



MATERNAL NUTRITION IN EMERGENCIES

Summary of the state of play and key gaps

Technical note for the round table

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1. INTRODUCTION

Current evidence underlines the importance of the nutritional status of women at the time of conception, during pregnancy and through lactation. Women's nutritional status is crucial both for her survival and ability to live a healthy life. Maternal mortality rates have remained virtually unchanged in much of Africa for the last two decades, with only modest gains being made in parts of South Asia (Mason et al 2012). Accelerated interventions and stronger political backing for women and children has been called upon to reach the MDG maternal mortality target (UN 2013). Women's nutritional status is also of crucial importance for the survival, healthy growth and development of the foetus and infant.

The EU has stated that maternal nutrition is an important area both in its own right (i.e. supporting women's own rights to nutrition and health) as well as being a key component for the prevention of undernutrition in infants (EC 2013a, EC 2013b). The EU is committed to building political commitment for nutrition, scaling up direct and nutrition sensitive actions and strengthening the expertise and knowledge base for nutrition (EC 2013a). Specifically in the humanitarian context, the Commission's support is aimed at treating, preventing and alleviating the short-term consequences of maternal and child undernutrition by addressing immediate and underlying causes at the individual and household levels (EC 2013b). For maternal nutrition, the Commission is concerned that there are a number of gaps at policy and practice levels and limited guidance is available, in order to efficiently address the needs for maternal nutrition.

This technical note aims to summarise current evidence on what is required to support maternal nutrition in general and where the gaps in knowledge are in addressing maternal undernutrition in emergencies.

2. WOMEN AND NUTRITIONAL VULNERABILITY

Women are particularly vulnerable to undernutrition from a physiological point of view due to their increased nutrient requirements for menstruation, pregnancy, childbirth and lactation. In particular during pregnancy and lactation, women's nutritional needs for energy¹, protein² and micronutrients³ significantly increase (WHO et al 2000).

Recent review of evidence (Black et al 2013) indicates that maternal nutrition is of great concern in many countries, many of which experience the most frequent humanitarian emergencies⁴. For example in Africa and Asia, the prevalence of underweight (using BMI <18.4) of adult women is over 10%, Anaemia (HB <110g/l) is around 20%, Vitamin A deficiency (serum retinol <0.70µmol/L) rates are extremely high and 28.5% of the world's population are iodine deficient. These deficiencies all have implications for the health and mortality of women and of their children (see section 3). Early pregnancy and mental health issues during and after pregnancy can also cause considerable problems for women across developing countries (WHO 2008).

¹ Pregnant women require an additional 285 kcals/day and lactating women an additional 500 kcals/day

² Pregnant women require an addition 7.1g/d and lactating women an additional 18.9g/d

³ Adequate intake of iron, folate, vitamin A and iodine are particularly important for the health of women and their infants

⁴ Global Humanitarian Assistance report 2012. Development Initiatives. http://www.globalhumanitarianassistance.org/wp-content/uploads/2012/07/GHA_Report_2012-Websingle.pdf

Almost half of mothers are married before the age of 18 in less developed countries. Pregnancy for these adolescent mothers occurs while they are still growing themselves, which leads to negative consequences for their own nutritional status and the birth weight of their infant (UNSCN 2009).

These background vulnerabilities affect the resilience of the population to shocks. In addition a number of factors (detailed below) can lead to increased nutritional vulnerability of women in humanitarian contexts and/or negative effects on their care giving roles.

2.1 Increased requirements and reduced intakes

- When food is in short supply, women and girls are more likely to reduce their intake in favour of other household members. This is particularly critical for pregnant adolescent girls who must meet their own nutritional needs for growth as well as the needs of the developing foetus.
- Activities such as cultivation and collection of food, firewood and water which women were undertaking pre-crisis may become more time consuming and require movement over greater distances. Women also undertake additional activities during crises, such as farm work, particularly where male heads of households are absent.
- Micronutrient deficiencies can easily develop or be exacerbated during an emergency. Fortified foods provided as part of food rations during emergencies may not fully meet the needs of pregnant and lactating women (PLW) (WHO/UNICEF/WFP 2006) and requirements may increase due to malabsorption and nutrient losses caused by diarrhoeal and infectious diseases.

