NATIONAL TRAINING MANUAL ON

MULTIPLE MICRONUTRIENT SUPPLEMENTATION

FOR FRONTLINE HEALTHCARE PROVIDERS IN NIGERIA

FACILITATORS' GUIDE

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Foreword

The health and well-being of mothers and children is the cornerstone of a nation's development and prosperity. In Nigeria, where maternal and child health outcomes continue to pose significant challenges, innovative and evidence-based strategies are vital to ensuring equitable and sustainable progress. This National Training Manual on Multiple Micronutrient Supplementation for frontline health care providers represents an important milestone in our collective efforts to improve maternal nutrition and overall health outcomes across the country.

Micronutrient deficiencies, often termed "hidden hunger," are a silent epidemic affecting millions of women and children globally. These deficiencies not only compromise maternal health but also have profound consequences on the growth, development, and survival of children. Research has shown that when women use multiple micronutrient supplements during pregnancy, the danger of anaemia, preterm births, low birth weight, and other adverse outcomes get reduced significantly. By providing essential vitamins and minerals in a single, cost-effective intervention, MMS holds the potential to transform maternal and child health in Nigeria.

This training manual has been meticulously designed to equip frontline health providers with the required knowhow and the tools needed for effective delivery of MMS interventions. It underscores the importance of integrating MMS into routine antenatal care services and provides clear, actionable guidance on counseling, distribution, monitoring, and evaluation. The manual also emphasizes culturally appropriate and community-centered approaches to ensure that MMS reaches the women and families who need it most.

As we launch this manual, we are reminded of the critical role that frontline health care providers play in improving the health outcomes of communities. Frontline health providers are the bridge between policy and practice. They are the first set of people consulted by the multitude of pregnant women who seek care and support. Your dedication and expertise are indispensable to the success of this initiative and to the broader goal of achieving universal health coverage in Nigeria.

We extend our gratitude to the partners, stakeholders, and experts who brought their experiences to bear, and worked assiduously towards the successful production of this manual.

It is our hope that this training manual will serve as a valuable resource, empowering you to make a meaningful impact in the lives of women and children across Nigeria. Together, let us continue to work towards a future where every mother has access to the nutrition she needs to thrive and every child has the opportunity to reach their full potential.

Thank you for your unwavering commitment to this noble cause.

Prof. Muhammad Ali Pate, CON
Coordinating Minister of Health and Social Welfare

Acknowledgments

The successful development of this National Training Manual on Multiple Micronutrient Supplementation for frontline health care providers in Nigeria is the result of collaborative efforts, dedication, and expertise from a diverse group of stakeholders and partners. It is with gratitude that I acknowledge the contributions of all those who played a role in making the manual a success story.

I will like to first express my deep appreciation to the MMS Taskforce, Nutrition Experts, Nutrition and Health professional bodies like Nutrition Society of Nigeria (NSN), Society of Gynaecology and Obstetrics of Nigeria (SOGON) and the National Association of Nigerian Nurses and Midwives (NANNM) who provided invaluable insights and guidance throughout the development process. Your deep understanding of maternal and child health, coupled with your unwavering commitment to improving nutrition outcomes, have played a significant role in in the course of putting this manual together.

I am most appreciative of our development partners, whose financial and technical support made this initiative possible. Your partnership underscores the shared commitment to addressing micronutrient deficiencies and improving maternal and child health in Nigeria. Special thanks to FHI 360/Alive & Thrive, UNICEF, Nutrition International, Evidence Action, Vitamin Angels and HKI, whose contributions have significantly enriched the content and structure of this manual.

I commend the dedication and hard work of my colleagues in the Nutrition Department, especially Mr. John Uruakpa, Director of Nutrition Special Programme Division, FMoHSW in charge of micronutrients as well as other relevant Ministries, Departments, and Agencies. Your collaboration and expertise have been pivotal in ensuring this manual is practical, comprehensive, and aligns with national health goals. I equally acknowledge the exceptional dedication, zeal, and proactive insightfulness of our consultants, Prof. Olumuyiwa Owolabi of Ahmadu Bello University, Zaria, and Prof. Folake Samuel of the University of Ibadan in delivering timely on this all-important assignment.

Finally, I wish to recognize the frontline health care providers, whose tireless efforts and unwavering dedication continue to impact the lives of women and children across Nigeria. This manual is a testament to your critical role in improving health outcomes, and it is designed to support and empower you in your invaluable work.

Together, let us continue to work towards a Nigeria where every mother and child can access the nutrition they need to thrive.

Thank you.

Mrs. Ladidi Kuluwa Bako-Aiyegbusi, mni
Director and Head of Nutrition Department
Federal Ministry of Health and Social Welfare, Abuja.

List of Acronyms

ANC	Antenatal Care
BMI	Body Mass Index
DHIS	District Health Information System
DHPRS	Department of Health, Planning, Research and Statistic
FMOHSW	Federal Ministry of Health and Social Welfare
g/dl	Grams Per Deciliter
GATHER	Greet, Ask, Tell, Help, Explain, Return
GMP	Growth Monitoring and Promotion
HMIS	Health Management Information System
HW	Health Worker
ICC	Inventory Control Card
IFAS	Iron and Folic Acid Supplement
LGA	Local Government Area
M&E	Monitoring and Evaluation
MIYCN	Maternal Infant and Young Child Nutrition
MMS	Multiple Micronutrient Supplement
NANNM	National Association of Nigeria Nurses and Midwives
NFCMS	National Food Consumption and Micronutrient Survey
NHLMIS	National Health Logistics Management Information System
NHMIS	National Health Management Information System
NSN	Nutrition Society of Nigeria
PCV	Packed Cell Volume
PHC	Primary Healthcare Centre
RDA	Recommended Dietary Allowance
SMART	Specific, Measurable, Achievable, Realistic, and Time-bound
SOGON	Society of Gynaecology and Obstetrics of Nigeria
UNIMMAP	United Nations International Multiple Micronutrient Antenatal Preparation
WDC	Ward Development Committee
WHO	World Health Organization

Instructions to Facilitators

These instructions will help facilitators deliver the training effectively and ensure that frontline healthcare providers can administer MMS to pregnant women in ANC clinics.

1. Facilitators should ensure adequate preparation before the training, noting specific materials needed for each module.

2. The specific duration of each module may vary from the allotted time, depending on the context and need of the participants. It is important to be flexible while keeping the overall programme time frame in view. Endeavour to allocate sufficient time for discussions, activities, and feedback.

3. Pay close attention to the key takeaways and important things to note in sections of the manual. Ensure active participation and interactive learning by engaging participants in discussion, asking questions, and facilitating group activities.

4. Demonstrate MMS dosage and administration clearly by providing hands-on demonstrations of MMS administration, ensuring that participants are familiar with the correct dosage, timing, and any associated counselling strategies. Use role-playing to simulate patient-provider interactions.

5. Emphasize the importance of consistent follow-up and stress the role of follow-up visits for monitoring compliance and managing any potential side effects. Facilitators should highlight strategies for tracking adherence and providing ongoing support to pregnant women receiving MMS.

6. Use visual and job aids for reinforcement by incorporating visual aids such as posters, charts, or videos to reinforce key messages about MMS benefits, dosage, and the importance of adherence. Provide participants with job aids that they can use during their daily practice, such as dosage charts or checklists.

Overview of the Training Manual

This training manual is developed to help frontline Health workers in Nigeria towards effectively guiding pregnant women on MMS during antenatal care, in line with the 2020 World Health Organization's recommendation on the use of Multiple Micronutrients Supplements during pregnancy (WHO, 2020) and the national approval for its use in Nigeria. It contains the essential information and steps required to help healthcare workers effectively deliver Multiple Micronutrients Supplements, and comprises seven modules, each with learning objectives and activities. Learning activities include group discussions, role play, multiple choice questions, review of materials and use of job aids.

The need for proper nutrition throughout pregnancy is emphasized in Module One. The module stresses that diets rich in Micronutrients is necessary for the protection of both the pregnant woman and the foetus. It highlights the dietary requirements specific to each of the three trimesters of pregnancy, explaining the nutritional needs unique to each stage. Key nutrients including folate, iron, calcium, zinc and vitamin D among others are discussed in relation to their roles in preventing adverse pregnancy outcomes. Practical tips for frontline health workers include dietary counselling, identifying symptoms and signs of micronutrient deficiencies, and recommending suitable locally available foods and supplements like Multiple Micronutrient Supplements to pregnant women.

The different interventions required to improve micronutrient nutrition during pregnancy, such as promoting diverse diet, eating biofortified foods, and providing supplements like Multiple Micronutrient Supplements and IFAS (Iron and Folic Acid Supplements) are captured in Module Two. The module explains how Multiple Micronutrients Supplements and diets that are rich in micronutrients can help in reducing maternal anaemia, preterm birth and low birth weight. It also provides guidance for health workers on effective dietary counselling and strategies to promote adherence to supplementation, helping pregnant women achieve better health outcomes

Module Three focuses on the need for, and importance of, integrating Multiple Micronutrient Supplements into antenatal care (ANC) service delivery for the purpose of addressing the nutrition needs of women during pregnancy. The module explains how Multiple Micronutrient Supplements can help in reducing pregnancy challenges like maternal anaemia, low birth weight, and preterm birth, especially in local settings. Participants will learn about the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP) formulation of Multiple Micronutrient Supplements.

Module Four emphasizes correct administration of Multiple Micronutrient Supplements (MMS) to pregnant women, including appropriate delivery, dosage guidelines, adherence guidelines and managing potential side effects. It also explains the need for anaemia screening to determine eligibility for Multiple Micronutrient Supplements administration to pregnant women accessing ANC and includes protocols for treating pregnant women with sickle cell disease. The need for ongoing monitoring and support to overcome adherence barriers is also highlighted. In addition, Module Four seeks to equip workers in the healthcare sector with all that they need to be able to give proper counselling on Multiple Micronutrient Supplements to individual and groups of pregnant women

Module Five provides step-by-step guidance for healthcare workers on how to administer Multiple Micronutrient Supplements to pregnant women during routine ANC visits, using appropriate job aids.

Module Six covers the importance of accurate Multiple Micronutrient Supplements commodity quantification and forecasting at health facilities to avoid stockouts and ensure a consistent supply for pregnant women. Health workers are given guidance on how to make Multiple Micronutrient Supplements requisitions for pregnant women who attend ANC in their facilities.

Module Seven places emphasis on the importance of monitoring and record keeping especially regarding the routine data collection, collation, review, and learning processes. It also focuses on MMS data collection processes and data flow from health facilities using the national routine monitoring systems, including National Health Management Information Systems (NHMIS) and the National Health Logistics Management Information System (NHLMIS)

Module One

Nutrition During Pregnancy

MODULE ONE: Nutrition During Pregnancy

TRAINING MATERIALS:

- Poster summarizing key micronutrients, their roles, and food sources
- Counselling Cards
- Flip chart

DURATION: 90 minutes

LEARNING OBJECTIVES:

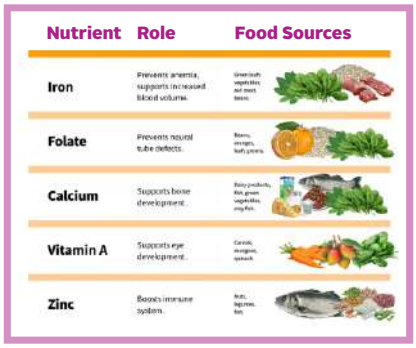
By the end of this module, participants should be able to:

- Describe the trimesters of pregnancy
- Explain the role of key macronutrients and micronutrients in pregnancy, focusing on how they support maternal and foetal health.
- Identify signs of micronutrient deficiencies and their impact on pregnancy outcomes.
- Provide dietary and supplementation advice to address adverse pregnancy and birth outcomes associated with nutrient deficiencies.

