

Introducing MMS by Strengthening Community and Health Systems

Tanzania's experience in the context of implementation science

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supplementation, but several bottlenecks contribute to low coverage and uptake of essential health and nutrition services.

- The introduction of MMS represents an opportunity to generate adherence for ANC services, strengthen the health systems, and improve the delivery of nutrition services.
- Through the Improving Maternal Nutrition Project (IMAN), the Government of Tanzania is leading the implementation of an MMS demonstration project focused on the sustainable scale-up of MMS in Tanzania.
- Evidence generated from the demonstration project will inform the learning agenda and implementation of the NMNAP II strategy including addressing micronutrient deficiencies.

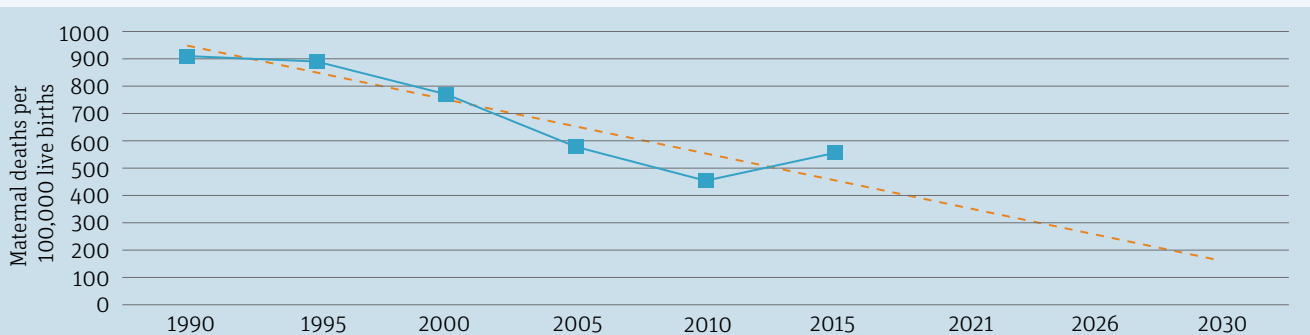
Introduction

The burden of malnutrition among women and adolescent girls in Tanzania is substantial. An estimated 45% of women of reproductive age (15 to 49 years) and 57% of pregnant women are anemic, and one in three women of reproductive age suffer from multiple micronutrient deficiencies, especially iron, iodine, and vitamin A.^{1,2} Maternal micronutrient deficiencies, and anemia in particular, are among the main causes of maternal mortality, with 20% of maternal deaths attributed to severe maternal anemia. The maternal mortality ratio (MMR) increased in recent years – from 454 deaths per 100,000 live births in 2010 to 556 deaths per 100,000 live births in 2015 (Figure 1).² In addition, Tanzania experiences high rates of adverse birth and early child development outcomes including low birth weight (10%), high rates of preterm birth (15.3%), and early-life mortality rates, with 54 deaths per 1,000 births occurring around the time of birth.^{1,2}

Key messages:

- Baseline study information collected was key for the proper design and implementation of an implementation science study on how to roll out a multiple micronutrient supplements (MMS) program.
- Implementation of the National Multisectoral Nutrition Action Plan (NMNAP) I and II prioritizes the use of globally recommended interventions for ANC, including micronutrient

FIGURE 1: Trends in MMR in Tanzania (DHS)



Despite the high coverage of antenatal care (ANC) services in Tanzania (98% for at least one ANC visit and 51% for the four recommended ANC visits), effective coverage of iron and folic acid (IFA) supplementation remains low (29% nationally).³ While IFA has long been the standard of care for pregnant women in low- and middle-income countries (LMICs), a greater range of vitamins and minerals should be considered to support a healthy pregnancy. Multiple micronutrient supplements (MMS), containing 15 vitamins and minerals, may fill this gap and has been demonstrated to be a safe, affordable, and effective intervention when it comes to improving maternal and child nutrition and health outcomes.⁴

“MMS have been demonstrated to be a safe, affordable and effective intervention”

