MATERNAL, INFANT AND YOUNG CHILD NUTRITION FOR UNDERGRADUATE MEDICAL STUDENTS

INTEGRATED CURICULUM & FACILITATOR'S GUIDE

APRIL 2019

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FOREWORD

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FOREWORD

Globally, there is evidence that substantiates increased rates of morbidities and mortalities in undernourished populations especially in the most vulnerable population of women and children. Under-nutrition accounts for half of under-five child deaths and a third of maternal deaths in the world. The 1000-day window from conception till the child is two years of age is a critical period during which good nutrition and healthy growth have lasting benefits throughout life.

Despite sustained efforts by the Government of India to improve women and child health and nutrition through various schemes and programs such as MAA (Mother's absolute affection), Pradhan Mantri SurakshitMatritva Abhiyan (PMSMA), Janani Suraksha Yojna (JSY) and Pradhan Mantri Matritva Vandana Yojana (PMMVY) the nutritional status of women and children continues to remain compromised in the country and is amply exemplified by recent data as under:

- Under-five mortality rate (U5MR) is 43/1000 live births (SRS 2015)
- 38% of children under 5 years are stunted (NFHS 4, 2015-16)
- 36% of children under 5 are underweight (NFHS 4, 2015-16)
- One in every two pregnant women are anaemic (NFHS 4, 2015-16)
- 45% of adolescent girls have low Body Mass Index(BMI) < 18.5 (RSoC, 2013-14)

The recent launch of POSHAN Abhiyan demonstrates political will and commitment at highest levels of policy making to address the burden of undernutrition in the country and presents a historic moment for public health and nutrition in the country. To meet the targets set for reduction in malnutrition and anemia requires a comprehensive and collaborative approach, and inclusive participation of local bodies, government departments of the state, social organizations and the public and private sector. Medical Colleges, by virtue of their unique position in the health care delivery system through their tertiary care services and academics, research & public health linkages play a significant role in influencing the maternal, infant and young child nutrition (MIYCN) agenda in the country.

To strengthen foundational knowledge and skills of future generations of practitioners on MIYCN and set strong benchmarks for MIYCN service delivery, a package of integrated MIYCN curriculum and protocols for delivering recommended Maternal Infant and Young Child Nutrition (MIYCN) services in medical colleges and associated hospitals has been developed. The curriculumconstitute of a mix of theory and practical sessions which are spread throughout the course period and transacted by the Paediatrics, Obstetrics &Gynaecology, and Community Medicine departments in an integrated manner. The protocols document attempts to provide a step by step process of delivering recommended, evidence based MIYCN interventions at critical contact points during the 1000-day window of opportunity, from conception till child is two years.

I wish to express by best wishes to the Medical Colleges for successful and effective adoption of this "Integrated Maternal Infant and Young Child Nutrition teaching learning and service delivery package" and succeed in this endeavor to entrench nutrition knowledge and skills in academic studies of all health care professionals to ensure improved understanding and application to all aspects of health care.

Dr. K. K. Gupta

FOREWORD

SANJAY KUMAR, IAS
PRINCIPAL SECRETARY

Government of Bihar
Health Department

Foreword

Among the undernourished population, women and children are more vulnerable to morbidities which increase their mortality rate. The first 1000 days of a child, since its conception, is a critical time period during which good nutrition plays pivotal role in healthy growth of a child and have life-long benefits.

The recent launch of "POSHAN Abhiyan" demonstrates commitment of the Government to address the issue of undernutrition in the country. Meeting the targets set for reduction in malnutrition and anemia requires a comprehensive and collaborative approach and active participation of local bodies, different departments of the state government different social organizations and the private sector as well.

Medical Colleges, by virtue of their unique position in the health care delivery system, through their tertiary care services and academics, research & public health linkages, play a significant role in influencing the maternal, infant and young child nutrition (MIYCN) agenda in the country.

To strengthen foundational knowledge and skills of future generations of practitioners on MIYCN and set strong benchmarks for MIYCN service delivery, a package of integrated MIYCN curriculum and protocols for delivering recommended Maternal Infant and Young Child Nutrition (MIYCN) services in medical colleges and associated hospitals has been developed. The curricula constitute of a mix of theory and practical sessions which are spread throughout the course period and transacted by the departments of Paediatrics, Obstetrics & Gynaecology, and Community Medicine in an integrated manner. The protocols document attempts to provide a step by step process of delivering recommended, evidence based MIYCN interventions at critical contact points during the 1000-day window of opportunity, from conception till child is two years.

I express my best wishes and hope that Medical Colleges shall successfully and effectively adopt this "Integrated Maternal Infant and Young Child Nutrition teaching learning and service delivery package" and wish success in this endeavor to entrench nutrition knowledge and skills in academic studies of future health care professionals of the state, thus, leading to achievement of the ubiquitous goal of "Health for All".

31/10/2018
(Sanjay Kumar)

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How this guide was developed

The facilitator's guide on Maternal Infant and Young Child Nutrition (MIYCN) is the teaching aid for teachers/facilitators of undergraduate training in medical colleges. The reference document for this guide is the "Technical module on Maternal Infant and Young Child Nutrition for undergraduate medical students" developed in 2018 through a series of consultations at national level and in states of Bihar and Uttar Pradesh with faculty of various medical colleges, academic experts and development professionals.

The guide has been developed in alignment with the new competency based undergraduate curriculum for the Indian medical graduate by the Medical Council of India (MCI) released in 2018. As per this new MCI curriculum there are nearly 150 competencies that are relevant to MIYCN training for undergraduates (Annex 1). We linked the topics of the MIYCN technical modules to these competencies and ensured coverage of these competencies in the facilitator's guide as presented in summaries of maternal nutrition and infant and young child nutrition curriculum on following pages. It may be noted that of the 150 relevant MIYCN competencies in the MCI curriculum, most but not all have been covered in this guide as some of these are to be led by Biochemistry, Pathology, Pharmacology and Departments other than Community Medicine, Obstetrics and Gynecology (OBGYN) and Pediatrics, which are the three main departments to rollout the Maternal Infant and Young Child Nutrition curriculum.

As per the MCI competency domains have been classified into four as: Knowledge (K), Skill (S), Attitude (A) and Communication (C). Further there are five levels of competencies ranging from Knows (K), Knows How (KH), Skill (S), Show How (SH) and Perform Independently (PI). These have been integrated into the MIYCN curriculum on which this facilitator guide is based. All topics covered in the MIYCN curriculum are "Core", or compulsory as per MCI guidelines. MCI also lists certain good to know "Non-core" topics, which are not covered in this guide.

In addition, teaching-learning methods with tools, assessment methods and duration of teaching have been shared for reference. A suggested lead Department from each of the three Departments relevant to MIYCN training that is, Community Medicine, OBGYN and Pediatrics is listed as well as the required vertical and horizontal integration with other departments for this topic.

