Nutrition of women and adolescent girls in humanitarian contexts

Current state of play

Technical briefing paper

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Acronyms

ANC	Antenatal care
BEP	Balanced energy and protein
BMI	Body mass index
CBI	Cash-based intervention
CHW	Community health worker
CMAM	Community-based management of acute malnutrition
CSB	Corn-soy blend
CVA	Cash and voucher assistance
DHS	Demographic and health survey
EHFP	Enhanced homestead food production
EML	Essential Medicines List
ENA	Essential Nutrition Actions
ENN	Emergency Nutrition Network
FAO	Food and Agriculture Organization of the United Nations
GAP	Global Action Plan
GBV	Gender-based violence
GFD	General food distribution
GNC	Global Nutrition Cluster
GNR	Global Nutrition Report
HRP	Humanitarian Response Plan
IASC	Inter-Agency Standing Committee
IFA	Iron and folic acid
IFE	Infant feeding in emergencies
IMCI	Integrated Management of Childhood Illness
IYCF	Infant and young child feeding
IYCF-E	Infant and young child feeding in emergencies
LBW	Low birthweight
LMICs	Low- and middle- income countries
LNS	Lipid-based nutrient supplements
LQ-LNS	Large-quantity LNS
MAM	Moderate acute malnutrition
MAMI	Management of small and nutritionally at-risk infants under six months and their mothers
MDD-W	Minimum dietary diversity for women
MMS	Multiple micronutrient supplementation
MNCHR	Maternal, newborn, and child health related services
MQ-LNS	Medium-quantity LNS
MUAC	Mid-upper arm circumference
NCD	Non-communicable disease
NSA	Nutrition-sensitive agriculture
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
PLW	Pregnant and lactating women
PLW/G	Pregnant and lactating women and adolescent girls
PMTCT	Prevention of mother-to-child transmission
PNC	Postnatal care
PND	Postnatal depression
PUFA	Polyunsaturated fatty acids
RUSF	Ready-to-use supplementary food
RUTF	Ready-to-use therapeutic food
SAM	Severe acute malnutrition
SAPs	Social assistance programme
SBCC	Social and behaviour change communication
SDG	Sustainable Development Goals
SGA	Small-for-gestational-age
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SQ-LNS	Small-quantity LNS
UN	United Nations
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WGRA	Women and girls of reproductive age
WHA	World Health Assembly
WHO	World Health Organization
WIFAS	Weekly IFA supplementation

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Executive summary

Scope

This technical paper builds on previous work by Emergency Nutrition Network (ENN) summarising progress in nutrition programming for women and adolescent girls, specifically focusing on humanitarian contexts. Humanitarian contexts warrant attention since they are not often represented in research, and women's and girls' nutrition is often not prioritised in programming during a humanitarian response. This paper addresses maternal nutrition and also women's and adolescent girls' nutrition more broadly (10-49 years). Information was gathered through literature reviews, policy document searches, and key informant interviews. The paper presents the background to humanitarian response architecture (**Section 3**), the importance of women's and girls' nutrition in humanitarian contexts (**Section 4**), the state of women's and girls' nutrition in humanitarian contexts (**Section 5**), the current policy environment (**Section 6**), existing scientific evidence on what works combined with examples from programme experiences (**Section 7**), and a summary of the current gaps and recommendations (**Section 8**).

Background

The Global Humanitarian Overview in 2021 estimated that 274 million people would require humanitarian assistance in 2022. This number was a significant increase from the previous year, which was already the highest figure in decades. Women and girls are disproportionately affected by conflict and disasters due to their increased nutritional needs and vulnerabilities. They also experience additional risks as a result of disrupted health

services and support during humanitarian crises, especially antenatal, postnatal, and obstetric care, and may be disproportionally affected by barriers to accessing services in these contexts. While the breadth of nutritional information on women and girls in emergencies is lacking, recent surveys have shown a high prevalence of wasting and anaemia in pregnant and lactating women and girls (PLW/G) due to multiple vulnerabilities as well as a growing burden of overweight and obesity.

Nutritional assessment, policies, evidence, and programming experiences

Data on the nutritional status of women and girls in humanitarian contexts is limited for several reasons, including current challenges around nutritional assessment as well as a lack of evidenced interventions. Many forms of malnutrition in women and girls remain undefined (such as wasting by mid-upper arm circumference (MUAC)) or are especially difficult to measure in humanitarian contexts via existing methods (such as gestational weight gain or micronutrient deficiencies).

Beyond the challenges with nutritional assessment, existing guidelines and policies relevant to the support of women's and girls' nutrition in humanitarian contexts are currently somewhat piecemeal and can be contradictory and difficult to find. These include the recommendation to provide multiple micronutrient supplementation (MMS) for PLW/G, weekly iron and folic acid (IFA) supplementation for non-pregnant women and girls in contexts of high anaemia prevalence and the provision of balanced energy protein (BEP) supplementation for pregnant women in undernourished populations.

There is also a lack of evidence on women's and girls' nutrition in humanitarian contexts, despite growing academic interest in humanitarian contexts more broadly. A recent systematic review of nutrition programmes for conflict-affected women and children found that most studies (64%) reported on interventions targeting children under five years of age with far fewer targeting women and adolescent girls. Among those that did, general food distribution was the most frequently reported intervention followed by micronutrient supplementation, nutrition assessment, nutrition education, breastfeeding and appropriate complementary infant feeding practices, disease prevention and management, supplementary feeding, acute malnutrition treatment, and food fortification.

Several challenges to nutrition programming are experienced in humanitarian contexts such as the impracticality of switching from IFA supplementation to MMS for PLW/G during humanitarian crises, barriers to implementing weekly IFA supplementation for non-pregnant women and girls since the recommended formulation is not currently on the World Health Organization Essential Medicines List and therefore not widely available or accessible, a lack of clarity on which specialised nutritious food products should be distributed to PLW/G, who should be targeted, and via what platform(s), novel challenges around the delivery of infant feeding support to mothers in emergencies where there is a high prevalence of artificial feeding, such as during the 2022 Ukraine war, a lack of understanding of whether, and how best, to provide cash to women and girls in place of food supplementation and lastly, that more momentum is required towards achieving gender equal participation on community relief committees as a means of increasing gender equality.

Gaps in policy, research and programming for women's and girls' nutrition in humanitarian contexts

One of the biggest gaps in research and programming for women's and girls' nutrition in humanitarian contexts is the lack of resources available from donors and governments. This is in part due to rising global needs and the prioritisation of other vulnerable demographics, such as children under five years, as well as the lack of evidence that would enable more advocacy towards meeting the needs of women and girls in nutrition programming. Policy gaps include the lack of guidelines on treating adult wasting, including the absence of an anthropometric definition, details on the type and content of supplementary food to provide and defined discharge criteria, the lack of implementation guidance and coordination with other guidelines for BEP supplementation, and the lack of implementation guidance supporting MMS in place of IFA for PLW/G in humanitarian contexts. Other major gaps include limited global leadership on women's and girls' nutrition, the lack of assessment tools and survey data, and insufficient focus on nutrition during the preconception and

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postnatal periods, all of which are exacerbated by the increasing complexity of the global nutrition landscape.

Recommendations

Policies and guidelines

- A 'living' guideline that focuses on women's and girls' nutrition, or that brings together all the relevant aspects from other guidelines, is needed to bring clarity and focus to the humanitarian response for this specific population.
- There is a need for one set of guidelines that covers all the appropriate options for macronutrient and micronutrient supplementation in both humanitarian and development settings, both during and outside of pregnancy. This should include: a) appropriate indicators for targeting women and adolescent girls (MUAC and/or body mass index (BMI)); b) discharge criteria or a measure of 'success'; c) details on which products (BEP/lipid based nutrient supplements/ corn soy blend plus etc.) to provide and in what context; d) details of the products' optimal nutritional content; and e) consideration of the double burden of malnutrition and connections with obstetric care, where relevant.
- Besides assessment of adolescent and adult wasting, guidance should be provided on other aspects of nutrition status, including the feasible assessment of gestational weight gain, field-friendly techniques for earlier diagnosis of micronutrient deficiencies and at what point postpartum BMI should be used for diagnosing under- and over-weight.
- While there are several tools for measuring empowerment in women and girls, more guidance is needed on how to contextualise and validate these within humanitarian settings. Emphasis should also be placed on better utilisation of data, as experience from development settings indicates that data for

these indicators often exists but is not prioritised in monitoring and assessment plans.

- While there is already guidance helping those governments who want to change from IFA to MMS in their national protocols, additional support from the United Nations (UN) and partners is needed in crisis-prone settings so that MMS can be implemented in the context of a humanitarian crisis.
- While some are already in place, humanitarian stakeholders should all have gender equity policies to address how humanitarian health and nutrition responses can advance gender equality and support the economic empowerment of women and girls.

Evidence and programming

- More evidence on the implications and importance of poor nutrition for women and girls including, but not limited to, maternal mortality, is needed to support advocacy within humanitarian response agendas. Better advocacy around the role of good maternal nutrition in preventing child wasting would also help to increase the visibility of PLW/G in policies and programming.
- Other research gaps that need to be addressed include the relationship between women's empowerment and nutrition, which functional outcomes for women and infants might be useful in measuring the 'success' of women's nutrition interventions, and the effects of women's diets on breastmilk quality and quantity.
- Mapping out the clear roles of the various UN agencies involved in women's and girls' nutrition in humanitarian contexts and identifying their individual strengths to lead various aspects at global, regional and country level, would help to ensure that the nutrition of women and girls is better prioritised, and would help to provide coherence in programming.
- Agreement is needed on which standard indicators of women's and girls' nutritional status and intervention coverage should be prioritised in humanitarian and routine surveys to better prepare for and support the nutrition needs of all women and girls, not just PLW/G.
- More research and pilot programmes are needed on effective preconception nutrition interventions in humanitarian contexts. These should explore which interventions are a priority for this group and what platforms are effective for delivering these in humanitarian contexts, especially if schools are not functioning or not accessed by some girls.
- More evidence on the importance of postnatal nutrition is needed, as is better disaggregation of data on the nutritional challenges and intervention coverage for women and girls in the first six months postpartum.

Conclusion

In conclusion, a 2017 *Lancet* series on 'Health in Humanitarian Crises' declared that the "international humanitarian system is not just broke, but broken" and called for action to prioritise women's protection, integrate affected and displaced people into national health systems, scale up efficient, effective, and sustainable interventions and renew global leadership and coordination. The 2021 *Lancet* Series on Maternal and Child Undernutrition Progress concluded that progress has been insufficient since then. Research presented in this paper supports this and our recommendations reflect the need for better policy, protection, integration, programming, and leadership for women's and girls' nutrition in humanitarian contexts. Urgent and concrete actions are required to address the gaps identified.

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1 Introduction and scope

In 2013, Emergency Nutrition Network (ENN) published a technical background paper summarising the existing evidence on maternal nutrition interventions and identifying knowledge gaps to address maternal undernutrition in emergencies[1]. Given that substantial gaps remain in our understanding of the current state of maternal nutrition globally, and the implications of poor nutritional status for adolescent girls and women as well as their infants, ENN updated and expanded this technical paper in 2021 to summarise evidence policy and practice relating to all areas of women's nutrition[2].

This paper builds on these previous two papers but focuses specifically on humanitarian contexts. Humanitarian contexts warrant specific focus since they are underrepresented in research and programming for women and girls is not often a priority during a humanitarian response. Unlike our 2013 paper, this paper does not only focus on mothers but also considers women and adolescent girls more broadly. In this paper we start by providing the background to the humanitarian response architecture (**Section 3**), the importance of women's and girls' nutrition in humanitarian contexts (**Section 4**), and the state of women's and girls' nutrition in humanitarian contexts (**Section 5**). We then summarise the

"Humanitarian contexts warrant specific focus since they are underrepresented in research and programming for women and girls is not often a priority during a humanitarian response."

current policy environment (**Section 6**) and give an overview of the existing peer-reviewed evidence on what works combined with examples from programme experiences (**Section 7**). We finish with a compilation of the current gaps in knowledge and practice and offer recommendations for the next steps to be taken to strengthen nutrition programming for women and adolescent girls in humanitarian contexts (**Section 8**).

We provide definitions for the key terminology we use in this paper in **Box 1**.

Box 1: Definitions and terminology in this paper

Defining women and adolescent girls: Much of the literature drawn on in this technical paper uses the following terms: 'pregnant women', 'postpartum women', and 'women of reproductive age'. However, these descriptions are limited since they risk overlooking adolescent girls. In line with the United Nations Convention of the Rights of the Child, childhood is defined in most countries across the world as the period until a child reaches 18 years of age. This also applies when a girl under the age of 18 has become pregnant or given birth; she is still a child. Therefore, policies and guidance should be saying, for example, 'adolescent girls and women of reproductive age', 'postpartum adolescent girls and women', or 'pregnant and lactating women and adolescent girls'. We use the World Health Organization definition of adolescence as being from the onset of puberty until adulthood, approximately corresponding to the 10–19 years age bracket. We have altered the language throughout this paper where possible, but when describing the content of current policies we use the terminology originally found in the source document. Readers should therefore be aware that source documents writing about women aged 15-49 years, for example, risk erroneously excluding adolescent girls and/or misclassifying them as women. The focus of this paper is on interventions, policies and evidence that support women's and girl's nutrition in its own right (an area that appears to be neglected in current policy and programming), as well as those with the objective of improved infant and child survival, growth and development.

Defining humanitarian contexts: The dictionary definition of 'humanitarian' is 'having concern for or helping to improve the welfare and happiness of people'. A humanitarian emergency is an event or series of events that represents a critical threat to the health, safety, security or wellbeing of a community or other large group of people. Types of humanitarian emergencies include armed conflicts, epidemics, famine, and natural disasters. While most humanitarian contexts are as a result of an 'emergency', we have used the term 'humanitarian contexts' throughout, rather than 'emergencies', in order to more accurately capture the many protracted crises that have lasted for decades in some instances. In this paper we have been inclusive and flexible in our definition of humanitarian contexts (see **Box 2** for more detailed definitions of different types of crises) given the limited evidence and programming from women's and girls' nutrition.

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2 Methods

To prepare this paper we used a mixed methods approach to gather the latest policies, evidence and programming examples on women's nutrition in humanitarian contexts. We adopted four main approaches. Firstly, we conducted a scoping literature review of peer-reviewed journal articles on the topic. Secondly, we searched all published *Field Exchange* articles.[a] Thirdly, we performed an online policy document search. Fourthly, we complemented all this with key informant interviews. We conducted nine in-depth structured interviews with key stakeholders, comprising 14 individuals who represented national governments, United Nations (UN) agencies, international non-government organisations (NGOs) and international donors. These individuals were able to represent global, regional and national contexts. The key informant interview guide questions can be found in **Appendix 1**.

Our paper has some limitations. The literature review was not systematic and therefore was not exhaustive. We adopted a scoping review approach to capture the breadth of the available literature and we did not grade any of the papers on the strength of evidence nor the risk of bias. We relied on *Field Exchange* and our key informant interviews to capture grey literature but time and resource constraints precluded an in-depth search of the grey literature and there will have been sources we missed. Finally, there were some key NGOs that were unavailable for interviews over our data collection period.

a *Field Exchange* (FEX) is ENN's technical publication containing detailed field articles, research, and evaluations on nutrition in emergencies and high burden contexts. It is downloadable from the online FEX library: https://www.ennonline.net/fex

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3 Background

The changing landscape of humanitarian crises

The Global Humanitarian Overview in 2021 estimated that 274 million people would require humanitarian assistance in 2022. This number was a significant increase from the 235 million people in the previous year which was already the highest figure in decades. Women and girls are disproportionately affected by conflict and disasters due to their increased nutritional needs and vulnerabilities (further described below in **Section 4**). In 2022, the UN Population Fund (UNFPA) appealed for an estimated US$835 million to provide life-saving health and protection services to over 54 million women, girls and young people in 61 countries[3]. In 2021, the UN High Commissioner for Refugees (UNHCR) reported that 89.3 million people in the world had been forcibly displaced from their homes because of conflict and persecution, including 27 million refugees, around half of whom were under the age of 18[4].

The rising scale and scope of humanitarian crises worldwide continue to be characterised by complex crises, protracted crises, sudden onset disasters, and slow onset disasters (see **Box 2**). In fact, many countries move in and out of crises periodically, and current humanitarian crises are longer, more intense, and more disruptive than ever before[5]. The 2018 Global Nutrition Report found that "an

> "Many countries move in and out of crises periodically, and current humanitarian crises are longer, more intense, and more disruptive than ever before."

estimated 86% of international humanitarian assistance goes to long- and medium-term crisis-affected countries"[6]. Prolonged dependency on humanitarian assistance is likely to have profound negative impacts on women and girls, with humanitarian programming often not accounting for their specific needs. The increasing number of protracted crises has also heightened the urgency for a better connection between humanitarian, development and peace efforts and the need to work together towards collective outcomes. This approach is commonly referred to as the Humanitarian-Development-Peace Nexus. The Humanitarian-Development-Peace Nexus has important potential positive impacts for women's nutrition as poor nutrition for women and girls is often rooted in vulnerabilities that existed prior to a humanitarian crisis.

Box 2: Types of humanitarian crises

Complex crisis – The Inter-Agency Standing Committee defines a complex crisis as "a humanitarian crisis in a country, region or society where there is a total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency"[7].

Protracted crisis – Characterised as a situation where "a significant part of the population is acutely vulnerable and dependent on humanitarian assistance over a prolonged period of time"[8].

Sudden-onset disaster – A disaster (natural or manmade) triggered by a hazardous event that emerges quickly or unexpectedly.

Slow onset disaster – A disaster that happens gradually over time, often resulting from several factors rather than a distinct event, for example, a drought. The development of early warning systems (see **Appendix 2** for more details) is critical in such cases to allow humanitarian actors to monitor the situation and respond before a crisis point is reached.

The humanitarian system

The humanitarian system is made up of a network of organisations (see **Appendix 3** for more details) through which humanitarian action is undertaken or supported when local and national resources are, on their own, insufficient to meet the needs of a population in crisis[9]. There is no universal definition of humanitarian assistance. However, one of the most widely accepted definitions comes from the Good Humanitarian Donorship Initiative (2003) which states that "the objectives of humanitarian assistance are to save lives, alleviate suffering and maintain human dignity during and in the aftermath of crises and natural disasters, as well as to prevent and strengthen preparedness for the occurrence of such situations"[10].