2.2 Increased risks

- Women have frequently been shown to be at increased risk of psychological problems in emergency affected populations (IASC 2007).
- Gender-based violence (GBV)⁵ is especially problematic in the context of complex emergencies and natural disasters. Civilian women are vulnerable to exploitation, violence and abuse, simply because of their gender and status in society (IASC 2005). Increases in forced early marriage may also lead to more adolescent pregnancies in protracted emergencies.



2.3 Disruption of services and support; negatively affecting health and birth outcomes

- During crises, access for pregnant women to essential routine services may be disrupted, such as Antenatal care (ANC), Reproductive health and PMTCT⁶ and/or other support services for those with HIV infection.
- Women may face constraints in accessing essential humanitarian services as a result of insecurity⁷, cultural discrimination and/or limited mobility.
- The impact of emergencies can exacerbate already existing reproductive health vulnerabilities and risks for mothers and their children, particularly if key components of reproductive health services are lacking or disrupted due to the emergency (NW/ENN/GNC 2011).

⁵ Sexual violence is the most immediate and dangerous type of GBV occurring in acute emergencies. Later other forms of GBV occur and/or are reported with increasing frequency. These include, among others, harmful traditional practices (female genital mutilation, forced early marriage, honour killings, etc.) and domestic violence.

⁶ Prevention of mother to child transmission of HIV

⁷ In particular risk of physical and sexual abuse

- Breastfeeding can be disrupted during emergencies, as physical and emotional stress can reduce women’s confidence and diminish the capacity of other family members to help them. Increases in the incidence of preterm and LBW infants which are often experienced in emergencies, also create a greater need for breastfeeding support (WHO 2004).

3. IMPLICATIONS

The above have particularly serious implications both for women and their children.

3.1 For women

- Maternal undernutrition is a risk factor for adverse prenatal outcomes, and women of short stature are at heightened risk of delivery complications leading to elevated mortality risk (Black et al 2013).
- Anaemia in pregnancy increases the risk of maternal mortality. It is estimated to be a risk factor for more than a quarter of maternal deaths (Black et al 2013).
- Calcium deficiency increases the risk of pre-eclampsia, currently the second leading cause of maternal death (Black et al 2013).
- Pregnancy reduces immunity, resulting in increased susceptibility to malaria infection, risk of severe illness, anaemia (Steketee, Wirima & Campbell 1996) (Nosten et al 1999) and maternal death (WHO 2007b).
- Adolescent pregnancy is associated with a 50% increased risk of stillbirths and neonatal deaths, and increased risk of preterm birth, LBW, and asphyxia (Bhutta et al 2013). Adolescents are prone to complications of labour and delivery (WHO 2007a) and evidence indicates that the pregnancy actually halts their own linear growth, as well as leading to emaciation and fat loss (Rah et al 2008). All of which exacerbates the intergenerational cycle of undernutrition (see below section 3.2).
- Short inter-pregnancy intervals are associated with a higher probability of maternal anaemia (32%) and stillbirths (40%) (Conde-Agudelo 2012).

3.2 For their children

- Maternal acute undernutrition (low BMI) puts infants at higher risk of foetal growth restriction and therefore being born small for gestational age (SGA); both term and preterm. SGA infants are at higher risk of neonatal and postnatal death and of stunting in childhood (Black et al 2013). Foetal growth restriction is estimated to cause more than ¼ of all new-born deaths, with LBW infants⁸ estimated to be approximately twice as likely to die (from all causes) than those weighing more than 2.5 kg (Black et al 2008).
- Undernourished children are more likely to grow into shorter adults, to have lower educational achievements, and for girls, are more likely to grow into women who will give birth to smaller infants themselves – the intergenerational cycle (Victora et al 2008).
- Symptoms of anaemia are fatigue and reduced work capacity for women (Stoltzfus et al 2011). This may reduce their ability to contribute to household resources and to care for children.
- Maternal vitamin A deficiency is associated with increased LBW and infant mortality (Black et al 2013)
- While maternal undernutrition (unless it is severe) has little effect on the volume or composition of breast milk, it does determine the concentration of some micronutrients⁹. Risk of infant depletion is therefore increased; most evident for vitamin A, where the content in breast milk is vital for infant status because stores are low at birth (Black et al 2008).