SUMMARY CURRICULUM
MATERNAL NUTRITION

S.No.	Topic (Subcompetency/ objective)	Knowledge/ Skill	Teaching-Learning method	Department & semester	Assessment	Duration (20 hours)	MCI Competencies			
							Number	Competency	Vertical integration	Horizontal integration
MN 1.	Nutrition through life cycle	Knowledge	Lecture (ppt)	CM (3rd semester/ Phase II)	Written/ Viva voce	1 hour	CM5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	-	-
MN 2.	Nutritional demands of pregnancy and lactation (summary)	Knowledge	Lecture (ppt& handout)	CM (3rd semester/ Phase II)	Written/ Viva voce	1 hour	CM 5.1 CM 5.3	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	General medicine, pediatrics	-
MN 3.	Balanced diet in pregnancy and lactation (Summary)	Knowledge, Skill	Lecture (ppt)	CM (3rd semester/ Phase II)	Skill assessment	1 hour	CM 5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	General medicine, pediatrics	
MN 4.	Basics of counselling skills	Skills	Clinical posting/ demonstration (case history for role play)	Integrated teaching [CM, Ped] (3rd/4th semester/ Phase III Part 1)	Written/Viva voce/Skill assessment	3 hours	CM 1.9 / AET-COM. CM 4.1, CM 4.2	Demonstrate the role of effective Communication skills in health in a simulated environment. Describe various methods of health education with their advantages and limitations. Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings	-	-
MN 5.	Nutrient metabolism and nutritional demands of pregnancy	Knowledge	Lecture (ppt & handouts)	OBGYN (5th/6th semester/ Phase III Part 1)	Written/Viva voce	1 hour	BI 6.9, BI 8.3, BI 11.23, CM 5.1	Describe the functions of various minerals in the body, their metabolism and homeostasis. Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy. Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	General medicine, pediatrics	-

S.No.	Topic (Subcompetency/ objective)	Knowledge/ Skill	Teaching-Learning method	Department & semester	Assessment	Duration (20 hours)	MCI Competencies			
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MN 6.	Nutrient metabolism and nutritional demands in lactation	Knowledge	Lecture (ppt & handouts)	OBGYN (5th/6th semester/ Phase III Part 1)	Written test/ Viva voce	1 hour	BI 6.9, BI 8.3, BI 11.23, CM 5.1	Describe the functions of various minerals in the body, their metabolism and homeostasis. Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy. Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	General medicine, pediatrics	-
MN 7.	Critical contact points and interpersonal communication and counselling for maternal nutrition	Skill, Attitude, Communication	Tutorial (case history for role play, key messages, counselling checklist)	OBGYN (5th/6th semester/ Phase III Part 1)	Written test/ Viva voce/ Skill assessment/ Document in log book	2 hours	OG 8.1, OG 35.4, OG 35.5, OG 36.2, CM 5.6, PE 17.1, PE 18.3, PE 18.4	Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors. Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family. Determine gestational age, EDD and obstetric formula. Organise antenatal, postnatal, well-baby and family welfare clinics. Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc. Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care. Provide intra-natal care and conduct a normal delivery in a simulated environment	Microbiology, pharmacology	-

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							Number	Competency	Vertical integration	Horizontal integration
MN 8.	Balanced diet for pregnant women and lactating mothers	Knowledge, skill	Tutorial (ppt, video/ demonstration, case history for role play, counselling checklist)	OBGYN (6th semester/ Phase III Part 1)	Written test/ Viva voce	2 hours	BI 8.1, BI 8.5, CM 5.1, CM 5.4, CM 5.5	Discuss the importance of various dietary components and explain importance of dietary fibre. Summarize the nutritional importance of commonly used items of food including fruits and vegetables. (macro-molecules & its importance). Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions. Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of sociocultural factors.	General medicine, community medicine	
MN 9.	Anthropometric measures of maternal nutrition status				Written/ Viva voce/ Skill assessment		CM 5.5, OG 8.3 - 8.6, PE 18.3, IM 23.1	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of sociocultural factors. Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being. Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy. Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy. Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care. Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	General medicine	Community medicine
MN 10.	Dietary assessment tools in OPD setting				Skill assessment		PE 9.4, CM 10.3	Elicit, Document and present an appropriate nutritional history and perform a dietary recall. Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices.	OBGYN, Pediatrics	Community medicine

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MN 11.	Nutritional anemia	Knowledge	Lecture (ppt)	OBGYN (5th/6th semester/ Phase III Part 1)	Written test/ vivavoce/ skill assessment	1 hour	OG 12.2, PA 13.4, IM 9.14, IM 9.20	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy. Enumerate and describe the investigation of anemia.	-	General medicine, Biochemistry
MN 12.	Nutrition is special conditions	Knowledge, skill	Tutorial (ppt, diet charts, dos and don'ts handout, case history for role play)	OBGYN and Nutritionist/ Dietician (7th semester/ Phase III Part 1)	Written test/ vivavoce/skill assessment	2 hours	OG 12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	-	General medicine
MN 13.	Guidelines on maternal nutrition	Knowledge	Seminars (Handout with links of guidelines)	CM (4th/6th semester/ Phase II or Phase III Part 1)	Written test/ vivavoce	2 hours	CM 5.6, CM 10,4, IM 9.14, IM 12.12, PH 1.55	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc. Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions. Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency. Describe and discuss the iodisation programs of the government of India	Pediatrics	-
MN 14.	Clinical session 1 (anthropometry, dietary assessment and counselling)	Skill, Attitude, Communication	Ward practice and discussion	OBGYN (6th/7th semester/ Phase III Part 1)	Skill assessment	3 hours	CM 4.2, CM 5.2, OG 8.6, OG 35.5,IM 9.15, IM 9.20, IM 23.1	Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings. Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method.	AETCOM	-

SUMMARY CURRICULUM
INFANT AND YOUNG CHILD NUTRITION)

S. No.	Topic (Subcompetency/ objective)	Knowledge/ Skill	Teaching-Learning method	Department	Assessment	Duration (20 hours)	MCI Competencies			
							Number	Competency	Vertical integration	Horizontal integration
IYCN 1.	Nutrition requirements in infants and young children	Knowledge	Lecture (ppt & handout)	Integrated teaching [CM, Ped] (3rd/4th semester)	Written test/ viva voce	1 hour	PE 9.1, PE 12.1-12.3, PE 12.6, PE 12.15-12.20, PE 13.1, PE 13.11-13.13, CM 5.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins. Discuss the RDA, dietary sources of Vitamin A and their role in Health and disease. Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A. Identify the clinical features of dietary deficiency / excess of Vitamin A. Discuss the Vitamin A prophylaxis program and their recommendations. Discuss the RDA, dietary sources of Vitamin B and their role in health and disease. Describe the causes, clinical features, diagnosis and management of deficiency of B complex Vitamins. Identify the clinical features of Vitamin B complex deficiency. Discuss the RDA , dietary sources of Vitamin C and their role in Health and disease. Identify the clinical features of Vitamin C deficiency. Discuss the RDA, dietary sources of Iron and their role in health and disease. Discuss the RDA, dietary sources of Calcium and their role in health and disease. Describe the causes, clinical features, diagnosis and management of Ca Deficiency. Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions.	Biochemistry, Community medicine, Pediatrics	-
IYCN 2.	Recommended IYCF interventions and evidence						PE 7.4, PE 8.1, PE 8.2	Discuss the advantages of breast milk. Define the term Complementary Feeding. Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF.	Community medicine	-
IYCN 3.	Physiology of breastfeeding	Knowledge	Lecture (ppt)	Ped (5th semester)	Written test/ viva voce	1 hour	PE 7.2, 7.3, OG 17.1	Awareness on the cultural beliefs and practices of breast feeding. Explain the physiology of lactation	Physiology	-

