



Topic Expert Group: Nutrition

The role of nutrient supplements for preterm infants

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Target group

Preterm infants and parents

User group

Healthcare professionals, neonatal units, hospitals, and health services

Statement of standard

Preterm infants are given supplements to reduce nutritional deficits.

Rationale

Fortified human milk and preterm formulas in adequate volume meet most nutrient requirements even of very preterm infants. (1) However, the intake of some macro- or micronutrients is often inadequate. (2,3) This may result from both the specific medical condition and poor nutritional intake. A variety of dietary supplements can bridge the gap between achieved nutrient provision and calculated requirements. Extremely preterm infants can have specific protein needs above those provided by fortified human milk or preterm formula and may require a modular protein supplement. (4) Preterm infants with a high energy expenditure due to ongoing disease (e.g. bronchopulmonary dysplasia or heart failure) may require added energy supplements. (5)

Fat soluble vitamins, iron, zinc and sodium are supplements widely used during hospitalisation. (5) Vitamin supplements may be appropriate for infants on low daily volume of fortified milk or preterm formula. Total vitamin D intake is usually suboptimal even with adequate feeding, and vitamin D supplements are generally provided to all preterm infants. (6) Infants with severe cholestasis require additional fat soluble vitamins. (7) Iron may be needed in amounts >2 mg/kg as often provided by fortified human milk or preterm formula, especially in extremely preterm infants and in those receiving erythropoietin therapy. (8) Other possible supplements that may be needed include calcium, phosphorus, potassium (high urinary losses with diuretic therapy), sodium (high urinary losses in preterm infants) and zinc (enterostomy losses).

Supplements are generally started when full enteral feeding is achieved and continued after discharge as needed. (9) Surveillance of blood markers may be required based on an individual assessment. (10)

Benefits

Short-term benefits

- Reduced risk of nutrient deficits (1)

Long-term benefits

- Reduced risk of long-term sequelae of early nutritional deficit (e.g. growth faltering, anaemia, rickets) (1)



Components of the standard

Component	Grading of evidence	Indicator of meeting the standard
For parents and family		
1. Parents are informed by healthcare professionals about the importance of providing supplements to prevent nutritional deficits.	B (High quality)	Patient information sheet ¹
2. Parents are informed by healthcare professionals about the importance of continuing the supplements when their infant is discharged home.	B (High quality)	Patient information sheet ¹
For healthcare professionals		
3. A unit guideline on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods, is adhered to by all healthcare professionals.	B (High quality)	Guideline
4. Training on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods, is attended by all responsible healthcare professionals.	B (High quality)	Training documentation
5. Selective nutritional deficits that may occur in preterm infants are screened for and the appropriate prescriptions are given. (9)	A (Moderate quality)	Audit report
For neonatal unit		
6. A unit guideline on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods, is available and regularly updated.	B (High quality)	Guideline

¹ The TEG Nutrition very much supports the need of good communication with families and regular sharing of key information, but it is not in favour of sharing information on each standard by a „parent information sheet“, which is term chosen by the Chair Committee. In our view, sharing multiple parent information sheets bears the risk of overloading families with a plethora of written information during a stressful time period, which may not be very helpful. We suggest to consider other means of sharing information.



For hospital

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| 7. Training on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods is ensured. | B (High quality) | Training documentation |
| 8. Supplements are made available for use. | B (High quality) | Audit report |

For health service

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| 9. A national guideline on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods is available and regularly updated. | B (High quality) | Guideline |
| 10. Supplements for outpatient care are made available and reimbursed. | B (Moderate quality) | Guideline |

Where to go – further development of care

Further development	Grading of evidence
For parents and family N/A	
For healthcare professionals N/A	
For neonatal unit N/A	
For hospital N/A	
For health service	
<ul style="list-style-type: none">Support the development of supplements specifically designed for preterm infants.	B (Moderate quality)

Getting started

Initial steps

For parents and family

- Parents are verbally informed about the importance of providing supplements by healthcare professionals.
- At the time of discharge parents receive guidance and a prescription for providing supplements.

For healthcare professionals

- Attend training on infant nutrition, including selective nutritional deficits in preterm infants, and how to assess and manage them.



For neonatal unit

- Develop and implement a unit guideline on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods.
- Develop information material on the importance of providing supplements for parents.

For hospital

- Support healthcare professionals to participate in training on infant nutrition, including selective nutritional deficits in preterm infants, and how to assess and manage them.

For health service

- Develop and implement a national guideline on infant nutrition, including screening for selective deficits and their management during the inpatient and outpatient periods.

Source

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4. Arnold M, Adamkin D, Radmacher P. Improving fortification with weekly analysis of human milk for VLBW infants. *J Perinatol Off J Calif Perinat Assoc*. 2017 Feb;37(2):194–6.
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6. Salle BL, Delvin EE, Lapillonne A, Bishop NJ, Glorieux FH. Perinatal metabolism of vitamin D. *Am J Clin Nutr*. 2000;71(5 Suppl):1317S–24S.
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Lifecycle

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european standards of
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