⁸ <2.5kg at birth

⁹ Vitamin A, Iodine, Thiamine, Riboflavin, Pyridoxine, Cobalamin

- Iodine deficiency during pregnancy can cause maternal and foetal hypothyroidism and impair neurological development of the foetus. The consequences depend upon the timing and severity of the hypothyroidism; the most severe manifestation is cretinism (Zimmerman 2012). Deficits in child brain development in less severe forms of maternal iodine deficiency are suggested.
- Disruption to appropriate breastfeeding practices has detrimental effects which may continue well after the emergency phase. Suboptimal breastfeeding accounts for an estimated 1.4 million deaths in children under five annually¹⁰.
- It has been estimated that malaria during pregnancy is responsible for 35% of preventable LBW (Steketee, Wirima & Campbell 1996) and contributes to 75,000 to 200,000 infant deaths each year (Steketee et al 2001).
- Evidence is growing that maternal mental health problems are important determinants of suboptimal caregiving and health seeking behaviours (Ruel et al 2013) and early childhood underweight and stunting (Surkan et al 2011). In emergencies, mothers exposed to psychological trauma are often overwhelmed, exhausted and/or depressed. If traditional support structures have been disrupted, the wellbeing of children may suffer as a result (IASC 2007).

4. CURRENT INTERNATIONAL GUIDANCE ON MATERNAL NUTRITION

Almost all countries have committed themselves politically to ensuring the right of PLW to good nutrition, through the Convention on the Elimination of all Forms of Discrimination Against Women. Despite this, the World Health Organization (WHO) has not endorsed any policy commitments with regard to maternal nutrition and the only policy guidance from the various technical departments of WHO relates to the control of maternal anaemia (Shrimpton 2012). The SUN framework includes a number of direct interventions for maternal nutrition, and a recent review (Bhutta 2013) does pull together both direct and indirect interventions for maternal nutrition. It includes dietary interventions (food distribution, nutrition counselling, micronutrient supplementation and fortification) and disease prevention and control (malaria, HIV, deworming) as direct nutrition interventions; and food security, WASH, reproductive health and women's empowerment as relevant nutrition sensitive intervention areas. *Yet the emergency context is not specifically dealt with in these compilations.*

The Sphere Project 2011 gives some key actions and guidance notes with respect to direct interventions to support maternal nutrition (see box below). Most however are linked to infant feeding and the welfare of the child and although the guidance does refer to specific interventions in terms of maternal nutrition, this is the only place within the Sphere handbook where maternal nutrition needs are reflected.



¹⁰ UNICEF website

Box. Sphere Project: actions and guidance for maternal nutrition

Standard: Infant and young child feeding: Basic and skilled support

Mothers and caregivers of infants and young children have access to timely and appropriate feeding support that minimises risks and optimises nutrition, health and survival outcomes

Action: Give priority to pregnant and breastfeeding women to access food, cash and/or voucher transfers and other supportive interventions

- **Guidance:** ...support should be prioritised for mothers, caregivers and pregnant and breastfeeding women to meet immediate essential needs. Households with children under 24 months and breastfeeding mothers of all newborns should be registered and linked to food security programmes to ensure access to adequate food. Designated shelters for mothers and caregivers enable access to peer-to-peer and basic IYCF support. Breastfeeding support should be integrated within key services such as reproductive health, primary healthcare, psychosocial services and selective feeding programmes from the outset.

Action: Integrate skilled breastfeeding counselling in interventions that target pregnant and breastfeeding women and children aged 0–24 months

- **Guidance:** Pregnant and breastfeeding women should receive daily supplements providing one daily requirement of MMNs to protect maternal stores and breast milk content, whether they receive fortified rations or not. Iron and folic acid supplements when already provided should be continued. Women should also receive Vitamin A within six to eight weeks of delivery. Micronutrient supplementation should be in accordance with international recommendations on doses and timing. Referral to psychosocial services may be needed, especially in traumatised populations. Although nutrition support of the adolescent mother is important, programmes to prevent adolescent pregnancy are likely to have the most impact on LBW incidence.