S. No.	Topic (Subcompetency/ objective)	Knowledge/ Skill	Teaching-Learning method	Department	Assessment	Duration (20 hours)	MCI Competencies			
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IYCN 4a.	Management and support for breast-feeding in facilities	Knowledge, Skill	Lecture (ppt & handout)	CM (4th semester)	Written test/ Viva voce	1 hour	PE 7.1, 7.5, 7.6, 18.6, 20.6, 27.25	Awareness on the cultural beliefs and practices of breast feeding. Observe the correct technique of breast feeding and distinguish right from wrong techniques. Enumerate the baby friendly hospital initiatives. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning. Explain the follow up care for neonates including Breast Feeding, Temperature maintenance, immunization, importance of growth monitoring and red flags. Describe the advantages and correct method of keeping an infant warm by skin to skin contact.	Community medicine	OBGYN
IYCN 4b.	Breast conditions and breastfeeding in difficult circum-stances	Knowledge, Skill	Lecture (ppt)	OBGYN (5th/6th semester/ Phase III Part 1)	Written test/ viva voce	I hour	PE 5.2, OG 17.3	Describe the clinical features, diagnosis and management of Feeding problems. Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess.	-	-
IYCN 5.	Guiding principles and techniques for complementary feeding	Knowledge, Skill	Tutorial (ppt, case history, handout)	Ped (5th/6th semester/ Phase III Part 1 or Part 2)	Written test	2 hours	PE 5.2, PE 8.2, CM 5.7	Describe the clinical features, diagnosis and management of Feeding problems. Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF. Describe food hygiene.	Community medicine, Pediatrics	Microbiol-ogy
IYCN 6.	Measuring IYCF: indicators, tools and techniques	Knowledge, Skill	Lecture (ppt, handout)	CM (5th/6th semester/ Phase II or Phase III Part 1)	Skill assess-ment	1 hour	PE 9.4 -9.6	Elicit, document and present an appropriate nutritional history and perform a dietary recall. Calculate the age related Calorie requirement in Health and Disease and identify gap. Assess and classify the nutrition status of infants, children and adolescents and recognize deviations.	Community medicine, Pediatrics	
IYCN 7.	IYCF counseling: critical contact points and nutri-tion interventions	Skill, Atti-tude, Com-munication	Lecture (ppt)	Ped (5th/6th semester/ Phase III Part 2)	Written test/ viva voce	1 hour	PE 7.8, PE 8.3-8.5 CM 10.3, 10.4	Enumerate the common complementary foods. Elicit history on the complementary feeding habits. Counsel and educate mothers on the best practices in Complementary Feeding. Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices.	Community medicine, Pediatrics, OBGYN	AETCOM$

S. No.	Topic (Subcompetency/ objective)	Knowledge/ Skill	Teaching-Learning method	Department	Assessment	Duration (20 hours)	MCI Competencies			
							Number	Competency	Vertical integration	Horizontal integration
IYCN 8.	Undernutrition in children: Classification and risk factor.	Knowledge, skill	Lecture with exercises	Ped (6th semester/ Phase III Part 1 or Part 2)	Written test/ viva voce/ practical/OSPE	1 hour	PE 1.1, PE 1.3, PE 1.4, PE 10.1-10.3, PE 11.1, PY 11.9, 11.10	Define the terminologies Growth and development and discuss the factors affecting normal growth and development. Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents. Define and describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM). Outline the clinical approach to a child with SAM and MAM. Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention. Describe the common etiology, clinical features and management of obesity in children. Interpret growth charts. Interpret anthropometric assessment of infants.	Pediatrics, Biochemistry	Psychiatry
IYCN 9.	Conventions and legislation in support of IYCF	Knowledge	Lecture with discussion (handout)	CM (4th/5th semester/ Phase II or Phase III Part 1)	Written test/ viva voce	1 hour	PE 7.6, FM 4.2, FM 4.28	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy. Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time. Enumerate the baby friendly hospital initiatives.	OBGYN, Pediatrics	-
IYCN 10.	Guidelines on IYCN	Knowledge	Joint Seminar	Ped and CM (7th semester/ Phase III Part 1)	Viva voce	2 hours	CM 5.6, PE 17.1	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc. State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS.	Community medicine, Pediatrcis	-

S. No.	Topic (Subcompetency/ objective)	Knowledge/ Skill	Teaching-Learning method	Department	Assessment	Duration (20 hours)	MCI Competencies			
							Number	Competency	Vertical integration	Horizontal integration
IYCN 11.	Comprehensive lactation management and human milk banking						OG 17.2,PE 7.7,PE 18.6	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding. Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	-	-
IYCN 12.	Clinical session 1 (How to position mother and baby for breastfeeding?)	Skill, Attitude, Communication	Demonstration and Practice in PNC ward	Ped (6th/7th semester/ Phase III Part 1 or 2)	Skill assessment/ log book	3 hours	PE 7.5, PE 7.9, PE 18.6, OG 17.2	Observe the correct technique of breast feeding and distinguish right from wrong techniques. Educate and counsel mothers for best practices in Breast feeding. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning. Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding.	-	OBGYN AETCOM$
IYCN 13.	Clinical session 2 (Assessing and counseling on complementary feeding)	Skill, Attitude, Communication	Demonstration and practice in Immunization clinic/ Pediatrics OPD	Ped (6th/7th semester/ Phase III Part 1 or 2)	Skill assessment/ logbook	3 hours	PE 8.4, 8.5,9.4, CM 5.4	Elicit history on the Complementary Feeding habits. Counsel and educate mothers on the best practices in Complimentary Feeding. Elicit document and present an appropriate nutritional history and perform a dietary recall. Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment.	Community medicine-AETCOM$	-
IYCN 14.	Clinical session 3 (How to prepare a complementary feed?)	Skill	Demonstration, practice	CM (6th semester/ Phase III Part 1)	Log book	2 hour	PE 8.5	Counsel and educate mothers on the best practices in complementary feeding.	Community medicine	-

PART A
MATERNAL NUTRITION

SESSION PLAN

TOPIC MN 1:
NUTRITION THROUGH THE LIFE CYCLE

Method

Lecture 1

Objectives

1. Describe nutrition requirements in different stages of the life cycle
2. Understand need for prioritizing nutrition interventions for adolescents, pregnant women, infants and young children

Outline

- **Introduction and objectives:** 10 mins
- **Recommended nutrition interventions across life cycle:** 20 mins
- **Importance of first 1000 days:** 20 mins
- **Recap:** 10 min

