



Pakistan Case Study

Multiple Micronutrient Supplements in Humanitarian Emergencies

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Executive summary

Pakistan, the world's fifth most populous country, has shown progress in recent years on reducing poverty and mortality rates, and increasing primary school enrolment and immunisation coverage. However, persistent challenges, such as population growth and underdevelopment, are being intensified by recurring emergencies related to food insecurity, climate change and the recent COVID-19 pandemic. In 2022, severe monsoons affected over 33 million people, leaving 20.6 million (including 9.6 million children) in need of humanitarian assistance. Also in 2022, heavy rainfall in the southwest of the country led to flash floods, fatalities, and infrastructure damage, compounding vulnerabilities. Gender inequality, exceptionally high fertility rates (particularly in the poorest wealth quintiles) and limited access to essential services further impact child and maternal nutrition and mortality outcomes.

While Pakistan is in the early stages of programming for multiple micronutrient supplements (MMS), a strong enabling environment is now shaping political, institutional and policy processes for improving maternal nutrition. Pakistan's Maternal Nutrition Strategy 2022-2027 aims to protect and promote diets, practices and services that support the optimal nutrition, health and well-being of all women. The provision of MMS is a core intervention outlined in this strategy, which includes the target of reaching 50% of all women with MMS programming by the end of 2027.

As part of health and nutrition services in Pakistan, all MMS programming is overseen by the Ministry of National Health Services, Regulations, and Coordination (MoNHSR&C). To date, several organisations have supported MoNHSR&C to deliver MMS as part of wider maternal nutrition programming: these include UNICEF, Nutritional International, the Bill & Melinda Gates Foundation, and many implementing partners. MMS programming in districts experiencing humanitarian emergencies have thus far been delivered through routine antenatal care (ANC) services and as a separate emergency response.

Routine ANC programming delivered through the country's health service and supported by UNICEF, Nutrition International and other implementing partners has delivered MMS across some of the flood-affected districts and in Union Councils at high risk of polio (scattered across several districts). Sufficient MMS to cover 500,000 pregnant women has been procured and distributed. Ongoing support for routine ANC programming has spanned the nexus between humanitarian and longer-term maternal and child nutrition programming.

Distribution of MMS as part of the emergency floods response across two provinces (Sindh and Balochistan) started at the beginning of 2023. Kirk Humanitarian donated sufficient MMS to cover 2.2 million pregnant women. Over half of this donation was distributed initially through small pilot studies across seven districts, and then through the National Disaster Management Association (NDMA) of Pakistan as part of the emergency response. The delivery of this MMS was initially organised by the provincial-level health directorate to all pregnant women, without being integrated into ANC platforms. However, subsequently it has been agreed that the remaining supply (sufficient MMS to cover 1 million pregnant women) will be delivered through MoNHSR&C to ensure standard protocols for MMS programming within ANC services can be followed.

Important learning for MMS programming across all settings in Pakistan is emerging from the emergency distribution of MMS and an implementation research study. The challenge now is translating the momentum on MMS programming into policy and strategy, ensuring that any learning is embedded in updated programme guidance, along with effective delivery within ANC programming across a complex, devolved health system. This is a real opportunity to improve the quality and coverage of, and demand for, ANC services, and stakeholders in Pakistan have identified key priorities to support this. Resource mobilisation is critically important, and will require the leveraging of mechanisms such as nutrition match funds and emergency donor support. Integrating MMS programming into the existing health system will require the development of clear guidance for, and capacity building of, health workers (both facility- and community-based) to support the switch from iron-folic acid to MMS. The inclusion of MMS on the national essential medicines list, which was achieved in December 2023, should support procurement, financing and supply management, and key informants are hopeful that initial explorations of local MMS production could potentially start to bring the costs of the product down.

Through collaborative efforts and strategic prioritisation, Pakistan can continue to strengthen and scale up ANC services, including MMS programming, and hence have a positive impact on the nutritional status of women and their children across all of the country's diverse regions.

“Important learning for MMS programming in Pakistan is emerging from the emergency distribution of MMS and implementation research. The challenge now is translating the momentum on MMS programming into policy and strategy.”



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Introduction

In recent years there has been significant global momentum on progressing women’s and adolescent girls’ nutrition, led by governments, United Nations agencies, non-government organisations, research institutions, the private sector and donors. Daily multiple micronutrient supplements (MMS), received through antenatal care (ANC) platforms, have received particular attention. The growing evidence base describing the effectiveness of MMS for birth and maternal outcomes, together with an increasing volume of documented learning about operational aspects from several implementation research pilots, together with a strongly supportive advocacy agenda, means that our understanding of the potential impacts of MMS when taken to scale is rapidly improving. However, there remain large knowledge gaps regarding what is happening (or not) with MMS programming for women and girls in humanitarian contexts.

To address this gap, Emergency Nutrition Network (ENN) developed a ‘**State of Play**’ report detailing the use of MMS in humanitarian emergencies, informed by a survey, two case studies (this one from Pakistan and an accompanying one from **Somalia**) and additional key informant interviews. In the State of Play we provide a brief background to MMS, summarising the key evidence and policies, we define how we describe humanitarian emergencies and we summarise the humanitarian system for nutrition programming. We use the results of the survey to provide a snapshot of where MMS is being used in humanitarian emergencies and by whom. We then summarise the two case studies and pull together the key themes regarding overall barriers to, and opportunities for, the use of MMS in humanitarian emergencies.

