Prescribing Specialised Infant Formula and Supplements to Premature Infants (<34 weeks gestation)

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Introduction

This guide was written in 2011 at the request of the Nottinghamshire Area Prescribing Committee (APC) by Dr V White and Dr S Ahmed, Foundation Doctors in Public Health, with input from Chris Jarvis (Specialist Neonatal Dietitian, NUH), Professor Helen Budge (Professor of Neonatal Medicine, University of Nottingham) and Dr Vibert Noble (Consultant Paediatrician, Sherwood Forest Hospitals) after queries from GPs about prescribing formulas as per the Advisory Committee on Borderline Substances (ACBS) for premature infants discharged from Nottinghamshire neonatal units.

This update in 2016 has been written by Chris Jarvis following update and ratification of nutrition guidelines at Nottingham University Hospitals and across the Trent Perinatal and Central Newborn Networks. These guidelines are available to view at http://www.nuh.nhs.uk/healthcare-professionals/clinical-guidelines/

Follow-up of infants born prematurely in secondary care varies according to gestation at birth as well as their individual care needs. Infants born at <30 weeks gestation will usually have neurodevelopmental follow up until 2 years corrected age. At Nottingham University Hospitals (NUH), hospital follow-up for infants born at >30 weeks gestation will be decided by the consultant neonatologist prior to discharge.

Recommendations for ACBS approved formula milk and other prescribed supplements should be detailed in a letter at the time of discharge. The most common practices are given below and should be adhered to when possible. For the purpose of formula choice and vitamin and iron prescribing in this guidance, <34 weeks gestation is used.
Key Points

1. ‘6 months corrected age’ is 6 months after the expected date of delivery (EDD).

2. Breast-fed premature infants should be prescribed 1ml Sytron or 0.6ml Fersamal and 0.6ml of Abidec* daily until their 1st birthday.

3. Premature infants discharged on nutrient enriched post discharge formula should be prescribed four 900g pack of powdered Nutriprem 2 per 28 days until 6 months corrected age without any vitamin or iron supplementation.

4. Premature infants in exceptional circumstances (see page 3) who require ready-to-feed formula should be prescribed approximately one hundred and twenty 200ml bottles of ready-to-feed Nutriprem 2 per 28 days until 6 months corrected age without any vitamin or iron supplementation.

5. Infants who cease Nutriprem 2 before 6 months corrected age should be prescribed 1ml Sytron or 0.6ml Fersamal and 0.3ml of Abidec* daily until their first birthday.

6. Premature infants who have been discharged from secondary care on infant formula intended for babies born at term should be prescribed 1ml Sytron or 0.6ml Fersamal and 0.3ml of Abidec* daily until their 1st birthday.

7. When premature infants stop Nutriprem 2 at 6 months corrected age, they should start Healthy Start Vitamins if eligible for scheme or be prescribed 0.3ml of Abidec* daily until their 1st birthday.

8. Vitamins are advised as above until 1st birthday due to prematurity. However, the Dept of Health advises all children <5 years should receive vitamins. It is not the GP’s responsibility to prescribe after 1 year. Parents eligible for the Healthy Start Scheme should be advised to give 5 drops Healthy Start Vitamins daily. Those not eligible can purchase Abidec* 0.3ml daily or an equivalent.

9. All parents should be made aware of how to prepare and store powdered formula milk safely to reduce the risk of potentially serious infection.

10. Approximate cost of six months powder (1 x 900g/wk) = £300

11. Approximate cost of six months ready-to-feed (30 x 200ml/wk) = £1,360

* Abidec contains peanut (arachis) oil and is therefore not suitable for infants with proven peanut allergy
Breast Milk
All neonatal services aim to discharge infants home fully breast-fed. Infants who were born prior to 34 weeks weighing <2kg at birth who are breast feeding will need ongoing iron and vitamin supplements due to blood volume expansion and rapid growth. If these infants stop breast feeding before 6 months corrected age, then a nutrient enriched post-discharge formula (NEPDF) should be used and supplements stopped.