Place

Lecture theatre

Resource person

Faculty

Preparation

- Slides MN topic 1/Slide 1 to 3
- Technical module pages 1 to 4

MCI codes and competencies

CM 5.1 (Knowledge)

Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions

INTRODUCTION

Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 3 and explain one by one

MN1 // SLIDE 1

MN 1/Slide 1

Topic 1
Nutrition through the life cycle

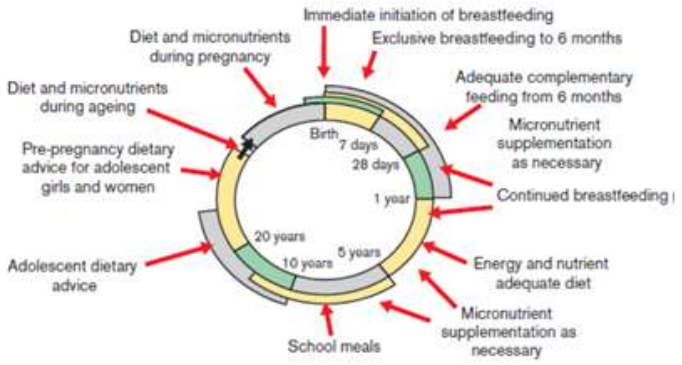
Objectives

1. Describe nutrition requirements in different stages of the life cycle
2. Understand need for prioritizing nutrition interventions for adolescents, pregnant women, infants and young children

MN1 // SLIDE 2

MN 1/Slide 2

Recommended nutrition interventions through the life cycle



Source: WHO, 2013

MN1 // SLIDE 3

MN 1/Slide 3

Importance of first 1000 days

- First 1000 days = conception to child is 24 months
- Critical window = increased vulnerability to nutritional deprivations
- Maternal nutrition can prevent intrauterine growth retardation, low birth weight, child stunting, chronic disease risk and intergenerational transmission of undernutrition
- Universal coverage of:
  - breastfeeding = 13% U5 child deaths avoided
  - complementary feeding = 6% U5child deaths avoided

Source: Lancet series, 2013

TOPIC MN 2

NUTRITIONAL DEMANDS OF PREGNANCY AND POSTNATAL PERIOD (SUMMARY)

Method

Lecture 2

Objectives

1. Know causes and consequences of mother and child malnutrition
2. Understand the concept of Recommended Dietary Allowance (RDA) and their use
3. Know the increased RDAs in pregnancy and lactation

Outline

- **Introduction and objectives:** 5 mins
- **Causes and consequences of mother and child malnutrition:** 20 mins
- **What are RDAs?:** 10 mins
- **Increased RDAs in pregnancy and lactation:** 20 mins

Place

Lecture theatre

Resource person

Faculty

Preparation

- Slides MN 2/ Slide 1 to 3
- Student's handout on increased RDA (MN 2/ handout 1)
- Technical module pages 5 to 15

MCI codes and competencies

CM 5.1, 5.3 (Knowledge)

Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions

INTRODUCTION

Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 3 and explain one by one

MN2 // SLIDE 1

MN 2/ Slide 1

Topic 2
Nutrition demands of pregnancy and lactation

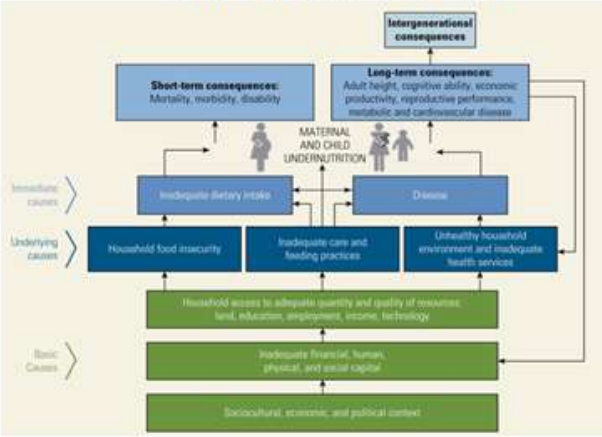
Objectives

1. Know causes and consequences of mother and child malnutrition
2. Understand the concept of Recommended Dietary Allowance (RDA) and their use
3. Know the increased RDAs in pregnancy and lactation

MN2 // SLIDE 2

MN 2/ Slide 2

Causes and consequences of maternal and child undernutrition



Source: UNICEF conceptual framework (adapted), Lancet series 2008

MN2 // SLIDE 3

MN 2/ Slide 3

Recommended Dietary Allowance: RDA

- Estimates of nutrients to be consumed daily to ensure the requirements of all individuals in a given population
- Also factor, bioavailability and a margin of safety, to cover variation between individuals, dietary traditions and practices
- Bioavailability indicates what is absorbed and utilized by the body

Source: NIN, 2011

Distribute the handouts on increased RDAs in pregnancy and lactation

Explain to the students that these topics will be covered in detail under OBGYN and build on this session

STUDENT'S HANDOUT (MN 2/ handout 1)

RDA for energy, protein, fat, calcium and iron per day for women (weight 55 kg)

Activity	Energy (Kcal)	Protein (g)	Fat (g)	Calcium (mg)		Iron (mg)
Sedentary	1900	55	20	600	21	
Moderate	2230		25			
Heavy	2850		30			
Pregnant	+350	78	30	1200	35	
Lactation <6mths	+600	74	30	1200	21	
Lactation 6-12mths	+520	68	30			

RDA for Vitamins A, C, and folate per day for women (weight 55 kg)

Activity	Vitamin A (mg)		Ascorbic acid (mg)	Folate (mcg)
	Retinol	βcarotene		
Sedentary	600	4800	40	200
Moderate				
Heavy				
Pregnant	800	6400	60	500
Lactation <6mths	950	7600	80	300
Lactation 6-12mths				

RDA for Vitamins B_1, B_2, B_4, B_5, B_6 and B_{12} for women (weight 55 kg)

Activity	B_1(mg)	B_2(mg)	B_4(mg)	B_5(mg)	B_6(mg)	B_{12}(mcg)
Sedentary	1.0	1.1	12	NA	2.0	1
Moderate	1.1	1.3	14			
Heavy	1.4	1.7	16			
Pregnant	+0.2	+0.3	+2	NA	2.5	1.2
Lactation <6mths	+0.3	+0.4	+4	NA	2.5	1.5
Lactation 6-12mths	+0.2	+0.3	+3			

TOPIC MN 3:
BALANCED DIET FOR PREGNANT WOMEN AND LACTATING MOTHERS

Method

Lecture 3

Objectives

1. Explain balanced diet against increased RDA for pregnancy and lactation
2. Explain Minimum Dietary Diversity –Women (MDD-W)

Outline

- **Introduction and objectives:** 5 mins
- **What is a balanced diet:** 30 mins
- **Dietary diversity :** 20 mins
- **Recap:** 5 mins