CONTENT:

1.1 The Trimesters in Pregnancy
1.2 Nutritional Requirements During Pregnancy
1.3 Micronutrient Deficiency in Pregnancy
1.4 Adverse Pregnancy and Birth Outcomes Associated with Nutrient Deficiencies

SESSION 1



1.1 The Trimesters in Pregnancy

Pregnancy is divided into three trimesters (group of 3-months), each with specific changes in the mother's body and baby's development. Nutritional needs increase as pregnancy progresses, and understanding these needs help ensure healthy outcomes for both mother and baby.

Nutritional Needs by Trimester:

Pregnant women need an adequate diet that provides all the essential nutrients such as carbohydrates, proteins, fats and oil, vitamins and minerals in the right amounts to meet their daily need for optimal health and well-being.

First Trimester (Weeks 1–13):

- **Key Developments:** Formation of major organs (heart, brain, spine).
- **Nutritional Focus:**
  - **Folate:** Prevents neural tube defects.
  - **Iron:** Supports increased blood volume.
  - **Protein:** For tissue development.
- In addition to taking MMS, encourage consumption of dark green leafy vegetables with regular meals.
- Avoid foods that may trigger nausea.

Second Trimester (Weeks 14–26):

- **Key Developments:** Rapid foetal growth and bone development.
- **Nutritional Focus:**
  - **Calcium and Vitamin D:** For bone and teeth development.
  - **Iron and Vitamin C:** Prevents anaemia and boosts Iron absorption.
  - **Protein:** For muscle and tissue growth.
- In addition to taking MMS, recommend dairy products, fish, legumes, and citrus fruits.

Third Trimester (Weeks 27–40):

- **Key Developments:** Foetal fat storage and brain development.
- **Nutritional Focus:**
    - **More calories:** 450 extra calories per day.
    - **Healthy fats:** For brain development.
    - **MMS:** To improve micronutrients intake.
- In addition to taking MMS, suggest smaller, frequent meals, healthy snacks and water to avoid indigestion. Encourage nuts, seeds, avocado, oily fish and leafy green.

SESSION 2

1.2 Nutritional Requirements During Pregnancy

Assessing Nutritional Needs in Practice:

As a frontline health care provider, use these simple methods to assess whether or not a pregnant woman is meeting her nutritional needs:

Ask Key Questions:

- **"What did you eat yesterday (in the morning, afternoon and night)?"** – Helps assess dietary diversity.
- **"How many meals do you eat daily?"** – To evaluate meal frequency and portion size.
- **"What do you eat?"** – Check out for (beans, eggs, or green vegetables,) protein, Iron, and folate intake.
- **"Are you taking your supplements?"** – Ensures adherence to taking MMS.

Symptoms and Signs:

- Pale skin or dizziness: May indicate anaemia (Iron deficiency).
- Muscle cramps: May indicate calcium or magnesium deficiency.
- Fatigue or poor foetal growth: Could suggest inadequate protein or micronutrient intake.

Important things to note:

- Encourage one extra portion of food in the first trimester, two extra portions in the second, and one additional meal in the third trimester, along with healthy snacks.
- Suggest local food options like fish, beans, leafy vegetables, and fruit to meet nutritional needs.
- Provide clear advice on MMS supplements: explain why they are important and how to manage side effects like nausea and constipation (see module 4).
- In undernourished populations, balanced energy and protein dietary supplementation are recommended for undernourished pregnant women to help in reducing the risk of still births and small-for-gestational-age neonates

SESSION 3

1.3 Micronutrient Deficiency in Pregnancy

Many women in Nigeria and other developing countries consume poor, non-diverse diets that fail to meet their nutritional needs, increasing their vulnerability to health and nutrition risks (NFCMS, 2021). According to the 2021 National Food Consumption and Micronutrient Survey (NFCMS):

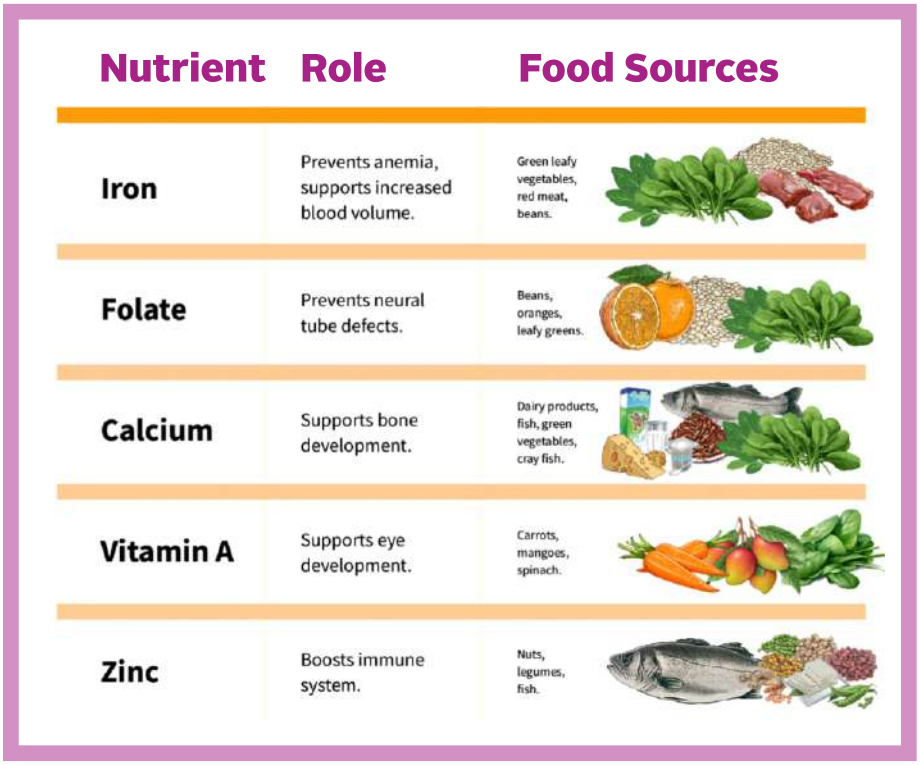
- 28% of women of reproductive age (15-49) achieved minimum dietary diversity.
- 34% of pregnant women received nutrition counselling.
- 28.8% of pregnant women met minimum dietary diversity.
- Over 30% of women lacked adequate protein intake.

- More than 50% of women had insufficient calcium, vitamins C, B1, B2, folate, and B12.
- 14.2% of reproductive-age women were underweight (BMI <18.5), 15% overweight, and 8.1% obese.
- 32% of pregnant women had anaemia.
- 28% were iron deficient, 22% lacked Vitamin A, 85% were folate deficient, and 12% lacked Vitamin B12.

Increased nutrient needs during pregnancy, combined with inadequate diets, put women at higher risk of micronutrient deficiencies.

The table and visual aid below summarize key micronutrients, their roles, and some food sources.

Nutrient	Role	Some Food Sources
Iron	Prevents anaemia, supports increased blood volume.	Green leafy vegetables, red meat, beans.
Folate	Prevents neural tube defects.	Beans, oranges, leafy greens.
Calcium	Supports bone development.	Dairy products, fish, green vegetables.
Vitamin A	Supports eye development, immune function and foetal growth and development	Carrots, mangoes, spinach.
Zinc	Boosts immune system.	Nuts, legumes, fish.



Important things to note:

- Use simple language when discussing with the pregnant women. For example, "Iron helps you have enough blood to prevent feeling tired and dizzy."
- Provide culturally appropriate advice: Recommend local foods rich in essential nutrients like leafy greens, beans, and fish.
- Discuss supplementation: Ensure pregnant women are taking MMS as prescribed.

1.4 Adverse Pregnancy and Birth Outcomes Associated with Nutrient Deficiencies

Malnutrition during pregnancy can negatively affect the mother and the baby. It is crucial that any nutrient deficiencies are detected and addressed early. The following are key deficiencies and signs

Nutrient Deficiency	Signs	Impact on Pregnancy
Iron Deficiency	Pale skin, fatigue, dizziness	Increases risk of anaemia, preterm birth.
Folate Deficiency	Fatigue, poor foetal development	Can cause neural tube defects.
Calcium Deficiency	Muscle cramps, weak teeth	Poor foetal bone development.
Vitamin A Deficiency	Night blindness, dry skin	Can cause poor foetal growth.
Zinc Deficiency	Loss of appetite, unexplained weight loss, impaired sense of taste and smell	Low birthweight, premature birth, pre-eclampsia and stillbirth

Counselling Skills for Early Intervention:

- **Ask** simple, open-ended questions like "Describe how you feel" (Probe for weakness, dizziness or muscle cramps).
- **Analyze** her response and probe further, if deficiencies are suspected, enquire if she is taking her supplements.
- **Act** by giving tips to ensure Multiple Micronutrient Supplements adherence and recommend appropriate **local foods** that are rich in essential nutrients. Offer advice to reduce side effects (e.g., nausea caused by MMS use). If deficiencies are not suspected, encourage her to continue taking MMS and consume adequate diet.

Activity 1.1: Role Play and Practical Activity

Role Play:

- **Scenario:** A pregnant woman in her second trimester complains of dizziness and pale skin.
- **Health Worker Action:** Ask if she is taking Multiple Micronutrient Supplements and eating Iron-rich foods. Suggest to her to eat more green leafy vegetables and meat. Encourage her to continue taking daily Multiple Micronutrient Supplements with vitamin C rich foods for better absorption.

Practical Activity:

1. **Flip Card Exercise:** Health workers practice using flip cards to explain the importance of each micronutrient during pregnancy.
2. **Role Play (refer to the case scenario above):** One participant acts as the health worker, another as a pregnant woman with a nutrient deficiency. The health worker asks questions, identifies the deficiency, and provides dietary or supplementation advice.
3. **Group Discussion:** Participants discuss common barriers pregnant women face in meeting their nutritional needs (e.g., cultural beliefs, food access) and brainstorm solutions.

Module Two

Strategy for Enhancing Micronutrient Sufficiency in Pregnant Women

GROUP 1 GRAINS, ROOTS AND TUBERS

GROUP 2 PULSES

GROUP 3 NUTS AND SEEDS

GROUP 4 DAIRY PRODUCTS

GROUP 5 MEAT, POULTRY AND FISH

GROUP 6 EGGS

GROUP 8 OTHER VITAMIN A RICH FRUITS AND VEGETABLES

GROUP 7 DARK LEAFY GREENS AND VEGETABLES

MODULE TWO: Strategy for Enhancing Micronutrient Sufficiency in Pregnant Women

TRAINING MATERIALS:
- Bottle of MMS (UNIMMAP Formulation)
- Bottle of IFA
- Flip charts
- Markers
- Portable water

DURATION:
90 minutes

LEARNING OBJECTIVES:

By the end of this module, participants should be able to:

- Identify the key interventions to improve micronutrient adequacy in pregnant women.
- Explain the importance of micronutrient supplementation and healthy diet in preventing micronutrient deficiencies in pregnancy.
- Demonstrate how to deliver micronutrient supplements effectively during antenatal care (ANC).