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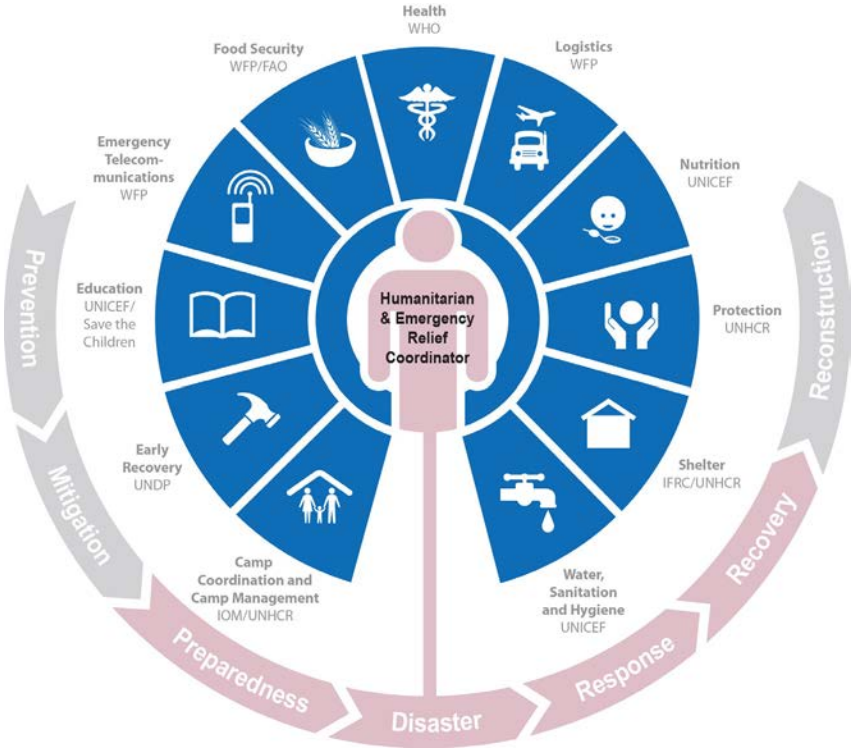
Since 2005, the global and country level responses to humanitarian crises have been coordinated through the Inter-Agency Standing Committee (IASC)-endorsed global cluster and country level cluster systems (see **Appendix 4** for more details). The cluster system supports country coordination mechanisms in strategic decision-making, planning and strategy development, capacity strengthening, advocacy, monitoring and reporting, and contingency planning/preparedness. Each of the main sectors has a designated Global Cluster Lead Agency (see **Figure 1**) responsible for ensuring response capacity is in place for its sector and that humanitarian activities are implemented in coordination with partners and following agreed standards and guidelines. At country level, cluster leadership usually mirrors global arrangements with Cluster Lead Agencies often co-leading with governments or co-chairing with NGO partners.

Figure 1: The Cluster system



Abbreviations: World Health Organization (WHO); World Food Programme (WFP); United Nations Children's Fund (UNICEF); United Nations High Commissioner for Refugees (UNHCR); International Federation of Red Cross (IFRC); International Organization for Migration (IOM); United Nations Development Programme (UNDP); Food and Agriculture Organization (FAO).
Source: Humanitarian Response (2020). What is the Cluster Approach. Accessed 16th of August 2022. Available from: https://www.humanitarianresponse.info/en/about-clusters/what-is-the-cluster-approach

Women's and girls' nutrition predominantly sits within the Nutrition Cluster led by UNICEF but is also strongly reflected within the mandates of other clusters such as Food Security (led by the World Food Programme (WFP), the Food and Agriculture Organization (FAO)) and Health (led by the World Health Organization (WHO)). Furthermore, women's and girls' nutrition cuts across the individual mandates of several organisations. For example, UNICEF is mandated by the UN to "advocate for the protection of children's rights, to help meet their basic needs and to expand their opportunities to reach their full potential"[11]. This includes work to prevent malnutrition in all its forms by improving women's and girls' access to safe, affordable, and nutritious food. The WFP is the lead humanitarian organisation for providing food assistance in crises. It works with communities to build resilience and improve nutrition, including for women and girls[12]. The FAO's goal to achieve food security for all includes aspects of nutrition for women and girls, while under its responsibility to provide leadership on global public health matters, the WHO produces several guidelines that cover women's and girls' nutrition (see **Section 6**). Several other UN organisations are also responsible for areas that directly relate to women's and girls' nutrition, such as UN Women, which is the UN organisation dedicated to gender equality and the empowerment of women, and the UNFPA which is the UN organisation responsible for sexual and reproductive health. Some key informants described how the large number of UN agencies addressing the nutrition of women and adolescent girls within their objectives could be both beneficial and challenging; in theory this population is being targeted through many agencies but in practice it would be more helpful to know which UN agency had the overall mandate to effectively coordinate nutrition interventions for women and girls.

Cluster activities are informed by Humanitarian Response Plans (HRPs) which outline the shared vision of how to respond to the needs of the population in crisis and are based on a Humanitarian Needs Overview or other joint needs assessment and analysis processes. The HRPs are

developed by humanitarian country teams which include the coordinators of each cluster. Women's and adolescent girls' nutrition is addressed within the response strategy narrative, strategic objectives, and indicators, and/or cluster plans objectives, activities and accompanying projects which detail the implementation and costing of the strategy. **Box 3** provides two brief examples of how women's nutrition is positioned in current 2022 country HRPs.

Box 3: Women's nutrition and HRPs country examples

Adapted from Afghanistan nutrition cluster template – Humanitarian Response Plan 2022[13]

In 2022, the Afghanistan Nutrition Cluster planned to reach 5.9 million children and pregnant and lactating women/girls (PLW/G) across all provinces with life-saving services. Maternal nutrition is reflected within the country Nutrition Cluster Objectives, i.e.,

Objective 1: Increasing the equitable access and utilisation of quality life-saving nutrition services for the early detection and treatment of acute malnutrition for children and pregnant and lactating women affected by acute malnutrition

Objective 2: Increasing the equitable access and utilisation of quality preventative nutrition specific service delivery for children, adolescents, and women.

Programmes targeting maternal nutrition include the treatment of pregnant and lactating women with acute malnutrition, blanket supplementary feeding programmes for pregnant and lactating women, and infant and young child feeding counselling to primary caregivers of children aged 0-23 months, delivered through static and mobile facilities.

Adapted from Yemen nutrition Cluster template – Humanitarian Response Plan 2022[14]

In 2022, the Nutrition Cluster HRP planned for curative and preventative nutrition services targeting pregnant and lactating women. These services and programmes are reflected within the Nutrition Cluster's two objectives, i.e.,

1. Provide quality and timely life-saving curative nutrition services to 773,186 moderately wasted PLW/G

- Provide pregnant and lactating women targeted supplementary feeding programmes in 328 districts.
- Early case finding of undernourished PLW/G using mid-upper arm circumference (MUAC) and timely referral to the appropriate care.
- Nutrition Cluster linkage and collaboration with the Food Security and Agriculture Cluster to enrol vulnerable households with pregnant and lactating women discharged from the community-based management of acute malnutrition programme in food security and livelihood interventions such as general food distribution, food for assets and other cash-based interventions in priority districts.

2. Provide preventive nutrition services to 1.8 million pregnant and lactating women

- Improving pregnant and lactating women's knowledge and practice via one-to-one counselling at facility and community levels and in close collaboration with antenatal care, postnatal care and the community health system.
- Pregnant and lactating women targeted with blanket supplementary feeding in areas with high prevalence of global acute malnutrition or in other identified vulnerable pockets.
- Approximately 1.3 million pregnant and lactating mothers targeted for iron and folic acid supplementation.
- The Nutrition Cluster and its partners provide cash and voucher assistance to at least 550,000 pregnant and lactating women and mothers of children younger than two years of age to improve dietary diversity and the mothers' capability of identifying acute malnutrition among their children through the family MUAC approach.

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Funding for humanitarian responses

Funding, including funding for women's nutrition, comes through several mechanisms, many of which are tracked through a financial tracking service hosted by the UN Office for the Coordination of Humanitarian Affairs (https://fts.unocha.org/). Cluster partners commit resources to carry out specific activities identified in the cluster response plans that are based on the country HRP. Funding for activities identified in HRPs is provided through a diverse set of donors, including both governments and other institutional donors, which is disbursed to partners through various channels.

Country-based Pooled Funds are set up for complex humanitarian crises and are managed at country level, helping to ensure that funding is prioritised locally by those closest to the people in need. Funds are assigned to the highest priority projects that help to support the strategic directives of the HRP. Central Emergency Response Funds (https://cerf.un.org/) allow governments, international organisations and private donors to pool funds into a global pot on an ongoing basis. This ensures that money is immediately available in the event of a sudden onset crisis or when a humanitarian situation rapidly deteriorates. Both funding pools are available to both UN and non-UN agencies. While these funds only make up a small percentage of the total funding for humanitarian assistance, they play an important role in helping to ensure timely financing that is responsive to needs[15].

Historically, most humanitarian funding is made up of short-term grants. However, as previously discussed, protracted crises are becoming increasingly common, highlighting the need for multi-year humanitarian financing and the need for development activities and funds. The Grand Bargain agreement launched in 2016 is particularly relevant as it contains commitments to increase collaborative humanitarian multi-year funding, increase the use and coordination of cash-based programming, and enhance engagement between humanitarian and development actors[16].

According to the key informant interviews, funding for women's nutrition in humanitarian contexts is especially lacking. While donors recognise the need to consider women and adolescent girls, including non-pregnant women, overall needs are so high, especially in the current climate, that available funds are prioritised for PLW/G and children under two years. This may partly be due to a lack of evidence and advocacy around the impacts of poor nutrition for women and adolescent girls in and of their own right compared to the evidence available for maternal and child nutrition programming within the first 1000 days of life which some key informants felt restricted the development of evidence-based funding applications for women and adolescent girls. Some key informants also described how a lack of programmatic guidelines can act as a barrier to partners applying for funding for programmes targeting women and adolescent girls in humanitarian contexts.

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4 The importance of women's and adolescent girls' nutrition in humanitarian contexts

Within humanitarian contexts, women and adolescent girls are among the most nutritionally at-risk. Their existing vulnerabilities, due to increased nutritional requirements and a lack of empowerment in some cases, may reduce resilience to shocks and can be exacerbated by contextual factors that drive – or result from – humanitarian crises. Climate change-related crises are also increasing in frequency and their impact on food security and nutrition is disproportionately felt by vulnerable populations including women[17]. Research indicates that climate change has a direct impact on the nutrition of women and adolescent girls through food insecurity due to unpredictable weather patterns and pests that influence the reliability of food supply chains, increased food prices, migration-related loss of livelihoods and increased rates of disease[18]. The COVID-19 pandemic has introduced additional vulnerabilities due to over-stretched health systems and disruptions to food supplies[19].[b] While targeting malnourished women and adolescent girls, particularly those who are pregnant or lactating, is a priority in humanitarian crises, there is limited evidence on maternal nutritional status and its determinants in such contexts[20] and little progress has been made since ENN's previous technical background paper on maternal nutrition in emergencies was published in 2013[1]. Food insecurity, reduced access to clean water, and disruptions in nutrition and health services within humanitarian contexts are

b Many agencies have explored the relationships between COVID-19, climate change and nutrition status and provided helpful primers and policy guidance. For example, Standing Together for Nutrition has a produced a recent gender policy brief that brings together many of the key facts and suggested policy actions in this area. https://www.standingtogetherfornutrition.org/st4n-gender-policy-brief

likely to increase the vulnerability of women in several ways (described below), impacting their own nutritional status as well as their ability to support healthy pregnancies and maintain optimal infant feeding practices and caregiving roles. Female-headed households are often especially vulnerable.

Increased nutritional requirements and reduced intakes

- Humanitarian crises such as climate events may impact women's allocation of labour and/or intensify workloads, increasing daily energy and nutrient requirements and the risk of maternal undernutrition and micronutrient deficiencies. This, in turn, increases the risk of adverse infant outcomes for PLW/G, as well as disrupting infant and young child feeding practices and childcare.
- Women disproportionately contribute to caregiving activities. These include disease prevention and other household activities, as well as health and social care activities within societies, with women comprising approximately 70% of the health and social care workforce in many countries. This means that women are more likely to be exposed to communicable diseases during humanitarian crises while often being less likely to receive timely medical attention compared to other demographic groups[21]. It also means that, because humanitarian responses often focus on children, they disproportionately impact women's time, for example social and behaviour change communication (SBCC) interventions and conditional cash transfer programmes can be very time intensive for women.

> "Women are more likely to be exposed to communicable diseases during humanitarian crises while often being less likely to receive timely medical attention compared to other demographic groups."

- The risk of diarrhoeal and infectious disease increases during humanitarian crises. This can result from mass migration and overcrowding, economic and environmental degradation, increased poverty, limited access to safe water, poor sanitation and waste management, the absence of shelter, and poor access to healthcare[21]. This may lead to the malabsorption or loss of nutrients, increasing requirements for micronutrients and causing or exacerbating micronutrient deficiencies. Young women and adolescent girls may be particularly affected due to their comparatively higher micronutrient needs (e.g., for iron) with the greatest impact falling on those who are pregnant or lactating. While fortified food rations may be supplied through humanitarian responses, these may fail to adequately meet micronutrient requirements[22,23].
- Women and adolescent girls are often most likely to restrict their food intake in favour of other family members during times of short supply, either voluntarily or due to social and gender inequalities[21].
- Some traditional food sources may be lost, impacting access to certain nutrients and reducing dietary diversity. For example, in settings where fish is a primary source of protein and other nutrients (such as essential fatty acids), the lack of access in humanitarian contexts may alter dietary profiles and increase the risk of deficiencies. While this affects the whole population, adolescent girls have some of the least diverse diet profiles to begin with, hence any reductions could have even greater impacts.

Increased risks for women and adolescent girls

- Gender-based violence (GBV) often increases during humanitarian crises as women's status in society makes them more vulnerable to exploitation, violence and abuse[24]. Forced transactional sex and early marriage may also be more likely, resulting in more adolescent pregnancies and associated risks for maternal (and infant) nutrition and health[21].
- Some evidence indicates that women may be at greater risk of mental health problems, such as anxiety and depressive disorders and post-traumatic stress disorders, during crisis situations[25].
- There can be unintended demands and adverse effects of the humanitarian response itself for women and adolescent girls, such as requirements to attend food distributions or participate in food-for-work initiatives which can increase women's exposure to risk, reduce time for caregiving and other important activities, and sometimes reduce their control over household resources.

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- Given that the number of overweight people now outweighs the number of undernourished people, the risk for women and adolescent girls of experiencing a 'double burden' of malnutrition in their households or as individuals is high. Households may have overweight mothers and undernourished children, or individuals may experience a combination of overweight and short stature, or overweight and micronutrient deficiencies[26,27]. This comes with considerable risks for non-communicable diseases (NCDs), such as diabetes and heart disease, and considerable challenges in providing appropriate support.

Disruption of services and support

- Access to routine health services (e.g., reproductive health services, antenatal care (ANC) and obstetric care, and prevention of mother-to-child transmission of HIV services) is often disrupted. Reduced access may increase the risk of unwanted pregnancies, HIV transmission, reduced access to interventions such as prenatal micronutrient supplementation, and pregnancy and delivery complications for mother and baby. This may be particularly problematic in settings where reproductive and maternal health services are already poor. Women's health and nutrition is also affected by the reduced access to safe water and sanitation and poor quality housing[28].
- Women may be disproportionately affected by barriers to accessing essential humanitarian services such as safety concerns, social- and gender-based discrimination or limited mobility[21].
- Negative impacts on infant and child feeding (e.g., disrupted breastfeeding and responsive caregiving practices) can arise due to physical and emotional stress during crisis situations. A lack of support services and family support can have adverse impacts on the growth, development, and health of infants while exacerbating maternal mental health challenges and resilience. This may be further complicated by higher incidence rates of preterm and low birth weight (LBW) deliveries which create a greater need for breastfeeding support.

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5 State of women's and adolescent girls' nutrition in humanitarian contexts

Malnutrition is a major source of mortality and morbidity for women, and potentially their future offspring, especially in humanitarian contexts. Since 1990, eight famines with estimated mortality exceeding 50,000 deaths have been recorded of whom the majority are among women and children[29]. Small-scale cross-sectional household surveys are the main source of data on the nutritional status of women and children during humanitarian crises. Surveys commonly use the Standardized Monitoring and Assessment of Relief and Transitions (SMART) method, and these are often conducted at the onset of an emergency and during the emergency to monitor trends. CEDAT, a database that compiled survey data from complex emergencies, identified 3,309 SMART surveys conducted between 2000 and 2013[29,30]. SMART surveys generally focus on anthropometry in children under five years and, increasingly, the mid-upper arm circumference (MUAC) of PLW/G. Anaemia is also sometimes assessed, either in PLW/G or women and girls of reproductive age (WGRA; 15-49 years). For example, a SMART survey in Afghanistan from April 2021 reported that 21% of PLW/G had a MUAC <23 cm; a SMART survey in August 2021 from Lebanon found that 42% of WGRA were anaemic and 5% of PLW/G had MUAC <23 cm[31,32]. Several peer-reviewed studies have also included the assessment of the state of women's nutrition in humanitarian contexts[33-35]. All local survey results need to be interpreted with caution, taking into account the specifics of each setting, because sampling issues, data quality problems, and challenges related to seasonality and population displacement are all common[29,36].

While data may be available on undernutrition (assessed by MUAC) and anaemia in PLW/G, there

is very little data on non-pregnant women and girls, nor on other forms of malnutrition or measures of dietary diversity. The below section describes some of the definitions of different forms of nutritional assessment for women and adolescent girls along with some of the current challenges.

Nutritional assessment

Data on the nutritional status of women and adolescent girls in humanitarian contexts is limited partially due to current challenges around nutritional assessment as well as a lack of appropriately evidenced interventions (see **Section 7**). In all contexts, the assessment of nutritional status in women and adolescent girls can include anthropometric, biochemical and dietary intake indicators. While the anthropometric definition of overweight is well-defined, short stature, thinness/underweight, and pregnancy weight gain all lack consistent, global definitions (see **Table 1**). Short stature in adult women (aged 20 years and above) is often defined as a height <145 cm, although this definition varies by country and context with <150 cm and <155 cm also commonly used. Anthropometric definitions of malnutrition are even less standardised in adolescents with multiple indicators, references and cut-offs being used[37]. There are no universally-agreed upon definitions of underweight in pregnancy, although MUAC cut-offs for admission into supplementary feeding programmes generally range between 21 and 23 cm[38]. For healthy gestational weight gain, the latest ANC guidelines from WHO[39] quote the Institute of Medicine's recommendations[40]:

- women who are underweight at the start of pregnancy: gain 12.5 – 18 kg
- women who are normal weight at the start of pregnancy: gain 11.5 – 16 kg
- women who are affected by overweight at the start of pregnancy: gain 7 – 11.5 kg
- women who are affected by obesity at the start of pregnancy: gain 5 – 9 kg

However, the practicalities of measuring gestational weight gain are very challenging in all contexts, but especially in humanitarian contexts since this requires weight measurements taken prior to, or at the start of, pregnancy and at the end of pregnancy.

Table 1: Anthropometric definitions of malnutrition for women and girls

Type of malnutrition	Girls (5-19 years)	Women (20+ years)
Overweight	BMI-for-age >+1 z-scores of the WHO 2007 growth reference[41]	BMI ≥ 25 kg/m²
Stunted/short stature	Height-for-age <-2 z-scores of the WHO 2007 growth reference[41]	Height <145 cm or <150 cm or <155 cm
Thinness	BMI-for-age <-2 z-scores of the WHO 2007 growth reference[41]	BMI<18.5 kg/m²
Underweight in pregnancy	MUAC <21 cm or MUAC <23 cm	

The assessment of women's micronutrient status involves biochemical assessments. Most commonly this involves a blood sample although certain vitamins and minerals may be assessed using samples from urine, breastmilk, hair or nails[42]. In clinical and research settings, a variety of tests can be done depending on the available resources but within humanitarian contexts the costs and logistics are often prohibitive. The most common biochemical indicator collected, in both stable and humanitarian contexts, is haemoglobin concentration in capillary blood for the detection of anaemia. In large-scale surveys and screening programmes, most often the anaemia assessment is made based on a pin prick in the fingertip, using a few drops of blood to obtain a rapid haemoglobin measurement from a portable HemoCue® machine. Very few other micronutrient deficiencies are assessed in humanitarian contexts unless populations start presenting with overt micronutrient deficiency diseases. There is an urgent need to develop more field-friendly techniques for earlier diagnosis; food-security tools and dietary assessments can be field-friendly options to assess and predict risks of nutritional deficiencies.