This stand-alone case study provides the full information on the use of MMS in nutrition programmes in Pakistan, alongside key barriers and opportunities for future scale-up in the country.



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Methods

Somalia and Pakistan were selected as examples of two contrasting country contexts to illustrate key themes of MMS programming in humanitarian emergencies in depth. United Nations Children's Fund (UNICEF) headquarters introduced the ENN researcher team to the in-country UNICEF offices, who in turn then helped with the selection of key informants from relevant government, further United Nations, non-government organisation and private sector contacts. An interview guide was developed (*Annex 7*) and used to guide conversations in both countries. Interviews lasted 45-60 minutes. Most interviews with key informants from Pakistan were conducted in-person in August 2023, with some additional interviews conducted remotely online. Key findings on barriers and opportunities were summarised by World Health Organization (WHO) health system building blocks (1).

All key respondents provided oral consent for the interviews to be recorded for the purposes of note-taking. Key respondents reviewed the final drafts of the case studies to check their accuracy and to provide final consent for inclusion of their names in the acknowledgements.

Scope of research: The programme and policy context regarding MMS in Pakistan is rapidly evolving. This case study does not aim to cover every detail of MMS programming in Pakistan, but instead captures key learning, particularly related to the humanitarian programming of MMS in the country. Readers should therefore note that this case study documents a snapshot of the situation as at August 2023.



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Background

MMS

MMS are formulated to contribute towards the Recommended Dietary Allowance of 15 micronutrients for pregnant women. The formula recommended for use, and which therefore forms much of the evidence base, is the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP). When compared to iron-folic acid (IFA), MMS further reduces low birthweight by 15%, stillbirth by 9%, pre-term birth by 4%, and small-for-gestational age deliveries by 7% (2). Compared to iron with or without folic acid, MMS has similar benefits in regard to reducing maternal anaemia (3). The 2023 Copenhagen Consensus Report underscores the considerable economic advantages of replacing IFA with MMS, estimating a return on investment of USD 37 for every USD 1 spent (4).

In 2007, WHO, the World Food Programme (WFP), and UNICEF issued a joint statement on preventing and controlling micronutrient deficiencies in populations affected by an emergency, including recommendations on the use of daily MMS for pregnant and breastfeeding women (5). Since the 2007 joint statement, the recommendations have been implemented to varying degrees around the world.

Pakistan context

Pakistan is the world's fifth most populous country, and around 39% of its population are under the age of 18. It has made notable progress in recent years on several social and economic indicators, including the following: a reduction in the overall levels of poverty; lower infant, under-five and maternal mortality; an increase in net primary school enrolments; and increased immunisation coverage for polio and other childhood diseases (6). Nonetheless, poverty and underdevelopment remain challenges, exacerbated by recurring emergencies linked to food insecurity, climate change and the recent COVID-19 pandemic, which limited access to livelihoods and services (7). In 2022, the country experienced one of its worst monsoons since 1961, with floods affecting more than 33 million people in over 84 districts and leaving an estimated 20.6 million people (including 9.6 million children) in need of humanitarian assistance. Subsequently, in 2023, heavy rainfall in southwestern Pakistan caused flash floods, fatalities, and infrastructure damage, further increasing the vulnerability of those previously impacted. In addition, significant challenges in terms of gender inequality, extremely high fertility rates (particularly in the poorest wealth quintiles) and poor access to health, nutrition, education and water, sanitation and hygiene (WASH) services continue to directly impact child and maternal nutrition and mortality outcomes (8).

As a result, health and nutrition indicators in Pakistan have improved only slowly, with some nutritional outcomes not improving at all over the past two decades. The National Nutrition Survey in 2018 (9) reported high levels of wasting (17.7%) and stunting (40.2%) among children under five years of age. Slow progress has been made towards achieving the target of reducing anaemia among women of reproductive age, with 41.3% of women aged 15 to 49 years affected in 2018. This has fallen by 7.8% since 2011 (9). There is insufficient data to assess the progress that Pakistan has made towards reducing low birthweight, or even to adequately estimate current prevalence. However, older data suggests that Pakistan has one of the highest burdens of low birthweight babies globally, with a national average of 22.7%, but as high as 50% in some provinces (10).

Nutrition strategies for women and adolescent girls

A strong enabling environment now shapes political, institutional and policy processes for improving maternal nutrition in Pakistan. Nutrition has been positioned within the national development agenda with a high level of political commitment, and both federal and provincial governments are ready to prioritise maternal nutrition (see Box 1).

Box 1: Government of Pakistan policies that relate to maternal nutrition

Pakistan is committed to maternal nutrition, through focusing on achieving the Sustainable Development Goals and policy actions carried out through Pakistan's participation in the Scaling Up Nutrition (SUN) movement. There are a number of existing policies that relate to maternal nutrition, including the following:

- The National Health Vision 2016-2025
- The National Vision for Reproductive, Maternal, Newborn, Child and Adolescent Health and Nutrition 2016-2025
- The Pakistan Multisectoral Nutrition Strategy 2018-2025
- The Pakistan Adolescent Nutrition Strategy 2020-2025
- Pakistan's Maternal Nutrition Strategy 2022-2027

These frameworks are aligned with the 2025 Global Nutrition Targets (11), and all recognise the importance of addressing women's nutrition.