CONTENT:

SESSION 1

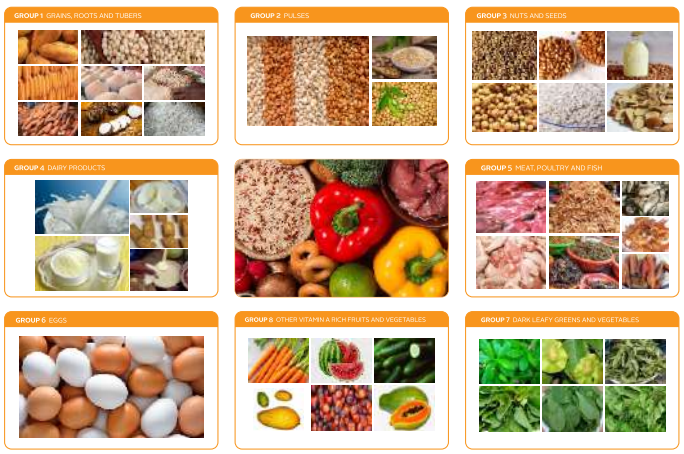
2.1 Strategy to Enhance Micronutrient in Pregnant Women

Pregnant women have increased nutritional needs. These needs are often not met through food alone, so they need to take supplements in addition to their diet. This module will focus on practical interventions to prevent micronutrient deficiencies using both dietary approaches and supplementation; MMS and IFAS.

Key Interventions:

1. Dietary Diversification:
- **Definition:** A food-based solution that emphasizes the consumption of different variety of food from various food groups.
- **Practical Tips for Health Workers:**
  - **Ask:** "What types of food do you eat daily?"
  - **Advise:** Encourage pregnant women to eat from at least **five food groups** from the ten food groups daily.

The 10 food groups are;
1. Grains, white roots and tubers, and plantains
2. Pulses (beans, peas and lentils)
3. Nuts and seeds
4. Dairy
5. Meat, poultry and fish
6. Eggs
7. Dark green leafy vegetables
8. Other vitamin A-rich fruits and vegetables
9. Other vegetables
10. Other fruits



- **Note:** Eating a variety of foods helps provide essential vitamins and minerals for both mother and baby.

2. Biofortification and Food Fortification:

- **Definition:**
  - **Biofortification:** Increasing the micronutrient content in staple crops (e.g., orange-fleshed sweet potato or biofortified maize).
  - **Food Fortification:** Adding vitamins and minerals to commonly eaten foods (e.g., iodine in salt, Vitamin A in flour and oil).
- **Note:** Pregnant women to consume fortified foods where available, such as fortified flour, oil, and salt.

3. Supplementation:

- **Multiple Micronutrient Supplements (MMS):**
  - **Definition:** A supplement containing 15 essential vitamins and minerals, including iron and folic acid, to meet the increased nutritional need in pregnancy.
  - **Recommended Dose:** One (1) MMS tablet per day throughout pregnancy.
- **Iron and Folic Acid Supplements (IFAS):** Iron and folic acid supplement is given to pregnant women to prevent birth defects, prevent and treat anaemia.

- **Practical Steps for Health Workers:**
  - **Assess:** Ask if the woman is already taking MMS or IFAS. If not, explain the benefits.
  - **Screen** for anaemia based on ANC guidelines/protocols. (Session 4.5)
  - **Counsel:** Ensure she understands the importance of taking MMS or IFAS daily to prevent anaemia, birth defects, and other complications.
  - **Assist:** Help her overcome common barriers, like nausea (suggest to her to take supplements with food).

SESSION 2

2.2 Promoting a Healthy Diverse Diet

Practical Steps for Health Workers:

- **Assess:** During ANC visits, ask pregnant women what they typically eat in a day.
- **Assist:** Help them to identify gaps in their diet, such as lack of leafy greens (for folate and iron) or fruits (for Vitamin C).
- **Counsel:** Provide simple suggestions to improve their diet, using local foods:
  - Green vegetables for iron.
  - Citrus fruits for Vitamin C.
  - Fortified maize or rice for extra vitamins and minerals.

Exercise 2.1.: Diet Assessment and Counselling

Interactive Activity: Diet Assessment and Counselling

1. **Exercise:** In pairs, one person acts as the health worker, and the other as the pregnant woman. The health worker assesses the woman's diet based on simple questions and gives make suggestion on how to improve it with local foods.

2. **Discussion:** Groups discuss the barriers to healthy eating in their communities and how to address them, such as access to nutritious foods or cultural preferences.

Exercise 2.2.: Role Play

Role Play: One participant to act as a pregnant woman and another one to act as a healthcare provider. The facilitator to have a prior discussion with them.

- **Scenario:** A pregnant woman says she feels nauseous after taking the supplement.
- **Health Worker's Response:** Suggest to her to take the supplement after her evening meal and offer reassurance that mild side effects usually go away.

Exercise 2.3.: Identifying Barriers to Adherence

Activity: Identifying Barriers to Adherence

One participant to act as a pregnant woman and another one to act as a healthcare provider. The facilitator to have a prior discussion with them.

- **Scenario:** A pregnant woman says she forgets to take her MMS.

- **Health Worker's Response:** Help her find a way to remember, such as taking the supplement at the same time each day, keeping the bottle in a visible place out of the reach of children, or asking a family member to remind her.
  Frontline health workers play a vital role in ensuring that pregnant women receive adequate nutrition through dietary diversification and supplementation. By assessing dietary habits, providing practical advice on local food sources, and ensuring adherence to MMS and IFAS, health workers can help prevent micronutrient deficiencies and improve pregnancy outcomes.

SESSION 3

2.3 Why MMS is Critical During Pregnancy

MMS is recommended to provide a broad range of essential nutrients, not just iron and folic acid. It helps address the widespread challenge of micronutrient deficiencies, particularly in pregnancy by filling in nutritional gaps in a pregnant woman's diet.

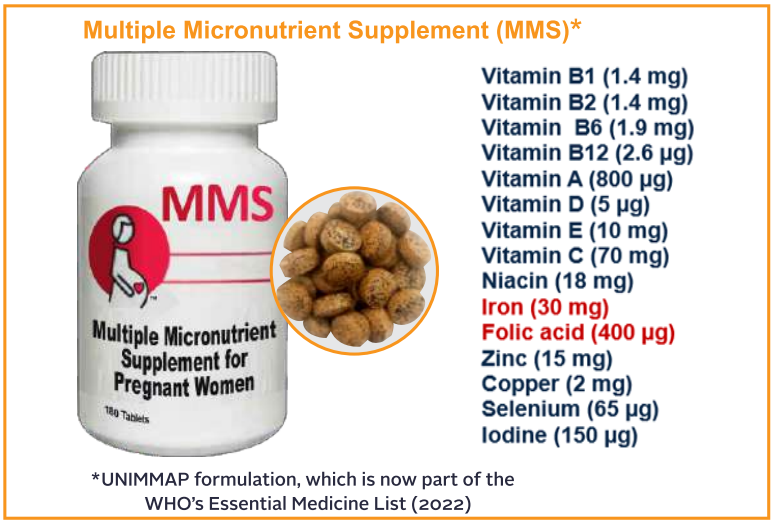


Fig 2:1: *The United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP) formulation of MMS.*

Benefits of MMS:

1. Reduces maternal anaemia.
2. Improves foetal growth, reducing the risk of low birth weight and preterm birth.
3. Provides all essential nutrients, including iron, folic acid, vitamins A, C, and zinc, which are often lacking in the diets of pregnant women.
4. Reduces the risk of small-for-gestational-age babies.
5. Reduces the risk of neonatal mortality.

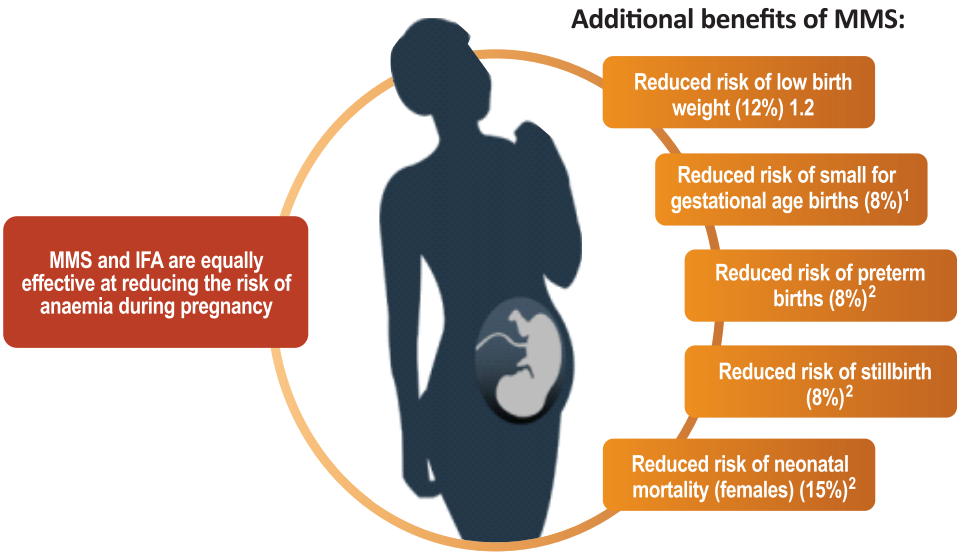


Figure 2.2. Evidence: Effectiveness of MMS vs. IFAS for Maternal and Birth Outcomes
Smith et al, 2017, Keats et al, 2019 . Source: Image developed by Nutrition International 2020

Importance of MMS During Pregnancy:

Key Points:

1. **Importance:** MMS supports the health of both mother and baby by providing essential vitamins and minerals.
2. **Dosage:** Take one (1) MMS tablet daily, even if feeling healthy.
3. **Side Effects:** Address common side effects (e.g., nausea) by suggesting taking the supplement with food or at night.
4. **Food and Supplement Interaction:** MMS should only be taken with water to avoid reducing iron absorption.

SESSION 4

2.4 Monitoring and Ensuring Adherence to Supplementation

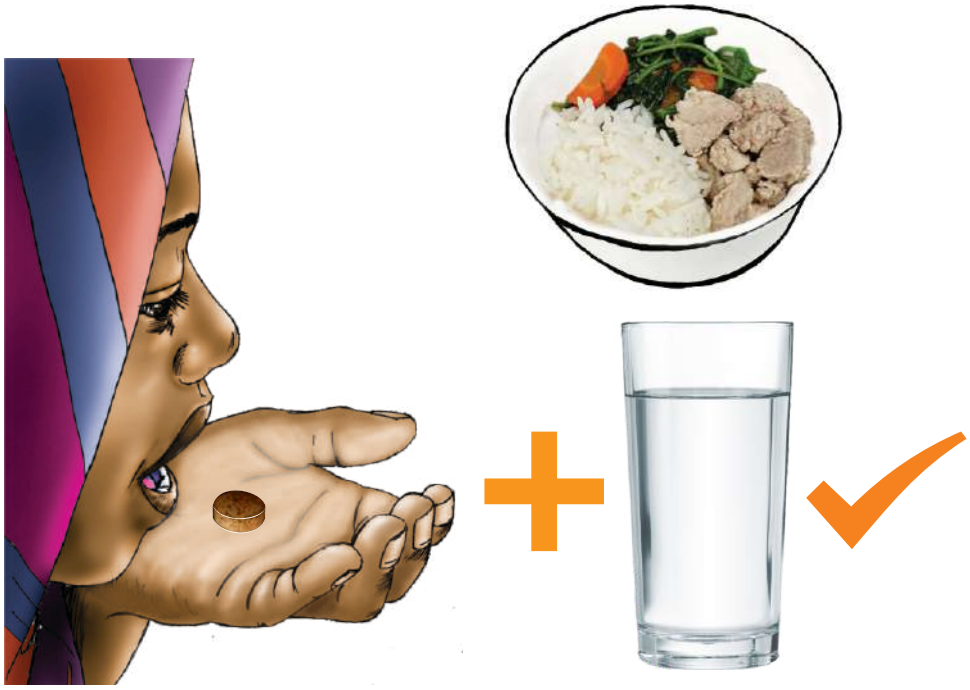
Monitoring Adherence:

- **Ask open-ended questions to assess whether or not the pregnant woman is regularly taking her supplements:**
  - "How often do you take your supplements?"
  - "Have you missed any doses"? If yes, ask "Why?"