Evidence from baseline studies in Mbeya

In the Mbeya Region of Tanzania, maternal underweight among young pregnant women (15–19 years) remains modest (11%), while multiple micronutrient deficiencies among pregnant women including anemia across all trimesters (25.5%) and 60% of anemic pregnant women presented with iron deficiency anemia (IDA). The prevalence micronutrient deficiencies was as follows; RBC folate (21.7%), vitamin B₁₂ (9.9%), iron (38.4%), vitamin A (9.8%) and median Urinary Iodine Concentration (UIC) was 279.4 µg/L. Persistent high rates of pregnant women who consume unhealthy refined grains (48%) with low consumption of green leafy vegetables (29.2%) also remain. Baseline analyses found that reported barriers to ANC use among pregnant women and adolescents include feeling shame around pregnancy, lack of support from a spouse in the case of unmarried women, economic difficulties, long waiting times for service, lack of

trained healthcare providers, mistreatment by health professionals (e.g., verbal abuse), and lack of education. Older women have reported additional barriers to accessing ANC including distance to the health facility and geographical location (mountainous), limited support from spouses/partners (especially in the case of single mothers), and traditional beliefs and social norms.

The Improving Maternal Nutrition Project (IMAN)

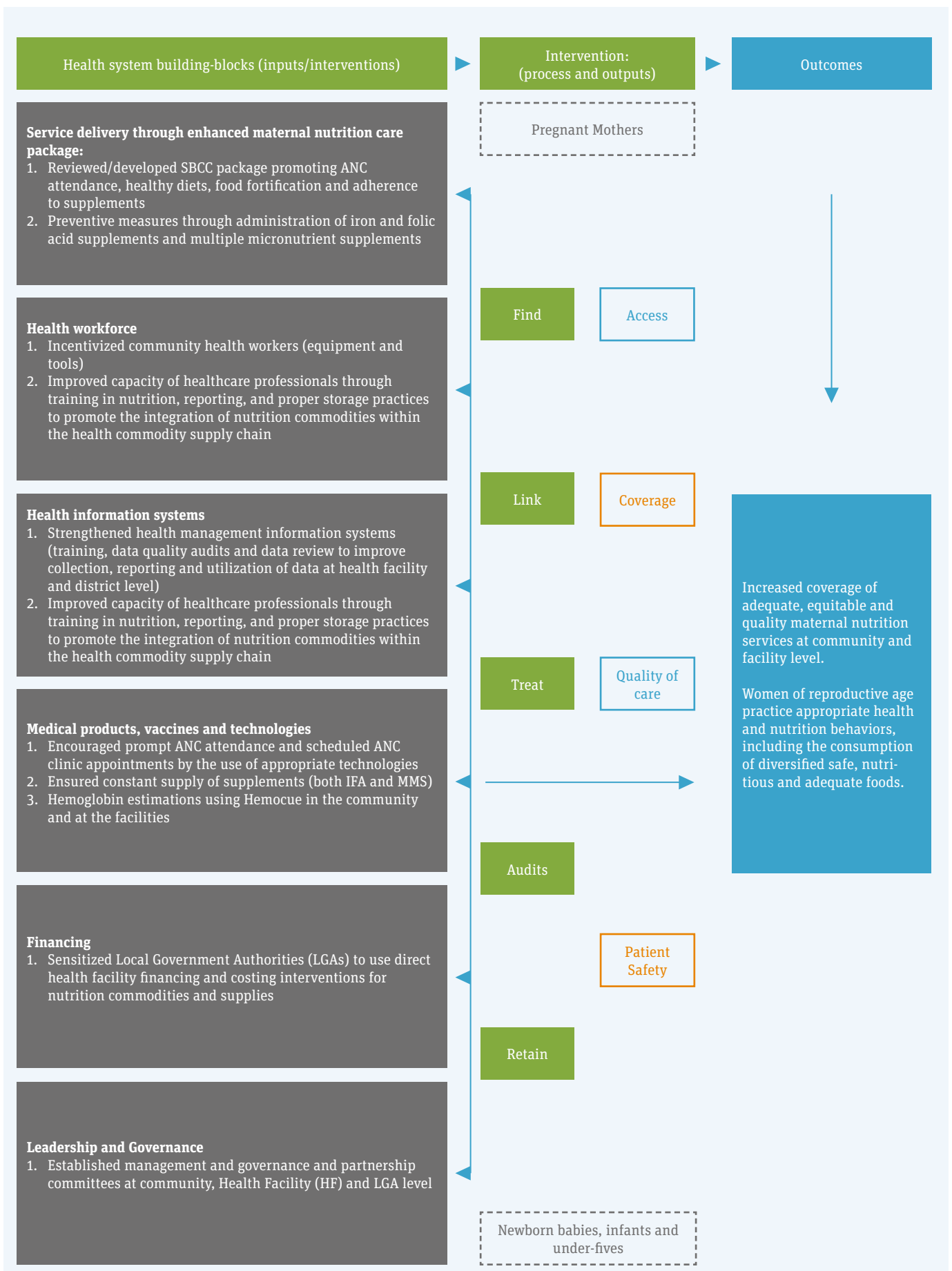
Tanzania’s nutrition agenda is guided by the National Multisectoral Nutrition Action Plan II (NMNAP II). During the mid-term review of the NMNAP I in 2018–19, the government proposed the need for a renewed approach to addressing maternal nutrition, and the Improving Maternal Nutrition project (IMAN) was born. As a first step, the Government of Tanzania recommended that the Tanzania Food and Nutrition Center (TFNC) should conduct a baseline survey to inform the design of the IMAN project. In collaboration with NGOs, academics and community-based organizations, with the support of UNICEF, a baseline study in the Mbeya region was conducted. The results were then used to inform the design of the MMS demonstration project, which aimed to document best practices in the transition from IFA to MMS. However, the feasibility of transitioning from IFA to MMS while utilizing the existing health platform in Tanzania was unknown. As such, a strengthened health system approach that addresses key barriers in the form of human resource capacity, supply chain issues, and cultural and social norms in the uptake of services was introduced. An implementation science research was designed to generate evidence on the capacity-building strategy with five (5) domains that can improve the delivery of quality maternal health and nutrition services. Beyond MMS, the project will also address issues of quality maternal nutrition counseling and promotion of the consumption of nutritious food during pregnancy, among other things.