Standard: Management of acute malnutrition and micronutrient deficiencies: MAM

Moderate Acute Malnutrition (MAM) is addressed

Action: Address IYCF with particular emphasis on protecting, supporting and promoting breastfeeding

- **Guidance:** *Breastfeeding mothers* of acutely malnourished infants under 6 months should be admitted to supplementary feeding, independent of maternal nutrition status. Moderately malnourished mothers can successfully breastfeed and need adequate nutrition support to protect their own nutritional status. Mothers should receive supplementary feeding rations, skilled breastfeeding support on exclusive breastfeeding and advice on safe, nutritious and responsive complementary feeding. Infants under 6 months who are acutely malnourished should be referred appropriately for skilled breastfeeding support and inpatient care as necessary.

Other specific international guidance for maternal nutrition has been compiled below, both for the general context and, where it exists, for the emergency context.

4.1 Macronutrient Supplementation

General

Provision of nutritional advice and balanced energy and protein supplements to undernourished pregnant women (WHO 2013; pending review) - based on evidence of reduction in risk of SGA infants (by 34%), stillbirths (by 45%) and increased birth weight (by 73g) with balanced protein/energy supplementation (Imad & Bhutta 2011, Kramer & Kakuma 2010). The most pronounced effects were found with malnourished women. There is also growing evidence that improving the quality of the diet of the mother during the first half of pregnancy can have as big an effect on birth weight as providing food supplements later in pregnancy. Certainly, the risk of delivering a LBW baby can be determined very early in pregnancy and the influence of maternal nutritional status on pregnancy outcomes is more important in early rather than late pregnancy (UNSCN 2009).

Emergencies

Inclusion in supplementary feeding with fortified commodities of all PLW in emergency situations (WHO et al 2000) – based on evidence of their additional nutrient requirements. Although the additional energy requirements of PLW are included in General Food Distribution (GFD) planning figures, this does not ensure PLWs are targeted with the additional calories and it is recognised that micronutrient needs may not be met (WHO/UNICEF/WFP 2006). However more up to date guidance from the Global Nutrition Cluster recommends a more targeted approach with **'All PLW 6 months postpartum..... who have MAM should be included in the targeted supplementary feeding programme (TSFP) for MAM, regardless of their age or pregnancy status'** (GNC 2012). This guidance further states that the evidence base for blanket supplementary feeding (BSFP) for prevention of acute malnutrition primarily focuses on children, and there are currently no standard criteria or recommendations for inclusion of PLWs into (blanket) programmes to prevent acute malnutrition'.

Establishment of referral for required nutritional care and support for adults infected with HIV and their families (NW/ENN/GNC 2011) - this includes targeted food support, treatment of acute malnutrition (ibid) and guidance and counselling on infant feeding (Sphere 2011)¹¹

4.2 Micronutrient Supplementation

General

Iron/Folic acid supplementation for pregnant women (WHO 2012a) - based on evidence that antenatal supplementation with iron, alone or in combination with folic acid, is associated with; 69% reduction in incidence of anaemia (Imad & Bhutta 2012), 20% reduction in the risk of LBW (Pena-Rosas & Viteri 2012) (Black et al 2013), 54% reduction in neonatal mortality (Zeng et al 2008) and 34% reduction in risk of death in children under 5 yrs (Dibley et al 2012). Evidence also exists for folic acid supplementation during pregnancy being associated with a 79% reduction in anaemia and improved mean birth weight (Lassi et al 2013). WHO suggests (2012a) that these effects are the same in malaria endemic areas (despite some studies indicating an increased risk of malaria in children receiving iron supplements). To prevent any negative effects in malaria-endemic areas, measures to prevent, diagnose and treat malaria are recommended in conjunction with these supplements for pregnant women. The strength of evidence for the benefits of providing multiple micronutrients (MMNs, including powders) instead of iron/folic acid only, is currently being debated (Bhutta et al 2013) (Haider et al 2011) (Haider & Bhutta 2012).

Iodine supplementation for PLW – in countries where less than 20% of household have access to iodized salt, either through purchase from markets or iodised salt in GFDs (WHO, UNICEF 2007) – based on evidence of the impact of iodised salt on the iodine status of women (Laurberg et al 2007, Zimmermann 2007, WHO/UNICEF 2007) and more recent evidence that for PLW and children less than two yrs, iodine needs might not be adequately covered by iodized salt where Universal Salt Iodisation is not fully implemented (Anderson et al 2007). In moderate-to-severely iodine-deficient areas, controlled studies demonstrated that iodine supplementation before or during early pregnancy eliminates new cases of cretinism, increases birth weight, reduces rates of perinatal and infant mortality and generally increases developmental scores in young children by 10–20% (Zimmermann 2012).

