Strengthening Maternal Nutrition in India

An operational guide to facilitate the integration of maternal nutrition into existing services at the community and facility level

INTRODUCTION

Why does maternal nutrition need to be prioritized?

Maternal nutrition is critical for a mother's wellbeing during pregnancy and a safe delivery, and it provides the foundation for a child's health and development. In India, many pregnant women enter pregnancy thin (19%), overweight/obese (24%), with anemia (57%), or with a combination of these malnutrition outcomes (NFHS 5, 2019-2020). Maternal malnutrition can lead to:

- **Haemorrhage**. The leading cause of maternal mortality in India, exacerbated by underlying anemia.
- **Fetal growth restriction.** The leading risk for stunting, responsible for 1 in 4 newborn deaths globally. Over 35 percent of India's children are stunted.
- **Low birthweight.** Caused by poor maternal nutritional status at conception, inadequate gestational weight gain due to poor dietary intake, and short maternal stature. One in 5 babies are low birthweight in India, with increased chances of maternal and infant mortality and morbidity.

Suboptimal diets and other factors, including early and multiple pregnancies, poverty, caste discrimination, and gender inequality, contribute to poor maternal nutrition in India.

What does it take to improve maternal nutrition?

Global and national evidence show positive results from these approaches:

Health system strengthening

- Prioritizing integration of maternal nutrition into existing antenatal care (ANC) services
- Building capacity of frontline providers and supervisors
- Strengthening supportive supervision processes and regular data-driven reviews

Social and behavior change

- Expanding community mobilisation to involve influential audiences and groups that are typically excluded, including husbands and the Panchayati Raj (PRI) members
- Using multiple communication channels—individual and group counselling, community mobillisation, mass media—to reinforce the uptake of key services and optimal practices

Key Findings from an A&T Impact Evaluation in India

A study done by Alive & Thrive in two districts of Uttar Pradesh in December 2017 (baseline) and 2019 (endline) revealed the following gaps in maternal nutrition practices:

- Only **1 in 4** pregnant women consumed the recommended number of iron and folic acid (IFA) tablets and around **1 in 10** the recommended number of calcium tablets.
- Less than half of all pregnant women consumed **>=5 food groups in 24 hours.** Minimum dietary diversity requires women to eat from **5 of the 10** recommended food groups.
- On average, pregnant women gained **approximately 5 kgs** during their pregnancy, much **lower than the recommended 10-12 kgs.**
- The study found that it was feasible to integrate and **improve coverage of maternal nutrition interventions** during ANC.
- It also highlighted the **need to prioritize and scale up** the delivery and use of future maternal nutrition implementation efforts using systems strengthening approaches.

With maternal nutrition interventions already included in ANC service delivery, we know that it is feasible to strengthen the delivery of maternal nutrition during ANC. Multiple states already have strengthening efforts underway.

This operational guide assists block, district, and state health and Integrated Child Development Services (ICDS) officials in India in planning, managing, and implementing maternal nutrition programs.

This guide will help you know:

- The **maternal nutrition services** that must be integrated into existing facility and community antenatal care (ANC) services
- What **tasks/responsibilities** must be integrated into each provider's role
- What **capacity building** is required, and what tools are available
- What operational support is needed for maternal nutrition services, including
  - what **supply chain management** is required
  - what **supportive supervision** is necessary
  - what **data collection and utilisation** must be established, and what **tools** are available
- What **community mobilisation and engagement** activities are needed and the platforms that should be supported

What can you do to improve maternal nutrition?