Nutrient Enriched Post-Discharge Infant Formula
Maternal choice and the difficulties faced by mothers trying to maintain lactation will result in some infants requiring some or all formula milk when discharged from hospital. Infants who were born prior to 34 weeks weighing <2kg at birth who are not being breast fed, or who require some supplementary feeding, will transfer to the powdered NEPDF designed for preterm infants – Nutriprem 2 – is the feed used in Nottingham neonatal units. This should have been commenced a few days prior to discharge so that infants are established on it with the aim of demand feeding to appetite as the baby is ready.

A letter should be sent by the hospital team to the GP at discharge requesting 4 x 900g packs per 28 days for a maximum of 6 months corrected age, as endorsed by the Advisory Committee on Borderline Substances (ACBS).

In exceptional circumstances an infant may be discharged home on sterile ready-to-feed (RTF) Nutriprem 2 rather than powder. This will only be recommended very occasionally at the request of the neonatal dietitian or consultant neonatologist. In this situation, the discharge letter should ask for approximately 120x200ml bottles per 28 days. The reason for requiring ready-to-feed formula rather than powder should be detailed in the letter from secondary care, along with review criteria for this decision.

RTF Nutriprem 2 is considerably more expensive than powder costing approximately £1360 compared with £300 when reconstituted from powder over a 6 month period.

It is unlikely that Nutriprem 2 will be necessary beyond 6 months corrected age. If ongoing use is considered necessary, advice from the infant’s neonatologist should be sought. Where the infant is no longer under the care of a neonatologist, advice from a dietitian with experience of preterm infants or a paediatrician should be sought. In exceptional circumstances, secondary care clinicians may recommend use of Nutriprem 2 for up to one year corrected age if there are particular concerns about growth, but reasons for this would be detailed in correspondence with the GP.

If parents want their child to continue Nutriprem 2 beyond 6 months corrected age without a secondary care clinician recommendation, they will need to purchase it.

An alternative product is also available – SMA Gold Prem 2. This is not the formula of choice for Nottinghamshire Neonatal Units but can be prescribed in the community as an alternative.

Some infants will not need the additional protein and energy provided by NEPDF as long as 6 months corrected age.
Iron and Vitamin Supplementation

Nutriprem 2 contains 1.2mg iron per 100ml of feed. It will provide 2mg/kg/day if volumes of 165ml/kg are taken. As weaning progresses, volume will decrease, but solids will then contribute to iron intake. Infants having Nutriprem 2 do not require additional iron supplements. Nutriprem 2 is also supplemented with Vitamin D, so additional vitamin supplements are not required.

Nutriprem 2 is most important in the first few weeks after discharge and some infants will gain excess weight if it is continued as long as 6 months corrected age. If they are gaining weight rapidly and have caught up to their birth centile some cases, a decision should be considered to change to a standard term formula. This should be discussed with the infant’s neonatologist if still under review. Where the infant is no longer under the care of a neonatologist, usually in more mature infants, changing to a standard term formula should be carefully considered between primary care professionals and the infant’s weight following the change in formula must be regularly reviewed. Any infant changing to term formula before 6 months corrected age should start vitamin and iron supplements until their 1st birthday and established on a good weaning diet.

Standard infant formulas are supplemented with iron to meet the requirements of the infant born at term. These formulas are not generally used for infants born weighing <2kg, but if they are, they will not provide 2mg/kg/day of iron unless very high volumes are consumed. If any infant born at <34 weeks gestation is discharged on a formula designed for term infants then vitamin and iron supplementation is recommended.

Infants having Nutriprem 2 will usually change to follow-on milk or term formula by 6 months corrected gestational age. At this point, GPs should stop prescribing Nutriprem 2. They should usually then recommend 5 drops daily of Healthy Start Vitamins if eligible. Infants requiring vitamins who are not eligible for free Healthy Start vitamins should get 0.3ml Abidec® on prescription from the GP until their first birthday and thereafter parents should purchase a vitamin supplement containing vitamin D as per Dept of Health advice.

Where infants are breast feeding with supplementary Nutriprem 2 a pragmatic decision based on proportion of each should be made with regard to whether iron and vitamin supplements are required. If uncertain seek dietetic advice or err on the side of caution and prescribe iron and vitamins.