Dietary intake assessments can include 24-hour recalls with or without portion size estimation,

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prospective weighed records, or food frequency questionnaires. The data from these recalls can provide an estimate of energy and micronutrient intake. Although this method is valuable for assessing dietary adequacy, the process is often too burdensome to be used in large-scale population surveys, especially in humanitarian contexts.

MUAC-cut offs for identification of at risk PLW/G

Since it is not possible to collect accurate body mass index (BMI) measurements in pregnant women, MUAC is often used to identify at-risk PLW/G in humanitarian contexts due to the simplicity of the measure and its relatively strong association with the risk of LBW deliveries[43-46]. The Sphere minimum standards (see **Box 4**) recommend a MUAC cut-off of <21 cm to indicate thinness[47]; however, very limited literature is available on optimal cut-offs. An individual participant data meta-analysis included data from seven studies (from Bangladesh, the Democratic Republic of the Congo, Ethiopia, Malawi, Nepal, Pakistan and South Africa) with the aim of determining a universal MUAC cut-off for undernutrition in pregnant women[46]. The MUAC range investigated was 19 cm to 26.5 cm. The study found that identifying the optimal MUAC cut-off is a complex problem involving multiple trade-offs. If a cut-off with a high sensitivity is selected it is at the expense of specificity, thus healthcare systems must have the ability to handle large numbers of women who may be erroneously identified as 'at risk'. Similarly, a MUAC cut-off that prioritises a high specificity will ultimately lead to considerable numbers of women who are 'at-risk' not being identified as such. In addition, MUAC is also not always effective at identifying pregnant women who are at risk of delivering LBW infants. Subsequently, the meta-analysis concluded that countries and programmes should conduct their own cost-benefit analysis to determine the optimal MUAC cut-off for their specific context[46]. There is also currently a discrepancy between the assessment method used to identify at-risk pregnant women, especially in humanitarian contexts (i.e., MUAC) and that used to identify contexts where 'balanced-energy protein' (BEP) supplementation is warranted (i.e., BMI <18.5 kg/m^2) (see more details on BEP below in **Section 6** (policies) and **Section 7** (interventions)).

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6 Policies and guidance

While some guidelines for women's and girls' nutrition in humanitarian contexts are available at global level, these are often piecemeal and are not routinely reviewed and updated as needed. However, it should be noted that there are several key international guidelines for women's nutrition more generally and that their content remains relevant in humanitarian settings although operationalising them in crisis contexts is likely challenging. These include the WHO 2016 ANC guidelines[39], the 2022 WHO postnatal care (PNC) guidelines[48] and the WHO 2019 Essential Nutrition Actions[49]. Readers are referred to ENN's 2022 technical briefing paper[2] where the details of these guidelines are summarised. Furthermore, the existence of international guidelines does not always equate to the adoption of policies and recommendations at national level. For example, in 2018, UNICEF conducted a landscape analysis of 13 countries in the Eastern and Southern Africa region[50] to assess the extent to which national policies on maternal nutrition aligned with 16 key recommendations, 13 of which came from the WHO 2016 ANC guidelines[39]. Of the existing policies for maternal nutrition, none referred to the WHO 2016 ANC guidelines by name but most aligned with the recommendations. There were notable policy gaps, for example in context-specific recommendations regarding weekly iron and folic acid (IFA) supplementation, vitamin A and calcium

“There are several key international guidelines for women's nutrition more generally and their content remains relevant in humanitarian settings although operationalising them in crisis contexts is likely challenging.”

supplementation and IFA supplementation in non-pregnant adolescent girls. Furthermore, it was noted that the existence of a national policy did not necessarily translate into relevant programme delivery and is often not translated into national emergency preparedness plans[50].

In a broader review of global guidance from 2008-2018 covering the promotion of women's, newborns', children's and adolescents' health and nutrition in conflicts[51], the authors found 105 conflict-relevant guidance documents from 75 organisations. While nutrition was the health-related topic most frequently considered, only nine documents covered women's nutrition compared to the 36 covering children's nutrition.

Appendix 5 provides a detailed overview of the current international guidelines and inter-agency guidance available for those implementing women's nutrition programming in humanitarian contexts.

In summary, at the international level, there are several guidelines that advocate for the provision of **macronutrient supplementation**:

- The WHO 2016 ANC guidelines state that for undernourished populations, BEP supplementation is recommended for pregnant women. This is based on evidence showing that BEP supplements are associated with a decreased risk of stillbirth and small-for-gestational age (SGA) deliveries[39]. WHO is planning to have further discussions and consultations on BEP within the next two years to focus on its use within ANC settings and other women's health services.
- Both the joint UN agency 2004 manual52 and the 2019 WHO Essential Nutrition Actions[49] reiterate that fortified blended foods should be provided to PLW/G in humanitarian settings.
- The 2011 UNHCR and WFP guidelines for selective feeding[38] provide some limited detail on the type and content of supplementary food for treating moderately wasted women but no information for those with severe wasting. Furthermore, there is no updated UN guidance on treatment protocols for either moderate or severe wasting in adults (e.g., detailing dosage, admission and discharge criteria) beyond suggested volumes of therapeutic milks for severely malnourished adolescents and adults in the WHO (2000) guide[53].
- The Moderate Acute Malnutrition (MAM) Taskforce also recommend that all PLW/G up to six months postpartum who are moderately wasted should be included in a targeted supplementary feeding programme, regardless of their age[54]. While blanket feeding programmes often include supplementary feeding for those within higher risk groups, such as PLW/G, there are currently no standardised criteria or recommendations for the inclusion of PLW/G in blanket feeding as the literature base for the management of wasting primarily focuses on children. The decision to include PLW/G is context-specific and depends on a variety of factors such as the prevalence of LBW, national guidelines, the availability of other programmes, programme capacity, resources, and child feeding practices. If programme capacity is low in humanitarian crises, it is recommended that children be prioritised first, followed by breastfeeding women, although breastfeeding women are of course prioritised for the potential benefits for their infants[54].
- The harmonised training package developed under the Global Nutrition Cluster (GNC) provides some guidance on selective feeding for PLW/G with low MUAC and for adolescents and adults with MAM in Module 12[55].
- The Sphere minimum standards (**Box 4**) support these above principles, stating that PLW/G should have additional nutritional support and may be targeted with supplementary food[47].

> "There are currently no standardised criteria or recommendations for the inclusion of PLW/G in blanket feeding as the literature base for the management of wasting primarily focuses on children."

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Box 4: The Sphere minimum standards

Sphere is a global project that started in 1997 with the aim of improving the quality of humanitarian assistance[47]. It is based on the Humanitarian Charter which outlines the ethical and legal principles underpinning the Sphere project. These form its rights-based foundation:

- People have the right to assistance.
- People have the right to a life with dignity.
- People have the right to protection and security.
- People have the right to fully participate in decisions related to their own recovery.

The Sphere standards cover four primary life-saving areas: water supply, sanitation and hygiene promotion, food security and nutrition, shelter, settlement and non-food items and health action.

The minimum standards for each of these areas are set out in the Sphere Handbook along with indicators that can be used to track progress against them. The Handbook is regularly updated; an interactive online version can be found at https://handbook.spherestandards.org/en. The specific recommendations relevant for women's nutrition are detailed in **Appendix 5**.

For **micronutrient supplementation**, UN agencies recommend providing antenatal multiple micronutrient supplementation (MMS) in humanitarian contexts[56], regardless of whether fortified food rations are being provided. Note that in the context of routine ANC care the WHO (2016) recommendations for a positive pregnancy experience detail the provision of IFA supplementation for all women[39] and a 2020 update recommends MMS only in the context of rigorous research[57]. Recently MMS has been added to the WHO Essential Medicines List (EML) as an antenatal supplement for pregnant women and WHO will convene a further consultation on MMS in late 2022, focusing on the clinical and implementation research needs requested by the guideline development group. The recommended nutrient composition for MMS is provided in **Table 2**. Note that the WHO guidelines on point-of-use fortification state that multiple micronutrient *powders* during pregnancy are not recommended as an alternative to standard IFA supplementation58. For outbreaks of micronutrient deficiencies (thiamine, vitamin C and niacin), there are guidelines from 1999-2000 that remain appropriate (details in appendix 5).

For non-pregnant women and adolescent girls, the WHO recommends weekly IFA supplementation (WIFAS) in regions where the prevalence of anaemia in WGRA is higher than 20%[59]. In regions where anaemia prevalence is 40% or higher, daily iron supplementation is recommended[60]. Given the additional nutritional vulnerability of women and adolescent girls in humanitarian contexts, ensuring that micronutrient supplementation is implemented as part of normal programming, and maintained through humanitarian crises, should be prioritised.

Table 2: Recommended nutrient composition for MMS among PLW within humanitarian contexts[56]

Micronutrients	Dose
Vitamin A µg	800.0
Vitamin D µg	5.0
Vitamin E mg	15.0
Vitamin C mg	55.0
Thiamine (vitamin B1) mg	1.4
Riboflavin (vitamin B2) mg	1.4
Niacin (vitamin B3) mg	18.0
Vitamin B6 mg	1.9
Vitamin B12 µg	2.6
Folic acid µg	600.0
Iron mg	27.0
Zinc mg	10.0
Copper mg	1.15
Selenium µg	30.0
Iodine µg	250.0

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7 Intervention evidence and programming experiences

There is limited formal, peer-reviewed evidence regarding the delivery and impact of interventions for women's nutrition in humanitarian contexts. Despite growing academic interest in the humanitarian space (see **Box 5**), the methodological challenges of conducting research in these settings such as navigating dynamic security situations, restricted physical access to field sites, and limited survey and surveillance data limits the number of rigorous studies to learn from[61]. Given the challenges of conducting research in humanitarian contexts, case studies are more commonly available in the literature. This section brings together evidence and experiences gathered from published literature, grey literature, and key informant interviews.

> "The methodological challenges of conducting research in these settings such as navigating dynamic security situations, restricted physical access to field sites, and limited survey and surveillance data limits the number of rigorous studies to learn from."

A recent compendium of articles that brings together 10 case studies undertaken by members and partners of the Bridging Research & Action in Conflict Settings for the Health of Women and Children Consortium provides useful information about how humanitarian actors navigate and negotiate the challenges to the effective delivery of health and nutrition interventions for women, children and adolescents in conflict-affected settings[61]. In a summary of the case studies in the 2021 *Lancet* Series on Women's and Children's

Health in Conflict Settings, the authors found that, in general, ANC services, basic emergency obstetric and newborn care, comprehensive emergency obstetric and newborn care, immunisation, the treatment of common childhood illnesses, infant and young child feeding, and malnutrition treatment and screening tend to be prioritised in conflict settings[28]. However, many lifesaving women's and children's health services, including most reproductive, newborn, and adolescent health services, were absent in many conflict settings.

A recent systematic review by Shah et al. provides a useful synthesis on the delivery, coverage, and effectiveness of the nutrition programmes for conflict-affected women and children living in low and middle-income countries (LMICs) based on 38 relevant academic studies published between 1990 and 2018 and 53 non-research reports[62]. Most publications (n=58, 64%) reported on interventions targeting children under five years of age while 30% (n=27) reported on those targeting pregnant and lactating women; four studies targeted all women, four targeted women of reproductive age and 10 targeted adolescents. General food distribution (GFD) was the most frequently reported intervention, followed by micronutrient supplementation, nutrition assessment, nutrition education, breastfeeding and appropriate feeding, disease prevention and management, supplementary feeding, severe acute malnutrition (SAM)/MAM treatment, and food fortification.

Most recently, a 2021 Elrha literature review of health-related studies in humanitarian contexts found 32 studies related to nutrition over the past 30 years, the majority (40%) focused on childhood wasting[63]. Only one wasting study and one anaemia study focused on PLW/C[64,65]. Overall, the number of studies related to nutrition for women and adolescent girls was very low.

The following section describes current evidence and programming experiences for the most documented interventions for women in humanitarian contexts: micronutrient interventions, GFD and other macronutrient supplementation, nutrition education, breastfeeding support and care, and health-related interventions, as well as social assistance programmes and women's empowerment interventions.

> "Many lifesaving women's and children's health services, including most reproductive, newborn, and adolescent health services, are absent in many conflict settings."

Box 5: Examples of academic institutions and consortia conducting research in humanitarian contexts

- Elrha: https://www.elrha.org/programme/research-for-health-in-humanitarian-crises/
- London School of Hygiene and Tropical Medicine: https://www.lshtm.ac.uk/research/centres/health-humanitarian-crises-centre
- Johns Hopkins Centre for Humanitarian Health: http://hopkinshumanitarianhealth.org/
- Research for Health in Conflict (R4HC): https://r4hc-mena.org/our-work/wlhc/
- Geneva Centre of Humanitarian Studies: https://humanitarianstudies.ch/
- Centres for Disease control and prevention (CDC): https://www.cdc.gov/globalhealth/healthprotection/index.html
- Centre of Excellence in Women and Child Health, Aga Khan University: https://www.aku.edu/coe-wch/Pages/home.aspx
- Faculty of Tropical Medicine, Mahidol University: https://www.tm.mahidol.ac.th/

Micronutrient supplementation

One of the most reported nutrition interventions for women in humanitarian contexts, both in the literature and during key informant interviews, is micronutrient supplementation. This section describes the evidence from peer-reviewed literature followed by experiences of micronutrient supplementation programming for women in humanitarian contexts.

Evidence from the literature

Many of the known benefits of micronutrient supplementation are evident during pregnancy, preconception, or during the adolescent period. Iron deficiency is one of the most prevalent micronutrient deficiencies worldwide and supplementation has important benefits for women and girls throughout the life course. Iron deficiency anaemia reduces physical work capacity, productivity and income generation, impacts verbal learning, memory and physical performance in adolescent girls and is associated with premature

delivery, LBW and increased perinatal mortality in pregnancy[66]. Infants born to iron-deficient mothers also have a higher prevalence of anaemia in the first six months of life and maternal mortality is increased in women whose haemoglobin levels fall to below 6–7 g/dL[67].

Much of the evidence for the positive impacts of supplementation with other micronutrients focuses on the period of pregnancy, including iodine, vitamin A, folic acid, calcium, zinc and vitamin D supplementation[68]. While vitamin A supplementation in deficient populations is associated with a reduced risk of night blindness and anaemia during pregnancy, excessive doses in pregnancy (>10 000 IU/day) have been associated with an increased risk of cranio-facial and cardiac birth defects in infants[69].

The most commonly reported micronutrient supplementation intervention for women and adolescent girls in humanitarian contexts is IFA supplementation for PLW/G (six studies in a recent systematic review)[62]. This was supported by our key informant interviews. IFA supplementation is often delivered as part of routine ANC by health workers in community-based health clinics or mobile clinics run by NGOs. Other examples of targeted micronutrient interventions from humanitarian contexts include thiamine supplementation for pregnant women such as on Thailand's western border area where infantile beriberi was the leading cause of infant deaths in a camp for displaced persons of the Karen ethic minority[64,70], the provision of stainless steel cooking pots in a Tanzanian refugee camp to evaluate their effectiveness in reducing iron deficiency anaemia (they had no impact on iron status)[71] and vitamin C supplementation in Afghanistan following an outbreak of haemorrhagic fever in 2022 which was related to scurvy[72].

In humanitarian contexts, due to the increased risk of multiple micronutrient deficiencies, the WHO recommends daily MMS for all PLW/G56 (see **Section 6** on policy and guidance). There has been much debate in recent years about the benefits of MMS during pregnancy versus the standard recommended IFA. There is strong evidence that antenatal MMS has positive impacts on LBW, SGA deliveries and stillbirths[73,74]. However, the WHO does not currently recommend MMS for all PLW/G in all contexts stating that the "evidence on LBW and its component parts (preterm birth and SGA) is difficult to interpret"[57]. The WHO has also stated that there is uncertainty regarding the implications of reducing iron dosage from 60 mg (commonly used in IFA supplementation) to 30 mg (typical in MMS formulations, see more in **Box 6**). In our section on 'programming experience on MMS vs IFA' below, we provide an example of how the complexity of policies on micronutrient supplementation impact humanitarian programming.

Box 6: MMS vs. IFA

MMS is formulated to contain the Recommended Daily Allowance of 15 micronutrients. The formula most used is the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP). It contains the following doses of micronutrients:

- Iron 30 mg
- Zinc 15 mg
- Copper 2 mg
- Selenium 65 µg
- Iodine 150 µg
- Vitamin A 800 µg retinol equivalent (RE)
- Vitamin B1 1.4 mg
- Vitamin B2 1.4 mg
- Vitamin B3 (niacin) 18 mg
- Vitamin B6 1.9 mg
- Vitamin B9 (folic acid) 400 µg
- Vitamin B12 2.6 µg
- Vitamin C 70 mg
- Vitamin D 200 IU
- Vitamin E 10 mg

- When compared to IFA, MMS reduces LBW by 15%, stillbirth by 9%, pre-term birth by 4%, and SGA deliveries by 7%[73]
- MMS compared to iron with or without folic acid has similar benefits for reducing maternal anaemia[74].
- Sub-analysis has shown additional benefits of MMS for anaemic or underweight women[75].

The systematic review by Shah et al. found only one study in conflict settings that provided MMS to women, in Dadaab refugee camp in Kenya[62,76]. Due to the combination of foods being provided, including MMS to pregnant women and highly iodised salt to the general population, the study found evidence of excess urinary iodine concentrations. One study in a Kenyan refugee camp provided a multiple micronutrient powder

(MixMe) as part of GFDs and found it was associated with a small improvement in the iron status of WGRA but no significant change in haemoglobin levels[77]. To date, the documentation of antenatal MMS in humanitarian contexts is remarkably limited. ENN has recently completed a short case study drawing together experiences on this topic from government, UN and implementing partners in Madagascar[78].

Besides PLW/G, the WHO recommends WIFAS for non-pregnant women and adolescent girls in regions where the prevalence of anaemia in WGRA is higher than 20% (also see **Section 6** on policy). Although adolescent-specific data is lacking globally, it is estimated that ~30% of adolescents are anaemic[79]. Iron deficiency anaemia is the biggest causes of disability-adjusted life years in adolescents globally, both girls and boys[80]. Anaemia in adolescent girls can result in poor school performance, challenges to concentration, loss of economic productivity, fatigue, and poor reproductive health[81]. Being an adolescent also increases the risk of maternal anaemia during pregnancy. The WHO-recommended formulation of WIFAS has been found to reduce anaemia in WGRA and new evidence suggests it may also reduce neural tube defects in potential future offspring[82]. We found no evidence in the literature on the implementation or effectiveness of WIFAS in humanitarian contexts (see paragraph below for more details related WIFAS programming experiences).

Programming experiences: MMS vs IFA

Despite the recommendation for daily MMS for PLW/G in humanitarian contexts[56], few affected countries are currently implementing MMS. According to our key informant interviews, since humanitarian responses focus on maintaining (or extending) national health service provision, micronutrient supplementation will typically be maintained according to existing national guidelines. As such, countries that are providing IFA as routine standard of care will continue to do so in the event of a humanitarian crisis rather than switching to MMS. Furthermore, there is a lack of specific guidance on the contexts where MMS may be warranted and MMS was only recently added to the WHO EML in October 2021.

> “Context-specific implementation guidance on where and how MMS should be used is lacking and needs to consider various potential operational, service delivery and socio-cultural barriers.”

