:

- **Preterm infants who cannot feed orally should be fed via oral or nasal gastric tubes.**

2.5 Continuous vs bolus feeds

There is no evidence to support the use of continuous vs. intermittent bolus gastric feed in premature infants (10). Bolus feeds are considered to be more physiological and could promote surges in gastrointestinal hormones which are thought to be important in gut development. There is no evidence to suggest the ideal interval between feeds for intermittent bolus feeding in preterm infants.

Continuous feeding should be used if

- Infant is fed via naso-jejunal tube

- Intermittent bolus feeds are poorly tolerated (consultant decision)

Recommendation: preterm infants should be fed at 2 hourly intervals.

2.6 Non-nutritive sucking

Preterm infants must be given opportunity for non-nutritive sucking on the mother's breast. Non-nutritive sucking has several advantages including improved transition from tube to oral feeding and reduced hospital stay (11).

Non-nutritive sucking may also be provided via a pacifier. Consent should be obtained from the parents prior to using a dummy.

Recommendation:

- **Mothers should be supported and encouraged to provide non-nutritive sucking along with skin-to-skin care to their infants.**

2.7 Fortification of maternal expressed breast milk

It is universally acknowledged that maternal breast milk is the best choice for the preterm infants. Preterm infants have a need for higher levels of nutrients and mothers who delivery preterm have milk with higher levels of some nutrients such as protein, fat, energy and sodium in the first few weeks. However, the concentration of these nutrients falls over time resulting in a nutritional profile that may not be sufficient for the high requirements of the very low birth weight infants.

The aim of fortifying maternal breast milk is, therefore, to preserve the advantages of breast feeding while optimising the nutritional status of the growing and developing preterm infant. Infants with birth weight <1.5kg may need fortification of breast milk to provide adequate nutrition.

Recommendation:

- **Addition of breast milk fortifier (BMF) to mother's expressed breast milk should be considered for the following infants once they establish feeds at 180 ml/kg/d of expressed breast milk**
 - **Very low birth weight infants (birth weight < 1.5 kg)**
 - **Infants with birth weight < 2kg who**
 - **Are IUGR (birth weight < 2th centile for gestation)**
 - **Have poor weight gain on maximum tolerated feed volumes (not more than 150-200 ml/kg/d or with conditions such as congenital heart diseases where fluid restriction may be required)**

Supplementation of breast milk should be discussed with the parents and the benefits explained prior to commencing fortification.

2.8 Vitamin supplementation in preterm infants

2.8.1 Multivitamin supplements

Preterm infants have a higher requirement for most vitamins due to premature delivery prior to the third trimester fetal accretion of nutrients resulting in low body stores.

Vitamins should be supplemented in all preterm infants <34 weeks gestation at birth once full enteral feeds have been achieved (150 ml/kg/d). Preterm formula milk and breast milk fortifier have added multivitamins and hence the need for vitamin supplements varies with the milk the infant is receiving. Table 4 gives the dose of multivitamin supplementation required for different kinds of milks given to preterm infants.

Recommendation:

- **Infants born at < 34 weeks gestation should receive daily multivitamins supplements.**

Table 4. Vitamin supplementation for different milk feeds in preterm infants (<34 weeks gestation)

Milk feeds	Vitamin supplementation
Unfortified maternal breast milk	0.6 ml Abidec/Dalivit
Breast milk with fortifier Nutriprem 1	0.3 ml Abidec/Dalivit
Term formula milk Specialised formulae	
Nutriprem 2 (post-discharge preterm formula)*	No vitamin supplementation

*Multivitamin content of Abidec, Dalivit and Health start vitamins is given in the Appendix (5.0)
All vitamin supplements should be continued at least until the first birthday in preterm infants
Infants discharged on preterm post-discharge formula, must be started on vitamin supplements when the specialised formula is stopped or changed to normal term formula or follow-on milks.