Safe Preparation & Storage of Infant Formula

Up to date information on the preparation and storage of all infant formula is available in the Birth to Five Book, from the Health Visitor and online at:

References

1. *D4 - Enteral Feeding on the Neonatal Unit, 2016*
2. *D5 - Iron Supplementation on the Neonatal Unit, 2016*
3. *D8 - Vitamin Supplementation on the Neonatal Unit 2016*

All the above are Nottingham Neonatal Nutrition Guidelines available at:

http://www.nuh.nhs.uk/healthcare-professionals/clinical-guidelines/

Appendix 1 – Algorithm of Iron and Vitamin Supplementation

(see NUH Guidelines for details)

Vitamin and Iron Supplementation on Neonatal Unit

<34 weeks (up to 33w\textsuperscript{6})

- Breastfeeding
  - Unfortified EBM
    - 0.6ml Abidec\(^{a}\)
- EBM + BMF
  - Term Formulas\(^{*}\)
    - 0.3ml Abidec
- Preterm Formulas
  - 0.3ml Abidec

At 1 month age

- <1.5kg
  - 0.5ml Sytron
- >1.5kg
  - 1.0ml Sytron

- No iron supplement

Discharge

- Breastfeeding
  - 0.6ml Abidec
  - 1.0ml Sytron
- Term formulas\(^{*}\)
  - 0.3ml Abidec
- Post-discharge formulas
  - No vitamin supplement
  - No iron supplement

\(^{a}\)If BMF is not to be used in a baby <34w gestation at birth, 50ug folic acid should be prescribed until discharge as well as 0.6ml Abidec

Vitamins to 1\textsuperscript{st} birthday due to prematurity - then as UK Health Dept advice once formula <500ml daily, up to 5 years unless assured from diet

Iron - If breastfeeding or using term formulas continue to 1\textsuperscript{st} birthday by which time reserves should be replenished and maintained by diet

If Nutriprem 2 until 6 months corrected age - reserves should be replenished and maintained by diet - start iron + vitamins if change earlier

See full vitamin guideline for specific recommendations for ongoing conjugated jaundice (D5 section 3.1)

\(^{*}\)includes term specialised and nutrient enriched formulas

Chris Jarvis, Specialist Neonatal Dietitian July 2016
Ratified by NAPC September 2016

Review Date March 2019
Appendix 2 – Sample of GP letter

Re: ........................................
Dear Dr ........................................

This baby will soon be ready for discharge from the Neonatal unit and due to premature birth is currently feeding on the nutrient enriched post-discharge formula – Nutriprem 2. This helps to meet the increased nutritional requirements for healthy growth, bone mineralisation and development. We would be very grateful if you would prescribe this product according to Nottinghamshire Area Prescribing Committee Guidance*.

<table>
<thead>
<tr>
<th>Name of Product</th>
<th>Manufacturer</th>
<th>Amount per 28 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutriprem 2</td>
<td>Cow &amp; Gate</td>
<td>4 x 900g packs</td>
</tr>
</tbody>
</table>

This is prescribable as a Borderline Substance until the baby is 6 months corrected age, when Nutriprem 2 should be changed to a standard infant formula or a follow on milk.

Some babies will make the necessary catch up growth before this time and may therefore be changed to a standard formula. If this occurs before 6 months corrected age, an iron and vitamin supplement will be required – 1ml Sytron and 0.3ml Abidec until the first birthday when prescribing due to prematurity can be stopped.

Thereafter parents should be advised to continue a vitamin supplement containing ~300IU vitamin D until 5 years of age as advised by the Dept of Health.

It is unlikely that Nutriprem 2 will be necessary beyond 6 months corrected age, so a special case must be made for continuing to prescribe. In order to prevent extended use of this product on prescription, a review date of 6 months corrected age should be entered into the GP electronic record.

Please contact the continuing care team who will be visiting this family with any queries.

Yours sincerely

Please sign and print name
Continuing Care Team, Nottingham Neonatal Service

A liquid ready to feed formulation is available and can be prescribed but is considerably more expensive and will only be requested on prescription in exceptional circumstances following advice from the neonatal dietitian or consultant neonatologist when approximately 120 x 200ml bottles will be required for 28 days.

Parents who request this for convenience can purchase from pharmacies.