



# Kent Surrey and Sussex Neonatal Operational Delivery Network

## Principles of Practice Neonatal Nutritional Supplements

<b>Authors</b>	Catherine Casewell (Lead Neonatal Dietitian) Christian Chadwick (Lead Neonatal Pharmacist) Dr Ramon Fernandez (Consultant Neonatologist) Carole Davidson (Neonatal Dietitian, Royal Sussex County Hospital) Dr Anna Ntovolou (Consultant Neonatologist William Harvey Hospital NICU)  with contribution from KSS Neonatal Nutrition Group
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<b>Distribution</b>	Neonatal Units in KSS
<b>Implications of race, equality &amp; other diversity duties for this document</b>	

## Aim of Recommendations

The aim of this document is to bring network units together to reduce unwarranted variation, to the benefit of babies, their families and the healthcare professionals caring for them – particularly those who are rotational.

There is limited evidence with regards to best practice for supplementing with vitamins and minerals including multivitamins, folic acid, and iron; much of the evidence is derived from extrapolated knowledge on recommended daily intakes.

The objectives are to:

- Inform network units of best practices for supplementation for a range of infants' weight and feed volumes received
- To support adequate growth and nutritional wellbeing of all preterm infants admitted to neonatal care
- To prevent specific nutritional deficiencies

## Background

A review of current practices within the KSS network identified a wide variation in the different vitamins and mineral supplements prescribed, as well as the amount recommended, to infants born both prematurely and at term.

The Nutrition group felt that this variation and lack of consistency when prescribing vitamins and minerals was not supporting the optimal patient experience when transferring between units and confusing for health care professionals during rotations on different units.

It was agreed that there should be some principles of practice in line with ESPGHAN guidelines<sup>1</sup> documented that consider the use of:

- Multivitamins
- Iron
- Folic Acid
- Zinc

To meet the requirements of all the different Neonatal Units within the Network from Level 1 SCBU to Level 3 units including surgery, it was felt using a weight and gestational age range was more appropriate than providing specific guidance.

## Abbreviations Used

**ESPGHAN** – European Society of Paediatric Gastroenterology, Hepatology and Nutrition

**DoH** -Department of Health

**BMF** – Breast Milk Fortifier

**BPD** – Broncho Pulmonary Dysplasia

## Key Points:

- Multivitamins are essential for all preterm infants and infants born < 34 weeks and/or < 1.8kgs to meet the recommended intakes according to ESPGHAN 2022 recommendations
- The DoH and Social Care recommend that babies from birth to 1 year of age should have a daily supplement containing 8.5 to 10 micrograms of vitamin D throughout the year if they are breastfed, or formula-fed and are having less than 500ml (about a pint) of infant formula a day; infant formula is already fortified with vitamin D.
- Children aged 1 to 4 years old should be given a daily supplement containing 10 micrograms of vitamin D throughout the year.
- ABIDEC is the optimal vitamin supplement to use. The content of Vit A, Vit C and Vit D are most appropriate for preterm infants when given alongside breast milk, breast milk fortifier and preterm formulas to meet their requirements and without resulting in a nutrient deficit or toxicity
- Breast milk alone is not adequate in calories, protein and some vitamins and minerals to meet nutritional requirements at 150mls/kg/day in preterm babies.
- Breast milk fortifier should be given routinely to all infants <34weeks or <1.8kgsreceiving predominately breast milk
- Iron supplements should be generally commenced between 14 and 21 days if infants aren't receiving approximately 50%  $\geq$  a preterm formula or BMF supplemented with iron.