- **Provide support if adherence is low:**
  - If forgetfulness is an issue, suggest setting reminders or enlisting family support.
  - If side effects are the problem, recommend ways to reduce discomfort (e.g., taking the supplement with food, especially with evening meals).

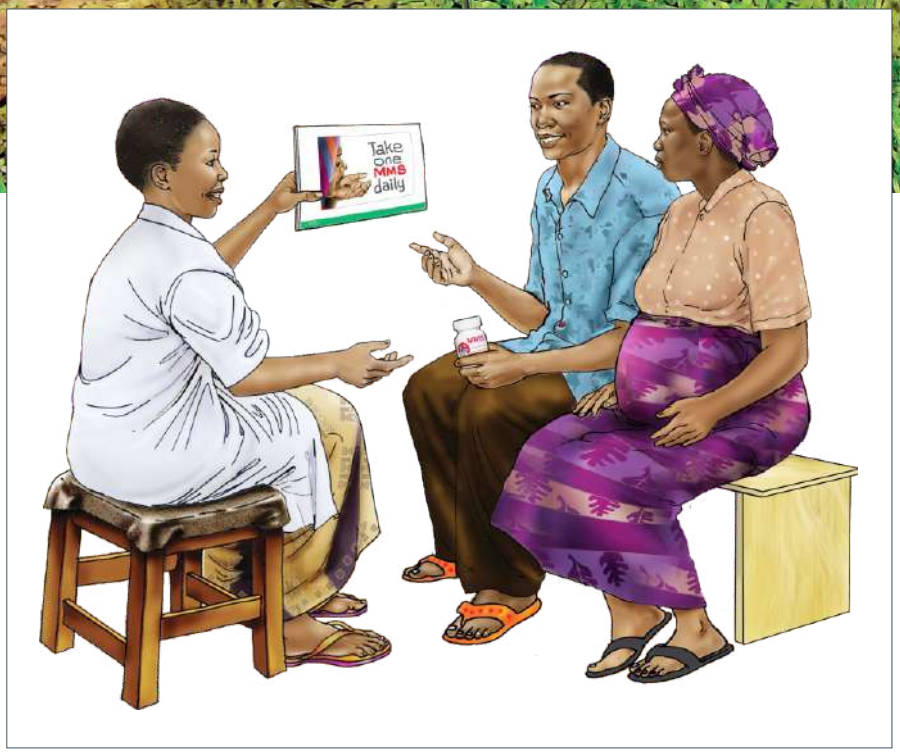
Key Points to Note:

1. Promote diverse diets that include local, nutrient-rich foods.
2. Ensure that all pregnant women receive and understand the importance of MMS.
3. Regularly monitor and encourage adherence to supplementation.
4. Use practical, culturally relevant techniques to help pregnant women improve their nutrition.



Module Three

Integrating MMS into ANC Service Delivery



MODULE THREE: Integrating MMS into ANC Service Delivery

TRAINING MATERIALS:

- Flip charts/Whiteboard
- Markers
- UNIMMAP composition of MMS in the Training Manual
- Case study scenarios (prepared in advance)
- Role-play instruction cards (prepared in advance)
- Projector (optional for presentations)

DURATION:
90 minutes

LEARNING OBJECTIVES:

By the end of this module, participants should be able to:

- Explain the reasons for integrating MMS into ANC Service Delivery.
- List the micronutrient components in the UNIMMAP MMS formulation.
- List the key steps to successfully integrate MMS within existing antenatal care (ANC) service.

CONTENT:

3.1 Reasons for integrating MMS into ANC Service delivery
3.2 UNIMMAP Formulation of MMS
3.3: Key Steps to Successfully Implement MMS within the Existing Antenatal Care (ANC) Services

SESSION 1

3.1 Reasons for integrating MMS into ANC Service delivery

The integration of Multiple Micronutrient Supplementation (MMS) into antenatal care (ANC) services provides a total strategy to meet the nutritional needs of pregnant women, which can significantly improve outcomes for both the mother and child.

The reasons for the integration of MMS into ANC includes the following key points:

- MMS provides more essential vitamins and minerals which are important for both maternal and foetal health, thereby preventing a wider range of micronutrient deficiencies that can arise during pregnancy.
- MMS reduces the risk of maternal anaemia, as well as improves overall maternal health, reducing complications during pregnancy and childbirth.
- Adequate intake of MMS is critical for foetal development. Micronutrient deficiencies can result in low birth weight, preterm birth and congenital anomalies.
- MMS is a cost-effective intervention in the long run by reducing the incidences of low birth weight, neonatal deaths, and childhood morbidity.
- MMS can be easily included in the care package that pregnant women already receive.
- MMS is important in low-resource settings where diets are often deficient in multiple nutrients. It can help fill these nutrient gaps.

- MMS improves health outcomes for both mothers and their babies.

By integrating MMS into ANC services, health care systems can take a more holistic approach to maternal nutrition, ensuring that pregnant women receive the necessary nutrients for a healthy pregnancy and optimal foetal development.

SESSION 2

3.2 UNIMMAP Formulation of MMS

Formulated by the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP), the Multiple Micronutrient Supplements is a standard internationally acceptable formulation that contains 15 micronutrients (10 vitamins and 5 minerals), including iron and folic acid. The UNIMMAP MMS has been included in the 2022 essential medicines list of the World Health Organization (WHO). Nigeria adopted the UNIMMAP MMS for use by pregnant women and has been included in the 8th edition of Nigeria
Essential Medicines List (2024).

The UNIMMAP MMS formulation is provided in Table 3.1 below

Table 3.1: *Composition of Vitamins and Minerals in one MMS Tablet (UNIMMAP Formulation)*

Micronutrients	UNIMMAP MMS Composition	Micronutrients	UNIMMAP MMS Composition
Vitamin A	800µg	**Folic acid**	400µg
Vitamin D	200 IU	**Vitamin B12**	2.6 µg
Vitamin E	10 mg	**Copper**	2 mg
Vitamin C	70 mg	**Iodine**	150 µg
Thiamine	1.4 mg	**Iron**	30 mg
Riboflavin	1.4 mg	**Selenium**	65 µg
Niacin	18 mg	**Zinc**	15 mg
Vitamin B6	1.9 mg		

SESSION 3

3.3: Key Steps to Successfully Implement MMS within the Existing Antenatal Care (ANC) Services

Below are the key steps to guide you to effectively integrate MMS into ANC services

1. Apply the relevant National Guidelines (e.g. ANC, MNDC and MIYCN guidelines).
2. Engage local community leaders, including Ward Development Committees (WDCs), religious leaders and women's groups, to support the adoption of MMS, helping to build trust and encourage compliance among pregnant women.
3. Inform pregnant women on how to take MMS, (the recommended dosage of one tablet daily), and the importance of compliance to the prescribed regimen throughout pregnancy.

4. Listen to women's concerns about taking MMS, such as side effects or misconceptions, and offer reassurance based on scientific evidence.
5. Monitor compliance to MMS use during follow-up ANC visits. Encourage pregnant women to share their experience, challenges, or any side effects they may be experiencing.
6. Maintain MMS inventory control card to track MMS usage and report any issues related to supply and shortage.
7. Accurately record the administered MMS in patient records and appropriate national registers.
8. Record maternal and child health outcomes, such as birth weight, gestational duration in the patients' card and appropriate NHMIS registers.
9. Share knowledge and best practices with colleagues in your health facility to build a stronger team approach to MMS implementation.
10. Provide regular feedback to supervisors or LGA/State/Federal health authorities on the successes and challenges encountered during the implementation of MMS.

Activity 3.1: Role-Play and Group Discussion on MMS Integration in ANC

Activity Title:
Role-Play and Group Discussion on MMS Integration in ANC

Activity Overview:
This activity is designed to engage participants in an interactive session where they will explore the rationale for integrating MMS into ANC, familiarize themselves with the UNIMMAP composition, and identify key strategies for successful implementation of MMS within the existing ANC service delivery frameworks.

Participants will work in small groups, using case studies, role-play scenarios, and presentations to reinforce learning. This will also enhance their communication, counseling, and problem-solving skills relevant to MMS implementation in a clinical setting.

Materials Needed:
- Flip charts/Whiteboard
- Markers
- Handouts on UNIMMAP composition of MMS
- Case study scenarios (prepared in advance)
- Role-play instruction cards (prepared in advance)
- Projector (optional for presentations)

Duration: 45 minutes

Activity 3.2: Group Formation and Case Study Review

Learning Activity Plan:

A: Group Formation and Case Study Review (10 minutes)

Facilitator's Role:
- Divide participants into small groups.
- Provide each group with a case study based on a scenario involving the integration of MMS into ANC services (e.g., introducing MMS in a rural health facility).
- Assign roles to each group member (e.g., health worker, pregnant woman, health administrator).

- Each group will discuss the rationale for MMS integration, UNIMMAP composition, and strategies for implementing MMS within their assigned scenario.

B: Group Role-Play (10 minutes)

Group Task:

- Participants will role-play the scenario from their case study.
- The "health worker" will counsel the "pregnant woman" on the benefits of MMS and explain the UNIMMAP composition.
- The group will collectively work on overcoming challenges to MMS implementation (e.g., supply chain issues, patient resistance) based on the strategies provided.

C: Group Presentations (15 minutes)

Facilitator's Role:

- Invite each group to present their role-play outcomes and the strategies they identified for successfully implementing MMS in their setting.
- Groups will explain the rationale for integrating MMS, share key information about UNIMMAP, and describe their proposed solutions to implementation challenges.

D: Group Discussion and Feedback (10 minutes)

Facilitator's Role:

- Lead a group discussion on the presentations.
- Provide feedback on the accuracy of the information shared by participants regarding the rationale for MMS integration, UNIMMAP composition, and implementation strategies.
- Encourage participants to reflect on how the strategies could be applied in real-life settings, discussing any additional ideas or approaches that could enhance MMS delivery in ANC services.

Assessment and Reflection:

- After the activity, ask participants to write a short reflection (2-3 sentences) on how they will apply what they learned in their daily practice.
- Use the reflections to assess understanding of the session's objectives and provide personalized feedback.

Key Takeaways:

Participants should leave the session with a clear understanding of the rationale for MMS integration, the UNIMMAP composition, and the strategies needed for successful implementation within ANC services. They will also improve their communication skills in counseling pregnant women on MMS.

Module Four

Key Messages on the Provision of MMS and Counselling Techniques

MODULE FOUR: Key Messages on the Provision of MMS and Counselling Techniques

TRAINING MATERIALS:

- Flip charts and markers
- Set of puzzle pieces representing different delivery platforms (antenatal care clinics, campaigns/outreaches
- Set of puzzle pieces representing the target beneficiaries of MMS (pregnant women).
- Annex Checklist for Effective Counselling

DURATION:
90 minutes

LEARNING OBJECTIVES:

By the end of this module, participants will be able to understand the following:

- Understand delivery platform and target beneficiaries for MMS
- MMS use and dosage
- MMS compliance
- Possible side effects of MMS and how to manage the side effects
- The best effective counselling practices

CONTENT:

SESSION 1

4.1: Delivery Platform and Target Beneficiaries of MMS

Key points to be discussed

1. MMS is for preventive care during pregnancy and thus should be provided to all pregnant women as standard of care at ANC.
2. When a pregnant woman is diagnosed with anaemia, the recommended protocol for managing anaemia should be followed(see module 5)
3. Based on recommended dietary allowances (RDAs), the Multiple Micronutrient Supplements was formulated solely to meet the nutritional needs of pregnant women, and should not be distributed to others who are not pregnant
4. When the pregnant woman accesses ANC services at the health facility, she should be given MMS. For effective pregnancy and birth outcomes, one tablet per day should be given to a pregnant woman throughout the pregnancy.