Figures 2 and 3 demonstrate the design of Tanzania’s approach toward the implementation of the IMAN project in the Mbeya region.

FIGURE 2: Theory of change for the IMAN project in Mbeya

Impact	Reduced micronutrient deficiencies and adverse birth outcomes among pregnant women			
Outcome	1) Increased demand for ANC services 2) Coverage/delivery of nutrition services through ANC		3) Increased uptake / adherence to maternal nutrition services through ANC, including MMS	
Risk	Occurrence of natural disaster and climate change related shocks, political instability, reduced donor funding, high turnover of key staff in the government, occurrence of economic shocks, COVID-19 pandemic, change in political will regarding nutrition			
Assumptions	Government policies and regulations continue to support provision of maternal nutrition services, communication platforms are willing to support maternal nutrition promotions, community members are open-minded toward good maternal nutrition			
Outputs	1.1 Increased availability, accessibility and sustainability of maternal nutrition services at facility and community level	1.2 Improved enabling environment for maternal nutrition	2.1 Women of reproductive age have increased knowledge about diversified, safe, nutritious and adequate DIETS, improved access to these, and consequently improved uptake	2.2 Increased empowerment of adolescents, parents (men and women) and care-givers and consequent involvement regarding informed and appropriate health and nutrition behaviors
Strategies	Strengthening Health and Community Health Systems for Maternal Nutrition			

FIGURE 3: The intervention strategy ‘Find, Link, Treat, Audits and Retain (FLTAR)’ model linked with health system building-blocks



IMAN project design

The project is an implementation research project designed to strengthen the health system and community and framed as a *quasi-experimental pre- and post-intervention survey design*. This design allows a comparison of outcomes between the intervention and control arms without relying on random assignment, meaning that subjects are assigned to groups based on non-random criteria. The project has three major arms targeting pregnant mothers, as demonstrated in **Figure 4**.