Calcium supplementation during pregnancy in areas of low calcium intake (WHO 2011c) – based on strong evidence that calcium deficiency increases the risk of pre-eclampsia (Hofmeyr et al 2010) (Black et al 2013)

Vitamin A Supplementation (VAS) for pregnant women in areas where vitamin A deficiency is a severe public health problem (WHO 2011b) – based on strong evidence of the effects of VAS on maternal night blindness in vitamin A deficient populations (Van den Broek 2011) and on haemoglobin levels and anaemia risk (Thorne-Lyman & Fawzi 2012). However, insufficient evidence of effect of VAS on maternal and neonatal mortality has been found and effect on birth weight is only indicated for HIV positive mothers (ibid).

¹¹ The area of support for HIV in the emergency context and in relation to women in particular has not been sufficiently covered during this review.

Emergencies

MMN supplementation for pregnant women in emergencies/populations at risk (WHO 2011a, WHO/UNICEF/WFP 2006) – MMN's (tablets) are recommended for use in emergency contexts due to the increased risk of micronutrient deficiencies (WHO/UNICEF/WFP 2006) yet MMN powders are specifically not recommended by WHO for use by pregnant women, due to insufficient evidence of effects (both positive and negative) (WHO 2011a).

Iodisation of all salt used in GFDs (WHO et al 2000) – based on evidence of impact of iodised salt on iodine status of women.

VAS for pregnant women and for lactating women within 6 weeks of delivery in emergencies (WHO, UNICEF, WFP, UNHCR 2000)

4.3 Care and Support

Emergencies

Breastfeeding care and support (IFE Core group 2007) – the protection, promotion and support of breastfeeding through; i) appropriate assessment of breastfeeding challenges, ii) provision of a package of breastfeeding support services¹², iii) support for safe and appropriate alternative feeding where required, iv) promotion of the international code on the marketing of breast milk substitutes. In addition support should be provided for easy and secure access for caregivers to water and sanitation facilities, food and non-food items and inclusion of PLW in SFPs, if available.

Care for caregivers in emergencies (IASC 2007) through organising meetings/providing spaces where caregivers of young children can support each other and discuss strategies for optimal child care. Referral options for additional support for carers with signs of depression or severe mental health problems.

4.4 Health Related Interventions

Emergencies

Provision of insect-treated bed nets for all pregnant women (WHO 2005) either through a general population or targeted distribution.

Intermittent preventive treatment in pregnancy (IPTp) with sulfadoxine-pyrimethamine to pregnant women (except during the first trimester) at each routine antenatal visit in areas with moderate to high malaria transmission in sub-Saharan Africa (WHO 2012b) – based on evidence that it prevents the adverse consequences of malaria on maternal and foetal outcomes in these contexts (WHO 2012c).

Prophylaxis to pregnant women in the 2nd & 3rd trimester for management of intestinal parasites (WHO et al 2000) – despite limited evidence from controlled trials of the effect of administration of antihelminthics for soil transmitted helminths on maternal anaemia or pregnancy outcomes (Haider et al 2009), findings from observational studies suggest a potential benefit on maternal anaemia, birth weight and infant mortality (Imhoff-Kunsch & Briggs 2012).

Provision of a minimum package of reproductive health services at the initial stages of an emergency, including key interventions which have a high impact on maternal, neonatal and infant nutritional status (NW/ENN/GNC 2011) (Sphere 2011). – include interventions focussed on; all women and girls, those specifically targeted during pregnancy, childbirth, post natal, on-going reproductive health and measures for the prevention and clinical management of sexual violence. Adolescents should specifically be targeted as programmes to prevent adolescent pregnancy are likely to have the most impact on LBW incidence (Sphere 2011).