Other policy developments related to maternal nutrition include the Protection of Breastfeeding and Child Nutrition Act, the Food Fortification Act, and the Early Marriage Restraint Act.

Pakistan's Maternal Nutrition Strategy 2022-2027 aims to protect and promote diets, practices and services that support the optimal nutrition, health and well-being of all women in Pakistan (with a focus on preventing all forms of malnutrition among women during the preconception, pregnancy and postpartum stages of nutritional vulnerability). MMS is a core intervention outlined in this strategy, which includes a target to reach 50% of all women with MMS by the end of 2027 (12). Box 2 sets out a part of the rationale at the country level for switching from IFA to MMS.

As at October 2023, an updated PC-1 document¹ for the national nutrition programme was finalised. This was approved in March 2022 and, at the time of writing, is now awaiting release of funds. Discussion with the focal point from the Ministry of National Health Services, Regulations, and Coordination (MoNHSR&C) confirmed that this PC-1 document includes a protocol for addressing micronutrient deficiencies among pregnant and breastfeeding women and adolescent girls (PBWs), with the details still under discussion. In addition, the recently released (in March 2023) DHIS-2 nutrition module now includes an indicator for MMS. The inclusion of MMS in the federal Nutrition PC-1 and in the DHIS-2 will be critical for the development of national guidance, support and monitoring of MMS programming at scale in Pakistan. The Drug Regulatory Authority of Pakistan has also recently (October 2023, printed in December 2023) included UNIMMAP MMS in its essential medicines list (EML). This could help to enhance sustainable financing for scaling up and tracking progress on MMS supplementation as part of antenatal maternal nutrition services.

While MMS is not yet integrated in programme guidance, including for ANC through primary healthcare, community-based management of acute malnutrition (CMAM) programmes (where mothers are also screened), or in the Universal Health Coverage (UHC) package, these all pre-date the inclusion of MMS in the Maternal Nutrition Strategy and the PC1. MoNHSR&C has confirmed plans to update these programme documents to include MMS soon.

Box 2: Rationale for the transition from IFA to MMS in Pakistan

Pakistan will be transitioning from IFA to MMS due to the multiple micronutrient deficiencies prevalent in the country, the potential benefits for maternal and birth outcomes outlined in the background, as well as evidence that transitioning from IFA to MMS will be cost-effective. For instance, this transition will avert an estimated 2,379,157 disability-adjusted life years (DALYs) over a 10-year period, prevent 29,862 additional child deaths and yield benefits that are 550 times greater than the costs of additional investments in multiple micronutrient supplementation over a decade. Source: **Nutrition International. 2019.** 'Policy Brief: Pakistan. Cost-effectiveness of transitioning from iron and folic acid to multiple micronutrient supplementation for pregnancy'.

“MMS is a core intervention outlined in Pakistan's Maternal Nutrition Strategy 2022-2027, which includes a target to reach 50% of all women with MMS by the end of 2027.”

¹ PC-1s are produced for all national projects in Pakistan and are known as the planning tools for the development and execution of any projects in government departments.

Delivery of MMS programming in Pakistan

Key agencies supporting MMS programming

All MMS programming is overseen, as part of health and nutrition services in Pakistan, by MoNHSR&C. There are several organisations that have supported MoNHSR&C to deliver MMS within programmes to date. Some of these include the following:

- UNICEF collaborates with MoNHSR&C to integrate MMS in nutrition strategic documents and programme guidelines (see above). The focus is on providing assistance in emergency-affected districts. UNICEF collaborates with government health staff or non-governmental organisation implementing partners to implement MMS programming through health facilities. UNICEF actively contributes to capacity building for health workers and the development of information, education and communication (IEC) materials tailored for MMS programming. Notably, in Sindh province the People's Primary Health Initiative stands out as one of the larger implementing partners for maternal and child health and nutrition programmes, delivering vital health services at the facility level. UNICEF Supply Division also provides technical assistance to the private sector linked to the local production of MMS.
- Kirk Humanitarian has provided the biggest donation of MMS to date in Pakistan, through the Junaid Family Foundation (JFF) and delivered to MoNHSR&C. This donation has been used in a pilot programme, implemented by MoNHSR&C in collaboration with provincial/regional departments of health, with some support from JFF, in 2022. Subsequently, more than a million bottles received in 2023 are being distributed through the National Disaster Management Authority (NDMA) and the provincial departments of health (Lady Health Worker (LHW) Programme²) as part of the emergency flood response in two provinces: Sindh and Balochistan (*Box 3*).
- Nutrition International, in collaboration with MoNHSR&C, is conducting implementation research to support informed decision-making for the transition to using MMS within ANC, and sustainable scale-up (see more details in *Box 4*). This work builds upon the findings from Nutrition International's MMS **Cost-Benefit tool** analysis and decades of working with national and provincial governments in maternal and newborn health. Nutrition International is supporting multiple aspects of the Government of Pakistan's 2022-2027 Maternal Nutrition Strategy rollout. Over the next two years, Nutrition International will support provincial scale-up through district-wide transition from IFA to MMS, and co-develop MMS costed national and provincial roadmaps.
- The Bill & Melinda Gates Foundation also supports MoNHSR&C's plans for the introduction and scale-up of MMS through implementing partners in Pakistan.