However, the addition of MMS to the EML has made MMS an accessible and affordable alternative to IFA for PLW/G and may motivate and support more countries to adapt their national policies thereby allowing for the integration of MMS into health systems and supply chains[83]. Global partners, including UNICEF, the Healthy Mothers Healthy Babies Consortium, Nutrition International, and Save the Children, are working with governments to support their decision-making around this, providing evidence and advocating for MMS where relevant (see **Appendix 6** for a summary of a recent UNICEF advocacy brief detailing five key reasons to scale-up the use of MMS). However, context-specific implementation guidance on where and how this should be done is lacking and needs to consider various potential operational, service delivery and socio-cultural barriers, including forecasting, procurement and distribution, funding, and sustainability as well as buy-in and acceptability at both national and community levels[84]. In addition, challenges around coverage, uptake and adherence which currently affect some IFA programmes will continue to be a problem in MMS programmes unless adequately addressed.

Programming experiences: WIFAS for non-pregnant women and girls

Since 2015, Nutrition International has worked with national and subnational governments to implement WIFAS and nutrition education in six African and Asian countries (India, Indonesia, Kenya, Senegal, Ethiopia and Tanzania). In most countries, WIFAS has been delivered in schools with some (e.g., Ethiopia and India) also including community-based platforms to reach out-of-school adolescent girls[85]. Currently, WIFAS is recommended by the WHO in the formulation of 60 mg iron and 2.8 mg folic acid. However, this supplement formulation is often not available and programmes resort to giving IFA supplements designed for daily use by PLW/G. Nutrition International worked with UNICEF to include appropriate IFA supplements in the UNICEF supply catalogue in 2019; however, they are still excluded from the WHO EML. This continues to restrict countries from prioritising and accessing supplements and is a major barrier to the implementation of WIFAS programmes in all contexts. Nutrition International are in the process

of putting together an application to include the adolescent IFA formulation in the WHO EML based on current evidence[86].

While Nutrition International does not routinely work in humanitarian contexts, the COVID-19 pandemic and school closures severely disrupted its supported WIFAS programmes in all countries and required various adaptations to routine programming including providing additional IFA tablets to cover the period of school closures, delivering IFA tablets to homes, and adapting digital platforms to continue nutrition education, data collection and monitoring. The various, context-specific adaptations contributed to increasing WIFAS coverage in all six countries and averting approximately 1.2 million cases of anaemia, demonstrating how WIFAS and other programmes targeting adolescent girls can be adapted in response to humanitarian crises. However, better advocacy to support adolescent nutrition programmes across LMICs is needed with a particular focus on diversifying platforms beyond schools to ensure that those who are out-of-school (for any reason, including a humanitarian crisis) continue to be reached.

Similar findings have been demonstrated in Afghanistan where WIFAS is being implemented by UNICEF for school-going adolescent girls (aged 10-19 years) in all provinces alongside nutrition and reproductive health education and deworming[87]. This programme has been integrated with Afghanistan's National School Health Policy and other initiatives, such as Menstrual Hygiene Management, to improve school retention and learning as well as to build a continuum of care for the nutrition of adolescent girls and women. Those exposed to the programme demonstrated increased awareness and understanding of anaemia and its symptoms as well as higher mean haemoglobin levels. However, reaching out-of-school adolescent girls was a significant challenge and this was exacerbated by frequent school closures due to insecurity, natural disasters, and weather conditions. The expansion of the programme out of schools, including through Accelerated Learning Centres, has since been explored.

> "Better advocacy to support adolescent nutrition programmes across LMICs is needed with a particular focus on diversifying platforms beyond schools."

Macronutrient supplementation

This section describes peer-reviewed evidence and programming experiences of providing macronutrient supplementation to women and girls in humanitarian contexts, including GFD, supplementary specialised nutritious food (SNFs), and balanced BEP supplements. Additional micronutrients may also be provided through fortified food distributions. While GFD programmes are usually targeted at vulnerable households, which may include women and adolescent girls, other macronutrient supplementation interventions often prioritise PLW/G (either blanket or based on underweight status) due to evidence of a positive impact on infant outcomes.

Evidence from the literature

GFDs are necessary for many crisis-affected populations since they often lack access to adequate nutrients due to a lack of farming opportunities, earning opportunities, and quantity and diversity of available foods. This means that pregnant women are especially vulnerable to energy and micronutrient deficiencies given their heightened requirements (see **Table 3** for the nutritional requirements of non-pregnant, pregnant, and lactating women). Maternal calorific intake and micronutrient status are important determinants of both maternal and neonatal outcomes. Four studies in humanitarian contexts reported on specific food rations for pregnant women as part of the GFD to meet extra nutrient requirements[62,64,88,89]. These generally showed improved micronutrient status of pregnant women and improved birth outcomes. For example, one study in a refugee camp in Thailand in 2004 reported on improvements made to the GFD and rations for pregnant women based on the relatively high proportion of SGA births occurring (29%). The general food ration was improved to include micronutrient-fortified flour and an additional food supplement of oil, beans and fish was provided to pregnant women at ANC visits. The authors found improved zinc and α-tocopherol status which was likely due to the micronutrient-fortified flour and oil and improved thiamine and folate concentrations in late pregnancy due to the supplements provided during ANC. They also found that mothers who had longer exposure to the new ration during pregnancy had a reduced risk of SGA births[64,89]. Two studies reported on delivering food rations to survivors of sexual and GBV[90,91].

Table 3: Nutritional requirements of non-pregnant, pregnant and lactating women >18 years of age. (Source: references[92,93])

Micronutrients	Non-pregnant	Pregnant	Lactating
Energy (kcal/d)	2403	+ 300 on average across pregnancy (T1: +0; T2: +340; T3: +452)	+ 330 (first 6 months) + 400 (second 6 months)
Protein (g/d)	46	+ 14	+ 25
Carbohydrates (g/d)	130 45–64% total energy (including six to nine servings of whole grains)	+ 45	+ 80
Total fat (% total energy)	20–35% total energy		
Vitamin A (µg/d)	700	770	1,300
Vitamin D (µg/d)	5	15	15
Vitamin E (mg/d)	15	15	19
Vitamin K (µg/d)	90	90	90
Folate (µg/d)	400	600	500
Niacin (mg/d)	14	18	17
Riboflavin (mg/d)	1.1	1.4	1.6
Thiamine (mg/d)	1.1	1.4	1.4
Vitamin B6 (mg/d)	1.3	1.9	2
Vitamin B12 (µg/d)	2.4	2.6	2.8
Vitamin C (mg/d)	75	85	120
Calcium (mg/d)	1,000	1,000	1,000
Iron (mg/d)	18	27	9
Phosphorus (mg/d)	700	700	700
Selenium (µg/d)	55	60	70
Zinc (mg/d)	8	11	12

Other studies have found that food distribution programmes are associated with reductions in prenatal and neonatal mortality, LBW, and stunting and wasting in children younger than five years of age[73,94,95]. However, they have not demonstrated any significant impacts on maternal mortality[73]. The *Lancet* (2021) Series on Maternal and Child Undernutrition Progress stated that, although food distribution programmes appear to have benefits, more targeted and specialised BEP supplements will likely have greater effects[73].

It has long been recognised that there are gaps in evidence, protocols, and guidelines for adults and adolescents with wasting[96] and this may be most consequential for women and girls, hence these need to be urgently addressed for this population. According to the key informant interviews, many programmes use fortified cereal products for undernourished or wasted PLW/G in humanitarian contexts, such as fortified corn-soy blended (CSB+) flour. For example, in response to a nutrition evaluation in refugee camps in Jordan

which found 6.3% of PLW/G were moderately malnourished (based on MUAC <23 cm), the WFP introduced a Targeted Supplementary Feeding Programme using 250 g/day of 'Supercereal Plus' to treat moderately malnourished Syrian women both in camps and in urban communities[97]. They report that the treatment was largely effective, however, some of the main challenges were related to Syrian refugee women's acceptance of the taste of SuperCereal Plus. This was a product that they had not used or eaten before. However, this was successfully addressed using sensitisation sessions and awareness campaigns about the use and benefits of SuperCereal Plus, including cooking demonstrations, as well as encouraging the beneficiaries to add condiments such as honey, fruits, sugar, and salt to improve the taste of the product.

Lipid-based nutrient supplements (LNS) (**Box 7**), which are commonly used to treat wasting in children, present another option for supporting the nutrition of women and adolescent girls in undernourished populations. LNS provide energy, protein, and essential fatty acids as well as a range of vitamins and minerals[95]. The long storage life and ready-to-eat formulas (no need to add water) make LNS an attractive option for many humanitarian contexts. However, the cost can be prohibitive and certain products, such as ready-to-use therapeutic food (RUTF) are in limited supply globally and therefore need to be prioritised for children[95]. RUTF in the form of biscuits (such as BP100) rather than a paste is another option sometimes used for treating undernutrition in PLW/G. Recently a number of randomised control trials have investigated the effect of LNS on maternal and infant outcomes with mixed effects reported depending on the context and LNS composition[98-101]. A recent Cochrane review (2018) that analysed the impact of LNS irrespective of composition, dose, or duration of supplementation, found that LNS in pregnancy had positive impacts on birth weight, length and the risk of SGA neonates when compared to IFA supplementation but no benefit for maternal or birth outcomes when compared to MMS[95]. Another recent meta-analysis of 58 studies with 101,553 mother–infant pairs found that prenatal LNS significantly increased mean infant birthweight, birth length, arm circumference, and weight-for-age z-score compared with IFA, MMS and CSB[102]. Neither review found any literature relating to humanitarian settings (likely due to the difficulties of conducting research in these settings) and the Cochrane review did not make recommendations due to the small number of studies and small effect sizes.

While supplementation programmes, both macro- and micronutrient, are often aimed at pregnant and lactating mothers, the effects of postnatal supplementation (i.e., during the first 3-6 months postpartum) are even less well evidenced. There are mixed results on the impacts of LNS supplementation to breastfeeding women, on both infant growth and breastmilk quality outcomes[103,104]. More research is required to understand how macronutrient supplementation such as LNS impacts breast milk quality and production and the micronutrient status of breastfeeding women. In addition, key informants highlighted that a lack of clarity in this area can affect programming; breastfeeding women are not often prioritised for increased food rations and it is unclear at what point postpartum BMI can be used to assess nutritional status.

Box 7: Lipid-based nutrient supplements (LNS)

- LNS describes a large range of products but all are characterised by most of their energy being supplied from fat.
- Three primary LNS products are currently used to treat and prevent child undernutrition and occasionally interventions also provide them to PLW/G with the aim of improving the foetus'/ infant's nutritional status[95]:
  - **Large-quantity (LQ) LNS** (180-200 g/day) that aim to provide 100% of nutritional needs; for example, ready-to-use therapeutic food. These are primarily used to treat severe childhood wasting.
  - **Medium-quantity (MQ) LNS** (45-90 g/day) that provide 50-100% of energy needs: for example, ready-to-use supplementary food. These are primarily used to treat moderate childhood wasting
  - **Small-quantity (SQ) LNS** (approx. 20 g/day) that provide less than 50% of energy needs but have high micronutrient concentrations. These are used for home fortification of local foods. The product is used to prevent childhood stunting and sometimes to prevent micronutrient deficiencies such as anaemia.

Photo credit: ©WFP/Sayed Asif Mahmud

The WHO recommendation for macronutrient supplementation for pregnant women in contexts with high prevalence rates of underweight has introduced a new term 'balanced-energy protein' (BEP) supplements (see more on this recommendation in **Section 6** on policy and guidance). BEP supplements are defined by most studies as providing less than 25% of total energy as protein[105]. Most LNS products and CSB+ flours qualify as BEP based on this crude definition (**Table 4**). Research has found an association between BEP supplementation in pregnancy and a decreased risk of stillbirth and SGA deliveries[39] and a positive impact on birthweight[73,105-108]. However, evidence of the longer-term impacts on infant growth or neurocognitive development is inconclusive[107,108]. In contrast, high energy-protein supplementation is not recommended in any context[39]. High energy-protein supplements are formulated to provide more than 25% of total energy from protein[105]. There is no evidence that high energy-protein supplements are beneficial to the foetus; instead, supplementation for pregnant women has been associated with an increased risk of SGA neonates[105,107].

While the evidence is clear on the benefits of BEP, the corresponding policy currently has a number of gaps including the exact definition of a BEP product. Different formulations of BEP have been explored by a number of studies, and were summarised in a Bill and Melinda Gates Foundation consultation in 2017[109]. This identified 12 studies that provided energy protein supplementation, ranging from 273 kcal to 1017 kcal energy and 14 g to 50 g protein in a wide variety of forms including flavoured milks, biscuits, sesame cakes, and cheese.

Following the review, an expert group made recommendations for the content requirements of BEP (**Box 8**). This includes a minimum content of micronutrients, energy, and essential fatty acids based on the evidence. This more stringent definition means that no existing products qualify as BEP (**Table 4**). There is currently an on-going trial in Burkina Faso using an MMS-fortified peanut-based LNS paste that would meet this new definition of BEP[110]. There was also a recent study on the acceptability of 11 novel, fortified BEP products in Nepal, meeting the Gates Foundation definition, that concluded sweet LNS and 'seasoned pastries' were the most acceptable products for pregnant women in their study[111]. A similar study in Burkina Faso indicated that women preferred sweet rather than savoury products and familiar products[112].

Box 8: Gates consultation on BEP content recommendations[109]

Total energy: 250-500 kcal per daily serving

Fat Content: 10-60% of energy

Protein Content: 16 g (range 14-18 g) (approx. 25-13%) with a Digestible Indispensable Amino Acid Score (DIAAS) of ≥0.9 (DIAAS score is a method of scoring protein quality)

Carbohydrate (CHO) Content: No specific recommendations and depends on the fat content of product type

Trans Fats: No more than 1% as a standard safety requirement

Fatty Acid *(optional)*: Min of 1.3 g of n-3 or 300 mg DHA+EPA (Docosahexaenoic acid and eicosapentaenoic acid, of which 200 mg should be DHA) to achieve a healthy n-6:n-3 ratio of the supplement of 5:1

Also, the expert panel recommended that BEP should be fortified with the estimated average requirement of micronutrients including vitamins A,D,E,K, Thiamine, Riboflavin, Niacin, B6, Folate, B12, iron, zinc, iodine, calcium, phosphorous, copper and selenium. Most of these are included in the standard 'UNIMMAP' mix, but some additional ones are needed, namely iodine, vitamin K, calcium and phosphorous.

The best 'formats' of the supplement were voted as 'spreads', 'biscuits', 'bars', 'extruded snacks' or 'instant drink powders'.

Table 4: Specialised nutritious food products for PLW/G: are they BEP?

Product name (manufacturer, country)	BEP (<25% caloric content is protein)	Fortified with micronutrients	BEP (recommendations as per Gates consultation)	Notes
Plumpy'Mum™ (Nutriset, France)	Yes	Yes	No. Exceeds max vitamin A requirement, low calcium, missing vitamin K and phosphorus	LQ-LNS paste. Recommended by UNICEF as 'BEP'. Energy 515 kcal, protein 14.4 g (11%)
Enov'Mum™ (Nutriset, France)	Yes	Yes	No. Too low energy, too low protein	SQ-LNS paste, 119 kcal, protein 2.6 g (9%).
Growell®Mum (Nutriset, France)	Yes	Yes	No. Too low energy, too low protein	SQ-LNS Paste. 120 kcal, protein 2.6 g (9%)
mamaProtinex® (Danone, India)	No	Yes	No. Too high protein %, too low energy	Powdered drink, 90 kcal, protein 8 g (35%)
Prohance™ Mom (Sun pharmaceuticals, India)	No	Yes	No. Too high protein %, too low energy	Powdered drink, 105 kcal, protein 8 g (30%)
Super Cereal (CSB+) (standard formula as per WFP and UNICEF specifications)	Yes	Yes	No. Missing micronutrients, need to consume >100 g for adequate energy calories	Dry porridge, 40 g serving = 152 kcal, protein 5.3 g (14%)
Super Cereal Plus (CSB++) (standard formula as per WFP and UNICEF specifications)	Yes	Yes	No. Missing micronutrients, need to consume >100 g for adequate energy calories	Dry porridge, 40 g serving = 164 kcal, protein 6.6 g (16%)
Acha Mum (WFP Pakistan)	Yes	Yes	No. Slightly too little protein, some micronutrient content too low (vitamins A, K, folic acid, calcium, iron)	Paste, 520 kcal, protein 13 g (10%)
MamaBix® (Violet Health, USA)	Yes	Yes (IFA and vit C only)	No. Too low energy, too low protein	Biscuits, 167 kcal, protein 2.8 g (7%).
Plumpy'Nut™ (Nutriset, France)	Yes	Yes	No. Slightly too little protein, some micronutrient content too low (vitamins A, K, folic acid, calcium, iron)	Paste, 500 kcal, protein 12.8 g (10%)
Plumpy'Sup™ (Nutriset, France)	Yes	Yes	No. Low iron and iodine	Paste, 537 kcal, protein 12 g (9%)

Programming experiences: supplementary feeding programmes and distribution of specialised nutritious food (SNF)

In most humanitarian responses, PLW/G are supported with specialised nutritious food (i.e., LNS or CSB), with complementary SBCC. These are usually targeted to those identified as undernourished based on MUAC but sometimes they can be provided for all PLW/G, regardless of anthropometric status. This is usually undertaken by the WFP, as per its remit in humanitarian crises although other agencies such as the International Committee of the Red Cross and Médecins Sans Frontières also support these activities. This response builds on existing GFD strategies which provide food rations to vulnerable households during humanitarian crises to reduce the risk of household food insecurity. According to the key informants, since the nutritional needs of PLW/G are higher than those of the general population, the WFP often tops up the general food distribution ration to all PLW/G with Super Cereal (a fortified blended flour containing maize, de-hulled soya beans, dried skimmed milk powder, sugar, vegetable oil and a vitamin and mineral premix) to improve nutritional adequacy. However, data regarding which and how many PLW/G are supported in humanitarian emergencies is scarce. In addition, the concentration of certain micronutrients within Super Cereal are known to degrade relatively quickly in hot temperatures (it lasts six months at 40° Celsius) resulting in some women receiving under-fortified products where there have been logistical issues. In some instances, the Super Cereal top up is only targeted at PLW/G in the most vulnerable households or only during the 'lean' season. The nature and extent of these programmes is determined by several factors including food insecurity thresholds, changes in the nutritional status of vulnerable groups such as women and young children, rates of LBW, and impacts of the crisis on infant and young child feeding (IYCF) practices. Decisions are further influenced by national nutrition protocols, health system capacity, logistics and security constraints, and the availability of resources. While the WFP's response aims to align with available international policy and guidance on supplementary feeding

> "Data regarding which and how many PLW/G are supported in humanitarian emergencies is scarce."

Photo credit: ©WFP/Photolibrary

for PLW/G, it increasingly supports government policies and guidelines where available.

Interviews confirmed that targeted approaches to treating undernourished or 'wasted' PLW/G based on MUAC definitions are also usually implemented alongside child wasting programmes. The Sphere Handbook recommends admitting any breastfeeding mothers of acutely malnourished infants under six months to supplementary feeding programmes, independent of maternal nutrition status (**Appendix 5**). Some agencies have written their own internal guidance on how to treat undernourished women but these documents are not publicly available. Discharge criteria for PLW/G in such programmes are not globally defined, hence some programmes discharge once MUAC is >21 cm or >23 cm, or once the child is born, or until their infant reaches six months of age. Since anthropometry is a proxy for nutritional status and not always embedded in functional outcomes, functional discharge criteria, such as hand grip strength, might be more useful and should be explored by future research. Commonly, fortified CSB flours are provided as treatment, however, in some instances LNS products may be provided, such as small-quantity (SQ)-LNS or Plumpy'mum™ (large-quantity (LQ)-LNS) where resources allow. In 2021, the WFP distributed 311,000 metric tons of SNF of which about 36% was Super Cereal for PLW/G and children and 1% was LNS for PLW/G[113]. While a dosage of 100–200 g of CSB+ (with 10–20 g oil) is used in blanket feeding to prevent undernutrition in PLW/G, a dosage of 200–250 g (with 20–25 g oil) is used to treat wasting. While screening for wasting in PLW/G is becoming more commonplace in humanitarian responses, it usually

takes place as part of community management of acute malnutrition (CMAM) services for children under five years of age. However, it has been suggested that supplementary feeding programmes for PLW/G would be better placed if incorporated into ANC and PNC services which could simultaneously encourage attendance at ANC/PNC services, improve nutrition outcomes (for women and their infants), and reduce maternal mortality[114].