SESSION 2

4.2: MMS Use and Dosage

- As soon as a woman knows she is pregnant, she is advised to promptly seek ANC services.
- As a standard component of ANC, all pregnant women should be provided with MMS.
- Any remaining tablet(s) should still be continued after delivery.
- For routine supplementation, MMS and IFAS should not be given together.

- The MMS tablet should be taken with a cup of clean water.
- MMS **should not** be
  - o chewed or crushed (see appendix 4)
  - o taken with tea or coffee
  - o taken alongside with calcium or calcium-rich foods (like milk), as these can decrease the absorption of iron in the body.
- In the event that a pregnant woman misses her Multiple Micronutrient Supplements intake, she should continue to take it without exceeding her recommended dosage of one tablet per day. she should not take two tablets the next day to make up for the missed dose. Similarly, if a pregnant woman on Multiple Micronutrient Supplements pauses the intake for any reason, she should restart with the prescribed dosage of one tablet daily and continue until she exhausts her 180 tablets
- Multiple Micronutrient Supplements should be given in its original sealed bottle to prevent any form of damage to the tablets. The bottle, always tightly closed after each use, should be placed in a dry and secure location that is visible, and out of children's reach, as well as away from direct sunlight, heat, or moisture
- Pregnant women should continue to consume a healthy and varied nutritious diet. MMS is not supposed to replace the dietary needs of pregnant women. MMS does not cover other nutritional requirements of pregnancy, such as protein, essential fatty acids, energy, calcium, and antioxidant compounds, which need to be obtained from the diet.

Learning Activity 4.1.: Group Discussion

Learning Activity 4.1.

Facilitators should lead a group discussion by asking true/false questions about initiation, dosage, and how pregnant women should consume MMS. Facilitators should not ask leading, close ended or judgmental questions.

SESSION 3

4.3: MMS Adherence

Pregnant women should take their Multiple Micronutrient Supplements tablets on daily basis to maximize their health benefits. Known as "Adherence", the recommended regular intake of the tablets must be assessed during every Antenatal Care (ANC) visit, using a non-judgmental approach. The following questions can be used to facilitate the discussion:

- Have you started MMS during this pregnancy?
- When did you start taking MMS?
- Have you been able to take your MMS daily?
- What do you think are the reasons for not taking MMS daily?
- Would you like to discuss how I can support you in overcoming these barriers?

Learning Activity 4.2.: Group Discussion 2

Learning Activity 4.2

Group discussion: Participants should be divided into groups to discuss barriers/challenges to MMS adherence among pregnant women in their communities

Table 4.1: *Some Common Reasons why a Pregnant Woman may not take MMS and Possible Solutions*

S/N	Reasons for not taking MMS	Possible Solutions
1	Lack of knowledge	Enlightenment through written materials and verbal information to be provided during antenatal visits on WHY, WHEN, and HOW multiple micronutrients tablets should be taken
2	Misconception about possible negative outcomes (e.g., having a big baby)	Reassure the pregnant woman that the baby will not gain excessive weight because of taking multiple micronutrient supplements
3	Failure to remember	Advise the woman to take the supplement at a particular time each day, and encourage her to keep the Multiple Micronutrient Supplements bottle at a visible place in the house, set alarm reminders, and ask family member(s) to always remind her when it is time to take the tablet
4	Adverse effects like nausea, vomiting, and abdominal pain	If there are side effects experienced, the woman should be advised to take the supplement at bedtime, or with a meal instead of on an empty stomach. The supplement should not be taken with tea, coffee, or foods that are rich in calcium such as milk, as doing so may reduce the absorption of iron. The woman should also be reassured that the side effects may be temporary, while the importance of continuing the supplement is emphasized

SESSION 4

4.4: Safety and Possible Side effects of MMS and their Management

- Though pregnant women may experience minor discomfort while taking the supplements (which is usually temporary until the body adjusts to the iron in the tablet), the supplement is totally safe and does not have any major or damaging side effects.
- Some possible mild discomforts include constipation, stomach upset, mild headache, and nausea
- The pregnant woman should be advised to drink plenty water; eat a lot of fruits and vegetables to ease bowel movement, and to take the supplement at night (after evening meals) to prevent nausea and dizziness
- If side effects persist after the pregnant woman has tried the tips above, advise her to speak to a doctor.
- A pregnant woman who is suffering from diabetes, high blood pressure, heart disease, or a history of miscarriage can safely take MMS

SESSION 5

4.5: Treatment of Anaemia in Pregnancy

When screened using the guidelines on haemoglobin cutoffs (Table 4.2), a pregnant woman who is found to have mild to moderate anaemia should be treated while those with severe anaemia should be referred to higher level of care (Table 4.3).

Table 4.2: *Anaemia Cut-offs in Pregnancy**

Stages of Pregnancy	PCV level (%)				Haemoglobin concentration (g/dl)			
	No Anaemia	No Anaemia	Moderate Anaemia	Severe Anaemia	No Anaemia	Mild Anaemia	Moderate Anaemia	Severe Anaemia
First trimester	≥33.0	30.0 - 32.7	21.0 - 29.7	<21.0	>11.0	10.0 - 10.9	7.0 - 9.9	<7.0
Second trimester	≥31.5	28.5 - 31.2	21.0 - 28.2	<21.0	>10.5	9.5 - 10.4	7.0 - 9.4	<7.0
Third trimester	≥33.0	30.0 - 32.7	21.0 - 29.7	<21.0	>11.0	10.0 - 10.9	7.0 - 9.9	<7.0

**WHO (2024). Guideline on haemoglobin cutoffs to define anaemia in individuals and populations. Geneva: World Health Organization; 2024. Licence: CC BY-NC-SA 3.0 IGO*

Table 4.3: *Treatment of Mild to Moderate Anaemia*

Anaemia Status	Recommendations	
Mild	One tablet of MMS + 30mg elemental iron OR One tablet of MMS + 60mg elemental iron OR 120mg elemental iron (if there is no MMS)	Daily for 30 days in the first instance. After 30 days, the pregnant woman should return to the health facility to be re-screened for anaemia and collect more IFAS and/or MMS based on the anaemia status.
Moderate		
Severe	Refer to higher level of care	

The following guidelines apply in relation to MMS and anaemia in pregnancy:

- MMS should be given to all pregnant women.
- MMS should not be given to sickle cell pregnant women.
- For severe anaemia condition, the pregnant woman should be referred to a secondary/tertiary health facility.
- For intolerance, the pregnant woman should also be referred to a secondary/tertiary health facility.

SESSION 6

4.6: The GATHER Approach to Counselling

The GATHER approach, which stands for Greet, Ask, Tell, Help, Explain, and Return is an effective counselling technique commonly used for family planning sessions. However, it can also be effectively used for counselling pregnant women on the importance of Multiple Micronutrient Supplements

SESSION 6.1

4.6.1 Elements of the GATHER Approach to Maternal Nutrition and MMS Counselling for Pregnant Women

Greet the pregnant woman, ask her to sit down and make her feel comfortable before discussing her well-being and the state of the pregnancy since she last visited the clinic

Ask about the pregnant woman's nutritional and health status, as well as her food intake

- Ask about any symptoms, nutrition problems, and other concerns
- Conduct a nutrition assessment of weight changes, biochemical, dietary patterns, and clinical assessments. If you have already completed this assessment, share the result
- Identify nutritional needs (e.g. appropriate weight gain, adherence to daily intake of MMS throughout pregnancy, consuming a diverse and healthy diet).
- Find out what the pregnant woman has done to address the problems discussed.

Tell the pregnant woman about alternative ways to address her nutrition problems.

- Use the key messages in this module to guide the session.
- Help the pregnant woman set specific, measurable, achievable, realistic, and time-bound (SMART) goals to address the problems.

Help the pregnant woman make informed choices.

- Work with the pregnant woman (accompanied by spouse or other family member) to find approaches and actions to reach the goal the pregnant woman has set.
- As much as possible, let the pregnant woman come up with choices that are practical and relevant to her context.

Explain fully the choices the pregnant woman has made.

- Discuss barriers to implementing the choices.
- Ask the pregnant woman to explain the actions, doing demonstrations if necessary.
- Summarize (or ask the pregnant woman to summarize) what has been agreed and how it will be done.

Reassure the pregnant woman and give a Return date for the next visit. Ask the pregnant woman to repeat the date.

SESSION 6.2

4.6.2 Skills for Effective Counselling

1. Demonstrate good listening and learning skills

a. Listen attentively to the pregnant woman, maintaining eye contact. Many times, pregnant women find it difficult to express their feelings, especially if they are shy or not familiar with the health worker

b. Avoid keeping distance or having barriers such as table, chair, book, bag, etc. between pregnant woman and counsellor

c. Take enough time to talk; don't rush.

2. Show that you understand how the pregnant woman feels.

If a pregnant woman says she feels like vomiting when she swallows tablets, your response could be, "Yes that could happen". Also, you may ask if she feels like vomiting always. The pregnant woman will then understand that you know how she feels. Do not use statement like "You have to work hard for the baby or else the baby will come with birth defects".

3. Use helpful non-verbal communication.

Without saying anything, you communicate through your face and body language, for example by nodding your head or smiling a little. This will draw the attention of the pregnant woman and encourage her to pay attention to your massage

4. **Ask open-ended questions.**
   Open-ended questions are very useful for communication because more than one answer comes from questions that ask **when, where, how, what** you know about micronutrient supplements in pregnancy, etc. Example of closed question is: Do you take MMS? An example of open-ended question is: What do you know about MMS?

5. **Don't use judgmental words.**
   Judgmental words include words such as **right, wrong, well, badly, good, problem,** etc. If you use these words when you talk to a pregnant woman, you may make her feel that she is wrong. For example, if you say, "You look pale. I am not sure you are taking your MMS". Build the self-confidence of pregnant woman.

6. **Praise and emphasize what a pregnant woman is doing right.**
   Praise the pregnant woman for what she has done well so that she may continue those practices. Praising for good job done will build confidence and make it easier to counsel pregnant women the next time.

7. **Provide the pregnant woman with practical help/demonstration.**
   For example, you can provide the pregnant woman with options of taking MMS without adverse effects.

Learning Activity 4.3.: Structure: Rotating Learning Stations

Station 1: Delivery Platforms and Target Beneficiaries Puzzle

- **Goal:** Participants should be able to identify the different platforms for delivering MMS and the specific groups who should receive it.

- **Activity:**
  - Provide participants with a set of puzzle pieces representing different delivery platforms (antenatal care clinics, campaigns/outreaches). Another set of puzzle pieces will represent the target beneficiaries of MMS (pregnant women).
  - Participants must match the delivery platform with its target beneficiaries, discussing how the platform can be optimized to ensure MMS reaches the appropriate population.

Station 2: MMS Prescription Scenario

- **Goal:** By the end of this station, participants will be familiar with MMS Initiation protocols, dosage recommendations, and consumption guidelines.

- **Activity:**
  - Present participants with several patient profiles (e.g., a pregnant woman in her first trimester, and a woman who missed two doses of MMS).
  - Ask participants to determine when MMS should be initiated, the correct dosage, and specific consumption guidelines for each profile. Additionally, participants should recommend strategies to ensure adherence.

Station 3: Barriers to MMS Adherence Brainstorm

- **Goal:** Participants will identify common adherence gaps and develop practical strategies to improve MMS adherence among pregnant women.

- **Activity:**
  - The facilitator will present common barriers to MMS adherence (e.g., forgetfulness, side effects, lack of access to clean water, myths or misconceptions etc).
  - Participants will brainstorm potential solutions to overcome these barriers in their specific contexts (e.g., reminders, community health worker follow-ups, education campaigns etc).

Station 4: Side Effects and Management Role Play

- **Goal:** Participants will practice identifying potential side effects of MMS and providing solutions to manage these side effects effectively.