² The LHW network comprise the government contracted staff working under the LHW Programme, which has a remit (with defined job descriptions and a broad mandate) to provide all community-based outreach for health and nutrition in Pakistan.

Delivery of MMS through programmes

The provisional approach to be outlined by the upcoming national nutrition PC-1, with MMS³ integrated into the ANC delivery platform for the prevention of anaemia, is not yet operational at scale in Pakistan. However, this approach is being used for the implementation research described in *Box 4*, for routine programming in some districts where support is provided, and is included in plans for training and health systems strengthening in upcoming work. MMS programming in districts experiencing humanitarian emergencies has comprised both routine ANC programming and a separate emergency floods response.

Routine ANC programming delivered through the country's health service and supported by UNICEF and implementing partners has delivered some MMS across some of the flood-affected districts and in Union Councils at high risk of polio (scattered across several districts). Ongoing support for routine programming has spanned the nexus between the humanitarian sector and the delivery of long-term maternal and child nutrition programming and, along with the progress in policy and strategy discussed above, is reflective of Pakistan's transition from IFA to MMS in ANC programming.

Distribution as part of the emergency floods response across two provinces (Sindh and Balochistan) started at the beginning of 2023, through NDMA (*Box 3*). MMS supply was donated by Kirk Humanitarian through JFF. UNICEF-supported emergency response also included provision of MMS through static and outreach nutrition sites as part of the nutrition response across the flood-affected districts.

Implementation research, supported by Nutrition International, is being conducted in one district of Khyber Pakhtunkhwa province (*Box 4*).

Box 3: MMS in the emergency response to the 2022-23 floods

In September 2021, JFF and Kirk Humanitarian donated sufficient MMS to cover 2.2 million pregnant women to MoNHSR&C for the scale up and transition from IFA to MMS. A portion of this donation (sufficient for 139,000 pregnant women) was used in pilot programmes, implemented by MoNHSR&C across seven districts spread across different provinces between 2021 and 2022. Subsequently, the delivery of a further 1 million bottles as part of the same donation, sufficient for 1 million pregnant women, was agreed.

During this time, Pakistan was facing one of the worst floods in its history. Therefore, in September 2022, JFF committed to supplying the 1 million bottles in support of urgent nutrition needs for pregnant women displaced by floods in Sindh and Balochistan provinces. It was agreed that these bottles would be distributed through NDMA to the provincial departments of health in all districts of Sindh and Balochistan, and not through MoNHSR&C. Despite MoNHSR&C sharing protocols and training materials regarding the distribution and use of MMS as part of ANC, the actual distribution and delivery of the MMS was organised by the provincial-level health directorates to all pregnant women in their assigned populations, without being integrated into ANC platforms.

As at November 2023, after discussion between MoNHSR&C and Kirk Humanitarian, it was agreed that the remaining 1 million bottles from the original donation would be delivered through MoNHSR&C so that standard programme protocols for MMS within ANC programmes can be followed. However, funds to support the distribution and capacity building of healthcare providers for proper utilisation of MMS as per agreed protocols will be provided by JFF and BMGF.

³ 180 tablets to be given during the first ANC visit.

Box 4: Implementation research on the introduction of MMS into routine ANC

Based on the maternal and newborn needs in the country and the government's vision, the Government of Pakistan began undertaking implementation research on MMS with Nutrition International in 2021 under the *Advancing Maternal Health through MMS Implementation Research in Pakistan* (AMMI) project in Swabi district of Khyber Pakhtunkhwa province.

The research was initiated with the establishment of an MMS technical advisory group chaired by the MoNHSR&C with the aim of not only guiding the switch to MMS from IFA through the health system but also understanding what changes could be made to improve ANC services for pregnant women. The AMMI project is being conducted using mixed methods over three different phases. To date, the project has:

1. Determined priority research questions using a Child Health and Nutrition Research Initiative (CHNRI) methodology.
2. Supported a successful district-wide transition from IFA to MMS.
3. Defined effective program implementation solutions using participatory research methods.
4. Undertaken a process evaluation to understand how these solutions and the transition from IFA to MMS are working in real-life, exploring fidelity, acceptability, feasibility, quality of care, enablers and barriers to successful implementation.
5. Conducted a costing study to better estimate the cost of transition, which is feeding into a follow up cost-effectiveness analysis.

Currently, the AMMI project is undertaking a cluster randomised control study to evaluate the impact of these solutions on adherence and other implementation outcomes.

The AMMI project has trained over 900 health workers, produced new standard operating procedures, a social behaviour change strategy and material, bolstered programme monitoring systems, and strengthened the supply chain. A training **manual** has been produced to provide the minimum amount of guidance required for training healthcare workers to start using MMS within ANC. The learning from AMMI is guiding the development of a more comprehensive training package that is designed to drive and sustain adherence. This package is currently being evaluated, and results will be available in October 2024.

The evidence, tools, and approaches generated from AMMI are supporting real-time decision-making on the sustainable scaling up of MMS integration into ANC at the provincial level, strengthening ANC delivery for improved maternal nutrition and health services.

Challenges and opportunities for MMS programming

Challenges to the programming and delivery of MMS in Pakistan, as well as some opportunities for addressing them, were mentioned by interviewees and are documented below. These are discussed by WHO health system building block, with a particular focus on programmes delivered in districts affected by humanitarian emergencies. Key information is also summarised in *Table 1*.