## Multivitamin Supplementation

1. Supplement all infants with a birth gestation <34weeks OR <1.8kgs
  2. Supplement all infants born from  $\geq 34$  to 37 weeks with a birthweight  $\geq 1.8$  and <2.5kg
  3. When deciding level of supplementation, for all infants take into consideration type of feeding (maternal, donor expressed breast milk or formula) as well as intrinsic risk factors for nutritional deficit, including but not limited to:
    - a. Maternal ethnicity
    - b. Maternal nutritional status
    - c. Chronic disease of mother or infant
  4. Prescribe all preterm infants born <34weeks OR <1.8k a multivitamin once established on enteral feeds, earliest at 60mL/kg/day and latest at 150mL/kg/day (full feeds). Do not delay starting beyond day 28.
  5. Consider splitting the dose into twice a day for extremely preterm infants < 27 weeks or <1500 grams.
  6. Abidec should be the vitamin of choice as it is the only licensed vitamin supplement for preterm infants at the dose of 0.6mL per day.
  7. When Abidec is not available consider Vitamin D (Cholecalciferol) 400 units/day alone
  8. DaliVit is not routinely recommended as a first line preparation as it has a much higher Vitamin A content than other preparations. DaliVit has 3 times higher Vitamin A content (1500micrograms per 0.6mL compared to Abidec 400micrograms per 0.6mL) and provides an excess of >1000micrograms more than ESPGHAN'S recommended upper limit if used with some feeds at a 0.6mL dose (refer to appendix 3 for dosing if it is given)
  9. **DaliVit may be considered in populations at high risk of BPD** <sup>(2,3)</sup> and is therefore included in this document for this purpose.
  10. **Additional** Vitamin D is required for infants who are receiving unfortified breast milk. It can be also given if:
    - a. Lower dose of Abidec (0.3mL OD) is given
    - b. **Biochemistry** suggests deficiency with serum levels < 25 nmol/L
    - c. **Metabolic Bone Disease** management (see KSS MBD guidelines <sup>5</sup>)
  11. Preterm formula fed infants, 0.6mL OD of Abidec is required
  12. **Vitamin K:**

Premature infants are at greater risk of bleeding due to low stores of Vitamin K at birth. Supplementation is required for those infants born < 37 weeks' gestation and:

    - a. Discharged home and exclusively breastmilk feeding without breast milk fortifier
    - b. Predominantly breastmilk feeding at discharge (>50%) with no fortifier and whose mothers intend to continue mainly breastfeeding or intend to establish full breastfeeding with no breast milk fortifier.
- Dose = 0.25 mL once daily (50 microgrammes once daily) to be given using the dropper with a mark for 0.25 ml for 3 months (until the end of the bottle – no further GP prescription is required)
13. For infants discharged and followed-up in clinic - recommend to parents that the DoH recommends all breast- fed children over the age of 6 months, and formula-fed

infants taking less than 500mL/day should take an infant vitamin drops containing Vitamins A, C,D suitable for the infant from birth to 4-5years of age.

**Table 1: Summary of Multivitamin Supplementation for Infants born <34 weeks OR <1.8kgs**

Multivitamin Supplementation for Infants born <34 weeks OR <1.8kgs					
	Abidec	Vitamin D	Iron (Ferrous Fumarate)	Folic acid	Vit K
	At least 7 days old and when tolerating 60-150mls/kg/day of enteral	At least 7 days old and when tolerating 60-150mls/kg/day of enteral	Start at Day 14-20 and 150ml/kg/d of enteral	At least 7 days old and when tolerating 60-150mls/kg/day of enteral	Start at discharge
>75% Unfortified MEBM or half strength breast Milk fortifier  Specialist formula e.g. Infatrini, Neocate  Term formula	0.6mls/day	400 IU/day	Dose 0.15ml/kg/dose BD for babies' birth weight <1.8kg  Dose 0.6ml for babies' birth weight ≥1.8kg	50mcg/day	50mcg/day
FS (4%) SMF Gold Prem BMF +/- combination with Preterm formula	0.6mls/day	Not applicable	Not needed	Not needed	Not needed
FS (4%) Nutriprem BMF +/- combination with Preterm formula	0.6mls/day	Not applicable	Dose 0.15ml/kg/dose BD for babies' birth weight <1.8kg  Dose 0.6ml for babies' birth weight ≥1.8kg	Not needed	Not needed
Nutriprem 1/SMA Gold Prem 1 (>75% of feeds)	0.6mls/day	400 IU /day	Not needed	Not needed	Not needed
Nutriprem 2/SMA Gold Prem 2* (>75% of feeds)	0.6mls/day	400 IU /day	Not needed	Not needed	Not needed
When to stop	Stop at 1 year unless GP	Stop at Discharge	Stop once weaning diet established	Stop at discharge	Stop at 3 months

	advised to continue		between 6- 12months of age		
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**Table 2: Summary of Multivitamin Supplementation for Infants born  $\geq 34$ -37 weeks and  $\geq 1.8$  kgs – 2.5 kgs**

Feed (assuming minimum 150mls/kg/day)	Abidec	Additional Vitamin D
Breast Milk	0.6mL/day	Not required
Term formula Specialist formula e.g. Infatrini and Neocate	0.6mL/day	Not required