2.8.2 Folic acid supplementation for breast fed infants

All preterm (< 34 weeks) infants who are breast fed and not on BMF, should receive 50 micrograms of folic acid supplementation per day. This is generally discontinued when the infant is discharged home.

Recommendation:

- **All breast-fed infants born at <34 weeks gestation should receive 50 micrograms of folic acid supplementation per day.**

2.9 Iron supplementation in preterm infants

Preterm infants are at a very high risk of iron deficiency: they miss out on the third trimester accretion and have low body stores, do not receive sufficient supplementation in the first few weeks of life, and lose iron due to frequent blood sampling. Iron supplementation in preterm infants may reduce later iron deficiency, reduce the need for blood transfusions, and improve neurodevelopmental outcomes (12).

All preterm infants born at < 34 weeks gestation should be given iron supplementation from 28 days (4 weeks) of age.

Breast milk does not contain sufficient iron and breast milk fortifiers available in the UK do not contain supplemental iron. However, preterm formula milk contains added iron and formula-fed infants on Nutriprem 1 or 2 do not require additional iron supplementation. Infant formulae designed for term infants do not contain enough iron to meet the preterm infants' requirements.

Recommendation:

- **All preterm infants born at <34 weeks gestation should receive iron supplementation either as additional iron for breast milk (with or without fortifier) fed infants or in iron already present in the preterm formula milk (Nutriprem 1 or 2).**

Table 5. Iron supplementation for different milk feeds in preterm infants (<34 weeks gestation); to be started at 28 days post-natal age.

Milk feeds	Iron supplementation
Breast milk (unfortified)	Infant < 1.5 kg: 0.5 ml Sytron (≈ 2.7 mg iron)
Breast milk fortified with Cow & Gate Nutriprem Breast Milk Fortifier [#]	
Term formula milk	Infant ≥ 1.5 kg: 1 ml Sytron (≈ 5.5 mg iron)
Term specialised or nutrient enriched formula	
Breast milk fortified with SMA Breast Milk Fortifier [#]	No iron supplementation
Nutriprem 1	
Nutriprem 2*	
SMA Gold Prem Pro	

Sytron® contains iron (5.5 mg/ml) as sodium ferredetate

Fersamal® contains iron (9 mg/ml) as ferrous fumarate

All iron supplements should be continued until the first birthday

**Infants discharged on preterm post-discharge formula, must be started on iron supplements (1ml Sytron daily) when the specialised formula is stopped or changed to normal term formula or follow-on milks.*

#Breast milk fed infants who are receiving breast milk fortifier require iron supplementation depending on the product that is being used.

The Cow & Gate Nutriprem Human Milk Fortifier contains does not contain supplemental iron. Infants receiving this product, therefore, should receive the same amount of iron supplementation as for those who are on unfortified human breast milk.

The alternative product in use locally, SMA Breast Milk Fortier, contains supplemental iron (0.45 g of elemental iron/sachet). The recommended use of this product is to add 1 sachet to 25 ml of breast milk giving a 2.7 mg/kg/day of iron supplement to an infant on 150ml/kg/day of fortified breast milk. Therefore, infants receiving human breast milk fortified with SMA Breast Milk Fortifier **do not require** further iron supplementation.

3 Monitoring growth and faltering growth in preterm infants

3.1 Measuring the preterm infants

Preterm infants must have regular growth monitoring while in the neonatal unit.

- Weight – measured twice a week
- Head circumference – measure once a week

- Length – babies should have a length recorded at least at admission and at the time of discharge

These recordings should be entered into the Neonatal and Infant Close Monitoring (NICM) Growth Charts in the infant's notes and into the Badger database.

Serum urea, electrolytes, bone profile and bilirubin levels should be monitored once a week. Monitoring of the bone profile is particularly important in breast fed infants who are not receiving breast milk fortifiers.