Building Block 1 Leadership and Governance

Challenges

The distribution of MMS during the emergency flood response through NDMA, rather than through MoNHSR&C, proved to be somewhat of a challenge regarding the appropriate and effective use of the product (*Box 3*).

While MMS is now well integrated into the national Maternal Nutrition Strategy (see below) and protocols exist, more detailed programme guidance, describing implementation protocols and the approach to the rollout of MMS, linked to this strategy and the provincial PCIs, remain under development.

Opportunities

MoNHSR&C has embraced the importance and value of integrating MMS into ANC programming and Pakistan is one of the few countries that is actively working to transition from IFA to MMS. Examples of this transition include the following:

- The recent inclusion of MMS in the national nutrition programme PC-1 document, as well as in some provincial PC-1s, such as that in Punjab.
- The establishment of a technical working group for MMS implementation research (which is going to be expanded to an MMS technical working group as MMS gets scaled up).
- The inclusion of MMS in some recent provincial-level programme documents and budget requests, including nutrition match funds.
- The inclusion of UNIMMAP MMS in the EML of the Drug Regulatory Authority of Pakistan.

These all represent opportunities, through MoNHSR&C, to improve the coordination, documentation, financing, and support for MMS programming as part of improved access to, and quality of, ANC services, including in emergency-affected districts.

There is broad understanding that inclusion of MMS in the EML could support the scale-up of MMS and help to improve the quality of ANC programming more generally, through leveraging domestic resources for the purchase of MMS, reducing costs, and mobilising further political commitment for the integration MMS into ANC and other health and nutrition service delivery points. This could also help to address gaps in MMS supply chains (see below).

Building Block 2 Service Delivery

Challenges

Although MMS is included in maternal health and nutrition strategies (see above), it is not yet fully integrated into standard health service/ANC/primary healthcare delivery across all of Pakistan. As such, country-level coverage of MMS interventions remains low.

Within the emergency programme, the delivery of MMS outside a supported ANC service may have limited uptake among PBWs and any follow-up provided at community level. This makes it difficult to monitor compliance and record any issues that affect it (such as sharing of MMS and side effects). It may mean that women did not receive other important ANC services, including dietary counselling and nutrition education, although data on this is lacking.

Opportunities

The approach for addressing micronutrient deficiencies in PBWs in the upcoming national nutrition programme PC-1 for nutrition is relatively simple, with specific products prescribed for each age group. While this is going to require the careful development of clear guidance and job aids for use by frontline health workers, it is also an opportunity to support the integration of MMS as part of ANC and other health and nutrition services within routine health and nutrition programming.

Outcomes and learning from implementation research (Box 4), as well as from pilot programmes where learning is available, are likely to improve understanding of the acceptability, feasibility, sustainability, equity and cost-effectiveness of MMS programming across all settings. It is also an opportunity to assess existing ANC services and ways to improve access, affordability and quality.

Data on MMS uptake and compliance by PBWs is not formally recorded. However, anecdotal observations from key informants broadly agreed that compliance with MMS is better than with IFA because it tastes better and there are fewer side effects. In addition, some interviewees felt that MMS uptake has improved compared to IFA because labelling on the packaging is clearer and the bottles are easier to manage than the strips or Ziploc bags used for IFA.

Many women are already familiar with MMS through either IFA delivered through ANC and/or some purchase of micronutrients from private pharmacies. There is some demand for each through both of these channels. This suggests that there is some opportunity to leverage existing familiarity with and demand for micronutrients to grow demand for MMS.

Building Block 3 **Health Workforce**

Challenges

Currently, limited orientation or training of frontline health staff on MMS has been delivered, except in the districts covered either by Nutrition International's AMMI project (see Box 4), by MoNHSR&C pilot programmes, or by UNICEF's training of implementing partner staff. Staff capacity and training needs were flagged by several stakeholders in key informant interviews. Specific needs included orientation on the MMS protocol that has been developed, effective counselling, and recording and reporting of MMS-related data. Training and orientation for the delivery of MMS in humanitarian programmes is challenging in the absence of guidance based on national protocols.

Any outreach and community-level mobilisation for the MMS programme within ANC would need to happen through the LHW Programme or other community structures, such as implementing partner-supported community health workers and/or civil society organisations.

For the pilot programmes, LHWs were trained and directed to refer pregnant women to the nearest facility for ANC and provision of MMS. In addition, pregnant women coming directly to health facilities for ANC were also provided with MMS. LHWs followed up at community level on the utilisation of MMS, along with providing support to refusals/defaulters and encouraging them to attend the next ANC visit. Some difficulties were highlighted, but these were mainly associated with the challenges linked to the emergency response (see Box 3 above), or with the challenges of the LHW Programme more broadly (see more details in Box 5).

Box 5: The challenge of MMS programming within the existing health workforce

While there was some perception among key informant interviews that adding MMS to the LHW Programme may prove challenging, given LHWs' existing workload, it was noted that the pilot programmes demonstrated that replacing IFA with MMS within ANC for the prevention of micronutrient deficiencies among PBWs fell under LHWs' existing responsibilities (i.e., nutrition counselling and distribution of basic supplies, including IFA).

