



Topic Expert Group: Nutrition

The role of preterm formula

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Target group

Preterm infants and parents

User group

Healthcare professionals, neonatal units, hospitals, and health services

Statement of standard

Formula for preterm infants promotes growth and functional outcomes approaching those of preterm infants fed fortified mother's milk.

Rationale

Growth of fetuses in utero is extremely rapid. To match fetal growth, preterm infants born at 24 weeks' gestation need to double their weight by 30 weeks' postmenstrual age and be more than five times their birthweight by 40 weeks. This extraordinary growth demands a much higher intake of energy, protein, and other nutrients than is needed by infants born at term. Extremely preterm infants are also born with low stores of key nutrients such as iron, zinc, calcium, and vitamins and with little or no subcutaneous fat and glycogen stores because most placental transfer of nutrients to provide these stores occurs in the third trimester of pregnancy. (1) Adequate nutrition during their stay in the Neonatal Intensive Care Unit is pivotal for appropriate growth (2), but the smaller the infant, the greater the challenge in providing optimal early nutrition.

When mother's own milk or donor milk is not available, preterm formula is the alternative choice, at least for preterm infants born before 34 gestational weeks or with a birth weight of <2000g. Preterm formula should be safe and meet the infant's requirements as it is usually the sole source of nutrition. The objective of the nutritional management using preterm formula should be to mimic growth, body composition and functional outcomes similar to those of infants born at term. There is evidence that preterm formula, compared to donor milk, increases the risk of necrotizing enterocolitis (3), and this is why preterm formula should only be used when breast milk is not available.

Benefits

Short-term benefits

- Improved weight gain, similar to that of fetuses in utero, and higher when compared to unfortified donor milk (4,5)
- Reduced duration of parenteral nutrition with the related complications (consensus)

Long-term benefits

N/A



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 possibility of preterm formula when mother's own milk or donor milk is not available for the infant.	B (High quality)	Patient information sheet ¹
For healthcare professionals		
2. A unit guideline on infant nutrition, including the use of preterm formula, is adhered to by all healthcare professionals.	B (High quality)	Guideline
3. Training on infant nutrition, including the use of preterm formula, is attended by all responsible healthcare professionals.	B (High quality)	Training documentation
For neonatal unit		
4. A unit guideline on infant nutrition, including the use of preterm formula, is available and regularly updated.	B (High quality)	Guideline
5. Suitable preterm formulae are available.	B (High quality)	Audit report
For hospital		
6. Suitable preterm formulae are available.	B (High quality)	Audit report
7. Training on infant nutrition, including the use of preterm formula, is ensured.	B (High quality)	Training documentation
For health service		
8. A guideline on infant nutrition, including the use of preterm formula, 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.



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 research on preterm formula to improve health outcomes.	B (High quality)

Getting started

Initial steps
For parents and family
<ul style="list-style-type: none">Parents are verbally informed by healthcare professionals about the possibility of preterm formula when mother's own milk or donor milk is not available for the infant.
For healthcare professionals
<ul style="list-style-type: none">Attend training on infant nutrition, including the use of preterm formula.
For neonatal unit
<ul style="list-style-type: none">Develop and implement a guideline on infant nutrition, including the use of preterm formula.Develop information material on preterm formula when mother's own milk or donor milk is not available for the infant.
For hospital
<ul style="list-style-type: none">Support healthcare professionals to participate in training on infant nutrition, including the use of preterm formula.
For health service
<ul style="list-style-type: none">Develop and implement a guideline on infant nutrition, including the use of preterm formula.

Source

1. Agostoni C, Buonocore G, Carnielli V, De Curtis M, Darmaun D, Decsi T, et al. Enteral Nutrient Supply for Preterm Infants: Commentary From the European Society of Paediatric Gastroenterology, Hepatology and Nutrition Committee on Nutrition: *J Pediatr Gastroenterol Nutr.* 2010 Jan;50(1):85–91.
2. Ong KK, Kennedy K, Castañeda-Gutiérrez E, Forsyth S, Godfrey KM, Koletzko B, et al. Postnatal growth in preterm infants and later health outcomes: a systematic review. *Acta Paediatr Oslo Nor* 1992. 2015 Oct;104(10):974–86.
3. Quigley M, Embleton ND, McGuire W. Formula versus donor breast milk for feeding preterm or low birth weight infants. *Cochrane Database Syst Rev.* 2018 20;6:CD002971.



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4. Quigley M, McGuire W. Formula versus donor breast milk for feeding preterm or low birth weight infants. In: The Cochrane Library [Internet]. John Wiley & Sons, Ltd; 2014 [cited 2018 Mar 29]. Available from: <http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD002971.pub3/full>
5. McGuire W, Anthony MY. Formula milk versus term human milk for feeding preterm or low birth weight infants. Cochrane Database Syst Rev. 2001;(4):CD002971.

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