¹² Including breastfeeding spaces if required, counselling services integrated into ante and postnatal care, family planning and maternity services, mother to mother breastfeeding support

4.5 Nutrition Sensitive Interventions¹³

The 2013 Lancet series concluded that there is little evidence as yet linking particular nutrition sensitive interventions in food assistance (cash or food), health, agricultural, protection or education sectors to nutritional outcomes for women or children (Girard et al 2012) (Ruel et al 2013). However, the weaknesses of integrating nutrition goals into these interventions were identified as a likely explanation for the scarcity of evidence of nutritional benefits.

Evidence was however identified for the effects of homestead programmes promoting vitamin A rich foods¹⁴ on child vitamin A intake and to a lesser extent vitamin A status; while effects on maternal intakes and status have not yet been found. Despite this, a consistent message from the literature is that any nutritional effect of agricultural interventions is more likely when women are targeted and where women's empowerment activities are included (ibid). Unfortunately some review evidence indicates that in Africa, nutrition sensitive interventions are less likely to be focused on women of reproductive age than direct nutrition interventions (Bhutta 2013).

Few studies have measured specific aspects of women's empowerment as a pathway to improved nutrition. However, studies have demonstrated a relationship between dimensions of women's empowerment and nutrition and also of a relationship between women's *disempowerment* (e.g. domestic violence) and adverse nutritional impacts. These impacts are further supported by evidence that men and women have different preferences for allocation resources within a household (Gillespie & Van den Bold 2013). Few studies have equally tested interventions to tackle maternal mental health and child growth together (Corna 2013).

It is increasingly recognised that cash or vouchers can replace traditional food assistance mechanisms, if there is an accessible and diverse diet available on the market. This can reduce costs, better support markets and promote dignity and choice (Haver et al 2013). However, evidence on nutrition outcomes for cash remains very limited in emergency contexts (Bailey & Hedlund 2012). Discussion is on-going, based on new evidence that a combination of cash with other specialised nutritional inputs provided for children via BSFPs increases the effectiveness of the nutrition response (Epicentre/WFP/MSF 2012). Evidence that fresh food vouchers can lead to more diverse diets being consumed in emergencies (ACF 2012a) has also not been translated into results for nutrition; and similar to the above, evidence of how much these programmes are or could be designed to support maternal nutrition, is lacking.

In addition, the potential of some food assistance programmes to undermine maternal and child nutrition, if not developed using a nutrition sensitive lens, has been highlighted (Haver et al 2013). This may be as a result of increasing women's physical workload or time away from childcare. In particular, there is some evidence of negative impacts on nutrition status where cash transfers are given alongside non-health related conditionalities (Gillespie & Van den Bold 2013).

5. WHAT IS BEING DONE IN EMERGENCIES?

5.1 Assessment and response analysis

Measurement of nutritional status of women of reproductive age is often included in national MICS and DHS surveys; however BMI measurements are used, which can be problematic for estimating the prevalence of undernutrition. Nutritional surveys using SMART ENA software do not generally collect anthropometry on PLW or women of reproductive age.

¹³ Interventions that address the underlying determinants of maternal nutrition

¹⁴ Orange flesh sweet potato, in particular

As noted above, guidance exists especially in relation to micronutrient and malaria interventions for women; to be implemented based on an assessment of the context, e.g. background levels of Vitamin A deficiency. Beyond these individual examples there is no clear guidance however, linking assessment of factors relating to maternal nutrition and appropriate response packages.

5.2 Targeting

Targeting of PLWs in emergency situations is usually conducted through use of MUAC, due to its relatively strong association with LBW, narrow range of cut-off values, simplicity of measurement and it not requiring prior knowledge of gestational age. While there is very limited literature available on optimal targeting cut offs, the MUAC values for which most adverse effects were identified (in terms of birth outcomes) were <22.0 and <23.0 cm (Ververs et al 2013). Data from a recent global mapping exercise indicates that for targeted supplementary feeding over 90% of countries implementing programmes for PLW were using MUAC as admission criteria, with an even split between countries using cut-offs of <21.0 and 23.0cm (WFP/Valid 2013).

Because many women do not access nutrition-promoting services until month 5 or 6 of pregnancy, it is important that women are supported to enter pregnancy in a state of optimal nutrition. Population level interventions targeted at women in general and in particular adolescents have therefore been suggested to be the most appropriate (Bhutta et al 2013). However, in the emergency context most interventions are targeted more narrowly to PLWs, and usually only in the third trimester.