Here's how National Health Mission (NHM) and ICDS officials can make a difference:

- Familiarise yourself with the Government of India's new guidance that addresses maternal nutrition
- Orient health providers on the new guidelines
- Use this operational guide to strengthen facility and community-based services in your area

KEY SERVICES FOR MATERNAL NUTRITION

The Government of India's latest ANC guidelines emphasize the importance of EARLY REGISTRATION of all pregnancies within the first trimester and a minimum of four ANC CONTACTS. The following maternal nutrition services are essential for ANC delivery at the facility and within the community. All pregnant women should receive:

1. **Comprehensive maternal nutrition assessment, screening, and identification of nutritional risks:**
   - Anthropometric measurement: Height and weight measurement and calculation of her body mass index (BMI) during first contact (<12 weeks), weight check at each contact, and weight gain tracking from the previous contact
   - Haemoglobin testing for anaemia and urine testing for albumin and sugar in each trimester
   - Blood pressure checks at each contact
   - Oral glucose test in first contact (<12 weeks) and again between 24-28 weeks
   - Look for pallor (conjunctiva, tongue, palms), pedal edema & puffiness of face, palpable goitre, dental & skeletal fluorosis (in fluorosis endemic areas) at each contact

2. **Micronutrient supplementation:**
   - Folic acid supplementation (400 mcg only in 1st trimester)
   - IFA supplementation (60 mg elemental iron and 500 mcg folic acid), daily from 14 weeks onwards for 180 days and also 180 days postpartum
   - Calcium supplementation (500 mg with 250 IU vitamin D3) twice a day, from 14 weeks onwards for 180 days and also 180 days postpartum
   - Use of double fortified (iron and iodine) salt

3. **Counselling services on:**
   - Risks associated with poor maternal nutrition
   - Need for repeated ANC visits to collect IFA and calcium tablets, track pregnant woman's weight gain, detect complications, and refer high-risk pregnancies
   - Healthy eating: adequate and diverse diet
   - Daily consumption of IFA and calcium supplements: dose, benefits, dos and don'ts associated with consumption, management of side effects to ensure compliance
   - Physical activity to stay healthy and active; adequate rest and sleep
   - Early and exclusive breastfeeding
   - Reducing caffeine intake

4. **Prevention and management of infectious diseases:**
   - One tablet of 400 mg albendazole recommended in 2nd trimester
   - Provision of insecticide-treated bed-nets for prevention of malaria in endemic areas

5. **Management and referral for pregnant women with nutritional risks**: mild to moderate anaemia, severe anaemia, severely underweight, obesity, poor or excessive gestational weight gain, gestational diabetes mellitus

6. **Information and linkage with government schemes for social protection benefits, including**: Take Home Ration/ Hot cooked Meal, Pradhan Mantri Matru Vandana Yojana (PMMVY), Janani Suraksha Yojana (JSY), and Janani Shishu Suraksha Karyakram (for free drugs, diagnostics, and nutritious diet during delivery)

Facility based protocol for integrating Maternal Nutrition Services

Nursing staff

1. CONDUCT NUTRITION ASSESSMENT

Ask

- **1st contact only:** Age, obstetric history, last menstrual period, any medication, recurrent or prolonged illness, night blindness in previous pregnancy
- **Every contact:** Current symptoms; eating habits and physical activity

Measure

- **1st contact:** Height, weight, body mass index (BMI)
- **Every contact:** Blood pressure, weight, gestational weight gain

Look for

- **Every contact:** Pallor, palpable goitre, dental and skeletal fluorosis (where endemic), pedal edema or puffiness of face

Test

- **Every trimester:** Blood hemoglobin, urine for albumin and sugar
- **1st and 3rd trimester:** Oral glucose tolerance test
- *All other routine ANC tests like HIV,VDRL, Hep B

2. GIVE

- **First trimester only:** Folic acid supplements
- **After first trimester:** Iron Folic Acid (IFA) tablets, Albendazole (once), Calcium tablets
- **For malaria endemic areas:** Insecticide treated bednets

3. COUNSEL

- **By gestational month:** 10-minute individual counselling/key message communication to pregnant women & their husbands
- **Group counselling** for 20 minutes by trained nursing staff or counsellor (if available) in OPD waiting area is desirable