More broadly across Pakistan, however, there have been challenges associated with the health workforce, and more specifically with the national IFA programme delivered through ANC at facility-level and through the LHW programme. These include the following: a lack of Women Medical Officers at healthcare facilities, which hampers ANC service delivery; low coverage of LHWs across vast areas of Pakistan; sub-optimal knowledge and understanding of micronutrient deficiencies among PBWs, and of protocols for interventions to address them; a lack of related counselling skills and a lack of qualified trainers; and sub-optimal supportive supervision for healthcare providers (13). All of these issues need to be addressed if MMS programming is to be scaled up across emergency-affected areas and beyond, and to ensure alignment with protocols in the upcoming PC-1 for nutrition.

Opportunities

Protocols for micronutrients for women and adolescent girls that are part of Maternal and Adolescent Nutrition Strategies and already included in the national PC-1 for nutrition are an opportunity to improve health workforce knowledge and capacity for MMS delivery. These are also an opportunity to assess existing ANC services and gain a better understanding of how to improve quality and better integrate nutrition.

There is some work to be done to update the communication and health/nutrition counselling components in the curriculum for LHWs, which could improve health workforce capacity for ANC and MMS programming. The AMMI project (*Box 4*) is currently exploring ways to build health worker capacity, including that of LHWs.

Building Block 4 Financing

Challenges

Key informants highlighted that financial resources, mainly public financing, are scarce for broader nutrition programming in Pakistan, particularly for anything that goes beyond treatment of wasting in children. A large proportion of nutrition programming expenditure, particularly in routine and emergency programmes, goes towards the national and international procurement of therapeutic food supplies (e.g., RUTF, F-75 and F-100) for the CMAM programme. Currently, government funds for preventive supplies are limited, and are near to zero for products such as MMS. In the emergency flood response, and for the pilot programmes, the MMS was donated by Kirk Humanitarian through JFF to MoNHSR&C and NDMA. UNICEF has also procured MMS for use through their own programmes (circa 10% of the total MMS being used in the country). All of this MMS supply is, however, currently completely donor-dependant and therefore sustainable financing solutions for a reliable MMS supply in the future are urgently required.

Even prior to the MMS introduction, there were several budgetary challenges related to the national IFA programme, including bottlenecks related to financial approval and budgetary release and no specific budgetary allocation, with IFA seen as a 'low priority' commodity. This leads to inconsistent procurement and supply. These challenges would certainly apply to any scale-up of MMS programming beyond that which is currently donor-funded ([13](#)).

The cost of importing MMS is considered high and currently the UNIMMAPP MMS scale-up planned in the national nutrition PC-1 has not received sufficient budget allocation. The higher cost of MMS compared to IFA is also a challenge that was highlighted by several stakeholders. This difference in the cost of MMS and IFA is a result of several factors, including low demand for MMS versus IFA, the 15 different micronutrients in MMS (versus only two in IFA), which increases the base cost of the MMS supplement, the need to import MMS (versus IFA, which is locally produced) and, linked to this, issues related to foreign exchange rate fluctuations.

Opportunities

While the higher cost of MMS versus IFA in Pakistan currently may be a challenge, the evidence base on the improved cost benefit of MMS versus IFA is growing (see *Box 2*) and has enabled policy commitment to MMS in the country. This provides an opportunity to advocate for improved funding commitment for MMS programming.

The Child Nutrition Fund (CNF) initiative⁴ is an opportunity to mobilise domestic funds for nutrition commodities, including MMS. Most recently, the governments of Punjab and Sindh provinces have developed proposals for this fund, which include MMS.

Financial commitments for MMS programming articulated in the upcoming national nutrition PC-1, as well as increasing attention across the nutrition and health communities on the importance of the prevention of undernutrition, can be leveraged to mobilise domestic and international resources for MMS.

⁴ The UNICEF Child Nutrition Fund is a new financing mechanism designed to accelerate the scale-up of sustainable policies, programmes and supplies to end child wasting.

There is currently research ongoing that is exploring the feasibility and cost advantage of producing MMS in Pakistan. This research is being led by Remington Pharma, working closely with UNICEF and Kirk Humanitarian, who are providing all the required technical support to Remington Pharma to ensure formulation is aligned with UNIMMAP specifications. Current estimates suggest that local production could bring the cost per tablet down by circa 40%. The Government of Pakistan provides tax exemptions on the import of all raw materials for nutrition commodities, including those needed for MMS.

Building Block 5 Supplies and Technology

Challenges

As discussed above, the majority of the MMS in Pakistan is imported and relies on either in-kind donation or donor funding, with only a very small contribution from government, as demonstrated in the recent CNF application from Punjab and Sindh. Gaps in supply have been reported (e.g., by UNICEF for their programme) due to budgetary constraints, challenges with procurement and supply on the global market, and increased demand that occurred as result of the floods emergency. This has been managed by switching to the use of IFA until MMS becomes available again.

The lack of standardisation of MMS in terms of packaging (available in 100- and 180-count bottles) can provide some challenges for standardising protocols and training healthcare workers. In addition, while women themselves like seeing the full nutrient composition detailed on the labels on bottles, several key informants highlighted a preference for this labelling to be in local languages and to include information leaflets.

Opportunities

The support provided during emergencies to aid those who have been displaced by the floods has resulted in considerable donations (2.2 million bottles, of which 1.2 million have been received – see *Box 3*) of MMS for use in emergency-affected areas. While there have been some challenges linked to programming of some of these donations to date (see *Box 3*), this has resulted in a stock of MMS remaining in government stores.