Place

Lecture theatre

Resource person

Faculty

Preparation

- Slides MN 3/ Slides 1-5
- Students handout on 10 food groups (MN 3/ handout 1)
- Technical module pages 16 to 17

MCI codes and competencies

CM 5.4 (Knowledge, Skills)

Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment

INTRODUCTION

Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 5 and explain one by one

MN 3/Slide 1

Topic 3
Balanced diet for pregnant women and lactating mothers

Objectives

1. Explain balanced diet against increased RDA for pregnancy and lactation
2. Explain Minimum Dietary Diversity –Women (MDD-W)

MN3 // SLIDE 1

MN 3/Slide 2

Balanced diet

- A balanced diet is one which provides all the nutrients in required amounts and proper proportions.
- The quantities of foods needed to meet the nutrient requirements vary with age, gender, physiological status, weight and physical activity.
-
- A balanced diet should provide around 50-60% of total calories from carbohydrates, preferably from complex carbohydrates, about 10-15% from proteins and 20-30% from both visible and invisible fat.
- Antioxidants such as vitamins C and E, beta-carotene, riboflavin and selenium protect the human body from free radical damage.
- In addition, a balanced diet should provide other non-nutrients such as dietary fibre, antioxidants and phytochemicals which bestow positive health benefits.

Source: NIN, 2011

MN3 // SLIDE 2

MN 3/Slide 3

Balanced diet for pregnant woman (sedentary)

Food group	Portion size (g)	Number of portions	Total quantity (g)
Cereal and millet	30	9	270
Vegetables	300	3.5	1050
Fruits	100	2	200
Milk (cow) and products	100	5	500
Pulses	30	1 or 2*	30 or 60
Fats /oils	5	6	30
Sugars	5	4	20

*1 for non-vegetarians, 2 for vegetarians

Sample serving size and energy from common Indian foods in handout

Source: NIN, 2011, Emmett, 1997.

MN3 // SLIDE 3

MN3 // SLIDE 4

MN 3/Slide 4

Balanced diet for lactating mothers (sedentary)

Food group	Portion size (g)	Number of portions	Total quantity (g)
Cereals and millets	30	10	300
Vegetables	300	3.5	1050
Fruits	100	2	200
Milk (cow) and products	100	5	500
Pulses	30	3 or 5*	90 or 150
Fats /oils	5	6	30
Sugars	5	4	20

*1 for non-vegetarians, 2 for vegetarians

Sample serving size and energy from common Indian foods in handout

Source: NIN, 2011

MN3 // SLIDE 5

MN 3/Slide 5

Minimum Dietary Diversity-Women (MDD-W)

- MDD-W measures whether or not women 15–49 years of age have consumed at least five out of ten defined food groups the previous day or night.
- The proportion of women 15–49 years of age who reach this minimum in a population can be used as a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality

10 food groups in handout

Source: FAO,FHI 360, 2016

Explain to the students that food groups have been organized in several ways. While FAO guidelines indicate 10 groups, WHO recommend 7 and there are 9 food groups in the Dietary guidelines for Indians by NIN.

Student's handouts (MN 3/ Handout 1)

Ten foods groups for measuring MDD

GROUP 1 Grains, white roots and tubers, and plantains	Also called "starchy staples". These foods provide energy, varying amounts of micronutrients (e.g. certain B vitamins provided by grains) and varying amounts of anti-nutrients, such as phytates.
GROUP 2 Pulses (beans, peas and lentils)	Members of the plant family Fabaceae (alternate name Leguminosae). Includes beans, peas and lentils. The seeds are harvested at maturity, dried and used as food or processed into a variety of food products.
GROUP 3 Nuts and seeds	Comprises mostly tree nuts but also includes groundnut (peanut) and may include certain seeds when consumed in substantial quantities.
GROUP 4 Dairy	This group includes almost all liquid and solid dairy products from cows, goats, buffalo, sheep or camels which are important sources of high-quality protein, potassium and calcium, as well as vitamin B12 (available only from animal-source foods) and other micronutrients.
GROUP 5 Meat, poultry and fish	Sometimes referred to as "flesh foods". All meats, organ meats (that is liver, kidney), poultry, other birds, fresh and dried fish and seafood are included.
GROUP 6 Egg	Includes eggs from birds (domesticated poultry and wild birds)
GROUP 7 Dark green leafy vegetable	Medium green leaves, such as cabbage along with darker greens, are all vitamin A-rich and are included in this group. In addition, they are rich in folate and several other micronutrients.
GROUP 8 Other vitamin A –rich fruits and vegetables	Most common vitamin A-rich fruits are ripe mango and ripe papaya; others include apricot and several types of melon. These foods may also be good sources of vitamin C and/or folate and/or other micronutrients.
GROUP 9 Other vegetables	This group includes vegetables not counted above as dark green leafy vegetables or as other vitamin A-rich vegetables.
GROUP 10 Other fruits	This group includes most fruits, excluding vitamin A-rich fruits.

TOPIC MN 4:
BASICS OF COUNSELING SKILLS

Method

Clinical posting/ demonstration

Objectives

1. Understand basic concepts of listening & learning, building confidence and giving support & checking understanding
2. Counsel a pregnant woman, mother or a family member on MIYCN

Outline

- **Introduction and objectives: 10 mins**
- **Understanding counseling concepts: 30 mins**
- **Role play: 60 mins**
- **Discussion: 60 mins**
- **Recap: 30 mins**

Place

Demonstration hall

Resource person

Faculty

Preparation

- Instructions and case history for role play
- Doll (dummy baby)
- Technical module pages 30, 32, 67 to 70

MCI codes and competencies

CM 1.9, 4.1,4.2 (Skill)

Demonstrate the role of effective Communication skills in health in a simulated environment. Describe various methods of health education with their advantages and limitations. Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings

INTRODUCTION

Introduce the topic

- Counseling is a way of working with people in which you try to understand how they feel and help them
- Counseling skills are useful in many situations besides maternal care and breastfeeding

The important skills are

(A). Listening and learning skills (to gather information)

(B). Building confidence and giving support

[C]. Checking understanding

TOOLS AND TECHNIQUES

Now discuss each of the two skills in detail using demonstrations and giving examples

(A). LISTENING AND LEARNING SKILLS

SKILL 1. USE HELPFUL NON VERBAL COMMUNICATION

Means showing your attitude through your posture, expression and everything except through speaking.

- Tell participants that there are 6 different kind of non verbal communication , which you will demonstrate and address the mother in two ways : one way helps and other hinders. Participants have to tell which one is better way.
- With each demonstration say exactly the same words in the same way for both ways.
- Ask one participant to sit and act as a pregnant woman/ lactating mother

DEMONSTRATION A.

a) Keep your head level :

- Hinders – Stand with your head higher than the woman
- Helps – Sit so that your head is at her level.