## Iron Supplementation

1. All preterm infants < 35 weeks and term infants < 2.5kgs require iron supplementation. Table 3 shows the recommendations for the majority and variety of feeds available
2. In infants who are fully fed, commence a daily dose of iron supplementation day 14-21 of life. Consider earlier supplementation in high-risk populations who may benefit from increased iron supplementation. It can be started early around day 10-14 if babies are tolerating adequate milk
3. Recommended requirements for Iron for preterm infants < 2.0kgs are 2-3 mg/kg/day and for infants 2.0-2.5kgs nutritional requirements are 1-2mg/kg/day <sup>1,5</sup>
4. Infants who receive erythropoietin treatment need a higher dose (up to 6mg/kg/day)
5. Since individual iron status in VLBW infants is highly variable, depending on the number of received blood transfusions and blood losses from phlebotomy, it is recommended to follow these infants with monthly measurements of ferritin.
6. If ferritin is <35–70 micrograms/L, the iron dose may be increased up to 3–4 (or maximum 6) mg/kg/d for a limited period.
7. If ferritin is >300micrograms/L, which in the absence of ongoing inflammation and liver disease usually is the result of multiple blood transfusions, iron supplementation and fortification should be discontinued until serum ferritin falls below this level.
8. Prolonged dietary iron intakes of >3mg/kg/d should be avoided in most cases because of possible adverse effects.
9. Iron supplements or intake of iron-fortified formula in the recommended doses should be continued until weaning diet is established between 6-12months.
10. Preterm infants should receive iron-rich complementary foods from 6 months of age.
11. Delayed umbilical cord clamping, whenever feasible, is recommended for all preterm infants

### Ferrous fumarate:

- 0.15mL/kg twice a day for infants <2.0gs (2.7mg/kg/day iron)
- 0.3mL twice a day when > 2.0kgs until discharge (5.4mg/day)
- At discharge or when transitioned to 4hourly feeds – 0.6mls OD

### Sodium Feredetate:

- 0.25ml/kg twice daily for infants 2.0kgs (2.75mg/kg/day iron)
- 1ml once daily when **preparing for discharge** (5.4mg/day)

Information on the iron content of commonly used preparations is as below:

Sodium Feredetate	Ferrous fumarate
27.5mg/5mL	45mg/5mL
5.5mg/mL	9mg/mL

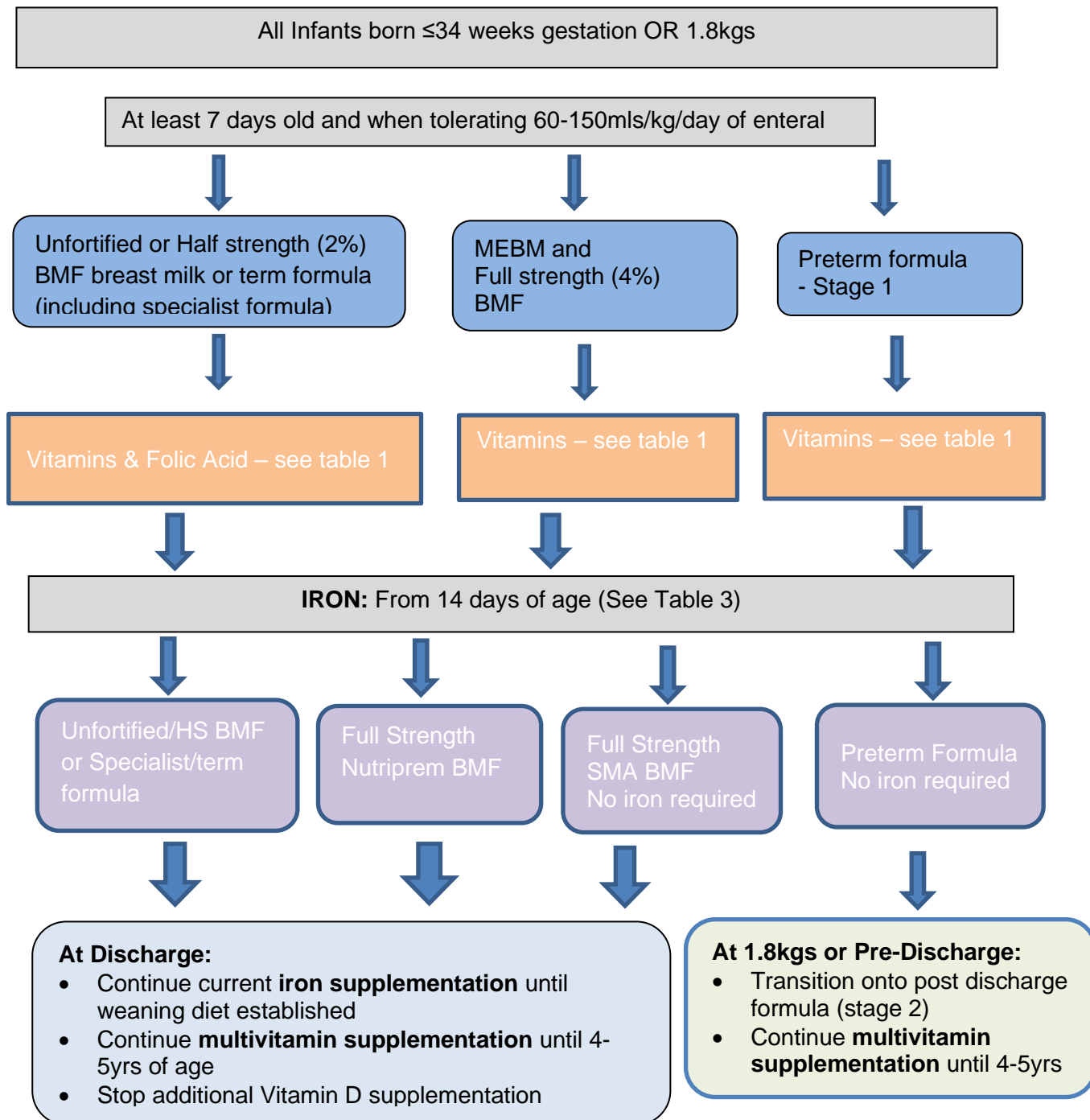
**Table 3: Summary of Iron Supplementation for all infants born < 2.5kgs**