3.2 Expected weight gain in preterm infants

There is no evidence to suggest what the optimum rate of weight gain is for preterm infants. Values such as 15-20 g/kg/day have been suggested but these must not be used to a standard for every baby to achieve.

Weight gain should be monitored on the NICM growth chart and growth should be considered adequate if the infant is growing along or advancing towards the birth centiles.

However, it must be noted that the centile lines on the NICM growth charts were created by plotting weights of babies born at each gestational week and do not represent post-natal growth.

3.3 Faltering growth

Most preterm infants will gain weight appropriately on 150 ml/kg/day of breast milk with added fortifier or preterm formula milk such as Nutritprem 1. However, some infants may not grow appropriately on these amounts of nutrients.

The following factors should be considered:

- Adequate feed volume being delivered
- Is the breast milk fortified?
- Check serum and urine sodium levels – is the infant sodium depleted? Low or normal serum sodium levels with low urinary sodium may indicate sodium depletion and the infant may benefit from oral sodium supplementation.
- Is the infant on post-natal steroids? Growth is reduced while the infant is on steroids and will recover once the treatment is discontinued.
- Does the infant have co-morbidities that increase nutrient requirements such as respiratory distress, cardiac disease or intercurrent illness?

If the infant is continuing to grow sub-optimally the following can be considered:

Breast milk fed infants:

- Ensure breast milk is adequately fortified.

- Increase volume of feeding, if permitted by clinical condition, to 180 ml/kg/day with added fortifiers
- Try a period of 50% fortified breast milk and 50% preterm formula. Explain to the mother this is a temporary measure and most infants will return to growing well on full breast feeds after a period of sustained growth.
- Mothers producing large volumes of milk may be advised to express and discard the dilute foremilk and store the richer, higher fat hind milk for feeding the baby.

Formula fed infants:

- Increase volume of feeding, if permitted by clinical condition, to 180 ml/kg/day

Recommendation:

- **Preterm babies should have weight and head circumference measured regularly and plotted on to the appropriate growth charts.**
- **If infant is not gaining weight adequately, reasons for faltering growth should be considered**
- **Mothers should be encouraged to continue breast feeding and methods of supplementing nutrition should be considered.**

All infants with faltering or slow growth should be discussed with the neonatal Dietitian.

4 Post-discharge nutrition

The aim of feeding management is to discharge all infants exclusively breast feeding at discharge. This must be aimed and all mothers and infants supported to achieve this goal by all possible means and all members of the neonatal team.

Preterm infants may have accumulated nutritional and growth deficits by the time of discharge (13). Where discharge on exclusive breast feeding is not possible, enriched post-discharged formula (14) should be considered in infants who were born at <34 weeks' gestational age or <1.8 kg and have

- Ongoing slow growth such as crossed >2 centile lines since birth
- Increased energy requirement due to ongoing need for supplemental oxygen or cardiac disease
- Need to reduce intake due to poor feeding or fluid restriction
- Other reasons as discussed with the neonatal consultant and paediatric dietitian

Infants born below 34 weeks gestation and < 1.8 kg at birth who fulfil one or more of the above and are requiring partial or full formula feeding, should be transferred to enriched post-discharge preterm formula (Nutriprem 2) a few days before discharge.

Infant's growth must be monitored and after 3-4 months formula milk can be changed to regular term formula milk if the infant is growing well or earlier if weight gain is excessive (such as crossing above the birth centile inappropriately for gestation age infants).

As mentioned in Table 4 and Table 5, iron and multivitamin supplements must be started when changing from Nutriprem 2 to term formula milk.

Enriched preterm post-discharge formula should be continued to a maximum of 6 months corrected age.