Medical Officer

4. CLASSIFY NUTRITIONAL RISK

- **Age:** <20 years
- **Height:** <145 cm
- **Thin:** BMI: <18.5 kg/m2 (<20 weeks gestation) OR weight: <45 kg OR MUAC < 23 cm
- **Obese:** BMI>25 kg/m2 (<20 weeks gestation)
- **Inappropriate gestational weight:** <1 kg.month OR > 3kg/month (after 1st trimester)
- **Moderate & severe anemia:** Hemoglobin level 7-9.9dl (moderate); <7g/dl (severe)
- **Co-existence of medical complications:** Check for: hypertensive disorders of pregnancy, gestational diabetes melllitus, malaria, tuberculosis, hypothyrodism & hyperthyrodism, urinary tract infection, sexually transmitted infection, HIV as per national guideline

5. TAKE ACTIONS FOR WOMEN AT NUTRITIONAL RISK

- **Counsel/treat/follow-up:** 15 minutes individual counselling, treat moderate anemia with 2 IFA tablets; Treat/refer severe anemia as per National Anemia Mukt Bharat Guidelines. Red mark on mother/child protection card and follow-up home visits through ASHAs.
- **Manage/refer:** Hospitalize severely anaemic women in 3rd trimester immediately; Manage/refer (as needed) medical complications as per national guidelines.

Protocol for integrating Maternal Nutrition in ANC services provided at Community or Village Health Nutrition & Sanitation Day (VHSND)

ANM & ASHA

1. CONDUCT NUTRITION ASSESSMENT

Ask

- **1st contact only:** Age, obstetric history, last menstrual period, any medication, recurrent or prolonged illness, night blindness in previous pregnancy
- **Every contact:** Current symptoms; eating habits and physical activity

Measure

- **1st contact:** Height, weight, body mass index (BMI)
- **Every contact:** Blood pressure, weight, gestational weight gain

Look for

- **Every contact:** Pallor, palpable goitre, dental and skeletal fluorosis, pedal edema or puffiness of face

Test

- **Every trimester:** Blood hemoglobin, urine for albumin and sugar
- **1st and 3rd trimester:** Oral glucose tolerance test

2. GIVE

ASHA & AWW

- **First trimester only:** Folic acid supplements
- **After first trimester:** Iron Folic Acid (IFA) tablets, Albendazole (once), Calcium tablets
- **For malaria endemic areas:** Insecticide treated bednets

3. COUNSEL

- **By gestational month:** 10-minute individual counselling/key message communication to pregnant women & their husbands
- Encourage attendance at Pradhan Mantri Surakshit Matritva Abhiyaan (PMSMA) Day at nearest BHPNC/CHC for comprehensive checkup

ANM

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- **Height:** <145 cm
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5. TAKE ACTIONS FOR WOMEN AT NUTRITIONAL RISK

- **Counsel/treat/follow-up:** 15 minutes individual counselling, treat moderate anemia with 2 IFA tablets; red mark on mother/child protection card & follow-up home visits through ASHAs
- **Refer:** Refer to BPHC or CHC for confirmation/management of any suspected nutrition at-risk condition like gestational diabetes mellitus and other medical complication

Home visits by ASHAs (4 minimum) & home visits by AWWs (3 minimum) for pregnant women

DIET

- **Ask** about meals eaten the day before and check if diverse nutrient-specific food groups have been consumed
- **Remind** to eat three full meals and two nutritious snacks in between the meals
- **Counsel** on adding missing food groups from diet and engage mother and mother-in-law, husband (if present) to ensure the availability of those foods

WEIGHT

- **Measure** weight and **enter weight** in Mother & Child Protection (MCP) Card
- **Counsel.** Appreciate adequate weight gain. If not gaining weight, discuss any problems, reinforce quantity & quality of diet or facilitate referral to higher level facility