<b>Feed (assuming minimum 150mls/kg/day)</b>	<b>Iron required for infants born &lt; 34 weeks or 1.8kgs</b>	<b>Iron required for infants born ≥34 to 37 weeks and 1.8 - &lt;2.5kgs</b>
<b>&gt; 75% Breast Milk - Unfortified</b>	2-3 mg/kg/day	1-2mg/kg/day
<b>Term formula Specialist formula e.g. Infatrini and Neocate</b>	2-3 mg/kg/day	Not needed
<b>FS (4%) Nutriprem BMF</b>	2-3 mg/kg/day	Not applicable
<b>FS (4%) SMA GP BMF</b>	Not needed	Not applicable
<b>Nutriprem 1</b>	Not needed	Not applicable
<b>Nutriprem 2</b>	Not needed	Not needed
<b>SMA Gold Prem 1</b>	Not needed	Not applicable
<b>SMA Gold Prem 2</b>	Not needed	Not needed

### **Folic Acid Supplementation**

1. Folic acid is only required for those pre-term infants born <34weeks **receiving unfortified breast milk or term formula**. Give a dose of folic acid 50micrograms once daily once fully fed.
2. Folic acid is not required for infants receiving >120mls/kg/day of breast milk with full strength breast milk fortifier.
3. Stop folic acid in those infants who are receiving supplementation once term-corrected age.

## Summary Guidance for Vitamin, Iron and Folic acid Supplementation



## Zinc Supplementation

(With Kind permission this has been extracted from BDA NDiG Vitamin, Iron and Zinc Supplementation, October 2024)

### **Recommendations for Zinc Screening**

ESPGHAN recommend serum zinc levels should be measured in infants on long term parenteral nutrition on day 28 of life and in the absence of ongoing inflammatory response. Serum zinc should be measured in infants with low alkaline phosphatase (ALP), poor linear growth or high ostomy or gastrointestinal losses to identify zinc deficiency and need for supplementation.

Zinc levels should therefore be measured in all babies with the following zinc deficiency risk factors:

- On PN at day 21 of life
- <1kg or <28 weeks at birth
- Acrodermatitis enteropathica
- Poor growth (length)
- ALP below local reference range (or  $\leq 61$  unit/L)
- Persistent GI fluid losses following enterostomy  $>20\text{mL/kg/day}$

### **Please note:**

1. Refer to your local laboratory for blood tube guidance. Note some tubes contain an orange/black rubber ring in the top, which may contain zinc and will affect the accuracy of the reading
2. When completing a serum zinc measurement, it is important that routine bloods of liver function test (LFT) and C-reactive protein are completed at the same time
3. CRP levels reflect an acute inflammatory response. Serum zinc levels may be falsely low if CRP  $>10\text{mg/L}$ . Serum zinc measurements should only be completed when CRP  $<10\text{mg/L}$