“The project is framed as a quasi-experimental pre-and post-intervention survey design”

Supply chain management

The project used the existing supply systems with the Ministry of Health and local government authorities. Whereas the Chief

Pharmacist (CP) ensures policy, guidelines, and timely distribution of all medical and equipment supplies across all levels, the Medical Stores Department, by means of the Electronic Logistics Management System (ELMS), ensures proper storage, supplies, logistics and distribution based on the needs of each health facility. Moreover, the validation of commodities is carried out by Tanzania Medicine and Medical Devices Authority (TMDA). The IMAN project used the same system for the importing, validation and distribution of MMS in Tanzania.

IMAN coordination and partnership

The coordination of IMAN focuses on three key aspects: 1) the use of the existing NMNAP governance structure at all levels, 2) co-leadership with the regional and district authorities, and 3) engagement of an independent Technical Advisory Group (TAG) with comprehensive Terms of Reference. These measures enhance ownership and leadership by the Government of the study findings. **Table 1** demonstrates the roles and responsibilities involved in coordinating the IMAN project.

FIGURE 4: Implementation design and implementation phases

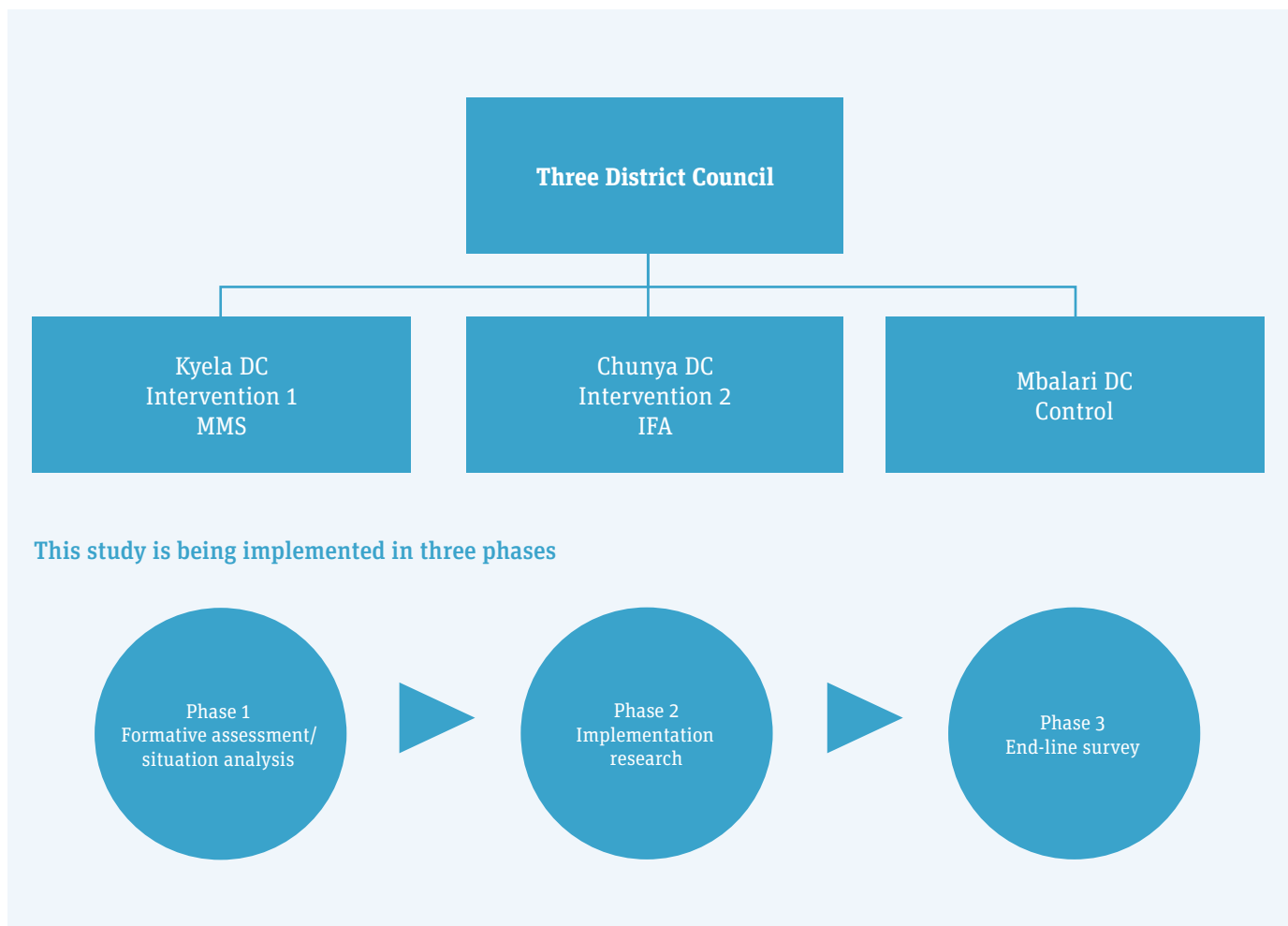


TABLE 1: Roles and responsibilities for coordinating the IMAN project

Partners	Roles
Ministry of Health (Nutrition, Procurement System Unit & Reproductive and Child Health)	<ul style="list-style-type: none"> • Technical leadership, development of policies and guidelines • Facilitate procurement of MMS and forecasting of supplies
Tanzania Food and Nutrition Center (TFNC)	<ul style="list-style-type: none"> • Overall coordination; micronutrient survey in Mbeya Region
President’s Office Regional Administrative and Local Government	<ul style="list-style-type: none"> • Overall guidance and supervision of project implementation
Mbeya Regional Secretariate and Local Government Authorities (Mbeya, Chunya, Kyela and Mbalari)	<ul style="list-style-type: none"> • Local coordination, training and mentorship of health service providers, supportive supervision • Implementation of project at health facility level; data collection, analysis and use for evidence-based planning and budgeting