Comment*- What difference did you note? When you stand higher than the woman it is intimidating and does not make the woman feel comfortable. When you sit at the same level it shows you are interested in listening to her, knowing what is happening to her.*

b) Eye contact :

- Hinders – Look away at something else or to your notes.
- Helps - Look at her as she speaks & pay attention

Comment*- When you look away, woman feels that you are distracted or not interested in the conversing with her. Being attentive makes her feel like sharing her thoughts and experience with you.*

c) Remove barriers

- Hinders –Write notes or talk on mobile phone when you are talking
- Helps – .Remove notes /pen, mobile and talk

Comment*- Again, being on mobile conversation with someone else in the middle of the counselling session makes the woman feel her thoughts/ experience is not important to you. However, when you remove any distracting element like mobile/ notepad, she feels you want to hear her out.*

d) Maintain appropriate distance:

- Hinders – Sit very close or far from the women
- Helps-sit at an appropriate distance with the women.

Comments*- Sitting very close to the mother may make her feel uncomfortable at the same time, sitting far away may also make her uncomfortable and hesitant to talk. Distance between you and woman should be enough to have a normal conversation.*

e) Give time:

- Hinders-Look at watch or be in hurry to talk
- Helps –Make her feel that you have time for her

Comments *– If you make the woman feel that you don't have enough time, she will not be open in sharing her experience/ problem.*

f) Touch appropriately:

- Hinders –Don't touch or touch inappropriately.
- Helps - Touch mother or baby appropriately .

Comments*- If there is a need to touch the woman or her baby, be careful to do it in a pleasant and comfortable way.*

SKILL 2 'ASK OPEN QUESTIONS '

Open questions usually start with How? What? When? Where? Why?

Example (i) How is breastfeeding going for your baby?
(ii) What are you giving him to eat and drink?

Close questions usually start with words like 'Are you?' or Did he?' or 'Has he?' or 'Does he?' and the mother answer them with 'Yes' or 'No'

Example (i) Areyoubreastfeedingyourchild? Ans-yes(closedquestion)

SKILL 3 'REFLECT BACK WHAT THE MOTHER SAYS'

It is to repeat back or reflect it in a slightly different way what the mother says. It is important to repeat the things which you want to know more .This skill also shows that you are listening to her.

Example **Mother:** I think my milk is drying up.

Your response: you think your milk is drying

Mother: My sister tells me that I should give him some bottle feed as well?

Your response: Your sister says that he needs something more

SKILL 4 'USE RESPONSES AND GESTURES WHICH SHOW INTEREST'

If you want a mother to continue talking, you must show that you are listening & that you are interested in what she is saying by showing responses & gestures.

Example Gestures like look at her, nod and smile
Simple responses like "Aha", "Mmm", "Oh!"

SKILL 5 EMPATHIZE

Show that you understand how she feels'

Example **Mother:**"Mybabywantstofeedveryoftenanditmakesmefeelsotired!

Your response: I can understand "You are feeling tired all the time then?"

SKILL 6 AVOID JUDGING WORDS

Judging words are : right, wrong, well, badly, good, enough, properly etc.

Using these words will make mother feel that she is wrong, or that there is something wrong with the baby

Example **Do not say:** "Does the baby sleep well"

Instead say: "How is the baby sleeping?"

(B). BUILDING CONFIDENCE AND GIVING SUPPORT

SKILL 1. ACCEPT WHAT THE PERSON THINKS & FEELS- ABOUT (MISTAKEN IDEA)

- Sometimes pregnant woman/mother has some mistaken ideas for which you don't agree.
- But if you **disagree** or criticize this may make her feel that she is wrong. This reduces her confidence.
- If you agree with her, it is difficult later to suggest which is right.
- Accepting means responding in neutral way and not agreeing or disagreeing.

Example Accepting what a mother thinks –

My milk is thin and weak so I have to give bottle feed.

Responses are ...

i. Oh no milk is never thin and weak, it just looks that way

ii. Yes thin and weak milk can be a problem.

iii. I see. You are worried about your milk.

SKILL 2. RECOGNIZING AND PRAISING:

We must first reorganize what she is doing right, and then should praise those practices. This will

- Build her confidence
- Encourage her to continue these practices

Example

- ▶ It's very good that you are taking Iron and Calcium tablets regularly as advised
- ▶ Oh good you are coming regularly for ANC check up

SKILL 3. GIVE PRACTICAL HELP TO PREGNANT WOMAN/ LACTATING MOTHER

Sometimes practical help is better than saying anything.

Example If you,

- Help her with sitting comfortably in later stages of pregnancy
- help to make her clean and comfortable and offer drink or something to eat after delivery
- help her in positioning baby during breastfeeding

She will be more relaxed and focus better on herself/ her baby's care and breastfeeding

SKILL 4 USE SIMPLE LANGUAGE

It is important to use simple & familiar terms & suitable simple words that the woman understands.

Example –

- Minimum Dietary Diversity is important for your health.(technical word MDD used)
- Daily intake of foods from minimum 5 groups (such as grains/tubers, pulses/beans, green leafy vegetables, dairy, nuts, meats and poultry, yellow fruits and vegetables, other vegetables and other fruits) is important for good health.(Simple language)

SKILL 5 GIVE LITTLE BUT RELEVANT INFORMATION

- It is important to give information which is relevant to her situation NOW .Always tell her things that she can use today and not later.
- Wait until you have built her confidence by **Accepting** what she has mistaken idea and **Praising** what she does good.
- Give information in positive way

Example

- Personal hygiene and wash hands before cooking or eating food is important to prevent lavora and infection.
- Intake of Iron and Calcium regularly prevents anemia and PIH during pregnancy

SKILL 6 MAKE ONE OR TWO SUGGESTIONS NOT COMMANDS

- You must be careful not to tell or command her to do something.
- You should rather suggest what she could do. Then she can decide.
- This leaves her feeling in control & helps her to feel confident.

Example

- "You must feed Sonu only your milk till 6 months of age." (Command)
  "It might help Sonu grow well if you feed him only your milk (not even water) till 6 months of age ." would u like to do that.(Suggestion)
- Daily intake of Foods from minimum 5groups (ie) is important for good health.
  You are not taking milk & milk products in your diet. Would you like to introduce it?

[C]. CHECKING UNDERSTANDING

After giving relevant information and suggestion it is important to assess how much a mother has grasped the essentials of nutrition for herself and her child especially about breastfeeding and complementary feeding. It must be done in a way that she should not feel that she is undergoing an examination, lest it may affect her confidence.

- Arranging supply
- Making mother comfortable
- Asking open questions about knowledge (cognitive domain)
- Filling up gaps while mother is explaining a task
- Asking open question for demonstration (psychomotor domain)
- Helping in performing task and praising

NOW ORGANIZE A ROLE PLAY

Identify three students to play Rimi's mother, father and doctor. Train them on the role play and ask the students to observe closely and make note of the following:

- Ask the observers what doctor did good and bad (based on counseling skills)
- What all counseling skills were used according to counseling check list
- What are the feeding problems identified
- What all good practices woman followed and was praised about.
- What two relevant messages/ information were given to woman.

CASE HISTORY

Rimi is 2 months old. Her mother is about to start work in a month and is planning to stop breastfeeding and start top milk. She along with her husband and Rimi visit the doctor. Doctor reviews Rimi's length and weight measurements which are in normal limits. She hears out mother's concern and explains her about feeding expressed breastmilk.