*See Appendix 3 for Management of Zinc Supplementation*

# Appendices

## Appendix 1 – Nutritional Composition of a Variety of Feeds

EBM+FSF /100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	277.5	100.00
Energy (kcal)	124.5	OK	230.3	83.00
Protein (g)	3.6	OK	6.7	2.40
Fat (g)	6.5	OK	11.9	4.30
Carb (g)	11.7	OK	21.6	7.78
Phosphorus (mg)	78.0	OK	144.3	52.00
Calcium (mg)	145.1	OK	268.3	96.70
Iron (mg)	0.2	LOW	0.3	0.10
Vitamin D (IU)	138.0	LOW	625.2	225.30
Vitamin A (ug)	405.0	OK	749.3	270.00
Folic Acid (ug)	83.9	OK	155.1	55.90
Sodium (mmol)	3.5	OK	6.4	2.30
Osmolality (mOsm/kg)			<b>410.00</b>	

Abidec	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	825.21	446.06	OK	400.00	1025.21	554.17	OK
Vitamin A (ug)	200.00	949.25	513.11	OK	400.00	1149.25	621.22	OK

Dalvit	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	825.21	446.06	OK	400.00	1025.21	554.17	OK
Vitamin A (ug)	750.00	1499.25	810.41	OK	1500.00	2249.25	1215.81	HIGH

EBM+HSF /100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	277.5	100.00
Energy (kcal)	112.5	LOW	208.1	75.00
Protein (g)	2.6	LOW	4.9	1.75
Fat (g)	5.9	OK	11.0	3.95
Carb (g)	10.6	LOW	19.5	7.04
Phosphorus (mg)	49.5	LOW	91.6	33.00
Calcium (mg)	93.5	LOW	173.0	62.35
Iron (mg)	0.1	LOW	0.2	0.07
Vitamin D (IU)	172.4	LOW	318.8	114.90
Vitamin A (ug)	231.0	LOW	427.4	154.00
Folic Acid (ug)	46.3	OK	85.7	30.88
Sodium (mmol)	2.4	LOW	4.4	1.60
Osmolality (mOsm/kg)			<b>355.00</b>	

Abidec	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	518.85	280.46	LOW	400.00	718.85	388.57	LOW
Vitamin A (ug)	200.00	627.35	339.11	LOW	400.00	827.35	447.22	OK

Dalvit	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	518.85	280.46	LOW	400.00	718.85	388.57	LOW
Vitamin A (ug)	750.00	1177.35	636.41	OK	1500.00	1927.35	1041.81	HIGH

EBM+FSF /100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	150.0	100.00
Energy (kcal)	126.3	OK	126.3	84.20
Protein (g)	3.8	OK	3.8	2.50
Fat (g)	6.5	OK	6.5	4.30
Carb (g)	11.4	OK	11.4	7.58
Phosphorus (mg)	87.0	OK	87.0	58.00
Calcium (mg)	155.3	OK	155.3	103.50
Iron (mg)	2.7	OK	2.7	1.80
Vitamin D (IU)	246.8	LOW	246.8	164.50
Vitamin A (ug)	627.0	OK	627.0	418.00
Folic Acid (ug)	110.9	HIGH	110.9	73.90
Sodium (mmol)	3.8	OK	3.8	2.50
CHO infusion rate	7.9	OK		

Abidec	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	446.75	446.75	OK	400.00	646.75	646.75	OK
Vitamin A (ug)	200.00	827.00	827.00	OK	400.00	1027.00	1027.00	HIGH

Dalvit	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	446.75	446.75	OK	400.00	646.75	646.75	OK
Vitamin A (ug)	750.00	1377.00	1377.00	HIGH	1500.00	2127.00	2127.00	HIGH

Nutriprem 1/100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	150.0	100.00
Energy (kcal)	120.0	OK	120.0	80.00
Protein (g)	4.1	OK	4.1	2.70
Fat (g)	5.9	OK	5.9	3.90
Carb (g)	12.6	OK	12.6	8.40
Phosphorus (mg)	94.5	OK	94.5	63.00
Calcium (mg)	151.5	OK	151.5	101.00
Iron (mg)	2.4	OK	2.4	1.60
Vitamin D (IU)	186.0	LOW	186.0	124.00
Vitamin A (ug)	549.0	OK	549.0	366.00
Folic Acid (ug)	87.0	OK	87.0	58.00
Sodium (mmol)	4.5	OK	4.5	3.00

Abidec	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	386.00	386.00	LOW	400.00	586.00	586.00	OK
Vitamin A (ug)	200.00	749.00	749.00	OK	400.00	949.00	949.00	OK