CRS / COUNSENUITH	<ul style="list-style-type: none"> • Community Health Worker training and supervision, support for community activities implementation such as Village Health and Nutrition Days (VHNDs) and Counselling at Household (HH) level
Medical Store Department	<ul style="list-style-type: none"> • Logistics provision and distribution of supplies (IFA/MMS)
African Academy for Public Health (AAPH), Ifakara Health Institute (IHI)	<ul style="list-style-type: none"> • Conduct of studies and assessments including comprehensive situation analysis, baseline survey, barrier analysis, and formative monitoring
Technical Advisory Group (TAG)	<ul style="list-style-type: none"> • Review of evidence, feedback and guidance on project implementation
Sight and Life Foundation, Pharmaceutical Service Unit (PSU)	<ul style="list-style-type: none"> • Support with the analysis of procurement, production and distribution of supplies • Formative research for the introduction of multiple micronutrient supplements in Tanzania.
Nutrition International	<ul style="list-style-type: none"> • Support with the analysis of the cost-effectiveness of MMS
UNICEF (CO, RO, HQ) and Bill & Melinda Gates Foundation	<ul style="list-style-type: none"> • Overall technical and financial support

“The implementation of the IMAN project in Mbeya will help inform the best approach to introducing MMS within Tanzania”

Conclusion

Through the IMAN project, the Government of Tanzania is leading the implementation of a demonstration project focused on the sustainable scale-up model of MMS in Tanzania. It is strategically designed to (1) strengthen the health system (capacity-building

for human resources, commodities, and delivery platforms), and (2) improve the enabling environment (in terms of nutrition governance and information systems). The baseline information collected supported the design of the IMAN project across all levels (national and subnational), as well as allowing for the involvement of key stakeholders during each stage, which is critical for smooth implementation. The project offers the opportunity to generate demand for ANC, strengthen the health systems and improve the delivery of maternal health and nutrition services. Through rigorous measurement & evaluation and new feedback loops, the implementation of the IMAN project in Mbeya will help inform the best approach to introducing MMS within Tanzania, and across the region as a whole.

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