Letter to the Editor

Biodiverse food solutions to enhance complementary feeding

de Pee, S. (2015) Special nutritious solutions to enhance complementary feeding. *Matern Child Nutr*, 11: i–viii. doi: <http://dx.doi.org/10.1111/mcn.12265>

To the Editors,

In her recent editorial, Dr. de Pee (2015) states there are two main ways to provide additional nutrients during complementary feeding: fortification and supplementation. She illustrates some problems associated with these ‘solutions’, including lack of compliance (Kodish *et al.*, 2016). Rather than conclude that lipid-based nutrient supplements (LNS) and ready-to-use therapeutic foods (RUTFs) may thus be ineffective, de Pee advocates research to improve compliance, assuming effectiveness has been demonstrated. We highlight four additional problems: inappropriateness, cost, lack of sustainability and potential adverse effects.

First, RUTFs were designed for therapeutic use under medical prescription. Indeed Briend *et al.* (2015) state these are not optimized to maximize linear growth, vitamin and mineral status, nor functional outcomes; have problems related to quality and content and are expensive.

Second, De Pee states that linear programming (LP) states a healthy diet is not affordable by many households in low and middle income countries (LMICs). However, at least two examples, Mozambique (Parlesak *et al.*, 2014) and Kenya (Termote *et al.*, 2014), illustrated how a low-cost diverse diet can be designed using locally available foods. Interestingly, LP’s ability to model these appears to depend on which cost-efficient micronutrient-dense local foods are selected. These LP diets, modelled for LMICs, were relatively affordable compared with the cost of 150 sachets of LNS weighing 92 g each which cost approximately US\$55 in 2013. Moreover, Segrè *et al.* (2015) found that only 25% of Ethiopian consumers appeared willing to pay for LNS and could afford them.

Third, de Pee states that distribution of LNS is sustainable and lists the practical constraints associated with feeding young children. However, investigators,

e.g. in Bangladesh (Bogard *et al.*, 2015), Ecuador, Kenya (Waswa *et al.*, 2015) and Tanzania (Kuyper *et al.*, 2014), have shown how to overcome these constraints using cost-effective, culturally acceptable and locally available diverse foods. In addition, mothers are empowered by being able to earn income (Jones *et al.*, 2015), which has spin-off benefits. Both Johns *et al.* (2013) and Powell *et al.* (2015) demonstrate the economic importance of how local production improves dietary diversity, can be sustainable, cost-effective, and culturally acceptable and helps to reduce rates of chronic undernutrition. Indeed the majority of young children in LMICs who do not consume LNS or RUTF are not undernourished.

Fourth, potential adverse effects include the risk that breastmilk can be displaced by LNS (Latham *et al.*, 2010; Greiner, 2014). Yan *et al.* (2014) indicate that continued breastfeeding is related to a decreasing risk of obesity and whereas LNS cannot help stunted children achieve optimal height it can contribute to increasing prevalence of childhood obesity and double burden of malnutrition (Shrimpton & Rokx, 2012; Parlesak *et al.*, 2014). Moreover, if LNS displace breast milk, this deprives the infant of a unique source of bioavailable micronutrients and immunomodulation. Any move away from optimal breastfeeding and/or consumption of family foods can have an adverse effect on both taste development (Mennella *et al.*, 2016) and adoption of long-term, healthy eating patterns along with better anthropometric outcomes (Arimond & Ruel 2004) and health (Rao *et al.* 2001).

In conclusion, all UN agencies have joint responsibility to help Member States achieve their Sustainable Development Goals (SDGs), which create the opportunity to link sustainability and dietary diversity. The Convention on Biological Diversity (WHO 2015) illustrates how dietary diversity can help combat global malnutrition by using practical solutions that can be rolled out as public health strategies. Culturally-sensitive, cost-effective, sustainable complementary foods have the potential to increase nutrition security and

sovereignty, reduce poverty, hunger and levels of chronic undernutrition while conserving biodiversity and respecting indigenous knowledge (Jones *et al.*, 2015).

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