Dalvit	0.3 ml	total /day	/kg/day	Within range?	0.6 ml	Total /day	/kg/day	Within range?
Vitamin D (IU)	200.00	386.00	386.00	LOW	400.00	586.00	586.00	OK
Vitamin A (ug)	750.00	1299.00	1299.00	HIGH	1500.00	2049.00	2049.00	HIGH

Please note: The data for the first 2 feeds, refers to Nutriprem BMF and the data in the 3<sup>rd</sup> example refers to SMA BMF

Hydrolysed NP/100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	150.0	100.00
Energy (kcal)	120.0	OK	120.0	80.00
Protein (g)	3.9	OK	3.9	2.60
Fat (g)	6.0	OK	6.0	4.00
Carb (g)	12.6	OK	12.6	8.40
Phosphorus (mg)	81.0	OK	81.0	54.00
Calcium (mg)	145.5	OK	145.5	97.00
Iron (mg)	2.4	OK	2.4	1.60
Vitamin D (IU)	186.0	LOW	186.0	124.00
Vitamin A (ug)	549.0	OK	549.0	366.00
Folic Acid (ug)	87.0	OK	87.0	58.00
Sodium (mmol)	5.0	OK	5.0	3.30

Abidec	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	386.00	386.00	LOW	400.00	586.00	586.00	OK
Vitamin A (ug)	200.00	749.00	749.00	OK	400.00	949.00	949.00	OK

Dalvit	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	386.00	386.00	LOW	400.00	586.00	586.00	OK
Vitamin A (ug)	750.00	1299.00	1299.00	HIGH	1500.00	2049.00	2049.00	HIGH

Nutriprem 2/100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	300.0	100.00
Energy (kcal)	108.0	LOW	216.0	72.00
Protein (g)	3.0	LOW	6.0	2.00
Fat (g)	5.7	OK	11.4	3.80
Carb (g)	10.8	LOW	21.6	7.20
Phosphorus (mg)	72.0	OK	144.0	48.00
Calcium (mg)	124.5	OK	249.0	83.00
Iron (mg)	1.8	LOW	3.6	1.20
Vitamin D (IU)	108.0	LOW	216.0	72.00
Vitamin A (ug)	150.0	LOW	300.0	100.00
Folic Acid (ug)	79.5	OK	159.0	53.00
Sodium (mmol)	1.8	LOW	3.6	1.20

Abidec	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	416.00	208.00	LOW	400.00	616.00	308.00	LOW
Vitamin A (ug)	200.00	500.00	250.00	LOW	400.00	700.00	350.00	LOW

Dalvit	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	416.00	208.00	LOW	400.00	616.00	308.00	LOW
Vitamin A (ug)	750.00	1050.00	525.00	OK	1500.00	1800.00	900.00	OK

Cow and Gate Term/100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	300.0	100.00
Energy (kcal)	99.0	LOW	198.0	66.00
Protein (g)	2.0	LOW	3.9	1.30
Fat (g)	5.1	OK	10.2	3.40
Carb (g)	11.3	OK	22.5	7.50
Phosphorus (mg)	58.5	LOW	117.0	39.00
Calcium (mg)	79.5	LOW	159.0	53.00
Iron (mg)	0.8	LOW	1.6	0.53
Vitamin D (IU)	87.0	LOW	174.0	58.00
Vitamin A (ug)	87.0	LOW	174.0	58.00
Folic Acid (ug)	25.5	OK	51.0	17.00
Sodium (mmol)	1.4	LOW	2.8	0.93

Abidec	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	374.00	187.00	LOW	400.00	574.00	287.00	LOW
Vitamin A (ug)	200.00	374.00	187.00	LOW	400.00	574.00	287.00	LOW

Dalvit	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	374.00	187.00	LOW	400.00	574.00	287.00	LOW
Vitamin A (ug)	750.00	924.00	462.00	OK	1500.00	1674.00	837.00	OK

Infatrini/100ml	/kg/day	Within range?	Total/day	/100ml
Fluid (ml)	150.0	OK	300.0	100.00
Energy (kcal)	150.0	OK	300.0	100.00
Protein (g)	3.9	OK	7.8	2.60
Fat (g)	8.0	OK	15.9	5.30
Carb (g)	15.3	OK	30.6	10.20
Phosphorus (mg)	75.0	OK	150.0	50.00
Calcium (mg)	150.0	OK	300.0	100.00
Iron (mg)	1.8	LOW	3.6	1.20
Vitamin D (IU)	144.0	LOW	288.0	96.00
Vitamin A (ug)	132.0	LOW	264.0	88.00
Folic Acid (ug)	24.0	OK	48.0	16.00
Sodium (mmol)	2.4	LOW	4.8	1.60
GIR (mg/kg/min)	10.6			