- **Check** for daily consumption of IFA and Ca supplements (7-day recall & empty strips)
- **Remind** pregnant woman about the benefits and daily intake of these supplements
- **In case of noncompliance,** understand reasons and provide solutions

ANC REMINDERS

- **Explain** that regular ANC helps ensure good health during pregnancy, early detection and management of any complications, and safe delivery. Four minimum ANC check-ups are needed
- **Remind** pregnant woman and husband/mother/mother-in-law to attend next VHSND for ANC check-up

WOMEN CLASSIFIED AS HIGH RISK

- **Ensure** that any pregnant woman detected as high-risk (such as moderate or severely anemic) is adhering to treatment prescribed

BREASTFEEDING

- **Counsel** pregnant woman (especially in the third trimester) and husband/mother/mother-in-law on the benefits of early initiation of breastfeeding, and giving no pre-lacteals

Roles and Responsibilities for Maternal Nutrition Services

	Person Responsible									
Responsibility / Task	**ASHA**	**ANM**	**AWW**	**ASHA Facilitator**	**Facility health provider (doctor, nurse, counsellor)**	**Lady Supervisor ICDS**	**BMO/BPM BCPM**	**CDPO**	**CMHO**	**DPO**
DELIVERY OF ANC SERVICES										
Early registration in the first trimester	✓	✓	✓							
Nutritional assessment and identification of pregnant women with nutritional risks (at VHSND and facility ANC OPD)		✓			✓					
Distribution and counselling on dosage, benefits, and side effects of IFA and calcium supplements (at VHSND and facility ANC OPD)		✓			✓					
Checking and counselling for compliance to IFA and calcium supplements (during home visits)	✓		✓							
Ensuring supplies (during home visits)	✓		✓							
Counselling on adequate and diverse diet (at VHSND and facility ANC OPD)		✓			✓					
Assessing 24-hr diet and counselling on diet adequacy and diversity (during home visits)	✓		✓							
Counselling on early and exclusive breastfeeding (at VHSND, facility ANC OPD, and during home visits)	✓	✓	✓		✓					
Counselling on adequate rest, sleep, and remaining physically active (at VHSND and during home visits)	✓	✓	✓		✓ (nurse, counsellor, if present)					
Provision of therapeutic dose for mild-moderate anaemia and referral for severe and unresponsive cases to higher facility levels (like District Hospital)		✓			✓	✓				
Individual counselling for pregnant women with nutritional risks or specific complications at VHSND and health Facility OPD		✓			✓ (doctor)					
Management and referral of pregnant women with nutritional risks to higher facility levels (like District Hospital)		✓			✓					
Group counselling on dietary diversity and food demonstration sessions with pregnant women (at WC/community-based events, VHSND and during PMSMA Day at facility)	✓		✓		✓ (nurse, counsellor, if present)					

Responsibility / Task	Person Responsible									
	ASHA	ANM	AWW	ASHA Facilitator	Facility health provider (doctor, nurse, counsellor)	Lady Supervisor ICDS	BMO/BPM BCPM	CDPO	CMHO	DPO
COMMUNITY MOBILISATION and ENGAGEMENT										
Mobilisation for the monthly PMSMA Day	✓		✓							
Engaging mothers-in-law and husbands to support pregnant women to adopt optimal maternal nutrition practices (during home visits and at facility ANC OPD)	✓	✓	✓		✓					
Engaging and sensitizing PRIs and VHSNC members to support maternal nutrition at monthly meetings of PRIs/VHSNCs	✓	✓	✓							
SUPPORTIVE SUPERVISION and DATA UTILISATION										
Onsite supportive supervision and mentoring (during home visits, at VHSND, and community-based events)				✓		✓	✓	✓		
Capacity building of frontline and block supervisors on principles of supportive supervision and use of data for decision-making							✓	✓	✓	✓
Tracking and reviewing supportive supervision by supervisors				✓	✓	✓	✓	✓	✓	
Use of data at all levels to review progress on service delivery and to take corrective actions (during review meetings)				✓		✓	✓	✓	✓	✓
Strengthening AAA meetings to maximize reach to all pregnant women and identifying and tracking pregnant women with risks	✓	✓	✓							
SUPPLY CHAIN MANAGEMENT										
Accurate forecasting for IFA & Ca supplements and procurement in adequate quantities									✓	
Need-based distribution plan from district to blocks								✓		
Adequate stock management, accurate indenting, and rational dispensation		✓						✓		
Monitoring stock position at block level and at sub-health-center level regularly		✓						✓		