During the 2021 Ethiopian civil conflict, a very high proportion (up to 70%) of PLW/G were thought to be undernourished which presented challenges for the response including which agency should take the lead (UNICEF or the WFP) and how to manage this burden alongside high numbers of children with wasting, high global food prices, global shortages of LNS products, and disrupted global and national transport logistics. Other challenges associated with the provision of SNFs to PLW/G reported by the key informants included the low acceptability of RUTF pastes among women who found it too sweet especially at the large number of prescribed sachets. There were also perceptions of supplementation leading to a bigger baby which might cause complications during birth. While documented evidence on these potential associations is scarce, it was stressed by several key informants that regardless of this particular perception, there are several reasons why it makes sense for supplementary feeding programmes for PLW/G to be placed within ANC services where any pregnancy-related complications can be monitored and addressed and supported with good obstetric care.

Programming experiences: developing new SNF products for PLW/G

Given the evidence and recommendations around BEP supplementation for PLW/G (discussed above), the WFP and the Bill & Melinda Gates Foundation, with others, are currently exploring alternatives to Super Cereal which meet the BEP specifications, address concerns around household sharing, and consider factors related to transportation and consumption. For example, while the WFP feels that existing formulations of SQ-LNS may contain insufficient calories for PLW/G in humanitarian settings, it has been working on an alternative formulation for this group (LNS-PLW/G –75 g) which has recently been piloted in Uganda. While the product was widely accepted during the pilot, issues around the visibility and prioritisation of women's nutrition, and therefore insufficient funding and markets for production, have limited progress towards broader implementation. In Pakistan, a locally produced LNS-PLW/G product is currently being delivered as part of a social protection programme at a cost of approximately 0.04 cents more per ration than Super Cereal. However, this product does not currently meet the Bill & Melinda Gates Foundations BEP recommendations and the WFP are working with the government to address this.

Nutrition education interventions

There is a well-established association between higher educational status and improved nutritional status such as a reduced prevalence of anaemia among women[34]. While this evidence does not necessarily reflect a causal link (for example, socio-economic status could be one of the causes that explains this association), nutrition education/counselling could be one means of addressing the observed associations. Nutrition education interventions are commonly reported during humanitarian responses, however, they almost exclusively focus on messages about IYCF and the success indicators are largely related to infant and child growth[62]. Breastfeeding education and support, one part of IYCF education interventions, is discussed in the next section. Nutrition education is usually included as part of ANC and has been found to promote adherence to micronutrient supplements in stable contexts[115]. Key informants explained that nutrition education or SBCC interventions are often planned for implementation alongside social assistance programmes or SNF distribution although the quality of their implementation in busy, high-pressure settings such as these is sometimes questionable. There is only one published study that reported providing nutrition education, alongside breastfeeding support and ANC-related messaging, to women in a humanitarian context and that was a food safety education intervention to refugees in Cameroon. This was due to a konzo disease outbreak that particularly affected women and children[116]. The study did not evaluate the nutrition intervention but simply described the case presentations and response.

> "Nutrition education interventions are commonly reported during humanitarian responses, however, the success indicators are largely related to infant and child growth."

While few guidelines for humanitarian contexts stress the need for nutrition education/counselling beyond IYCF messages, more general guidance for stable contexts does highlight its importance. This includes the WHO 2019 Essential Nutrition Actions which state that in "undernourished populations, nutrition education on increasing daily energy and protein intake is recommended for pregnant women to reduce the risk of LBW neonates" (**Appendix 5**). Standardised ANC counselling cards that are used in both stable and humanitarian contexts generally include dietary advice for pregnant and lactating women, suggesting that this is being implemented in practice. The few studies and reports that exist from stable contexts suggest that well-implemented nutrition education can have positive effects on women's nutrition. However, there is very little evidence to draw on for humanitarian contexts regarding the extent, quality, and impact of nutrition education/counselling in practice.

Breastfeeding care and support

Breastfeeding care and support are fundamental services in humanitarian contexts for both the infant and the mother. As well as having established health benefits for infants, breastfeeding supports maternal wellbeing and caregiving capacity, has protective effects against cancers in the mother and sudden disruptions to breastfeeding can lead to infections[117]. In humanitarian contexts the associated practical and psychological factors make breastfeeding particularly challenging and the alternatives (formula or the early introduction of complementary foods) particularly risky. The Infant Feeding in Emergencies (IFE) Core Group was established in 1999 to address important gaps in policy, guidelines and resources (**Box 9**). The global IFE Operational Guidance[118] (updated in 2017) provides concise practical guidance for humanitarian settings including:

a) Appropriate assessment of breastfeeding challenges

b) Provision of a package of breastfeeding support services

c) Support for safe and appropriate alternative feeding (e.g., formula feeding) where required for non-breast-fed infants and children while minimising disruption of breastfeeding

d) Adherence to the International Code of Marketing of Breastmilk Substitutes, subsequent relevant World Health Assembly resolutions, and national law on the marketing of breastmilk substitutes, where it exists.

Box 9: Infant Feeding in Emergencies (IFE) Core Group

- The IFE Core Group is co-ordinated by ENN and comprises both individuals and agencies, including organisations such as the WFP, the United States Agency for International Development, Save the Children, the Global Nutrition Cluster, UNICEF, WHO, World Vision, Concern and Médecins Sans Frontières.
- The IFE Core Group does not directly implement programmes but rather builds capacity for effective infant and young child feeding in humanitarian contexts through the development of guidance, resource materials and shared experience. More information is available at https://www.ennonline.net/ife

As previously mentioned, it is a challenge to conduct research in humanitarian settings and so there are few research studies demonstrating the impact of IFE-related interventions. However, there are multiple documented experiences of the successful implementation of a variety of infant and young child feeding in emergencies (IYCF-E) interventions. Haiti was the first humanitarian response where the concept of 'baby tents' was delivered to scale. Baby tents were spaces that offered privacy, care and counselling and which could advocate for, educate, and support women on breastfeeding. These spaces also often provide psychosocial support and GBV referral[119]. Among refugees and host populations in Jordan, IYCF-E 'caravans' and 'safe havens' were set up to provide safe spaces for mothers to breastfeed infants as well as the distribution of breastfeeding shawls to lactating mothers to provide privacy[120,121].
There are also extensive reported experiences of infant formula donations and their untargeted distribution causing harm, despite information against this practice being shared with emergency response partners. This has been particularly challenging during the Ukraine crisis where the existing number of infants dependent on artificial feeding was already very high (see programming experience below). Donations of products such as milks for mothers are also documented, are targeted at mothers, and use cross-promotion strategies to promote infant formula.

Programming experience: The 2022 Ukraine crisis

The 2022 Ukraine crisis is distinct from other recent humanitarian crises due to the country's middle-income status, its location in Europe, and the limited humanitarian mechanisms in place in-country prior to the emergency response. Within the crisis, infant feeding challenges were widespread due to low existing rates of exclusive breastfeeding and a high percentage of infants partially or fully dependent on infant formula. Due to the low in-country capacity, the IFE Core Group provided direct support on IYCF to the Ukraine Nutrition Cluster until in-country capacity was further developed. This supported included issuing a joint statement on IYCF-E[122], the sensitisation of in-country partners on IYCF-E through bi-weekly calls, collating and translating existing resources, and the development of key IYCF-E messages, trainings and operational guidance, such as the Ukraine Operational Guidance on Mother and Baby Friendly Spaces[123]. Furthermore, the IFE Core Group carried out a lactation support worker mapping exercise to map existing lactation support and developed the Code of Marketing of Breastmilk Substitutes Monitoring System where donations of infant formula could be reported by the public.

Disease prevention and management

The nutrition of women and adolescent girls is integrally linked with the provision of health services. Sexual and reproductive health problems are a leading cause of death and disability for women in LMICs. UNFPA, the United Nations sexual and reproductive health agency, defines good sexual and reproductive health as having access to effective, affordable and acceptable contraception methods of choice, protection from sexually transmitted infections, and access to skilled healthcare providers and services that can help them to have a safe pregnancy, birth, and healthy baby. Studies have shown associations between receiving ANC and a reduced risk of wasting in PLW/G as well as a reduced risk of LBW deliveries[124]. Health services provide an important contact point for nutritional assessment, counselling and referral when necessary and for the delivery of the majority of nutritional interventions. There is also a well-established cycle between nutrition and infection; malnutrition can make a person more susceptible to infection and infection also contributes to malnutrition though increased energy needs, decreased appetite, and disrupted absorption. In humanitarian contexts, communicable disease prevention and treatment are largely limited to ANC services only although vaccinations and malaria treatment programmes for women are also sometimes available[125]. A study of the micronutrient status of women in Rwandan refugee camps noted that malaria treatment was also provided as essential care during ANC visits[88]. Malaria is one of the leading causes of iron deficiencies in some contexts, hence while there is no research in humanitarian contexts linking infectious disease interventions to improved nutritional status, the rationale is sound.

> "Studies have shown associations between receiving ANC and a reduced risk of wasting in PLW/G as well as a reduced risk of LBW deliveries."

With regard to NCDs, a systematic literature review in 2015 found only eight studies on NCD interventions during humanitarian crises[126]. Diseases examined included hypertension, heart failure, diabetes mellitus, chronic kidney disease, thalassaemia, and arthritis. None were specifically focused on women. The evidence on the effects of humanitarian crises on the incidence, severity, and case fatality of NCDs is limited for both immediate and long-term effects[29]. In theory, protracted conflicts can have unpredictable effects on major behavioural risk factors for NCDs because they can lead to variable tobacco use, alcohol consumption, poor diet, and lack of physical exercise. The economic, social, logistical, and mental health events surrounding armed conflict might lead to stressors associated with, for example, cancer and respiratory diseases, or risk factors such as hypertension[127]. Poor access to health services and the lack of continuity of care in humanitarian settings can also result in disruption to effective care[29]. Interventions that include disease-management protocols and/or cohort monitoring demonstrate the strongest evidence of effectiveness, however, the evidence is currently very limiting[126]. With the increasing prevalence of overweight and obesity worldwide, NCDs are likely to be even more common in humanitarian contexts alongside the potential 'double burdens' of malnutrition[26]. There are synergies between NCD prevention and management and nutrition education that are not currently being utilised and could be better implemented in humanitarian contexts.

Mental health is another key area of allied healthcare for women and adolescent girls that is important for nutrition. There are known associations between women's declining mental health and adverse nutrition outcomes both for themselves and for their children. Maternal depression, prenatally and postnatally, is associated with poor maternal and infant nutrition and physical health outcomes[128-130]. People living in countries affected by conflict or humanitarian crises are especially vulnerable to an increased risk of psychological distress and mental health disorders. A 2019 review considered the effectiveness and delivery of mental health interventions in conflict settings[131] and found that most of the literature on mental health interventions was targeted at children; very few studies have documented interventions targeted at women (26/157 studies identified). Psychosocial support was the most frequently reported intervention delivered to all study populations followed by training interventions and then by screening (for referral/with intention to treat). The delivery of counselling, creative arts therapy and psycho-educational interventions was also reported relatively frequently. Several types of therapy, including eye movement desensitisation and reprocessing, mind–body techniques and group interpersonal psychotherapy, were reported with similarly low frequency. Very few studies reported effectiveness outcomes for the interventions targeting women; however, there was evidence of some success regarding depression, anxiety, and sadness scores following psychosocial support interventions[132,133]. Some reported barriers to delivering mental health interventions in humanitarian emergencies have been described including access to and security of target populations, language and culture, and inadequate infrastructure. Combining mental health interventions with other sectors could potentially improve their reach, for example with ANC or CMAM services, yet few studies have evaluated the impact of such combined interventions in humanitarian settings[134]. During a WHO research prioritisation exercise for women and adolescent health in humanitarian contexts in 2019, several of the top 11 research questions for women and adolescents related to mental health (see **Appendix 7** for a full list of maternal and adolescent health research priorities).

Despite the lack of high-quality evidence, some guidance for mental health support in humanitarian settings is in place. Psychosocial support for mothers tends to be combined with psychosocial stimulation for children or breastfeeding counselling interventions. The IASC 2007 guidelines recommend that care for caregivers in humanitarian contexts involves the provision of safe spaces for caregivers to meet, support each other and discuss strategies for optimal childcare and other concerns. In addition, the guidelines recommend that referral options for additional support for carers with signs of depression or severe mental health problems should be provided[135]. The MAMI Care Pathway is an example of guidance for integrating maternal health (including mental health) and nutrition services with neonatal care (**Box 10**).

Box 10: Maternal nutrition and the MAMI Care Pathway

A malnourished baby may be a marker of a maternal problem as the wellbeing of an infant is intimately linked with that of their mother. Management of small and nutritionally at-risk infants under six months and their mothers (MAMI) provides an entry point to assess and address women's needs.

The MAMI Care Pathway Package (https://www.ennonline.net/mamicarepathway) uides practitioners on how to identify, assess, and manage small and nutritionally at-risk infants under six months and their mothers across humanitarian and development settings136. It provides a framework for care across maternal and infant nutrition and health services including maternal mental health. It is designed to build on and be integrated into existing systems and platforms across primary, secondary and tertiary care with referrals into maternal nutrition and health services when required.

In 2023, the MAMI Global Network (https://www.ennonline.net/ourwork/research/mami) will undertake a review of 'Mothers in MAMI' to better understand the challenges and opportunities to strengthen the women's nutrition and health components within infant case management approaches. Contact: mami@ennonline.net

Social assistance programmes: cash and vouchers

Social protection programmes have become instrumental in regard to influencing public health in a number of regions with their adoption primarily

driven by governments' willingness to make direct payments to vulnerable populations[137]. One form of social protection that is relevant to humanitarian contexts is a social assistance programme (SAP) that comes in the form of direct, regular and non-contributary social transfers and includes cash, vouchers or in-kind transfers (key definitions are provided in **Box 11**). The pathways between SAPs and nutrition outcomes are complex and context-specific, however, there is evidence that cash and voucher assistance (CVA) programmes can improve food access, livelihood investments, health knowledge and access to services when coupled with education interventions and household decision-making of women. However, there is a dearth of evidence on the impact of SAPs on the nutrition of women and adolescent girls with the available studies showing mixed effects on anthropometric outcomes[65,138-142]. There is more available evidence supporting a positive impact on women's dietary diversity[65,138,139,141-146].

Box 11: Definitions of SAPs: in-kind, vouchers and cash transfers

- **In-kind assistance** refers to support outside of monetary contributions. This includes the provision of goods (both food and non-food items) and services.
- **Vouchers** can be exchanged for fixed quantities of specific items (food, non-food items or a service) or for cash value (exchangeable for a choice of specified food or non-food items with the equivalent value of the voucher)[147].
- **Cash** is a direct payment of money to those within a programme's target population. Cash transfers can be **unconditional** or **conditional**.
    - For conditional cash transfers, beneficiaries must meet pre-defined criteria such as attending health services to receive the transfer.
- **Cash for work** is when cash (or sometimes vouchers) is given to recipients in exchange for temporary unskilled employment[148].
- **Cash+** is when cash transfers are combined with other agricultural, health or social activities to help to maximise the benefits of the transfer[148].

While CVA programmes have been used at scale in development contexts, their expansion into humanitarian contexts is more recent, with 17.5% of international assistance comprising cash and vouchers as of June 2020; this is double the proportion provided in 2016[149]. In 2021, the WFP distributed USD39.3 million as cash, commodity vouchers, and value vouchers through nutrition interventions[113]. There are peer-reviewed studies that include the provision of CVA in Lebanon, Turkey, Jordan, Syria, Somalia, Central African Republic, Kenya, and South Sudan and delivered by NGOs/UN through print or electronic media (via mobile app/market-based ATMs) at homes/market/NGO clinics[62]. Many documented CVA programmes aimed at women in humanitarian contexts have used this to address women's empowerment issues and indirectly improve nutrition. In Kenya, an emergency food security and livelihoods project targeting pockets of farmers affected by drought focused on women's economic leadership by providing high value crop promotion, public works and cash transfers, a potable water supply, and support to off-farm income generating activities[150]. The programme equipped women with skills in areas such as small-scale business development, entrepreneurship, petty trading and the production of vegetables and fruits. Interventions started to change the gender-based division of labour with men/boys assisting in household activities. Some women noted because they were economically in a better position and that they could express themselves more freely and forcibly. In Syria, a lack of economic means was identified as one of the contributing factors to a high level of GBV, hence a cash assistance programme was established that provided women with up to USD180 for six months via ATM cards[151].

While CVA programmes can have important impacts on women's empowerment, there is a need to consider ethnicity, literacy levels, cultural practices and levels of income when targeting household members for cash/voucher distribution. For example, in Afghanistan, where the Taliban has recently taken over, women must always be accompanied by men including when moving from their homes to cash distribution points. This presents challenges in cases where women do not have men to accompany them, hence women may not be best placed to receive CVAs.

Programming experiences: provision of CVAs for women in place of food supplementation

Between 2016 and 2019, the use of CVA has increased by 100% and CVA is now a widely accepted response

tool among humanitarian practitioners and donors. Given that this is a new and evolving area, several support groups exist on CVA practices such as the CALP Network (see **Box 12**) and the GNC Technical Alliance CVA working group whose remit is specifically focused on humanitarian contexts. A recent guidance note provides details on the use of CVA for nutrition in emergencies[152]. Given the various contextual factors and resource limitations within humanitarian contexts, the WFP is also increasingly exploring and adopting alternatives to providing SNF, such as CVA. Key informants reported the use of CVAs for supporting the nutrition of PLW/G in the Tigray conflict in Ethiopia in 2021. Using CVAs in place of SNFs may support local markets as well as increasing access to more nutritious foods, however, they rely on the availability of adequately priced, nutritious foods (particularly animal-source foods, fruits, and vegetables) through resilient food systems. In addition, these approaches need to consider gender impacts on food distribution and decision-making within the household as well as the likelihood that women will prioritise their own health and nutrition. Targeting pregnant and breastfeeding women also has challenges since the former may rely on a visible pregnancy or a health-system referral and the latter overlooks the nutritional vulnerabilities of women who may not be breastfeeding.

The role of SAPs to protect against shocks and crises was tested during the recent Tigray conflict in Ethiopia where there was a wide-covering, existing SAP called the Productive Safety Net Programme (PSNP). This payment system, which was delivered monthly to an estimated one million people in Tigray region, was designed to protect food security in the face of climate shocks such as drought. As with most SAPs, it was not set up to be responsive to a severe conflict. With banks and shops closed and frontline personnel displaced, PSNP stopped functioning in Tigray as the conflict progressed. As described above, some humanitarian agencies stepped in to fill the gap for PLW/G. However, how best to maintain SAPs and/or efficiently restart SAPs in places where they exist but are then faced with an acute conflict requires further reflection[153].