The in-kind donations have provided important bridging of gaps in more regular supplies for use across both emergency and development programmes, and will no doubt continue to be required in the future, until global MMS supplies are well established and/or local production is fully operational (see above).

UNICEF has supported the Government of Pakistan (national and provincial health departments) with the inclusion of MMS in their logistics management system (LMIS), now rolled out in two provinces (Khyber Pakhtunkhwa and Punjab). This offers an opportunity to streamline the supply chain for MMS, along with other nutrition commodities.

Building Block 6 Information Systems

Challenges

The recently launched DHIS-2 nutrition module includes MMS but has not yet been fully rolled out across the country. In the UNICEF-supported programme, the delivery of both MMS and IFA are reported under the same indicator. As such, it is not possible to segregate the numbers of women that have received MMS and those that have received IFA in these areas.

Opportunities

A capacity (equipment and human resource) and needs assessment activity was carried out with UNICEF support to assess the status of the health delivery system for the adoption of the DHIS-2 nutrition module once it is launched and rolled out by MoNHSR&C. This was done in one district in each of four provinces. Any learning generated could help to complement plans by the Nutrition Wing of MoNHSR&C to provide training to health staff on use of the DHIS-2 nutrition module at different levels, from data entry to compilation to analysis to report generation, as the DHIS-2 is rolled out.

In preparation for use of the donated supply of MMS (see *Box 3*) MoNHSR&C has started the development of reporting tools and IEC materials, as well as a distribution plan for MMS. This has not yet been rolled out due to various funding challenges, but it will provide an opportunity to strengthen distribution and reporting of MMS more generally.

Table 1: Summary of challenges and opportunities for MMS programming

Issues and challenges	Opportunities
Leadership and governance	
<ol style="list-style-type: none"> 1. Coordination between NDMA and the Ministry of Health and distribution of MMS during the emergency flood response did not support effective use of LHW and ANC platforms. 2. There remain some gaps in programme guidance for MMS. 	<ul style="list-style-type: none"> • Inclusion of MMS in the Maternal Nutrition Strategy and in the recent PC-1 document for nutrition offers an opportunity to improve guidance, financing and scale-up of MMS. • To learn from the distribution of MMS through NDMA in order to strengthen its delivery through the public health supply chain linked to ANC, as well as coordination by MoNHSR&C. • Advocacy and technical assistance from international agencies to support the Government in its efforts to scale up MMS as part of the essential package for nutrition and health programming. • Strengthening of the existing MMS implementation technical working group for improved coordination among various stakeholders supporting MoNHSR&C to leverage opportunities and resources.
Financing	
<ol style="list-style-type: none"> 1. Public financial resources are scarce for broader nutrition programming in Pakistan, particularly for nutrition programming beyond treating child wasting. 2. The budget to support all aspects of current MMS delivery in emergency programmes is donor-dependant. 3. The costs of importing MMS are considered high and are higher than those associated with programming IFA. 	<ul style="list-style-type: none"> • The CNF initiative implemented by UNICEF is an opportunity to mobilise domestic funds for nutrition commodities, including MMS. • Leveraging commitment to MMS in the new nutrition PC-1, as well as increasing attention to the importance of the prevention of undernutrition, to mobilise domestic and international resources for MMS. • Research is ongoing that is exploring the feasibility and cost advantage of local production of MMS. • Raising awareness of the cost benefit of MMS over IFA to programme decision-makers and policy-makers.
Service delivery	
<ol style="list-style-type: none"> 1. MMS is currently only delivered as part of the emergency flood response programme and through routine nutrition services in a relatively small number of districts. It is not yet fully integrated into ANC delivery at scale. 2. Within the emergency programme, poor integration of MMS within health service delivery, including ANC, is likely to limit the uptake among PBWs and to limit follow-up provided at community level. 	<ul style="list-style-type: none"> • Release of the PC-1 for nutrition offers an opportunity to support the integration of MMS delivery as part of the ANC service within both the emergency and ongoing national programme. • Outcomes and learning from research (<i>Box 4</i>) will improve understanding of the acceptability, feasibility, sustainability and cost-effectiveness of MMS programming across all settings. • The demand for, and adherence to, MMS can be improved by leveraging existing demand among women for micronutrient supplements, delivery of multiple micronutrients in one tablet, informative labelling on packaging and fewer side effects linked to MMS versus IFA, as well as ensuring delivery through different service delivery points, including ANC.