Abidec	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	488.00	244.00	LOW	400.00	688.00	344.00	LOW
Vitamin A (ug)	200.00	464.00	232.00	LOW	400.00	664.00	332.00	LOW

Dalvit	0.3 ml	total/day	/kg/day	Within range?	0.6 ml	Total/day	/kg/day	Within range?
Vitamin D (IU)	200.00	488.00	244.00	LOW	400.00	688.00	344.00	LOW
Vitamin A (ug)	750.00	1014.00	507.00	OK	1500.00	1764.00	882.00	OK

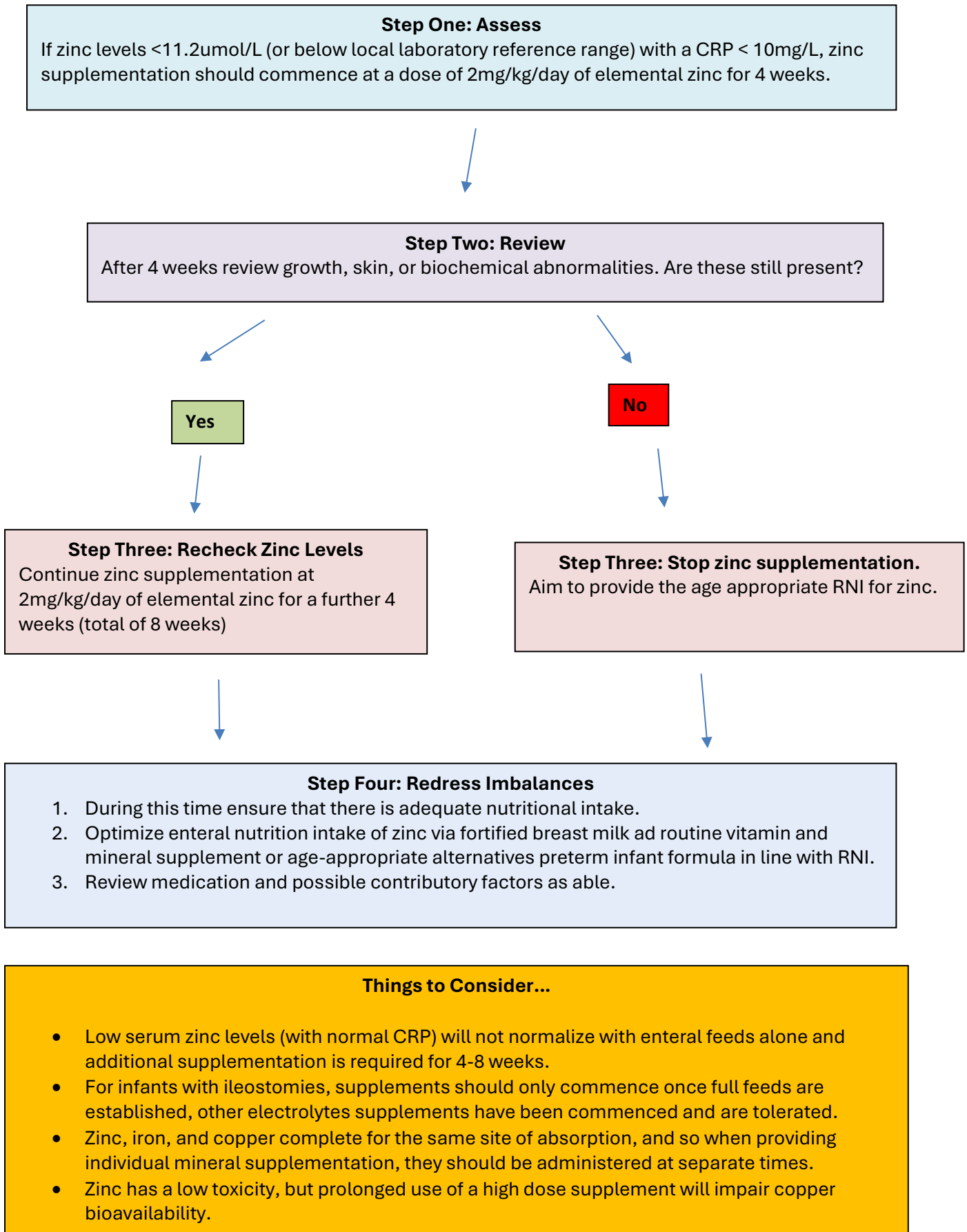
## Appendix 2a: DaliVit Dosing for infants < 34 weeks or < 1.8kgs