Delivering quality maternal nutrition services goes beyond the interaction between the frontline workers and pregnant women. Several supportive functions and inputs are required to ensure that care is delivered effectively. This section looks at the requirements for: supply chain management, which ensures that supplements are available when needed; supervision, which provides frontline workers with the support they need; data utilisation, which is necessary to monitor quality and ensure corrective action is taken quickly; and capacity building, which gives providers and supervisors the skills they need to play their role effectively. It also outlines the actions that should be taken to meet these requirements and the available tools to support implementation.

Supply Chain Management

REQUIREMENTS

- Accurate forecasting for IFA & Ca supplements and procurement in adequate quantities at state/ district level
- Need-based distribution plan from district to blocks
- Adequate stock management, accurate indenting, and rational dispensation by block pharmacists and ANMs
- Monitoring stock position at block level and at sub-health-center level regularly

ACTIONS

- Orient state and district officials on accurate forecasting and procurement
- Review stock position of IFA in monthly block review meetings for corrective action
- Train block pharmacists and ANMs on adequate stock management, accurate indenting, and rational dispensation

TOOLS*

- Forecasting tool
- Standard Operating Procedures on stock management and monitoring, indenting, and dispensation for block pharmacist and ANMs
- Stock monitoring tool
- Training module on supply chain management

Supportive Supervision

REQUIREMENTS

- Supportive supervision and mentoring of frontline workers by frontline supervisors (like ASHA Facilitators, ICDS Lady Supervisors)
- Supportive supervision and mentoring of frontline supervisors by block officials
- Capacity building of frontline supervisors on importance and principles of supportive supervision to improve quality of FLW performance
- Reviewing and tracking of frontline supervisors' supportive supervision visits by block officials

ACTIONS

- Orient frontline supervisors and block officials on the principles of supportive supervision, including coaching, mentoring, problem-solving, and how to support frontline workers to improve performance
- Support microplanning for supportive supervision visits
- Prioritize supportive supervision visits by block- and district-level supervisors
- Track supportive supervision visits by block- and district-level supervisors

TOOLS**

- Training module for orientation on principles of supportive supervision
- Guidance note/job aid on supportive supervision for supervisors
- Supportive supervision checklist for frontline supervisors to supervise VHSND, home visits, and community-based events (Godbharai Diwas)
- Supportive supervision checklist for block supervisors to track/review supportive supervision visits by frontline supervisors
- Technology-based solutions to stregthen supportive supervision being tested in several states

*As per Anemia Mukt Bharat Guidelines
www.anemiamuktbharat.info/resources/#training-tool-kit

**Draft version of training module developed by A&T and partners available to refine and adapt.

Data Collection and Utilisation

REQUIREMENTS

- Use of data in monthly review meetings for decision making, including:
- Review of routine HMIS data and supportive supervision data during block, cluster, or sector meetings
- Data-driven AAA meetings

ACTIONS

- Train frontline supervisors and block-level managers to use data and conduct data-driven review meetings
- Form or reactivate a data validation committee to improve data quality

TOOLS*

- Training module on the use of data for frontline supervisors and block-level managers
- Guidance notes for AAA meetings, sector-level meetings, and cluster meetings