Table 1: Summary of challenges and opportunities for MMS programming continued

Health workforce	
<ol style="list-style-type: none"> 1. Training and orientation for delivery of MMS is challenging in the absence of guidance based on the national protocols included in the nutrition PC-1. 2. Outreach and community-level mobilisation for MMS is currently weak. 3. Once MMS is better integrated into ANC and other services, there may be challenges with delivery linked to the broader LHW Programme, which is not available across the whole country 	<ul style="list-style-type: none"> • Public financing for nutrition, including the release of the PC-1 for nutrition, offers an opportunity to develop clear guidance and job aids for use by frontline health and nutrition workers. • The Maternal Nutrition Strategy also supports (through five-year provincial implementation plans) the integration of MMS as part of the ANC service which is delivered (in part) through LHWs. • Learning from the national IFA bottleneck analysis can be built on to strengthen the health workforce.
Supplies and technology	
<ol style="list-style-type: none"> 1. The MMS supply chain is entirely dependent on donor support and in-kind assistance, despite some promising attempts under the Punjab CNF application. 2. Gaps in supply have been reported in some programmes due to budgetary constraints and challenges with procurement and supply on the global market. 	<ul style="list-style-type: none"> • Inclusion of UNIMMAP MMS in the national EML to leverage domestic resources for its purchase, reduce costs and strengthen political commitment for its integration into ANC programming. • Emergency support has resulted in considerable MMS in government storage, for future appropriate supply. • Inclusion in the Government's logistics management system could help to streamline the supply chain for MMS in programming. • Local production of MMS could ease issues with import and procurement from the global market.
Information system	
<ol style="list-style-type: none"> 1. Until the updated DHIS-2 nutrition module is rolled out, micronutrient supplementation data for PBW is currently only collected nationally (including in the emergency flood-affected districts) on the delivery of IFA but not yet on MMS. 2. Where data is collected on MMS, both MMS and IFA are reported under the same indicator. 	<ul style="list-style-type: none"> • Learning generated from a recent capacity assessment linked to the status of the health delivery system for the adoption of the DHIS-2 nutrition module could help to complement plans by MoNHSR&C to provide training of health staff on use of the DHIS-2 nutrition module at different levels of data entry and analysis.

“MMS programming offers a real opportunity to improve the quality and coverage of, and demand for, ANC services and stakeholders in Pakistan have identified key priorities to support this.”



Conclusion

While Pakistan is in the transition stages of MMS programming, there is a strong enabling environment for maternal nutrition in the country. Building on this, the Government of Pakistan, with partners' support, has embraced the importance of MMS for pregnant women and has made good progress over the last two years in areas that have the potential to support the scale-up and strengthening of the intervention. MMS is now named as a core intervention (with targets) as part of ANC in the country's Maternal Nutrition Strategy and is included in the PC-1 developed for nutrition since 2020 (though not yet funded). Emergency distribution of MMS, pilot programmes and implementation research are beginning to provide important learning for MMS programming across all settings in Pakistan. The challenges that have been faced to date underline the difficulties around the delivery of an intervention in emergencies that is not embedded in the supported Essential Package of Health Services at health services level.

The challenge now is translating the momentum on MMS in policy, strategy and learning into feasible and effective programme guidance, implementation and service delivery that is embedded within ANC and other health and nutrition programming across a complex devolved health system.

This includes the need to ensure domestic financial commitments exist both at provincial and federal levels, in order for the programme to be scaled up. This is a real opportunity to improve the quality and coverage of, and demand for, ANC services and stakeholders in Pakistan have identified key priorities to support this. Resource mobilisation will be key, leveraging mechanisms such as nutrition match funds and emergency donor support. Integrating MMS programming into the existing health system will require the development of clear guidance and capacity building of health workers (both facility- and community-based) to make the switch from IFA to MMS. The inclusion of MMS on the national EML, which was achieved in December 2023, should support procurement, financing and supply management, and key informants are hopeful that initial explorations of local MMS production could potentially start to bring the costs of the product down.

Through collaborative efforts, and strengthening commitment and strategic prioritisation by the Government of Pakistan, the country can continue to strengthen and scale up ANC services, including MMS programming, and hence have a positive impact on the nutritional status of women and their children across all of the country's diverse regions.

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Annex 1: Case study interview guides

The following questions are asked in the context of humanitarian programming.

1. What do you know about the benefits of MMS for pregnant women and adolescent girls and their infants?
2. Delivery of programmes:
 - a. Does your agency support the delivery of MMS in programmes in [country]? What is your agency's role in these programmes?
 - b. Can you describe the main components of delivery of MMS through the programmes you support.
3. Who are the main partners that you work with in MMS programmes – for example, government, other UN agencies, implementing partners? What roles are they expected to play?
4. Do you know about any other agency that supports the delivery of MMS in programmes in [country]? What is their role in these programmes? Where are these programmes and how/to whom (through what platforms) is MMS delivered?
5. How widely is MMS distributed by healthcare providers in your country?
 - i. Are healthcare providers trained on the importance of MMS?
 - ii. Are they promoting MMS to their patients?
 - iii. Is the uptake of MMS among pregnant and lactating women high? And for pregnant adolescent girls?
 - iv. Are other interventions are being included alongside MMS?
6. What kind of monitoring and evaluation system is in place for MMS in your country?
 - i. What is the routine data collection process on MMS (probe: any indicator to capture MMS consumption data to DHIS or under routine CMAM/nutrition programming)
 - ii. Are there monitoring and evaluation mechanisms to measure the impact of MMS on maternal and child health outcomes?
7. Can you give some examples of some successful practice in programming (or support for programming) of MMS in [country]?
8. What do you know about country policy and strategy for maternal nutrition and particularly for the provision of micronutrients to women? Do you know if any of these policies/strategies includes the use of MMS and who is the intended audience?
9. What are the main challenges and barriers to scaling up MMS programming in [country]?
10. Do you have any thoughts on how some of the key challenges/barriers you have mentioned might be addressed?
11. What are the potential opportunities for scaling up MMS interventions in the country, and what strategies can be employed to maximise these opportunities?
12. Anything else to share? If you have any documentation that includes reference to MMS (programme reports, monitoring data, organisational strategy/plans) would you be willing to share them with us?

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