Discussion

- Discuss the role play
- Explain that more sessions on counselling skills will be held during OBGY and Pediatrics postings
- Ask the group if they have any questions.

TOPIC MN 5:
NUTRITIONAL METABOLISM AND NUTRITION DEMANDS OF PREGNANCY

Method

Lecture 4

Objectives

1. Understand the concept of Recommended Dietary Allowance (RDA) and their use
2. Understand reasons for increased RDA and significance of each nutrient in pregnancy
3. Correctly identify sources for energy, carbohydrates, fats, proteins and select micronutrients

Outline

- **Introduction and objectives: 5 mins**
- **Basics of RDA: 10 mins**
- **RDA and sources of essential nutrients: 40 mins**
- **Recap: 5 min**

Place

Lecture theatre

Resource person

Faculty

Preparation

- Slides MN 5/ Slides 1 to 13
- Technical module pages 5 to 12

MCI codes and competencies

BI 3.3, 4.2, 6.9, 8.1, 11.23; PY 4.4; Integrated with Pediatrics (Knowledge)

Describe the functions of various minerals in the body, their metabolism and homeostasis. Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy. Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet

INTRODUCTION

Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 13 and explain one by one

MN 5/Slide 1

Topic 5
Nutrition metabolism and nutrition demands of pregnancy

Objectives

1. Understand the concept of Recommended Dietary Allowance (RDA) and their use
2. Understand reasons for increased RDA and significance of each nutrient in pregnancy
3. Correctly identify sources for energy, carbohydrates, fats, proteins and select micronutrients

1

MN5 // SLIDE 1

MN 5/Slide 2

Key points

- Maternal short stature (height <145 cm), low pre-pregnancy body mass index (BMI, < 18.5 kg/m^2), inadequate gestational weight gain and micronutrient deficiencies are strong predictors of child undernutrition.
- These determinants are influenced by a mother's nutritional status when she herself was a foetus as well as nutrition before, during and in between pregnancies.
- Maternal stores laid down during pregnancy are important in supporting breastfeeding; also if the woman is planning another pregnancy.
- Up to 20% of child mortality can be prevented by achieving near universal coverage of interventions that impact immediate causes of undernutrition

Source: Lancet series, 2013, Misra et al 2009, WHO, 1995

2

MN5 // SLIDE 2

MN 5/Slide 3

Energy requirements in pregnancy

Energy requirements increase in pregnancy because:

- body weight increases,
- basal metabolic rate (BMR) increases an average 10–15%
- growing foetus and maternal physiological changes demand energy

RDA: An additional 350 Kcal energy is recommended daily over the recommended intake for non-pregnant and non-breastfeeding adult women (55 kg) varying with level of physical activity (1900 Kcal, 2230 Kcal and 2850 Kcal for sedentary, moderate and heavy worker)

Sources: Energy is derived from multiple food groups including whole grain cereals, millets, fats (vegetable oil, ghee butter), nuts and oilseeds and sugars.

Source: NIN, 2011

3

MN5 // SLIDE 3

MN 5/Slide 4

Protein requirements in pregnancy

Protein requirements increase in pregnancy because:

- maternal tissue is synthesized
- fetal growth is rapid (principally in the third trimester)

RDA: Recommended increase in protein intake for women (55 kg) during pregnancy is 23 g per day resulting in an RDA of 78 g per day.

Sources: Animal foods like milk, meat, fish and eggs and plant foods such as pulses and legumes are rich sources of proteins.

Animal proteins are of high quality as they provide all the essential amino acids in right proportions, while plant or vegetable proteins are not of the same quality because of their low content of some of the essential amino acids. However, a combination of cereals, millets and pulses provides most of the amino acids, which complement each other to provide better quality proteins.

Source: NIN, 2011

4

MN5 // SLIDE 4

MN 5/Slide 5

Fat requirements in pregnancy

Fat requirements increase in pregnancy because: increased energy needs have to be met, in early pregnancy the fetus uses fatty acids, long-chain polyunsaturated fatty acids (LCPUFAs) such as docosahexanoic acid (DHA) and arachidonic acid (AA) are necessary for normal brain growth and development in infants

RDA: Daily intake of 30 g visible fat is recommended for pregnant women, drawn from a variety of sources, particularly those rich in alpha- linolenic acid (ALA), the building block for the longer chain omega-3 fatty acids and linoleic acid (LA), the building block for longer chain omega-6 fatty acids.

Sources: Fats are derived from both plant and animal sources and include ghee, butter, vegetable oils such as groundnut, mustard and soybean oil.

Source: NIN, 2011

5

MN5 // SLIDE 5

MN 5/Slide 6

Sources of essential fatty-acids

Saturated	Mono unsaturated	Polyunsaturated		
		LA (Omega-6)		ALA (Omega-3)
Coconut Palm kernel Ghee/butter Vanaspati	Red palm oil Palmolein Groundnut Ricebran Sesame	Low	Red palm oil Palmolein	Rapeseed Mustard Soyabean
		Moderate	Groundnut, Ricebran Sesame	
		High	Safflower, Sunflower, Cottonseed, Corn, Soyabean	

6

MN5 // SLIDE 6

MN 5/Slide 7

Carbohydrates & dietary fibre requirements in pregnancy

Carbohydrate metabolism varies throughout pregnancy to meet fetal requirements. Main source of energy.

Adequate intake of dietary fibre is essential for proper gut function and regular laxation and may also be related to reduced risk for several diseases, including heart disease, certain cancers and diabetes

RDA: About 50-60% of total energy should be drawn from carbohydrates, preferably from complex carbohydrates (non-specific to pregnancy).

25g dietary fiber per 1000 Kcal energy should be consumed in pregnancy.

Sources: Cereals and millets are the main sources of carbohydrates in Indian diets. The glycemic index (GI) of foods is an important consideration when sourcing carbohydrates.

Wheat bran, cereals and vegetables are good sources of water-insoluble non starch polysaccharides which form bulk of the fecal matter. Water soluble non starch polysaccharides which lower the GI of carbohydrate rich foods are present in fruits, peas, lentils and oats.