Feed (assuming 150mls/kg/day)	DaliVit
<ul style="list-style-type: none"> <li>○ Unfortified or half strength breast milk</li> <li>○ Term formula</li> <li>○ Specialist formula e.g. Infatrini and Neocate</li> </ul>	0.3mL OD for < 1500g 0.3 - 0.6mL OD for >1500g
<ul style="list-style-type: none"> <li>○ FS (4%) Nutriprem BMF</li> <li>○ FS (4%) SMA GP BMF</li> <li>○ Nutriprem 1 / SMA Gold Prem 1</li> <li>○ Nutriprem 2 / SMA Gold Prem 2</li> </ul>	0.3mL OD for < 1500g 0.6mL OD for >1500g (assuming > 50% MEBM – dose will need to be adjusted if > formula offered)

## Appendix 2b: DaliVit Dosing for infants born >34weeks and/or ≥1.8kgs

Feed (assuming 150mls/kg/day)	DaliVit
<ul style="list-style-type: none"> <li>○ Breast Milk</li> </ul>	0.3 - 0.6mL OD for >1500g
<ul style="list-style-type: none"> <li>○ Term formula</li> <li>○ Specialist formula e.g. Infatrini and Neocate</li> </ul>	0.3 - 0.6mL OD for >1500g

## Appendix 3: Recommendations for the Management of Zinc Deficiency



## Appendix 4: Contributors from KSS Neonatal Nutrition Group

<b>Name</b>	<b>Position</b>	<b>Neonatal Unit</b>
Dr Ramon Fernandez	Consultant	UH Sussex
Dr Vennila Ponnusamy	Consultant	St Peters Hospital
Dr Anna Ntovolou	Consultant	William Harvey Hospital
Dr Vimal Vasu	Consultant	William Harvey Hospital
Dr Toria Klutse	Consultant	East Surrey NHS Trust
Duha Alsaadi	Pharmacist	RSCH
Christian Chadwick	Pharmacist	UH Sussex
Anthony Evans	Pharmacist	William Harvey Hospital
Catherine Casewell	Dietitian	St Peters Hospital
Sukvinder Kaur	Dietitian	Dartford and Gravesham NHS Trust
Chantelle Hearfield	Dietitian	Surrey and Sussex
Carole Davidson	Dietitian	UH Sussex
Sarah Sabey	Dietitian	East Surrey NHS Trust
Ruth Cousins	Advanced Neonatal Nurse Practitioner	Maidstone and Tunbridge Wells
Kate Jones	SLT	UH Sussex

## References

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3. Ding, Yueqin MD\*; Chen, Zhifeng MD; Lu, Yanling PhD. Vitamin A supplementation prevents the bronchopulmonary dysplasia in premature infants: A systematic review and meta-analysis. Medicine 100(3): p e23101, January 22, 2021. | DOI: 10.1097/MD.00000000000023101
4. KSS Metabolic Bone Disease Principles of Practice [Metabolic Bone Disease - Neonatal Network South East](#)
5. British Association of Perinatal Medicine, Early postnatal Care of the Moderate – Late Preterm Infant; A Framework for Practice January 2023
6. [NDiG-Guidance-on-vitamin-and-mineral-supplementation-for-preterm-infants-2025-FINAL-V15-BAPM-ENDORSED.pdf](#)

## Scope of Guideline Framework

The guideline applies to all Neonatal Units covered by Kent Surrey and Sussex Neonatal ODN. This includes the following hospitals:

<b>Kent, Surrey and Sussex</b>	
Medway Hospital NHSFT	Medway Maritime Hospital, Gillingham
East Kent Hospitals University NHSFT	William Harvey Hospital, Ashford, Queen Elizabeth the Queen Mother, Margate
Ashford and St Peter's NHSFT	St Peter's Hospital, Chertsey
Brighton and Sussex University Hospitals NHST	Royal Sussex County Hospital, Brighton Princess Royal Hospital, Haywards Heath
Frimley Health NHSFT	Frimley Park Hospital
Surrey and Sussex Healthcare NHST	East Surrey Hospital, Redhill
Maidstone and Tunbridge Wells NHST	Tunbridge Wells Hospital, Pembury
Dartford and Gravesham NHST	Darent Valley Hospital, Dartford
Western Sussex Hospitals NHSFT	Worthing Hospital, Worthing
East Sussex Healthcare NHST	Conquest Hospital, Hastings
Royal Surrey NHSFT	Royal Surrey County Hospital, Guildford

### Version Control:

Version	Date	Details	Author(s)	Comments
<b>Review date:</b>				