> “Using CVAs in place of SNFs may support local markets as well as increasing access to more nutritious foods, however, they rely on the availability of adequately priced, nutritious foods.”

Box 12: CALP Network

The CALP Network was founded in 2005 under the belief that cash and voucher assistance (CVA) programmes could not be realised at scale with organisations working in isolation. The achievements of the CALP Network to date include launching a training programme in 2011, integrating CVA into Sphere standards in 2011 and supporting the formation of the first Cash Working Group (in Kenya) in 2012. Today the CALP Network, now a membership organisation, connects over 90+ organisations. The network was previously known as ‘The Cash Learning Partnership’ but was renamed ‘CALP Network’ in November 2021 to reflect its core belief in collective action to create change. The aim of the CALP Network is to “enable collaboration between organisations to increase the scale and quality of CVA, while also supporting them to make their own progress.” It does this by bringing organisations together to strengthen capacity, knowledge, coordination and policy for CVA.

Women’s and girls’ empowerment and gender-equal programming

Gender equality and the empowerment of women and girls are fundamental human rights and mutually enforce the right to adequate food. Empowering women is one of the most effective ways to improve nutrition outcomes, both for women themselves and for other members of the household, helping to break intergenerational cycles of malnutrition. Women’s empowerment is linked to nutrition through education, knowledge, access to resources, and decision-making powers. As already noted above, SAPS can play an important role in promoting women’s empowerment and gender equality in humanitarian contexts. Women’s protection services are other key interventions often quickly implemented in humanitarian contexts including provided ‘safe shelter’ and psychological support to survivors of sexual and GBV[151,154]. Empowerment programmes for women often include a broad range of group psychosocial activities in the form of skills trainings, information sessions, non-formal education, reproductive health classes and other trainings that are designed, informed, and led by women and girls, the provision of dignity kits to WGRA and the inclusion of women in community-level relief committees[151,155].

Photo credit: ©WFP/Sayed Asif Mahmud

One of the three transformative promises made by UNFPA in 2018 was to end GBV and harmful practices against women and girls. It stated that one in three women will experience physical or sexual violence in her lifetime and that approximately one in four girls in LMICs is married before the age of 18[156]. UNFPA's aim is to "work to prevent and respond to GBV through its work with policymakers, justice systems, health systems and humanitarian partners".

Evidence to date has struggled to prove an association between women's empowerment and nutrition outcomes, such as child nutritional status, largely due to challenges and inconsistencies in measuring 'empowerment'[157]. Standardised indicators are beginning to emerge such as the Women's Empowerment Index, the Women's Empowerment in Agriculture Index, and the Women's Economic Empowerment Index, all of which need wider use to assess the applicability in all contexts.

The insufficient evidence base demonstrating how gender-equal programming is essential to ensuring an effective, inclusive, rights-based humanitarian response, was in part addressed by a 2015 review by UN Women[158]. The report found that programming that provided women with a degree of financial or resource contribution to their household led to their improved control over household spending decisions and better outcomes for all within. This was particularly true for interventions intended to address food security and livelihoods. In Nepal, women in the cash/food-for-work programmes reported improved food security and nutrition outcomes for their households, and educational opportunities for their girls by being able to prioritise their household spending as they saw fit. They attributed this to food and money they had been able to earn and control themselves. In Kenya, there was evidence of increased women's empowerment among households participating in the food-for-assets programme. They were 62% less likely to report that men alone make decisions on healthcare spending and the men reported that they were happy to leave women in charge of the food. In interviews, women reported receiving greater respect from men due to their prominent role on food-for-assets committees. This encouraging evidence should continue to be documented, especially now that several humanitarian agencies include gender-equal programming in the core response policies.

Programming experiences: gender-equal participation on community relief committees

The WFP, as an organisation that has mainstreamed gender, often distributes food aid via the senior woman in a household. In many contexts this is a good strategy to ensure that food aid reaches the most vulnerable members of a household. However, it now often goes one step further by including both men and women in the decision-making process which is arguably better than simply targeting women as recipients who serve as a proxy for poverty.

An initiative by the WFP in Kenya aimed to address gender related inequalities by having all community level relief committees having at least 50% women and, where possible, a female chairperson[155]. The WFP also included a gender awareness component in its training, building awareness on gender sensitive facilitation skills, registering and distributing food directly to women, and recruiting female food monitors. It found that in the beginning, men were resistant to women taking leadership roles but accepted this since it was the policy – men complained about the time women spent on the committee when they also had domestic work to undertake. Communities suggested that food-for-work programmes should be scheduled around women's workloads. Women also identified illiteracy and patriarchal culture as challenges to their level of participation. However, overall, committee members felt that their status had improved and that the targeting process was fair. The presence of women on relief committees also exposed the practical value of literacy and numeracy skills for women. Combined with school feeding programmes that reduce the opportunity cost of sending girls to school, this could have beneficial impacts for female education.

Focus on adolescents

The nutritional needs of adolescents (10-19 years) in humanitarian settings have been identified as a neglected area of evidence, policy and programming[159]. Specific indicators for the measurement of pre-pubertal and post-pubertal malnutrition, the evaluation of nutritional interventions and evidence on what constitutes good nutrition for adolescents in humanitarian contexts are unavailable for the planning and implementation of nutrition programmes. Poor health and food insecurity among adolescents, particularly girls, can increase the likelihood of experiencing interpersonal violence and suicide attempts and exacerbate existing gender inequalities as well as having intergenerational biological effects[160-164].

A key intervention for adolescent girls is the prevention of early marriage. As mentioned above, one in four girls under the age of 18 in LMICs is married and this is thought to increase during humanitarian crises such as conflict, displacement and even COVID-19. There are well-established negative repercussions on the child bride, her family, and any subsequent children. The reasons for early marriage are varied and relate to love, early pregnancy, the wish for meaning, social connection, and motherhood, coping with the emotional effects of war, a wish for increased freedom, to escape from family violence and community harassment, to seek educational, economic or resettlement opportunities, family pressure, sexual violence, and force[165]. In a qualitative study of child brides in South Sudan and the Kurdistan Region of Iraq , displaced adolescent girls reported that early and forced marriage was one of the main challenges they faced[165]. Improved access to education, increased economic opportunities, proactive leadership, and the eradication of 'bridewealth' (the payment made by a groom or his kin to the kin of the bride to ratify a marriage) were proposed as solutions. How best to prevent and manage early marriage in humanitarian contexts is one of the top health research priorities identified by the WHO (**Appendix 7**).

While women's nutrition programming in humanitarian contexts is plagued by programming gaps, nutrition interventions for adolescents is even further behind. The multiple gaps in adolescent nutrition programming that exist in development contexts need to be addressed before they are likely to be translated to humanitarian contexts.

Photo credit: ©WFP/Simon Pierre Diouf

8 Gaps and recommendations for women's nutrition programming in humanitarian contexts

From the literature and key informant interviews, this section pulls together some of the key barriers being faced by the humanitarian sector in implementing nutrition programming for women and girls. We also make recommendations for ways forward. The Shah et al. systematic review summarises the key delivery facilitators for successful nutrition programming in humanitarian contexts which include community advocacy and social mobilisation, effective monitoring and the integration of nutrition, and other sectoral interventions and services[62]. They summarise the barriers as insufficient resources, nutritional commodity shortages, security concerns, poor reporting, limited cooperation, and difficulty accessing and following-up of beneficiaries. The lack of information on coverage and the effectiveness of nutrition interventions were identified as key gaps, as was the lack of a rigorous evaluation of delivery approaches especially outside of camps. **Box 13** summarises a case study on the barriers to delivering health and nutrition care in Somalia. Building on this literature and on key informant interviews, we have identified the following further key gaps and barriers in policy, evidence, and programming that need to be addressed in order to better serve women and girls in humanitarian contexts.

> "While some guidelines for women's and girls' nutrition are available at global level, these are often piecemeal and are not routinely reviewed and updated as needed."

Box 13: Case study on the barriers to delivering health and nutrition care in Somalia

The findings from a case study in Somalia[166] describe the barriers to delivering health and nutrition interventions for women, children, and adolescents. Although these barriers were not specific to nutrition interventions, they provide insight into obstacles that may restrict implementation in conflict-affected contexts, for example:

- **Data/information barriers:** lack of quantitative data on nutrition and health indicators and on intervention coverage made it difficult to identify patterns or trends over time or in different regions as well as to effectively target interventions. The Syria case study[167] similarly highlighted glaring data gaps, particularly a lack of sub-national data
- **Sociocultural barriers:** sociocultural factors, such as women's disempowerment, affected women's access to services often due to delayed or restricted healthcare-seeking and-decision making
- **Operational barriers:** the unpredictability of crises, including sudden and large influxes of displaced populations and infectious disease outbreaks, alongside recurrent natural disasters, led to rapidly emerging needs that required adjustment to existing priorities. In such cases, insufficient and inflexible funding mechanisms and competing donor priorities, limited adequate and timely humanitarian responses.
- **Service delivery barriers:** delivery of services was restricted by several barriers including commodity and human resource shortages, poor infrastructure, restricted access to highly vulnerable populations and insecurity. Gaps in the provision of services across the continuum of care, e.g., for adolescents, also persisted.
- **Coordination barriers:** while the poor coordination of humanitarian actors limited timely and adequate health sector responses, this improved in Somalia via increased engagement and collaboration between UN/international agencies and both federal and state-level ministries of health, and local organisations. The government also took on a greater role in setting priorities and monitoring needs and responses. Exploring partnerships between the government and the private sector may be useful in helping to ensure the continuity of service delivery during humanitarian responses in future.

Current gaps in policies and guidelines

Several gaps in policies and guidelines pertaining to women's nutrition in humanitarian contexts exist, namely:

- While some guidelines for women's and girls' nutrition are available at global level, these are often piecemeal and are not routinely reviewed and updated as needed. This, in turn, limits the availability of guidelines at national level with guidelines and programming focusing on children under five years of age with less attention placed on adolescent girls and women.
- Currently there is no updated WHO guideline on treating adult moderate and severe wasting, including no anthropometric definition of wasting in adolescents and adults, and no details on the type and content of supplementary food to provide to treat wasted women and adolescent girls. There is currently no universal WHO definition of wasting in PLW/G; guidance is needed on the optimal MUAC cut-offs for different contexts and on programme discharge criteria.
- The relatively new guidance to provide BEP to PLW/G in populations with a high prevalence of undernutrition is not widely implemented and knowledge gaps remain regarding the product composition and the cost-effectiveness of such programmes at scale[168,169]. The guidance requires more detail including the extent to which it takes precedence over other guidance on the provision of LNS or supplementary foods for wasted PLW/G. This is, however, part of ongoing work in WHO and UNICEF.
- Implementing partners increasingly support government-led policies and programmes, ensuring that nutrition and health interventions are implemented according to national guidelines even during humanitarian crises. When countries lack clear, routine nutrition guidelines for women and girls, this can hamper programming for them in the event of a crisis. This is currently exemplified by the IFA vs MMS guidelines where implementing MMS during a humanitarian crisis, although recommended by the WHO, is not feasible if it contradicts routine national recommendations.

Current gaps in evidence and programming

One of the biggest gaps in research and programming for women's nutrition in humanitarian contexts is the lack of resources available from donors and governments. This is in part due to rising global needs and other demographics such as children under five years being prioritised. It is also in part due to a lack of evidence in many areas to advocate for the needs of women and girls in nutrition programming. Other major gaps, detailed further below, include the lack of global leadership on this issue, the lack of assessment tools and survey data, and the lack of focus on nutrition during the preconception and postnatal periods, all of which are exacerbated by the increasing complexity of the global nutrition landscape.

Lack of evidence, visibility and funding for women's and girls' nutrition

- Much of the evidence on maternal and child nutrition focuses on improving infant and child outcomes in the first 1000 days, especially birth weight, and this is reflected in nutrition policies and guidelines at global and national levels as well as in funding agendas.
- The gaps in the evidence and guidelines for women's and girls' nutrition in humanitarian contexts hampers funding for partners looking to support women's and girls' nutrition since funding is often limited to well-evidenced interventions and those outlined in guidelines.
- In some contexts, the nutritional needs of women are not specifically considered as they are thought to be covered by GFD programmes at household level. However, these programmes fail to address the additional nutrient requirements of PLW/G, as well as the micronutrient needs of non-pregnant women and girls who are menstruating. Furthermore, they do not consider gendered aspects of intra-household food distribution which may affect women's access to food rations.
- Some key informants felt that in many humanitarian contexts the prioritisation of infant and child nutrition has, to an extent, 'normalised' malnutrition in women who are willing to sacrifice their own health for that of their children. This reinforces the targeting of resources away from women and girls.
- Particular evidence gaps exist on the relationship between women's empowerment and nutrition, the implications of poor nutrition in women, especially beyond those that affect infant birth weight, which functional outcomes might be useful in measuring the 'success' of women's nutrition interventions, and the effects of women's diets on breastmilk quality and quantity.

Lack of global leadership around women's and girls' nutrition

- Currently, whilst the nutrition and health of women and girls cuts across the mandates of several UN agencies, there is no UN agency taking the lead responsibility on nutrition for women and girls in humanitarian contexts. Some interviewees felt that this contributes to incomplete or incohesive nutrition guidance and programming for women and girls.

Lack of assessment tools and survey data

- Guidance and clarity on how to assess the nutrition status and empowerment of women and girls is lacking. This includes the assessment of adult wasting, a standardised assessment of women's empowerment, a feasible assessment of gestational weight gain, field-friendly techniques for earlier diagnosis of micronutrient deficiencies, and at what point postpartum BMI should be used for diagnosing under- and over-weight.
- There is a lack of survey data on the nutritional status of women and girls driven by a lack of consensus on how best to assess nutritional status and classify risk in this group and a lack of survey-practical measures. For example, BMI, used to classify underweight in non-pregnant women, is often impractical in humanitarian contexts, measures of dietary adequacy are often time-consuming to undertake and laboratory facilities for assessing micronutrient deficiencies are unavailable in humanitarian contexts. However, with some greater prioritisation, more indicators of women's and girls' nutrition, not just PLW/G, could be included in humanitarian response surveys.
- There is also a lack of routine survey data on the coverage of nutrition interventions targeting women and girls. Indicators that have recently been added to Democratic and Health Surveys, such as the coverage of nutrition counselling during pregnancy and the coverage of cash-assistance programmes for pregnant women, could also be used in monitoring interventions during humanitarian crises.
- Data gaps also exist in routine surveys in stable contexts. These gaps affect humanitarian

responses if a crisis does arise since this routine survey data is used to prioritise and guide initial actions.

Lack of research, policies and programmes targeting nutrition during the preconception and postnatal periods for women and girls

- Nutrition programming for the preconception phase in women and girls is lagging behind that of other phases (pregnancy) and other populations (children under five years) even in development settings. This makes implementing programmes in humanitarian contexts even more difficult. In addition, schools are often the platform used to deliver pre-conception nutrition interventions and these services are often lost during a humanitarian crisis.
- Appropriate and effective platforms for reaching adolescent girls and women at the preconception stage, such as youth clubs, need to be considered in humanitarian contexts. Also, related interventions and evidence pertaining to preventing early pregnancies/early marriages in humanitarian contexts are needed.
- Postnatal nutrition is another area that is lacking adequate research and programming. While breastfeeding women are often captured in surveys and interventions as part of the group 'PLW/G', in theory PNC is often deprioritised compared to ANC.

Increasing complexity of the global nutrition landscape

- The nutrition transition and emerging triple burden of undernutrition, overweight and obesity, and micronutrient deficiencies is increasingly challenging traditional nutrition responses in humanitarian contexts. While it is important that vulnerable populations, including women and girls, are nutritionally supported, it is unclear how this is appropriately done in contexts with rapidly rising obesity prevalence particularly where this disproportionately affects women.
- Related to this is the need for better connections between nutrition interventions and obstetric care and ANC in humanitarian contexts. A woman who is stunted but has a baby of a healthy size following good nutritional support during preconception and pregnancy may face more challenges in delivery, requiring consultation with specialists. Whether macronutrient supplementation programmes for women would fit better within ANC and PNC services rather than being tagged onto child CMAM services where they are currently often located requires greater exploration.

Recommendations

This paper builds on a recent technical briefing paper by ENN on the nutrition of women and girls across all contexts, not just humanitarian. Based on the gaps and barriers identified in this and the previous paper to support women's and girls' nutrition in humanitarian contexts, we make the following recommendations:

Policies and guidelines

- A 'living' guideline that focuses on women's and girls' nutrition, or that brings together all the relevant aspects from other guidelines, is needed to bring clarity and focus to the humanitarian response for this specific population.
- There is a need for one set of guidelines that covers all the appropriate options for macronutrient and micronutrient supplementation in both humanitarian and development settings, both during and outside of pregnancy. This should include: a) appropriate indicators for targeting women and adolescent girls (MUAC and/or BMI); b) discharge criteria or a measure of 'success'; c) details on which products (BEP/LNS/CSB+ etc.) to provide and in what context; d) details of the products' optimal nutritional content; and e) consideration of the double burden of malnutrition and connections with obstetric care, where relevant.
- Besides the assessment of adolescent and adult wasting, guidance should be provided on other aspects of nutrition status including the feasible assessment of gestational weight gain, field-friendly techniques for earlier diagnosis of micronutrient deficiencies, and at what point postpartum BMI should be used for diagnosing under- and over-weight.
- While there are several tools for measuring empowerment in women and girls, more guidance is needed on how to contextualise and validate these within humanitarian settings. Emphasis should also be placed on better utilisation of data as experience from development settings indicates that data for these indicators often exists but is not prioritised in monitoring and assessment plans.
- While there is already guidance helping those governments who want to change from IFA to MMS

in their national protocols, additional support from the UN and partners is needed in crisis-prone settings so that MMS can be implemented in the context of a humanitarian crisis.

- While some are already in place, humanitarian stakeholders should all have gender equity policies to address how humanitarian health and nutrition responses can advance gender equality and support the economic empowerment of women and girls.

Evidence and programming

- More evidence on the implications and importance of poor nutrition for women and girls, including but not limited to maternal mortality, is needed to support advocacy within humanitarian response agendas. Better advocacy around the role of good maternal nutrition in preventing child wasting would also help to increase the visibility of PLW/G in policies and programming.
- Other research gaps that need to be addressed include the relationship between women's empowerment and nutrition, which functional outcomes for women and infants might be useful in measuring the 'success' of women's nutrition interventions, and the effects of women's diets on breastmilk quality and quantity.
- Mapping out clear roles of the various UN agencies involved in women's and girls' nutrition in humanitarian contexts, and identifying their individual strengths to lead various aspects at global, regional and country level, would help to ensure that the nutrition of women and girls is better prioritised and would help to provide coherence in programming.
- Agreement is needed on which standard indicators of women's and girls' nutritional status and intervention coverage should be prioritised in humanitarian and routine surveys to better prepare for and support the nutrition needs of all women and girls, not just PLW/G.
- More research and pilot programmes are needed on effective preconception nutrition interventions in humanitarian contexts. These should explore which interventions are a priority for this group and what platforms are effective for delivering them in humanitarian contexts, especially if schools are not functioning or not accessed by some girls.
- More evidence on the importance of postnatal nutrition is needed as is better disaggregation of data on the nutritional challenges and intervention coverage for women and girls in the first six months postpartum.