- **Activity:**
  - In pairs, participants will role-play a healthcare worker and a pregnant woman. The "pregnant woman" will describe experiencing side effects from MMS (e.g., nausea, constipation, or metallic taste).
  - The "healthcare worker" will counsel the woman on how to manage these side effects (e.g., taking MMS with food, increasing fluid intake, or switching the time of day for consumption).

Station 5: Contraindications Case Study

- **Goal:** Participants should learn how to assess who should and should not be given MMS based on individual health conditions.

- **Activity:**
  - Present participants with different case studies of pregnant women, including women with certain medical conditions (e.g., sickle cell disease, those anaemic, and those already taking other supplements).
  - Participants will discuss whether these women should be given MMS, considering potential contraindications and the need for personalized care in certain cases.

Debrief and Discussion

After completing all stations, participants will return to a group setting where the facilitator will lead a debrief. This discussion will focus on reinforcing the key takeaways from each station and providing participants an opportunity to ask questions and clarify doubts.

Debrief Questions:

1. What challenges do you foresee in delivering MMS through different platforms in your community?
2. How can healthcare workers effectively counsel pregnant women on MMS adherence?
3. What are the most effective ways to manage side effects while ensuring continued MMS use?

This learning activity should engage participants in interactive, problem-solving exercises that reinforce key messages related to MMS provision.

Module Five

Steps for Provision of MMS During ANC in Health Facilities

MODULE FIVE: Steps for Provision of MMS During ANC in Health Facilities

TRAINING MATERIALS:
- Flow chart
- Flip chart and markers

DURATION: 90 minutes

LEARNING OBJECTIVES:

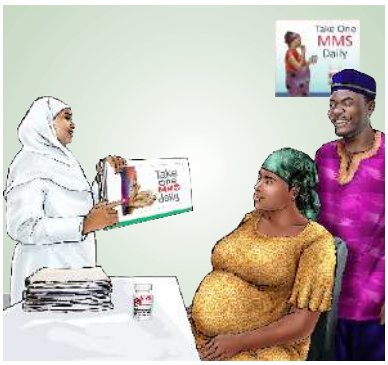
By the end of this module, participants should be able to:

- Describe the steps for providing MMS to pregnant women during the ANC contacts.
- Use accompanying job aid and fact sheet.

CONTENT:

5.1 Steps for delivering MMS to pregnant women during ANC in health facility.
5.2 How to use MMS Flowchart.

SESSION 1



5.1 Steps for delivering MMS to Pregnant Women during ANC in health facility.

The aim of this Module is to assist health care providers in implementing the necessary steps for providing MMS to pregnant women. In line with World Health Organization's recommendation, pregnant women should have at least eight (8) antenatal care visits, and the first visit should ideally take place as early as possible in pregnancy. It is also important that screening for anaemia in pregnant women is carried out in line with local protocols, and that the result is properly documented in relevant records. MMS is primarily intended for preventive care for pregnant women

Steps in providing MMS to pregnant women (see flowchart below):

- **Step 1 Confirm Pregnancy:** Through history taking, clinical examination and laboratory investigations, including ultrasound scan (Part of ANC services).
- **Step 2 Registration for ANC and Provision of Recommended ANC Services:** Pregnant women should be provided with a set of recommended ANC services based on the national ANC Guidelines which includes screening for anaemia, nutritional counseling etc.
- **Step 3 Screening for Anaemia:** Screen the pregnant woman for anaemia, if diagnosed with mild or moderate anaemia, counsel and treat accordingly. For severe anaemia, refer for treatment according to clinical protocols.
- **Step 4 Assessment of Supplements Intake:** Ask if the woman is already taking any pregnancy supplements (E.g. IFA or any branded supplements). If yes, counsel the woman on maternal nutrition and appropriate supplementation (not to combine two types of supplements e.g. IFAS and MMS or with any supplement brands).
- **Step 5 Appropriate Nutrition Counselling:** All the pregnant women should be counsel appropriately.
- **Step 6 Administration of MMS:** To receive maximum benefit from MMS, a pregnant woman should take one (1) MMS tablet daily for at least 180 days. Each pregnant woman should receive an unopened bottle of MMS and be encouraged to take it throughout her pregnancy.
- **Step 7 Record and follow up plan:** Document the number of pregnant women counselled and given MMS. Provide a follow up plan and re-emphasize the

importance of nutrition counselling on consumption of healthy, diverse and nutritious diet during pregnancy.

- At each ANC contact, health care providers should address any adherence issues during counselling.
- Pregnant women should be reminded to take their MMS daily during each ANC contact. They should also be reminded to come back for their follow-up ANC contact.

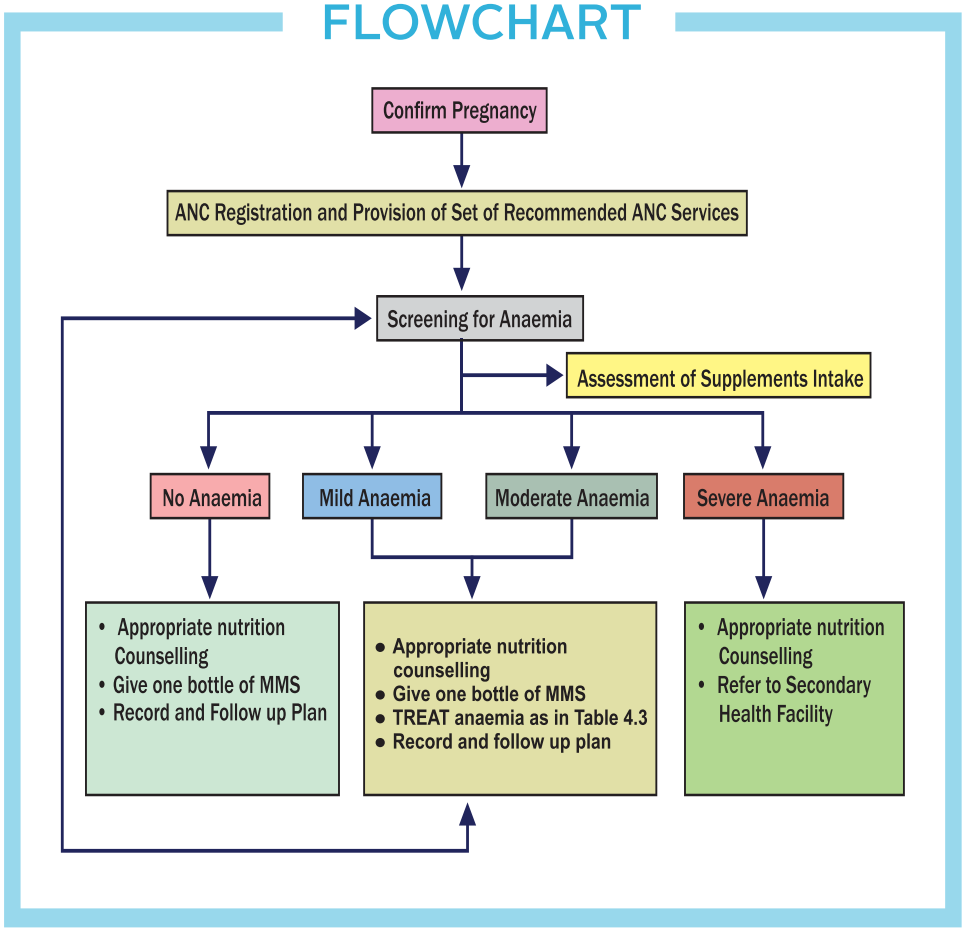
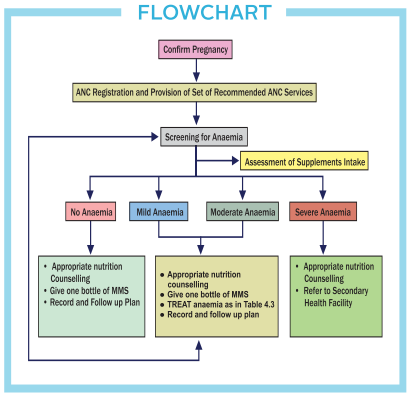


Figure 5.1: Multiple Micronutrient Supplementation (MMS) Flowchart in ANC

SESSION 2



5.2 How to use MMS Flowchart

Participants should know how to use the MMS flow chart (See Figure 5.1).

The following scenarios apply for providing MMS and IFAS to pregnant women during ANC.

Scenario 1: No anaemia; start or continue MMS

Scenario 2: Mild to moderate anaemia; start or continue MMS and follow with anaemia treatment as in Table 4.3

Scenario 3: Severe anaemia: Refer appropriately for further clinical management. Thereafter, she should resume the standard daily antenatal MMS dose.

Module Six

Estimating Supply Needs for MMS

MODULE SIX: Estimating Supply Needs for MMS

TRAINING MATERIALS:
- Flip chart and marker

DURATION: 45 minutes

LEARNING OBJECTIVES:

At the end of this module, participants should be able to:

- Estimate the MMS supply need in the health facility.
- Estimate MMS supply need for an LGA or a State.

CONTENT:

6.1 Steps for Estimating MMS Supply Needs in Health Facility

SESSION 1

6.1 Steps for Estimating MMS Supply Needs in Health Facility

Take an estimate of the number of Multiple Micronutrient Supplement bottles that a typical facility would be needing every month for distribution to pregnant women during antenatal visits to the facility. for the following estimation, it will be assumed that 200 newly pregnant women attend antenatal each month:

Steps for Estimating MMS Supplies for a typical Health Facility

Option #1: A pregnant woman collects one bottle of MMS containing specified number of tablets (e.g., 180 tablets)

1. Note the average number of women attending ANC monthly, assuming 200 new pregnant women.
2. Add 10% to the average number of new pregnant women to cover for unexpected increased number of clients 200 + (10% of 200) = 220 pregnant women.
3. A bottle of MMS contains 180 tablets and each pregnant woman will be given one bottle of MMS containing 180 tablets irrespective of her time of visit to the health facility.

Monthly estimate of MMS requirement for this health facility will be:

4. 220 (total number of pregnant women expected in the health facility in a month multiplied by 1 (number of bottle of MMS per pregnant woman) = 220 MMS bottles per month

Quarterly estimate of MMS requirement for this health facility will be:

5. 220 MMS bottles for 1 month *(multiplied by) 3 (for 3 months in a quarter) = 660 MMS bottles per quarter

Annual estimate of MMS requirement for this health facility will be:

6. For a full year supply: Multiply monthly need by the health facility by 12 (since there are 12 months in a year) and round up to the nearest whole number. 220 bottles * (multiplied by) 12 = 2,640 ≈ 2,700 bottles

Important Notes

a. The numbers calculated for typical health facility above will be increased to maintain buffer stocks at a minimum of 10%.
b. Health facilities should make provisions for reserve supplies (buffer stock) of the supplements to cater for delays that may be experienced during requisitions,

procurement and transportation of supplies, often caused by factors like difficulty to reach facilities, reliability of the transport conveying the supply, formalities around approvals, and other unforeseen delays that may occur

c. Furthermore, differences in the size of population and the anticipated number of pregnancies in a particular area should be used as a basis for estimating the number of expected clients
d. Pharmacists and medical storekeepers who are responsible for requesting and managing supplies should be given orientation on the supplementation protocols, as well as the steps for estimation and the significance of micronutrient supplements for mother and child health outlined above. It will help them integrate these procedures with existing practice for the management and monitoring of high priority medical supplies

Option #2: State and LGA estimation if population figures are available

- Know your total or catchment population
- Target population of pregnant women = Total Population multiplied by 5% (population of pregnant women)
- Target population of pregnant women multiplied by anticipated coverage (usually set between 80-90%)
- Add buffer factor at a minimum of 10%
- Net Annual Requirement: Target population of pregnant women multiplied by 80% (coverage) multiplied by 10% buffer multiplied by 1 (number of bottles per PW)

Example for Option #2

Estimate an annual requirement of MMS for a LGA with a total population of 200,000 people?