***Draft version of training module developed by A&T and partners available to refine and adapt.**

Capacity Building for Maternal Nutrition Services

REQUIREMENTS

- Technical training for frontline workers and facility-based health providers, including:
- Protocols for integrating maternal nutrition during ANC
- Skills for anthropometric measurement
- Counselling skills

ACTIONS

- Conduct one-day training; Training of Trainer-based cascade model can be used
- Conduct regular refresher sessions during monthly review meetings

TOOLS

- Training module (http://nceard.roshni-cwcsa.co.in)
- Job aid (https://poshangyan.niti.gov.in)
- Flipchart (http://nceard.roshni-cwcsa.co.in and https://poshangyan.niti.gov.in)
- Gestational month-wise counselling cards and At-risk counselling cards (http://nceard.roshni-cwcsa.co.in)

Existing patriarchal social norms and beliefs along with established gender stereotypes prevent the active engagement of husbands in pregnancy care issues. However, evidence from both the India and South Asia region highlight that the knowledge, beliefs, and cultural norms of husbands/mothers/mothers-in-law influence pregnant women's maternal nutrition practices at home like access to multiple antenatal visits, availability/consumption of IFA and Ca supplements, procurement, and consumption of nutrient-rich food items. Active engagement of husbands has emerged as an important pathway to address barriers and enable improved maternal nutrition practice at the household/community level.

Representatives of Panchayati Raj Institution (PRI) (i.e., local governance body) and Village Health Sanitation and Nutrition Committees (VHSNC) are key opinion formers, shaping and influencing social norms and community/household level practices. It is essential to leverage these groups to mobilize husbands/families of pregnant women to help pregnant women seek and adopt optimal maternal nutrition and health practices. Moreover, they are uniquely positioned to support the frontline workers in effectively delivering outreach/community-based services by addressing the logistics-related gaps.

Engagement of Men/Families

REQUIREMENTS

- Husbands/families of pregnant women support maternal nutrition behaviors and practices

ACTIONS

- Involve husbands/mothers/mothers-in-law during home visits (if present)
- Encourage husbands/mothers/mothers-in-law to accompany pregnant wives to VHSND or facility visits and engage with them during such visits
- Organize meetings (edutainment) with husbands/mothers/mothers-in-law during community-based events and meetings, including during meetings of VHSNC

TOOLS

- Handouts for husbands/mothers/mothers-in-law (http://upnhmiecbcc.in/alive-thrive)
- Community mobilisation videos, Handouts for VHSNC members: http://upnhmiecbcc.in/alive-thrive
- ICDS-WCD guidelines on community-based events: https://icds-wcd.nic.in/nnm/NNM-Web-Contents/LEFT-MENU/CBE/CBE-Guidelines-English.pdf

Engagement and Sensitisation of PRI/ VHSNC Members

REQUIREMENTS

- Active participation of PRI
- Functional VHSNC, with all members understanding their roles and responsibilities

ACTIONS

Orient PRI/VHSNC members on:

- The importance of maternal nutrition and health services
- How to mobilize pregnant women and families to attend VHSND and AWC-based services, including community-based events and PMSMA Day at health facility
- How husbands can actively support their pregnant wives to follow optimal maternal nutrition and health services
- How to support frontline workers in effective organisation of VHSNDs and community-based events and management of logistics and equipment
- Activate regular VHSNC meetings and use the meeting platform to support maternal nutrition actions

TOOLS

- Handouts for PRIs (http://upnhmiecbcc.in/alive-thrive)
- Handouts for VHSNC members
- Community mobilisation videos

- WHO Revised ANC guidelines for Positive pregnancy Experience 2016; available at: www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/
- Draft Maternal Nutrition Guidelines (under development), 2020 and Maternal Nutrition SBC toolkit by Ministry of Health and Family Welfare (MoHFW) with support from UNICEF, National Centre for Excellence and Advanced Research on Diets (NCEARD), Lady Irwin College, Alive & Thrive, Nutrition International and other maternal nutrition consortium partners
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