In conclusion, a 2017 *Lancet* series on 'Health in Humanitarian Crises' declared that the "international humanitarian system is not just broke, but broken" and called for action to prioritise women's protection, integrate affected and displaced people into national health systems, scale up efficient, effective, and sustainable interventions, and renew global leadership and coordination. The 2021 *Lancet* Series on Maternal and Child Undernutrition Progress concluded that progress has been insufficient since then. Research presented in this paper supports this and our recommendations reflect the need for better policy, protection, integration, programming, and leadership for women's and girls' nutrition in humanitarian contexts. Urgent and concrete actions are required to address the gaps identified.

They recommended that the duration of supplementation should continue until the population has access to micronutrient-rich food sources, although the guidelines stressed that regular assessments should take place to check the need for continued MMS and ensure that excess consumption of specific micronutrients is avoided.

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Appendices

Appendix 1: Interview guide for key informant interviews

Setting the scene: outline for key informants

In 2021, Emergency Nutrition Network (ENN) published a technical paper summarising evidence, policy and practice relating to women's nutrition and identifying knowledge gaps. One key gap area identified in this technical paper related to how the nutrition of women and adolescent girls is currently being addressed in humanitarian contexts. As such, ENN is now undertaking a scoping review on the current 'state of play' around women's nutrition in humanitarian contexts, focusing on current evidence, policies, and programmes being implemented. Through this process, we aim to provide a full overview of the gaps in knowledge and practice as well as to identify barriers to implementation and provide recommendations on the next steps towards strengthening nutrition programming for women and adolescent girls in humanitarian contexts.

As part of the review process, we are undertaking a series of key informant interviews with various stakeholders. Given your work in the field, we would be very interested to talk to you about some of the key evidence, policies and programmes being implemented in this area, as well as any barriers to progress. We have put together some semi-structured questions to guide our discussions.

Draft questions for semi-structured interviews with key informants

1. What is your position and organisation?

2. Can you give an overview of the work you/your organisation is doing related to the nutrition of women and girls in humanitarian contexts?

3. What is the current 'state of play' on nutrition programming for women and adolescent girls in humanitarian contexts?

   a. What are the aspects of nutrition for women and adolescent girls that are being addressed in humanitarian programmes (e.g., micronutrient supplementation, addressing food insecurity/food access, supplementary feeding programmes, assessing and monitoring nutritional status, breastfeeding initiation and support)?

   b. Can you provide examples of such programmes (currently or previously) implemented in humanitarian contexts?

   c. How effective have these programmes been and why do you think they have been particularly effective/ineffective?

   d. Are there any aspects of nutrition for women and adolescent girls that you think are being particularly neglected (gaps) in humanitarian contexts? Why do these gaps exist?

   e. What are the current barriers to access and uptake of nutrition programmes for women and adolescent girls in humanitarian contexts?

4. What is the current 'state of play' on policies to protect and improve the nutritional status of women and adolescent girls, including supporting healthy pregnancies and caregiving roles, in humanitarian contexts?

   a. What guidance do you follow for your programming (i.e., national, international, your own institution's guides etc.)?

   b. What areas do you think are being addressed particularly well in policy?

   c. What are the current gaps in policy/guidance?

   d. In the contexts you work in, is it clear when you might switch from development to humanitarian programming or vice versa (if different policies exist accordingly – e.g., use of IFA in developmental settings and MMS in emergencies)?

5. What are the gaps in evidence that may be hindering progress in nutrition programming for women and girls in humanitarian contexts?

   a. Are there any key pieces of evidence that you recommend we review?

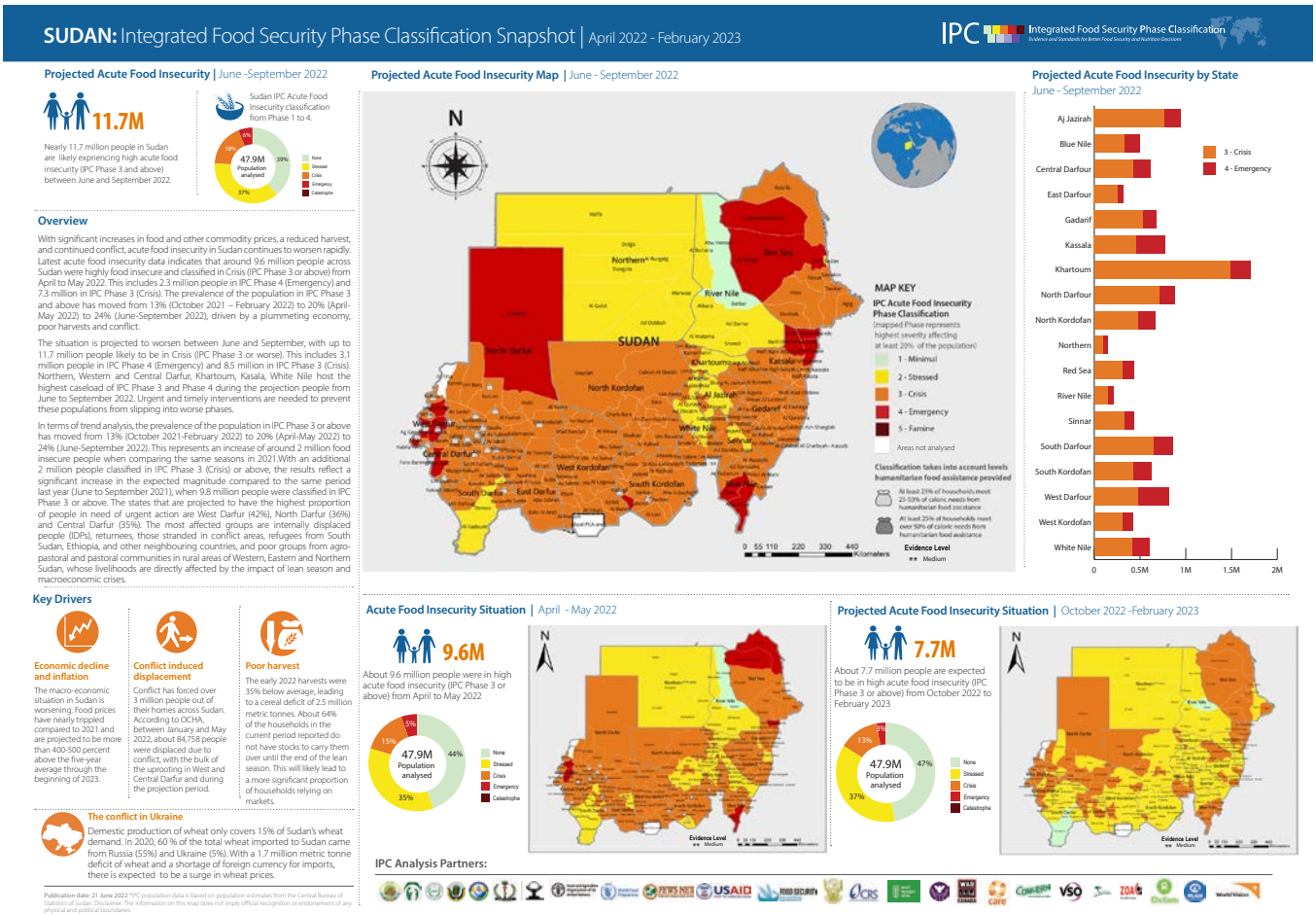
6. How well do you think that nutrition for women and adolescent girls is being integrated into other health policies and/or programmes in humanitarian contexts? (e.g., integration of IFA/MMS into ANC/reproductive health, other?)

7. Moving forward, what do you feel are the key priorities for progressing the nutrition agenda for women and adolescent girls in humanitarian contexts?

Appendix 2: The Integrated food security Phase Classification (IPC)

IPC is a widely accepted mechanism for determining the severity of food insecurity and malnutrition in a country (http://www.ipcinfo.org/). Developed in 2004 by the FAO's Food Security and Nutrition Analysis Unit, IPC is now a multi-agency initiative and includes a variety of classification scales, such as the Acute Food Insecurity (IPC-AFI), Chronic Food Insecurity (IPC-CFI) and Acute Malnutrition (IPC-AMN) scales. IPC informs humanitarian response planning with each scale informing specific types of actions needed to respond to food insecurity and malnutrition. For example, the IPC-AFI analysis provides information to support decision-making around actions to prevent, mitigate or decrease severe food insecurity. Specifically, it classifies areas into five different levels of severity of acute food security – 1) minimal/ none, 2) stressed, 3) crisis, 4) emergency, and 5) catastrophe/famine. IPC-AFI not only provides a snapshot of the current severity of acute food situations but also identifies the drivers of acute food insecurity and provides a projection of future conditions, allowing for proactive decision-making (see **Appendix 2, Figure 1**). Similarly, IPC-AMN analysis provides information to support decision-making around actions to decrease the prevalence of acute malnutrition in children under five years of age. There is no IPC analysis that informs decision making specifically on actions to respond to changes in the nutritional status of women and girls.

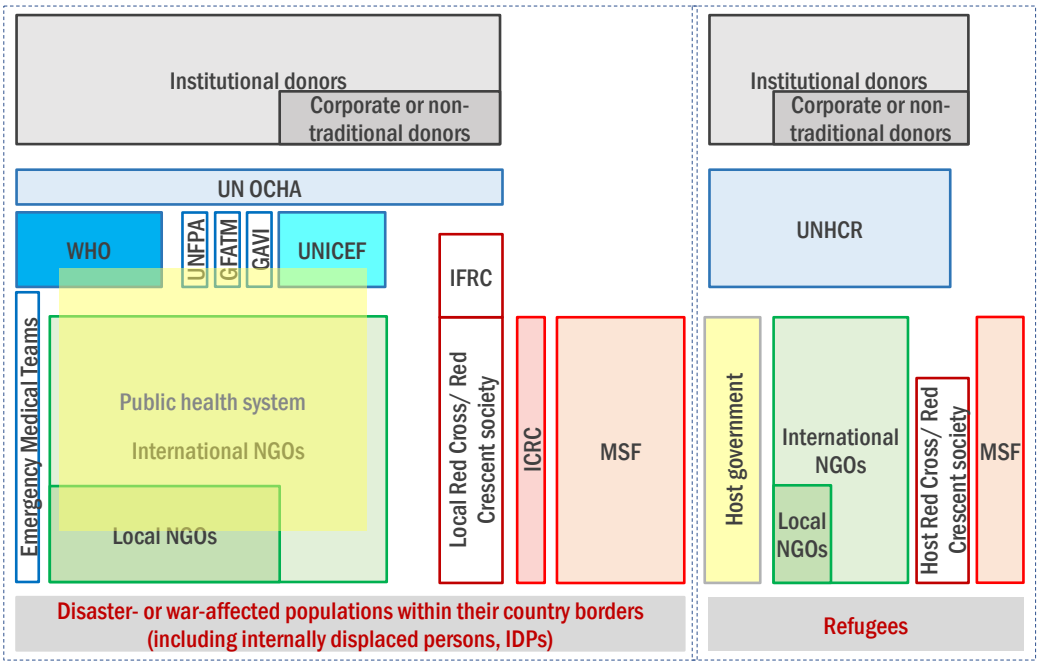
Appendix 2, Figure 1: Sudan IPC-AFI Snapshot April 2022 to February 2023



Appendix 3: Humanitarian organisations and actors within the humanitarian system

Humanitarian organisations operate within the principles of humanitarian action (humanity, neutrality, impartiality, and independence). Humanitarian actors that operate with the humanitarian system include local government institutions, UN agencies, international and national NGOs, donor agencies, and the International Red Cross and Red Crescent Movement. However, not all organisations that play a role in responding to humanitarian crises operate within the humanitarian system, for example, the military, private sector, civil society and other informal networks.

Appendix 3, Figure 1: Depiction of most of the key actors within the humanitarian system



Abbreviations: United Nations Office for the Coordination of Humanitarian Affairs (OCHA); World Health Organization (WHO); United Nations Populations Funds (UNFPA); The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFTAM); Global Alliance for Vaccines and Immunisation (GAVI); United Nations International Children Funds (UNICEF); International Federation of Red Cross (IFRC); International Committee Of The Red Cross (ICRC); Médecins Sans Frontières (MSF); Non-Governmental organisations (NGOs); Internal displaced persons (IDPs); United Nations High Commissioner for Refugees (UNHCR).
Source: Francesco Checchi, London School of Hygiene and Tropical Medicine

Appendix 4: Humanitarian coordination and the Cluster approach

The Office for the Coordination of Humanitarian Affairs (OCHA) of the UN Secretariat is responsible for coordinating responses to emergencies. It does this through the IASC. The IASC is the highest-level humanitarian coordination forum of the UN system and is chaired by the Emergency Relief Coordinator (ERC)[170]. It brings together key UN and non-UN humanitarian partners[c] to formulate policy, set strategic priorities and mobilise resources in response to humanitarian crises.

The Cluster Approach was implemented in 2005 by IASC as part of the Humanitarian Reform Agenda[d] and is used to coordinate non-refugee humanitarian responses. The Cluster Approach aims to improve the effectiveness of humanitarian response programmes by ensuring greater predictability, accountability and partnership. This is achieved by supporting country coordination mechanisms in strategic decision-making, planning and strategy development, capacity strengthening, advocacy, monitoring and reporting, and contingency planning/preparedness.

Each sector has a designated Global Cluster Lead Agency (see **Figure 2**) responsible for ensuring response capacity is in place for their sector and that humanitarian activities are implemented in coordination with partners and following agreed standards and guidelines. In a disaster, the ERC may appoint a Humanitarian Coordinator (HC). The HC or Resident Coordinator (RC)[e] leads the Humanitarian Country Team (HCT) which includes relevant government bodies.[f] Together they are responsible for deciding the most appropriate coordination solutions for their country including which clusters to establish and the appointment of Cluster Lead Agencies (at national level). Cluster leadership (at national level) should ideally mirror global arrangements with Cluster Lead Agencies often co-leading with governments or co-chairing with NGO partners[171]. The decision to establish a cluster is only taken when there are response and coordination gaps due to a deteriorating humanitarian situation that exceeds the national government's existing capacity and in which the crisis's needs, scale and complexity warrant the engagement of a wide range of humanitarian actors[172]. Furthermore, clusters are not permanent coordination mechanisms; thus, at the end of a crisis phase, the aim is to either resume or re-establish national coordination systems.

The HCT, with the government, provides the overall strategic direction for the humanitarian response with the cluster accountable to the HCT through its Cluster Lead Agency[172]. Clusters support the strategic decision-making of the HCT by coordinating needs assessments, gap analysis, and prioritisation. In addition, clusters play an essential role in service delivery by providing a coordination platform for implementing partners and developing sectoral plans which support the realisation of the response's strategic objectives[172]. OCHA provides guidance and support to the HCT and works closely with the Global Cluster Lead Agencies. In addition, OCHA facilitates coordination between clusters at national and sub-national levels to help to ensure a coherent and comprehensive humanitarian response[171]. UNHCR also plays an essential role within the cluster system leading three clusters[g] and being a member of the HCT. UNHCR is responsible for coordinating the international response to assist and protect the needs of refugees and has also expanded its mandate to include the protection of internally displaced persons.

c ISAC members include Food and Agriculture Organization (FAO); United Nations Office for the Coordination of Humanitarian Affairs (OCHA); United Nations Populations Funds (UNFPA); United Nations High Commissioner for Refugees (UNHCR); United Nations Development Programme (UNDP); United Nations Human Settlements Programme (UN-HABITAT); World Health Organization (WHO); United National Internal Children's Funds (UNCEF); and World Food Programme (WFP). ISAC standing invitees include International Federation of Red Cross (IFRC); InterAction; The Office of the High Commissioner for Human Rights (OHCHR); International Committee of The Red Cross (ICRC); International Council of Voluntary Agencies (ICVA); Steering Committee For Humanitarian Response (SCHR); International Organization For Migration (IOM); Special Rapporteur On The Human Rights Of Internally Displaced Person; and World Bank.

d The Humanitarian Reform process was initiated in 2005 by the ERC with ISAC with the aim of improving the effectiveness of humanitarian response through greater predictability, accountability, responsibility and partnership.

e The UN Resident Coordinator (RC) is the highest-ranking representative of the UN Development System at the country level.

f The HCT includes representatives from the UN, IOM, International NGOs, the Red Cross/Red Crescent Movement, and Cluster Lead Agencies.

g UNHCR leads the protection and shelter cluster in situations involving conflict, and leads the camp coordination and camp management cluster in conflict situations involving IDPs.

Appendix 5: Summary of international guidelines and inter-agency guidance

Summary of international guidelines and inter-agency guidance specifically relevant for women's nutrition in humanitarian contexts alongside key guidelines that are more general guidelines for women's nutrition but are still applicable in humanitarian settings where possible.

Authors	Title	Date	Interventions covered	Key policies and guidance[h], details of document scope
Humanitarian-specific policies and guidance (United Nations documents)				
UNHCR, WFP	Guidelines for selective feeding: The management of malnutrition in emergencies[38]	2011	Supplementary feeding	For pregnant women and lactating women with an infant aged < 6 months: · **Targeted supplementary feeding** should be considered for those with mid-upper arm circumference (MUAC) <230 mm, although often MUAC <210 mm is used in humanitarian contexts and the chosen cut-off depends on caseload and available resources. · Discharge is recommended either six months after delivery or when MUAC ≥230 mm or 210 mm, depending on admission criteria. For non-pregnant women: · **Targeted supplementary feeding** should be considered for moderate wasting treatment. Admission is body mass index (BMI) ≥16 kg/m² and <17 kg/m², or MUAC ≥214 mm and <222 mm. Discharge is BMI ≥18.5 kg/m². · **Severe wasting treatment** is recommended for women with BMI <16 kg/m², or MUAC <214 mm.
WHO, WFP, UNICEF	Preventing and controlling micronutrient deficiencies in populations affected by an emergency[56]	2007	Micronutrient supplementation	· PLW/G should take a daily MMS to meet their recommended nutrient intakes. · This supplement should be taken in addition to any fortified foods or IFA tablets already being received, as well as any vitamin A being taken postpartum. · The duration of supplementation should continue until the population has access to micronutrient-rich food sources. · Regular assessments should take place to check the need for continued MMS and ensure that excess consumption of specific micronutrients is avoided.
UNS/SCN	Assessing micronutrient deficiencies in emergencies. Current practice and future directions[173]	2007	Micronutrient assessment	· Covers clinal signs and symptoms of micronutrient deficiencies. · Covers biochemical tests for anaemia and selected nutrient deficiencies. · Details public health cut-offs for indicators of micronutrient deficiencies.

h Note that the wording of specific recommendations in this column is taken directly from the source, with the reference found in the title column.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
UNHCR, UNICEF, WFP, WHO	Food and nutrition needs in emergencies[52]	2004	General ration / food basket;	· At a minimum, a general food basket should ensure an average of 2100 kcal is provided daily per person.[a] · This food basket should aim to meet the micronutrient requirements of the general population. · PLW/G require special attention due to their increased vulnerabilities, including additional energy requirements of 285 kcal/day and 500 kcal/day, respectively, and particular requirements for adequate intake of iron, folate, vitamin A and iodine. · To meet these additional needs, fortified food commodities in addition to the food basket[b] and micronutrient supplementation should be considered. · Adequate drinking water, malaria management, treatment of intestinal parasites and nutrition counselling are other important considerations. · Note that although the above is still relevant, more reference to BEP supplementation is provided in the 2016 WHO ANC guidelines.
WHO	The management of nutrition in major emergencies[53]	2000	General	· Details on age- and sex-specific daily energy and protein requirements, including amount of energy derived from fats. · Includes daily average per capita intakes of specific nutrients. · Vary the composition of the food basket where possible. · Encourage local production of fruit and vegetables where possible. · Include micronutrient -fortified foods in the ration, e.g. cereal blends enriched with iron and/or vitamins A and B complex, iodised salt, vitamin-A enriched dried skimmed milk or vegetable oils. · Provide supplementation where there is likely to be a specific deficiency. · Iron-folic acid and vitamin A supplementation guidance here is now outdated and replaced by the joint 2007 UN statement recommending MMS in humanitarian contexts. · Iodised salt, or oil where salt is unavailable is recommended for all pregnant women and non-pregnant women of child-bearing age.