- Total population = 200,000
- Target population of pregnant women = 200,000 multiplied by 5% = 10,000 pregnant women
- Pregnant women expected to be covered = 10,000 multiplied by 80% = 8,000
- Pregnant women expected to be covered (with contingency) = 8,000 multiplied by 10% + 8,000 = 800 + 8,000 = 8,800
- **ANNUAL NET REQUIREMENT** = 8,800 * 1 bottle of MMS = 8,800 bottles of MMS **(approximately 9,000 bottles)**

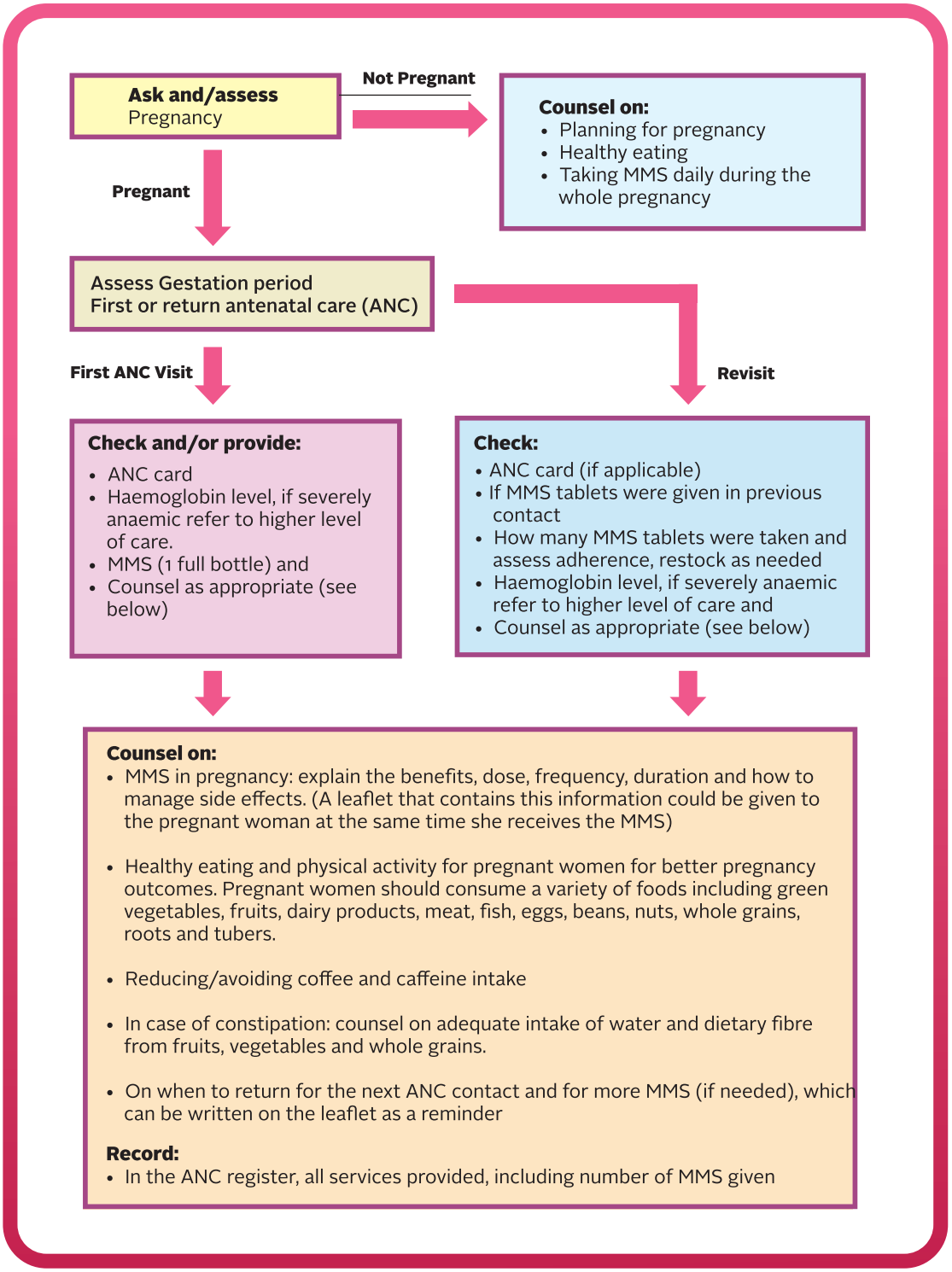
Exercise 6.1.: Estimation of quantity of MMS needs for health facility, LGA or State

Participants Exercise 1: Calculate the Quantity of MMS Supply for a facility with 150 new pregnant women attending monthly ANC for the following:

(i) Quantity of MMS supply for the facility for a month,
(ii) Quantity of MMS supply for the facility quarterly,
(iii) Quantity of MMS supply for the facility for a year.

Participants Exercise 2: An LGA with a total population of 250,000, had an anticipated coverage of 90%. Calculate the net annual quantity of MMS bottles for the target pregnant women in the L.G.A.

Monitoring and Record Keeping of Multiple Micronutrient Supplements



MODULE SEVEN: Monitoring and Record Keeping of Multiple Micronutrient Supplements (MMS)

TRAINING MATERIALS:
- NHMIS register (ANC register and GMP register)
- ANC card

DURATION: 45 minutes

LEARNING OBJECTIVES:

By the end of this module, participants should be able to:

- Describe the purpose of monitoring and record keeping of MMS
- Record the distribution of MMS and appropriate counselling using the national routine monitoring system.

CONTENT:

7.1 Monitoring and Reporting of MMS

SESSION 1

7.1 Monitoring and Reporting of MMS

Appropriate record-keeping is integral and important in monitoring MMS program implementation. Monitoring is done in health facilities to collect, collate, review, validate, and learn from data collected regularly to better understand the programme being implemented. While monitoring provides the opportunity to assess the effectiveness of the MMS intervention (whether it is achieving the intended purpose and targets or not), it also helps to identify areas to improve on in real-time. The monitoring system will contain information about what is collected (indicators), when, how, and by whom these are to be collected using relevant data collection tools.

a. Reporting of Multiple Micronutrient Supplementation in the Facility

Reporting data on MMS at the health facility should follow the National Health Management Information Systems (NHMIS) pathway. This ensures that the MMS data is collected, collated, and transmitted to the national DHIS platform. The flow chart below highlights the reporting pathway from the health facility to the NHMIS, DHIS platform.

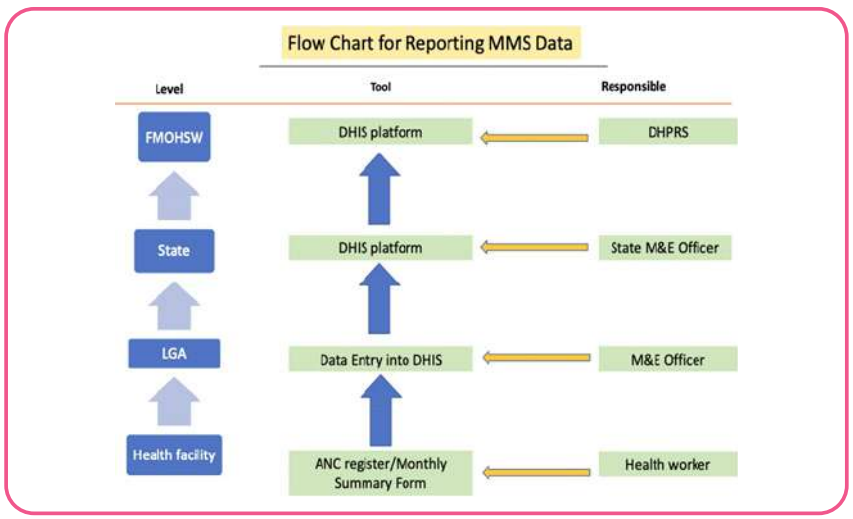


Figure 7.1.: Flow Chart for Reporting MMS Data

What are the expected data to report?

- Number of MMS bottles received in the facility
- Number of pregnant women who received MMS
- Number of pregnant women who received Nutrition counselling service
- Number of pregnant women who were tested for anaemia

Additional Data Elements to be Captured

a) Opening Balance at the beginning of the month
b) Quantity received from 1st to end of the month
c) Quantity given out to pregnant women from 1st to end of the month
d) Balance of the commodities at month end
e) Expiring date of the commodities

All these items (a-e) above are entered on inventory control card (ICC)
Data Reporting Tools

- ANC Register
- GMP Register
- Monthly Summary Form
- Inventory Control Card (ICC)
- General attendance Register

Who to collect the MMS data: The Record, M&E or Logistic officers are responsible for handling nutrition commodity data, including entry, reporting, and documentation at the facility level; and submit the data to the LGA M&E for submission to the State, and Federal levels at the end of the month.

b. Monitoring of Multiple Micronutrient Supplementation at the Facility
The monitoring of Multiple Micronutrient Supplementation is an integral part of ANC, and takes place at various levels using established data collection tools, such as the ANC Register, GMP, and monthly Summary Forms. This requires collecting data at various levels based on the protocol for delivering MMS, namely:

1. At the individual pregnant woman's level on:
   a. Number of pregnant women that received MMS
   b. Number of pregnant women counselled on the use of MMS

Tracking the number of pregnant women who received MMS tablets at the health facility level compared to expected numbers based on the target population of pregnant women, number of pregnant women reached during ANC Monthly or quarterly documentation; identified supply chain bottlenecks and action taken to remedy the current gaps to prevent stock out, at the health facility and other delivery points at the state and LGA levels.

2. At the national level, the NHMIS captures national data on the number of pregnant women who have received MMS and the number of pregnant women counselled on MMS. For the monitoring of MMS program implementation, please find below a Monitoring Checklist in the annex.

Exercise 7.1.: Demonstration of how to enter MMS data into the HMIS tool.

Practical Session: The facilitator should create entry data for the participants to enter into the provided tools. HMIS tool, as a health worker, demonstrate how to enter MMS data into the HMIS tool.