5.3 Interventions and research

The most widespread direct nutrition interventions for maternal nutrition in emergencies are supplementary feeding of PLWs (either targeted or blanket) and micronutrient supplementation.

Data from the recent MAM global mapping exercise indicates that about 2 million PLW were treated for MAM through WFP supported TSFP in 35 countries in 2012¹⁵. The majority of these were in West, Eastern and Central Africa and implemented in the relief or recovery context. In addition a further 1.6 million PLWs were included in BSFPs in 2012 in 19 countries. For both targeted and blanket supplementary feeding the WFP product 'Supercereal' was most commonly used. Despite the large numbers involved in these programmes, the mapping exercise was not able to report on performance outcomes for PLWs, due to insufficient completeness and quality of data (WFP/Valid 2013). Compiled information was not established on the extent of other direct nutrition interventions targeting maternal nutrition in the emergency context.

A small number of recent studies looked at the acceptability of Lipid-based Nutritional Supplements (LNS) products for PLWs. The evidence indicates that existing RUTF formulations may not be acceptable to malnourished PLW women (Ali et al 2013), while a number of new formulations were all found to be acceptable in home use trials in Bangladesh (Malay et al 2012). For HIV-infected breastfeeding women, LNS has been found to be both acceptable and to reduce weight loss (Kayira et al 2012).

Although nutrition education and counselling (NEC) is commonly carried out for PLWs as part of emergency nutrition programmes, little work has been done on measuring its impact either as standalone, or in combination with other interventions. For the non-emergency context, a Cochrane review (Kramer & Kakuma 2010) indicated that increased energy intakes were found among women receiving nutritional advice. A later review (Webb-Girard & Olude 2012), albeit noting the poor quality of the evidence, concluded that NEC led to improved outcomes, such as gestational weight gain, increased birth weight and reduced anaemia risk in late pregnancy. The effect of NEC was greater when provided with nutrition

¹⁵ This does not include admissions to programmes not supported by WFP

support, e.g. food or micronutrient supplements or nutrition safety nets and the review called for more research on this.

5.4 Financing

No information could be found specifically relating to funding for maternal nutrition in emergencies. A review of how nutrition concerns were reflected in the humanitarian appeals process between 1992 and 2009 (Webb 2009) does not mention women at all, although promotion of exclusive breastfeeding is covered. The more recent ACF review of aid for nutrition (ACF 2012b) takes the Lancet 2008 maternal and child nutrition series as the basis for the package of interventions for which funding streams were investigated, however no data or analysis were available/presented disaggregated by target group.

6. KEY GAPS

Much of the evidence presented above is derived from efficacy trials as opposed to effectiveness studies and hence variations exist in estimates of effect size for interventions. Few robust assessments have been done in programme settings, or in diverse emergency contexts, and available data from observational studies are usually context-specific and therefore limited.

Specific knowledge and guidance gaps include:

- How should maternal nutrition be reflected at assessment and response analysis stage?
- Who to target? Which maternal anthropometric and demographic characteristics should be used, if any, for inclusion into nutrition interventions and for discharge?
- What to do?
 - o Evidence base for nutrition specific interventions in programmatic contexts;
 - supplementary feeding for PLWs – effectiveness of targeting to the ‘malnourished’ versus targeting all
 - evidence on the implications, for the lactating mothers themselves, of their nutritional needs not being met. Evidence and experience of interventions to support lactating women’s nutrition
 - micronutrient supplementation – how to ensure the best compliance in emergency contexts
 - what BCC for nutrition is possible and appropriate in emergency contexts and what are the effective delivery mechanisms
 - o Evidence base for effectiveness of combined interventions e.g. iron supplementation plus food, psychosocial support plus nutrition inputs, BCC plus nutritional support
 - o Evidence base for nutrition sensitive interventions
 - Lack of evidence for nutritional outcomes in general and in particular for maternal nutrition – how can we collect sufficiently robust evidence in the programmatic context
- What to use? Specific products to use (what should be recommended in which context) for micronutrient supplementation and for supplementary feeding
- How to monitor? What monitoring is appropriate and feasible for on-going monitoring of intervention effectiveness, and evaluation of impact e.g. for PLW, and for their children

A full list of references is available in the accompanying document.