The discharge on such enhanced nutrition should be accompanied by a letter to the GP to communicate the following:

For infants who will have neonatal follow up

- Continue to prescribe Cow & Gate Nutriprem 2 until reviewed in neonatal clinic
- Nutriprem 2 may need to be continued until the infant is 6 months corrected age.
- Neonatal consultant will advise about discontinuing and changing to standard first stage infant formula earlier as needed

For infants who do not have neonatal follow up

- Continue to prescribe Cow & Gate Nutriprem 2 for 6 weeks
- Review weight gain at 6 weeks – discontinue Nutriprem 2 and change to standard first stage infant formula if weight gain is adequate
- If continuing Nutriprem 2, review weight gain at 4 week intervals and change to standard first stage infant formula whenever weight gain is adequate

For all infants

- Discontinue Nutriprem 2 at 6 months corrected age.
- Infants can have standard infant formula after discontinuation of Nutriprem 2 unless there are other indications for use of specialised infant formulae
- Prescribe iron (Sytron, 1 ml once a day) and multivitamin supplements (Abidec 0.3 ml once a day) when discontinuing Nutriprem 2 and switching to term formula.
- Iron and multivitamin supplements should be continued until 1-year corrected age. It is further recommended that all children receive multivitamin supplementation until 5 years of age.

Recommendation:

- **Preterm infants can be discharged on enriched post-discharge formula milk such as Nutriprem 2**
- **Growth should be monitored after discharge and enriched formula continued until appropriate growth is achieved or 6 months of corrected gestational age.**

- **Infants should be prescribed multivitamin and iron supplementation when switching to non-enriched term formula milk.**

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Documentation Controls

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Approved By:	<i>Paediatric Business Unit Guidelines Group 6th July 2022, Women and Children's Division – 26th July 2022</i>
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Review Date:	July 2025
Key Contact:	Dr S Ojha

Appendix:

5.0 Appendix 1. Multivitamin preparations available commercially

Table 6. Composition of available multivitamin preparations

	Vitamin A	Vitamin D	Vitamin C	Vitamin B1	Vitamin B2	Nicotinic Acid	Vitamin B6
Abidec							
0.3ml	666 IU	200 IU	20 mg	0.2 mg	0.4 mg	4.0 mg	0.4 mg
0.6ml	1333 IU	400 IU	40 mg	0.4 mg	0.8 mg	8.0 mg	0.8 mg
Dalivit							
0.3ml	2500 IU	200 IU	25 mg	0.5 mg	0.2 mg	2.5 mg	0.25 mg
0.6ml	5000 IU	400 IU	50 mg	1.0 mg	0.4 mg	5.0 mg	0.5 mg
Healthy Start							
5 drops	660 IU	280 IU	20 mg				
10 drops	1320 IU	560 IU	40 mg				

5.1 Appendix 2. Vitamin and Iron Supplementation on Neonatal Unit Flowchart

For those of gestation < 34 weeks on full enteral feeds breast fed on demand or $\geq 150\text{mL/kg/day}$			
Breast Feeding Unfortified EBM	EBM with fortifier Term formula milk Specialised formula	Nutriprem 1 (NP1)	Nutriprem 2 (NP2)
0.6mL Abidec/Dalivit 50 micrograms Folic acid	0.3mL Abidec/Dalivit	0.3mL Abidec/Dalivit	No supplementation
From day 28 after birth onwards			
<1.5kg 0.5mL Sodium Feredetate (Sytron) once daily $\geq 1.5\text{kg}$ 1 mL Sodium Feredetate (Sytron) once daily		No iron supplementation	
At Discharge			
Breast or breast milk fed	Term formula milk Specialised formula	Switched from NP1/NP2 to term formula or follow on milk	
0.6mL Abidec/Dalivit <1.5kg 0.5mL Sodium Feredetate (Sytron) once daily $\geq 1.5\text{kg}$ 1 mL Sodium Feredetate (Sytron) once daily	0.3mL Abidec/Dalivit <1.5kg 0.5mL Sodium Feredetate (Sytron) once daily $\geq 1.5\text{kg}$ 1 mL Sodium Feredetate (Sytron) once daily		