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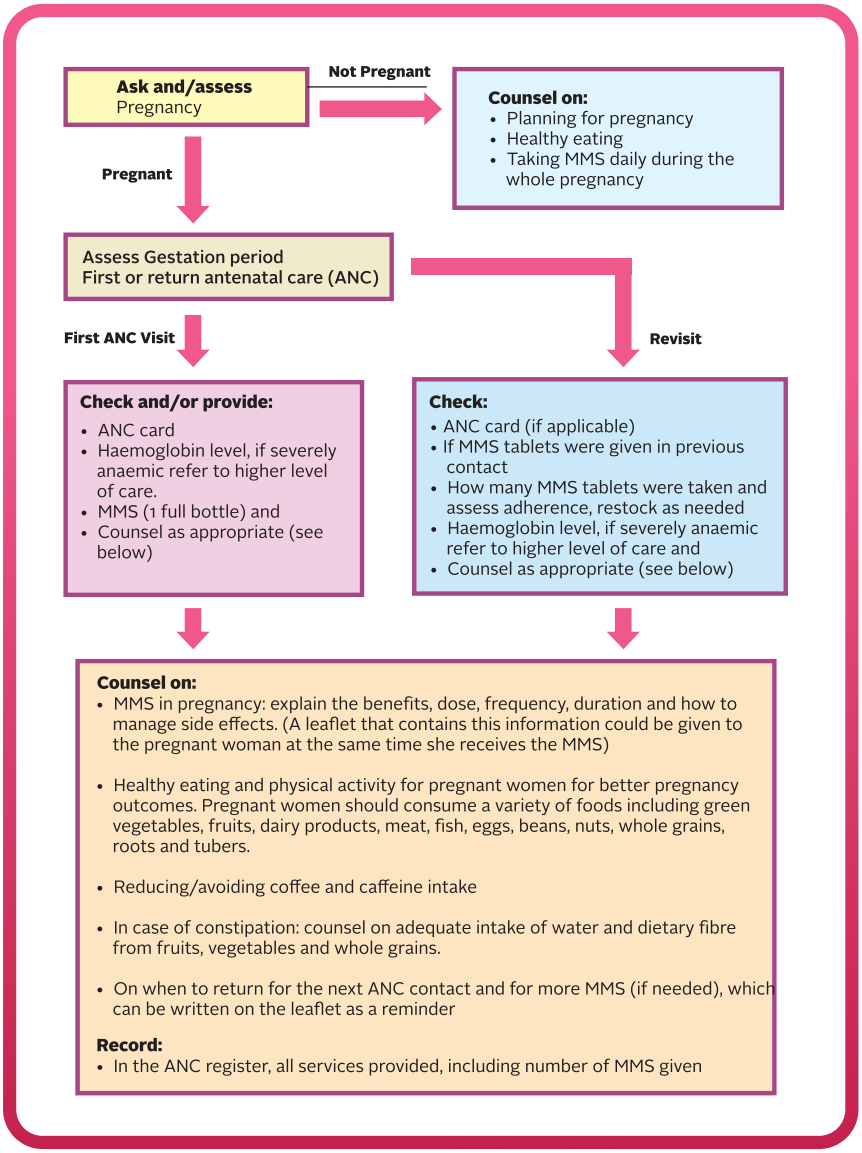
ANNEXES

SUPPORTING JOB AIDS FOR MMS DELIVERY

(Adapted from Generic Reference Material for MMS by the 2019 MMS Technical Advisory Group)
Facilitator should provide thorough explanation on the relevant job aids to be used when delivering MMS to pregnant women (Algorithm leaflet, Counselling cards, MMS leaflet) including its content, usage and its provision to pregnant women

JOB AID 1: ALGORITHM FOR MULTIPLE MICRONUTRIENT SUPPLEMENTATION AND OTHER NUTRITIONAL INTERVENTION AT THE HEALTH FACILITY



JOB AID 2:
MMS LEAFLET FOR PREGNANT WOMEN- MULTIPLE MICRONUTRIENT SUPPLEMENTATION IN PREGNANCY

Healthcare provider should give the pregnant woman a copy of the MMS leaflet when administering MMS to her for her own personal reference.

The MMS leaflet mainly covers definition, benefits, safety, dosage, storage, possible side effects and management of MMS in simple English language/Local language that the woman can understand. (Pictorial representations can be used).

Why do I need to take this supplement?
When should I start taking this supplement?
How should I take this supplement?
What if I forget?
What if I feel sick?

Leaflet should could also contain
Patients Name:
Name of Health care centre for ANC
Contact of health professional at health centre

JOB AID 3:
FLIP CHART OF COUNSELLING CARDS

This flip chart of counselling cards is designed to help healthcare providers or community health workers (educators) to communicate effectively about the importance of MMS in pregnancy to the pregnant mothers.

There are 6 cards covering the key messages:

1. The role of micronutrients in pregnancy and the increased micronutrient needs of pregnant women
2. Micronutrient deficiencies lead to poor pregnancy and birth outcomes
3. The benefits of multiple micronutrient supplements (MMS) during pregnancy
4. Dose, frequency and duration of MMS during pregnancy
5. Side effects of MMS and management
6. Importance of healthy eating in pregnancy

JOB AID 4:
REASONS NOT TO CHEW MULTIPLE MICRONUTRIENT TABLETS

- Tablet formulation: MMS tablets are designed to release nutrients slowly, ensuring optimal absorption. Chewing disrupts this process.
- Nutrient degradation: Chewing can expose nutrients to saliva, leading to degradation or inactivation.
- Iron and folic acid interaction: Chewing can cause iron and folic acid to interact, reducing absorption.
- Vitamin and mineral imbalance: Chewing may lead to uneven release of vitamins and minerals, potentially causing imbalances.
- Gastrointestinal upset: Chewing can cause stomach upset, nausea, or vomiting, especially with iron supplements.

OBSERVATION CHECKLIST FOR MONITORING MMS

Maternal Nutrition Monitoring Observation Checklist for MMS			
Name of Health Worker:			
PHC:	**Community:**		
Ward:	LGA:		
State:			
Questions on MMS	**Yes (Details and Comments)**	**No/ Yes**	**Comments if No**
Did the HW counsel the pregnant woman about the daily dose of MMS (one tablet), total number during pregnancy and benefits of MMS for mother and child? Did the HW ask about the compliance with MMS uptake?	Did the HW review the register/ computer screen/ mobile phone?		
Did the HW counsel on side effects, how to manage forgetfulness, and encourage her to ask for family members' support?			
Did the HW correctly record the number of tablets of MMS received? (cross check the register)	Did the HW review the register/ computer screen/ mobile phone?		
Did the HW review the register/ electronic register?			

(Adapted and Extracted from MIYCN Practical orientation manual for Health workers developed by Alive and Thrive)

ANNEX 1

Two-Day National Training of Trainers (TOT) on Multiple Micronutrient Supplements (MMS) in Nigeria

AGENDA

Time	Day 1	Facilitator	Day 2	Facilitator
08:30 - 09:00 a.m.	Arrival/Registration of Participants		Registration of Participants	
09:00 – 09:15 a.m	National Anthem Self-introduction of participants		Recap of Day 1 Activities: Rapporteurs report **Clarifications and Corrections**	
09:15 – 09:30 a.m	Opening Remarks, Welcome Address & Goodwill message Establishing Training Rules 5 mins			
09:30 – 09:40 a.m.	Pre-Test Assessment 10 mins		**MODULE 5:** Steps for Provision of MMS During ANC in Health Facilities	
09.40 – 10.00 a.m	Group photograph			
10:00 – 10:30 a.m.	**Tea Break**		**Tea Break**	
10:30 – 12.00 a.m.	**MODULE 1:** Nutrition During Pregnancy **Q and A**		**MODULE 5:** How to use MMS flowchart [Scenario 1, 2 & 3] **MODULE 6:** Estimating Supply Needs for MMS **Q and A**	
11:30 – 13:30 p.m	**MODULE 2:** Interventions to Improve Micronutrient Nutrition in Pregnant Women **Q and A**		**MODULE 7:** Monitoring and Record Keeping of Multiple Micronutrient Supplements (MMS) **Q and A**	
13:30 – 14:30 p.m	**Lunch**		**All**	
14:30 – 16:00 p.m.	**MODULE 3:** Integrating MMS into ANC Service Delivery **Q and A**		Training Review Annexes **Q and A**	
16:00 – 17:30 p.m.	**MODULE 4:** Key Messages on the Provision of MMS and Counselling Techniques **Q and A**		o Post Test Administration o Training Evaluation	
17:30 - 17:45 p.m	Tea Break, Administrative Announcement & Wrap Up		o Brief Closing Ceremony o Tea Break, Administrative Announcement & Closing	

MMS TRAINING FOR HEALTH WORKERS IN NIGERIA:
PRE & POST TEST QUESTIONS

NAME: _____ HEALTH FACILITY: _____

1. **Which of the following is NOT part of the roles that micronutrients play during pregnancy?**

   A. Preventing Iron Deficiency Anaemia in mothers
   B. Supporting the normal physiological function, growth, and development
   C. Increasing the mother's muscle mass
   D. Helping prevent stillbirth, low birth weight, and developmental delays in children

2. **Which of the following is NOT an intervention aimed at preventing micronutrient deficiencies in pregnant women?**

   A. Dietary diversification
   B. Biofortification
   C. Supplementation
   D. Physical exercise

3. **Which of the following food groups is NOT part of the 10 recommended food groups for dietary diversification in pregnant women?**

   A. Grains, white tubers, and roots
   B. Milk, cheese, yoghurt
   C. Sugary snacks and drinks
   D. Dark green leafy vegetables

4. **Which of the following is NOT part of the composition included in the UNIMMAP MMS formulation?**

   A. Vitamin A, Vitamin D, Iron, Zinc, and Folic acid
   B. Vitamin C, Copper, Thiamine, Niacin, and Selenium
   C. Vitamin E, Riboflavin, Iodine, Vitamin B12, and Vitamin B6
   D. Calcium, Vitamin K, Magnesium, Vitamin B1, and Vitamin B3

5. **Which of the following is NOT a reason to integrate MMS into ANC service delivery?**

   A. MMS gives important vitamins and minerals.
   B. MMS focuses on encouraging multiple births
   C. MMS helps reduce anaemia and improve the mother's health.
   D. MMS is cost-effective in the long run.

6. **What is the primary purpose of providing MMS to pregnant women?**

   A. Treatment for anaemia
   B. Preventive care for non-anaemic pregnant women
   C. Cure for gestational diabetes
   D. To replace all nutritional needs of pregnancy

7. **What should a pregnant woman do if she forgets to take her MMS tablet for a day?**

   A. Take two tablets the next day
   B. Skip taking any more tablets
   C. Resume taking one tablet per day without doubling the dose
   D. Stop taking MMS altogether

MMS TRAINING FOR HEALTH WORKERS IN NIGERIA:
PRE & POST TEST QUESTIONS

8. Which of the following is a recommended practice for taking MMS tablets?

A. Chew the tablet for better absorption
B. Take it with a cup of tea
C. Swallow it with a cup of clean water
D. Take two tablets at once for faster results

9. Which food or beverage should be avoided while consuming MMS tablets to enhance iron absorption?

A. Vitamin C-rich fruits
B. Calcium-rich foods like milk
C. Meat and fish
D. Water

10. If a pregnant woman experiences nausea from MMS, what can she do to reduce discomfort?

A. Take MMS with tea
B. Stop taking MMS altogether
C. Take MMS before going to sleep or with a meal
D. Chew the tablet

11. What is a possible side effect of taking MMS during pregnancy?

A. Severe headaches
B. Constipation or mild nausea
C. Weight loss
D. Difficulty breathing

12. What is the recommended course of action if a pregnant woman is diagnosed with severe anaemia?

A. Provide MMS as preventive care
B. Refer the pregnant woman to a higher health facility
C. Stop all supplementation
D. Provide only calcium-rich supplements

13. What are the correct steps to follow when giving MMS to a pregnant woman during her antenatal care visit?

A. Pregnancy Screening > Registration to ANC and Provision of Set of Recommended ANC Services > Assessment of Supplements Intake > Screening for Anaemia > Appropriate Nutrition Counselling > Administration of MMS > Record and follow up plan
B. Pregnancy Screening > Administration of MMS > Registration to ANC and Provision of Set of Recommended ANC Services > Assessment of Supplements Intake > Screening for Anaemia > Appropriate Nutrition Counselling > Record and follow up plan
C. Administration of MMS > Registration to ANC and Provision of Set of Recommended ANC Services > Assessment of Supplements Intake > Pregnancy Screening > Screening for Anaemia > Appropriate Nutrition Counselling > Record and follow up plan

D. Appropriate Nutrition Counselling > Administration of MMS > Registration to ANC and Provision of Set of Recommended ANC Services > Assessment of Supplements Intake > Pregnancy Screening > Screening for Anaemia > Record and follow up plan

14. What is the percentage for calculating an increase in contingency or buffer stocks for MMS supplies?

A. 2%
B. 5%
C. 7%
D. 10%

15. Which of the following is NOT part of the data to be reported at the health facility for MMS?

A. Number of pregnant women who received MMS
B. Number of pregnant women who received nutrition counselling service
C. Number of pregnant women who were tested for anaemia
D. Number of pregnant women who complained about side effects from MMS

List of Contributors