The World Health Organization, the American Academy of Pediatrics, European Society for Pediatric Gastroenterology, Hepatology and Nutrition and others, all support the feeding of human milk for all infants, including preterm infants. The benefits of human milk include immunologic, nutritional, developmental, psychological, social and economic advantages. In preterm infants, feeding of human milk is associated with a reduction in necrotizing enterocolitis and sepsis. In the long term, premature infants also demonstrate advantages in neurocognitive development.

However, there are several challenges in providing exclusive human milk feedings to meet the nutritional needs of infants with very low birth weight. These include inadequate milk supply, the variability in nutrient composition of human milk and the limitation of human milk itself. Human milk varies in volume with the method of milk expression, time of day, type of milk (fore- or hind milk) and stage of lactation. Reasons for low volumes include stress, lack of family or medical support, maternal illness, lack of a breast pump and difficulties in storing and transporting milk.

Preterm infants have higher requirements than term infants, and after the milk transitions to mature milk in 2–3 weeks, the protein content is usually insufficient to meet the nutritional demands of a rapidly growing infant. Similarly, human milk does not have sufficient quantities of calcium, phosphorus and vitamin D to support bone health. Energy density of human milk also declines over time. When mother’s own milk is not available, it is recommended that donor milk be fed to infants. In the first place, donor milk is usually obtained from mothers who have been breastfeeding for several months and, therefore, protein and energy content are low. In addition, pasteurization alters the concentrations of some water-soluble vitamins as well as the activity of several bioactive components of human milk.

Poor growth is thus seen both with the use of unfortified mother’s own milk as well as donor milk, especially in infants with very low birth
weight, making fortification of human milk a priority. In this discussion, macronutrient requirements of preterm infants and the composition of mother’s own milk and donor milk will be reviewed. Fortifiers, based on bovine and human milk, fortification strategies and duration of fortification will also be discussed. Thus, using appropriate fortification methods will assist in meeting the nutrient requirements of these infants, while protecting the beneficial effects of human milk itself.