a With adjustment as appropriate for temperature, the underlying health of the population, the demographic profile of the population and activity levels.
b With 10–12% energy coming from protein and 20–25% from fat, and micronutrients included that meet at least two-thirds of daily requirements.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Vitamin C supplementation is recommended where there are clinical signs of scurvy. For *treatment* 1 g ascorbic acid daily for 2-3 weeks. · Thiamine supplementation is recommended when there are clinical signs of beri beri. Adult *treatment* dosage is 50-100 mg thiamine given intravenously, followed by 3-5 mg of thiamine per day orally for at least 6 weeks. · Niacin supplementation is recommended for clinical signs of pellagra. For *treatment* a daily oral dose of 300 mg is needed for 3-4 weeks. · Note that for *prevention* of scurvy, beri beri and pellagra there is vitamin C, thiamine and niacin contained in MMS, hence if the recommended formulation of MMS is consumed in humanitarian contexts adequate amounts of these nutrients would be consumed. · Adults are assessed as severely malnourished if they have bilateral oedema, or if they are severely thin (BMI <16 for adults, and low BMI-for-age for adolescents although cut-offs not provided). The guide has a table with the volume of F-75 and F-100 milk suggested for severely malnourished adolescents and adults. · The guidelines for selective feeding detailed here are replaced by the WHO 2016 ANC guideline advice for BEP supplementation in undernourished populations. · Information on control of measles, meningitis and necessity of other vaccines, some of which will be applicable for adolescents. Additional general guidance (for all) on control of diarrhoea, TB, malaria, typhus, typhoid, scabies, HIV, worm infections and acute respiratory infections. General guidance on WASH also.
WHO	Pellagra and its prevention and control in major emergencies[174]	2000	Pellagra management	The main approaches to preventing the onset of pellagra in humanitarian emergencies: · Provision of food rations containing adequate amounts of bioavailable niacin (niacin equivalents) by diversifying the general ration. · A maize-based general ration should always contain a commodity rich in bioavailable niacin, e.g., legumes (especially groundnuts), pulses, meat/fish. · Have two staples in the general ration, e.g., maize and sorghum/rice/millet, or add a fortified cereal–legume blend to the food basket. Fortification of relief commodity with niacin especially when major staple in ration is maize: the fortification of maize meal with niacin.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Allocation of surplus foods: provision of surplus food in the ration to allow the affected population to sell or exchange for another food commodity. · Supplementation: ·provision of niacin in the form of tablets (vitamin B-complex) for prevention and treatment of pellagra. · Cultivation and production of foods by affected population: encourage and facilitate, where feasible, the cultivation of home gardens or keeping of domestic livestock. · The daily recommended dose is 300 mg of nicotinamide in divided doses, and treatment should continue for 3–4 weeks. Large therapeutic amounts of niacin should be provided in the form of nicotinamide.
WHO	Scurvy and its prevention and control in major emergencies[175]	1999	Scurvy management	· Covers general guidance for prevention of scurvy, covering distribution of fresh foods; fortification of food rations; fortification of cereals, sugar and blended foods; supplementation and kitchen gardens. · The principal way of addressing vitamin C deficiency is by improving the diet. · Distribution of fortified foods is an important way to secure adequate vitamin C intakes of a population where natural sources of vitamin C are lacking. · In situations where a population is at high risk of scurvy or where cases of scurvy have already been identified and all the other options for intervention are not immediately feasible consider supplementation with weekly vitamin C tablets.
WHO	Thiamine deficiency and its prevention and control in major emergencies176	1999	Thiamine deficiency management	The main approaches to preventing thiamine deficiency in humanitarian emergencies: · Providing food rations containing adequate amounts of thiamine by increasing the variety of the food basket and regularly including adequate amounts of legumes and vegetables. · Providing parboiled rice or undermilled rice or other undermilled cereals instead of polished rice or other highly milled cereals. · Fortifying current relief commodities with thiamine, e.g. providing fortified blended cereal-legume food in the general ration in sufficient amounts to cover thiamine requirements. · Providing sufficient food in the ration to allow refugees to trade for a more varied diet.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Providing thiamine (vitamin B-complex) supplements in the form of tablets. · In mild deficiency states including lactating women at risk of inadequate thiamine intakes, a daily oral dose of 10 mg thiamine should be given during the first week, followed by 3–5 mg for at least six weeks. · In severe deficiency states for critically ill adults: 50–100 mg thiamine should be administered very slowly intravenously, followed by 3-5 mg of thiamine per day orally for at least 6 weeks.
UNHCR, IRC and the Informal Inter-Agency Group on NCDs in Humanitarian Settings	Integrating non-communicable disease care in humanitarian settings: An operational guide[177]	2020	Dietary advice	· Diet is very important for cardiovascular disease and diabetes management, but populations in humanitarian settings may be dependent on food assistance and have limited access to a balanced diet. In this case, collaboration with organizations providing food assistance is needed to promote the provision of sufficient and balanced diet which may include fresh food vouchers systems. · Ensuring that food rations do not contain excessive sugar and salt can provide a population benefit as well as addressing the needs of specific patient groups. · Physical activity promotion should focus on exercises that can be done at home during a conflict situation if it is unsafe to walk or be active outside. · Specific groups, such as pregnant women, children with metabolic disorders, or people with type 2 diabetes, might require specific appropriate food rations very early in an intervention. Examples include the provision of fresh food vouchers for pregnant women or people with type 2 diabetes or special infant formula for metabolic disorders.
Humanitarian-specific policies and guidance (other agency documents)				
Inter-agency working group on reproductive health in crises	Success Depends on Collaboration Cross-Sector Technical Brief on Maternal and Newborn Health and Nutrition in Humanitarian Settings[178]	2022	General	· The humanitarian sector must strive for a system in which the mother-newborn dyad is strengthened and nourished through the collaboration of the health and nutrition sectors to deliver quality, accessible, continuity of care within and between services. · When assessing the nutrition status of an infant or child, it is important to evaluate the mother's nutritional status and provide support. · When a mother brings in her child for a nutrition visit, offer her a referral for a reproductive health visit to discuss birth spacing options.

Authors	Title	Date	Interventions covered	Key policies and guidance[h], details of document scope
				· When a mother brings in her child, if she is pregnant again, ask if she is receiving antenatal care, and if not, refer to SRH staff. · When seeing an infant under six months of age, ask the mother if she has received postnatal care, and if not, refer to SRH staff. · When assessing the nutrition status of an infant or child, it is important to consider the mother's mental health and provide support. · Give special attention to adolescent mothers who have heightened nutrition and health needs and for whom family planning, antenatal support and postnatal care is especially important, in both the interests of the woman's wellbeing as well her newborn. · When providing ANC ensure a mother is receiving recommended micronutrient supplementation and assess a mother's nutritional status or refer her to someone who is qualified to do so. · When assessing non-pregnant women and adolescents, for reproductive health visits, include nutritional assessments.
Sphere Association	Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response, fourth edition47 and online 'living' version at https://handbook.spherestandards.org/en/	2018	General	Relevant guidance for women from Standard 2 on food security and nutrition: · Provide clear information on the importance of exclusive breastfeeding in children up to six months, and continued breastfeeding for children from 6 to 24 months, for both the physical and psychological health of mother and child. · Admit breastfeeding mothers of acutely malnourished infants under six months to supplementary feeding programmes, independent of maternal nutrition status. · Prioritise pregnant and breastfeeding women for access to food, cash or voucher transfers and other supportive interventions. · Provide access to skilled breastfeeding counselling for pregnant and breastfeeding mothers. · Target mothers of all newborns with support for early initiation of exclusive breastfeeding. · Provide simple guidance for exclusive breastfeeding in maternity services. · Provide daily supplements to pregnant and breastfeeding women, including one daily requirement of multiple micronutrients to protect maternal stores and breastmilk content, whether the women receive fortified rations or not.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Continue iron and folic acid supplements when already provided. · If the needs of pregnant and breastfeeding women are not met in food, or cash or voucher assistance programmes, target pregnant and breastfeeding women with fortified food. Give micronutrient supplements in accordance with WHO recommendations. · Organise psychosocial support for distressed mothers, including referral to mental health services as necessary. Arrange appropriate support for mothers with disabilities. Create safe places in camp and other collective settings for women to breastfeed, such as baby friendly spaces with exclusive breastfeeding areas. · Provide iron and folic acid, or multiple micronutrient supplements, to pregnant and lactating women, in accordance with the latest guidance. · Mothers living with HIV should be supported to breastfeed for at least 12 months and up to 24 months or longer while receiving anti-retroviral therapy. If anti-retroviral drugs are not available, choose the strategy that gives infants the greatest chance of HIV-free survival. · Gender-based violence, gender inequality and nutrition are often inter-related. Domestic violence can pose a threat to the health and well-being of women and their children. Nutrition staff should provide supportive and confidential referral for caregivers or children exposed to gender-based violence or child abuse. · Much other guidance for treatment of wasting and micronutrient deficiencies, as well as food distribution programmes, will be relevant for all the population.
Inter-agency working group on reproductive health in crises	Inter-agency field manual on reproductive health in humanitarian settings[179]	2018	General	· Pregnant women require an additional 285 kcal/day and lactating women require an additional 500 kcal/day. · Adequate intake of iron, folate, and iodine are particularly important for the health of women and their infants. The increased micronutrient needs of pregnant and lactating women are usually not met through the provision of a basic food ration. Pregnant and lactating women should therefore receive an appropriate fortified food supplement providing 500 to 700 kcal for on-site feeding and 1,000 to 1,200 kcal if provided as a take-home ration.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Pregnant women must receive daily supplements of iron (60 mg/day) to prevent anaemia and folic acid (400 µg/day) to prevent neural tube defects. · Where possible all postpartum women should also have a home visit within the first week regardless of where she gave birth. · At least three additional postnatal contacts are recommended for all mothers and newborns, on day 3 (48-72 hours), between days 7-14 after birth, and 6 weeks after birth. These visits provide an occasion to assess and discuss hygiene, breastfeeding, and appropriate methods and timing of family planning. Ensure health providers support early and exclusive breastfeeding and discuss appropriate nutrition with the mother. These visits also provide an opportunity to weigh the newborn, discuss his or her care, and provide referrals; newborns must be referred to the under-5 clinic for immunisations, growth monitoring, and other well-child services. · Ensure that people living with HIV have non-discriminatory access to necessary food supplements and nutrition counselling through food assistance programmes.
Moderate Acute Malnutrition (MAM) Taskforce, Global Nutrition Cluster	Moderate Acute Malnutrition: A Decision Tool for Emergencies[54]	2017	Supplementary feeding	· All PLW/G up to six months postpartum who are moderately wasted should be included in a targeted supplementary feeding programme, regardless of their age. · The decision to include PLW/G is, however, context-specific and depends on a variety of factors such as prevalence of LBW, national guidelines, availability of other programmes, programme capacity, resources, and child feeding practices. If programme capacity is low in humanitarian emergencies, it is recommended that children be prioritised first, followed by breastfeeding women, although breastfeeding women are of course prioritised for the potential benefits for their infants. · Treatment of moderate wasting in PLW/G could consider Super Cereal/oil/sugar as a first option and Super Cereal Plus as a second. · For the prevention of moderate wasting in PLW/G Super Cereal/oil/sugar could be considered where there are no appropriate food sources, with the alternative option being a medium-quantity lipid nutrient supplement.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
IFE Core Group	Operational Guidance on Infant Feeding in Emergencies (OG-IFE) version 3.0[118]	2017	Micronutrient supplementation	· For PLW, iron and folic acid or multiple-micronutrient supplementation should be provided in accordance with the latest guidance.
ENN and Nutrition Works for the Global Nutrition Cluster	Harmonised Training Package (HTP) version 2[55]	2011	General	· MAM programming should include PLW/G: Take-home rations should be provided in the form of a pre-mix which provides from 1000 to 1200 kcals per person per day, and 35 to 45 grams of protein in order to account for sharing at home. Women need an additional 350 kcals/day from the third month of pregnancy and 550 kcals per day for breastfeeding. · Rations are usually given to pregnant women from the time of confirmed pregnancy (although some guidelines advocate from the third trimester of pregnancy), and breastfeeding mothers until a maximum six months after delivery. · Suggested admission criteria for pregnant women include MUAC less than 210 mm (or 230 mm) and second or third trimester. Discharge is when MUAC recovers to greater than the cut-off used. Admission criteria for lactating women with infant < 6 months: MUAC less than 210 mm (or 230 mm) and/or they have breastfeeding problems or if the infant is not gaining weight adequately. Discharge is either when MUAC recovers to greater than the cut-off, or when the baby reaches 6 months of age. · Chronically ill women with MAM are also advised to be admitted to targeted SFPs (MUAC > 214 mm and <221 mm). · Micronutrient programming module mentions "iron and folic acid tablets for pregnant women are well established routine components of most public health programmes".
General guidance, with relevance still for humanitarian contexts				
UNICEF	UNICEF Programming Guidance. Prevention of malnutrition in women before and during pregnancy and while breastfeeding[180]	2022	General	· Guidance is aligned with the 2016 WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience, the 2013 WHO policy brief on Preconception care: Maximizing the gains for maternal and child health; the 2013 WHO guidelines on Postnatal care of the mother and newborn; and the 2018 WHO guidelines for implementing effective actions for improving adolescent nutrition.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Outlines UNICEF's programmatic priorities: 1) women's nutrition before pregnancy; 2) women's nutrition during pregnancy; 3) women's nutrition while breastfeeding; 4) nutrition of adolescent mothers and other nutritionally at-risk women; and 5) innovations for maternal nutrition. · In humanitarian contexts, UNICEF will support a minimum package of preventive interventions for all pregnant women and breastfeeding mothers, including fortified staple foods, counselling on nutritious diets, MMS or IFA supplements, and deworming prophylaxis. In settings where there is food insecurity and poor access to diverse and quality diets, UNICEF will also support services to prevent maternal wasting as part of national systems. In these situations, UNICEF will provide targeted preventive nutritional supplements (i.e., BEP) to pregnant women and breastfeeding mothers who have been screened and referred for BEP. UNICEF will also create opportunities to provide food vouchers and cash-based interventions for women and link these with nutrition counselling.
WHO	WHO recommendations on maternal and newborn care for a positive postnatal experience[48]	2022	General	· Oral iron supplementation, either alone or in combination with folic acid supplementation, may be provided to postpartum women for 6–12 weeks following childbirth for reducing the risk of anaemia in settings where gestational anaemia is of public health concern. The WHO considers a 20% or higher population prevalence of gestational anaemia to be a moderate public health problem. · Vitamin A supplementation in postpartum women for the prevention of maternal and infant morbidity and mortality is not recommended. · Other guidelines on medical, mental health, family planning and physical activity interventions detailed.
WHO	Essential Nutrition Actions (ENAs)[49]	2019	General	· In undernourished populations, nutrition education on increasing daily energy and protein intake is recommended for pregnant women to reduce the risk of LBW neonates. · In undernourished populations, BEP dietary supplementation is recommended for pregnant women to reduce the risk of stillbirths and SGA neonates. · In undernourished populations, high-protein supplementation is not recommended for pregnant women to improve maternal and perinatal outcomes.

Authors	Title	Date	Interventions covered	Key policies and guidance[a], details of document scope
				· Iodine supplementation for non-pregnant adolescent girls and women (15–49 years) and pregnant women should be considered where 20% or fewer households have access to iodised salt and where pregnant women are difficult to reach. · MMS that contains IFA may be considered for maternal health, in settings with a high prevalence of nutritional deficiencies. · In populations with low dietary calcium intake, daily calcium supplementation (1.5–2.0 g oral elemental calcium) is recommended for pregnant women, to reduce the risk of pre-eclampsia. · Vitamin A supplementation is only recommended for pregnant women in areas where vitamin A deficiency is a severe public health problem,[c] to prevent night blindness.
WHO	Guideline: implementing effective actions for improving adolescent nutrition[181]	2018	General	· Summarises guidance on promoting healthy diets; providing additional micronutrients through fortification of staple foods and targeted supplementation; managing acute malnutrition; preventing adolescent pregnancy and poor reproductive outcomes; promoting preconception and antenatal nutrition; providing access to safe environment and hygiene; promoting physical activity.
WHO	WHO recommendations on antenatal care for a positive pregnancy experience[39]	2016	General	See above details on WHO 2019 ENAs, as these were based on the 2016 ANC guidelines. Note that for humanitarian settings the joint 2007 UN statement recommending MMS in humanitarian contexts may be referred to as an option.

c Vitamin A deficiency is a severe public health problem if > 5% of women in a population have a history of night blindness in their most recent pregnancy in the previous 3–5 years that ended in a live birth, or if > 20% of pregnant women have vitamin A deficiency.

Appendix 6: Summary of UNICEF advocacy brief: Five key reasons to scale up MMS

Multiple Micronutrient Supplementation (MMS), an approach to improving the quality of nutrition care for mothers and preventing low birthweight. **UNICEF: New York (2022).**

This 2022 brief highlights five key reasons for adopting policies and programmes to scale up MMS:

1. MMS are a safe and effective way to improve the diets, nutrient intake and nutritional status of pregnant women and breastfeeding mothers.
2. MMS are good value for money and have a high return on investment.
3. MMS have the potential to improve the quality of nutrition care for women during pregnancy.
4. MMS are a social equaliser by offering all pregnant women the same standard of care, everywhere.
5. MMS can be produced locally which can enhance affordability, ownership and support local economies.

Report available at: https://www.unicef.org/media/123271/file

Appendix 7: Results of a WHO research prioritisations exercise for maternal and adolescent health in humanitarian emergencies

A 2019 WHO 'Prioritization of Research for the promotion of Sexual, Reproductive, Maternal, Newborn, Child, and Adolescent Health (SRMNCAH) in Humanitarian Emergencies' exercise[182] found the following areas to be priorities for research:

- **Maternal health**

1. What are effective surveillance strategies to capture and understand maternal and perinatal (stillbirth and neonatal) mortality at the population level?
2. What are effective strategies for household level labour, delivery, immediate, and newborn care to reduce maternal and neonatal morbidity and mortality in humanitarian settings?
3. Is cash transfer an effective strategy to increase the utilisation of maternal and newborn health services in humanitarian settings, including acute phases?
4. What are effective and acceptable psychosocial strategies to assist women to cope with pregnancy loss in humanitarian settings?
5. What are feasible and effective approaches to provide safe abortion care in humanitarian settings?
6. How can maternal mental health care be integrated into periconceptional, antenatal, delivery and post-partum care in humanitarian settings? What are acceptable, effective and cost-effective strategies?

- **Adolescent health**

1. What are the prevalence and drivers of mental health disorders, substance abuse and risky behaviours among adolescents who have been forced to migrate?
2. What social and mental health interventions are effective in reducing the negative consequences of forced/child/early marriage humanitarian settings?
3. Can the assistance of community-owned resource persons increase the detection of and access to support for adolescent GBV survivors in humanitarian settings?
4. What nutritional interventions are effective in improving functional outcomes (cognitive, physical, etc.) in adolescents?
5. Can facilitated youth and/or peer-led groups be effective in assessing and addressing the psychosocial needs of adolescents in humanitarian settings?

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