Source: NIN, 2011, Brand-Miller JC, 2003

7

MN5 // SLIDE 7

MN 5/Slide 8

Glycemic index of some common foods

Sl. No.	Name of the foods	Glycemic Index	Sl. No.	Name of the foods	Glycemic Index
1	White wheat bread	75 ± 2	17	Mango (raw)	51 ± 5
2	Whole wheat bread	74 ± 2	18	Watermelon (raw)	76 ± 4
3	Wheat roti	62 ± 3	19	Potato (boiled)	78 ± 4
4	[redacted]		20	French fries (potato)	63 ± 5
5	White boiled rice	73 ± 4	21	Carrots (boiled)	39 ± 4
6	Brown boiled rice	68 ± 4	22	Milk (full fat)	39 ± 3
7	Barley	28 ± 2	23	Milk (skim)	37 ± 4
8	Instant oat porridge	79 ± 3	24	Ice cream	51 ± 3
9	Rice porridge /congee	78 ± 9	25	Chick peas	28 ± 9
10	Millet porridge	67 ± 5	26	Soya beans	16 ± 1
11	Sweet corn	52 ± 5	27	Lentils	32 ± 5
12	Cornflakes	81 ± 6	28	Chocolate	40 ± 3
13	Apple (raw)	36 ± 2	29	Popcorn	65 ± 5
14	Orange	43 ± 3	30	Soft drinks/soda	59 ± 3
15	Banana	51 ± 3	31	Honey	61 ± 3
16	Pineapple	59 ± 8	32	Glucose	103 ± 3

Source: NIN, 2011

8

MN5 // SLIDE 8

MN 5/Slide 9

Calcium & Vitamin D requirements in pregnancy

RDA: The requirements for calcium double in pregnancy from 600mg in normal adult women (55kg) to 1200mg in pregnancy

Sources: Milk is the best source of bio-available calcium (125 mg per 100 ml). Other sources include cheeses, curds, green leafy vegetables, ragi and nuts.

Due to the increased demand for calcium in pregnancy, in addition to including calcium rich foods and exposure to sunlight, daily supplementation of 1g calcium with Vitamin D3 is recommended second trimester onwards.

Vitamin D is synthesised in the skin, hence dietary requirements depend on exposure to sunlight. Good sources of vitamin D are oily fish (Salmon, mackerel, sardines), fish oils and eggs.

Source: NIN, 2011, Brand-Miller JC, 2003

9

MN5 // SLIDE 9

MN5 // SLIDE 10

MN 5/Slide 10

Iron requirements in pregnancy

RDA: Pregnant women are recommended to consume 35 mg iron per day which is an increase of 14 mg from requirements for non-pregnant and non-breastfeeding women.

Sources: Meat, fish and poultry are good sources of haem iron. Green leafy vegetables, legumes (Soyabean 10.4mg/100g), nuts and jiggery (2.6mg per 100 g) are good sources of non-haem iron.

However, to meet the increased demands of iron and folate (under Vitamin B complex) in pregnancy, daily supplementation with 60mg iron and 500mc folic acid is recommended among non-anemic pregnant women.

Source: NIN, 2011, Brand-Miller JC, 2003

10

MN5 // SLIDE 11

MN 5/Slide 11

Iodine requirements in pregnancy

RDA: Daily intake of 0.247 mg of iodine is recommended

Sources: Iodine levels in soil, irrigation and fertilisers affect iodine in food. Sea food, milk are some sources. In iodine rich soils, cereals, legumes and vegetables are also good sources.

However, in India, as soils are deficient in iodine, adequately iodized salt (15 ppm iodine) is the best and recommended source for iodine.

Source: ICMR, NIN

11

MN5 // SLIDE 12

MN 5/Slide 12

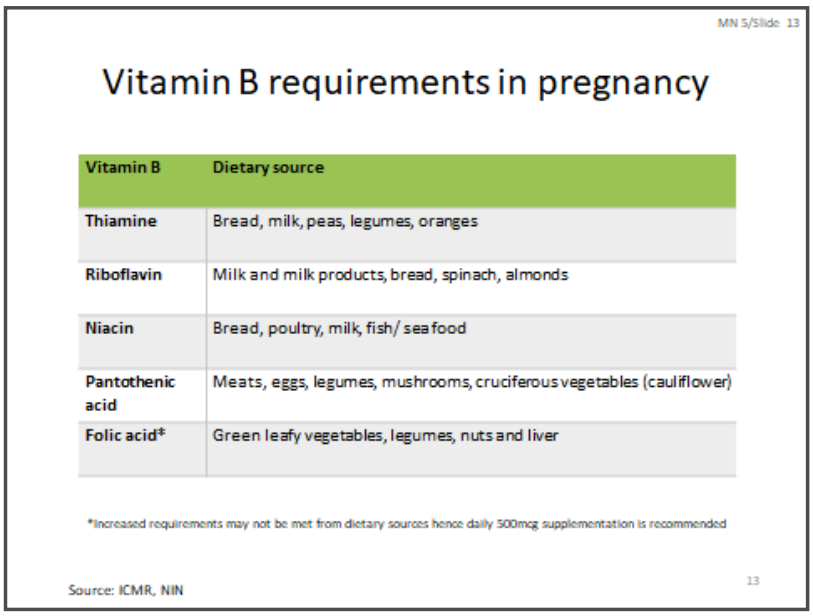
Vitamin requirements in pregnancy

Activity	Vitamin A (mg)		Ascorbic acid (mg)	Folate (mcg)
	Retinol	βcarotene		
Sedentary	600	4800	40	200
Moderate				
Heavy				
Pregnant	+200	+1600	+20	+300

Activity	B_1(mg)	B_2(mg)	B_4(mg)	B_5(mg)	B_6(mg)	B_{12} (mcg)
Sedentary	1.0	1.1	12	NA	2.0	1
Moderate	1.1	1.3	14			
Heavy	1.4	1.7	16			
Pregnant	+0.2	+0.3	+2	NA	+0.5	+0.2

Source: NIN, 2011

12


MN 5/Slide 13
Vitamin B requirements in pregnancy
Vitamin B
Dietary source
Thiamine
Bread, milk, peas, legumes, oranges
Riboflavin
Milk and milk products, bread, spinach, almonds
Niacin
Bread, poultry, milk, fish/ sea food
Pantothenic acid
Meats, eggs, legumes, mushrooms, cruciferous vegetables (cauliflower)
Folic acid*
Green leafy vegetables, legumes, nuts and liver
*Increased requirements may not be met from dietary sources hence daily 500mcg supplementation is recommended
Source: ICMR, NIN
13

TOPIC MN 6:
NUTRITIONAL METABOLISM AND NUTRITION DEMANDS IN POSTNATAL PERIOD

Method

Lecture 5

Objectives

1. Understand reasons for increased RDAs and significance of each nutrient in lactation
2. List the differences in nutrient requirements in pregnancy and lactation
3. Correctly identify sources for energy, carbohydrates, fats, proteins and select micronutrients

Outline

- **Introduction and objectives:** 5 mins
- **RDA and sources of essential nutrients:** 40 mins
- **Differences in nutrient requirements in pregnancy and postnatal period:** 10 mins
- **Recap:** 5 min

Place

Lecture theatre

Resource person

Faculty

Preparation

- **Slides MN 6/Slides 1 to 9**
- **Handouts on combined RDA tables for non-pregnant, non-lactating, pregnant and lactating women (MN 2/ Handout 1; same as shared in summary discussion under Community Medicine)**
- **Technical module pages 12 to 15**

MCI codes and competencies

BI 3.3, 4.2, 6.9, 8.1, 11.23; PY 4.4; Integrated with Pediatrics (Knowledge)

Describe the functions of various minerals in the body, their metabolism and homeostasis. Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy. Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet

INTRODUCTION

Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 9 and explain one by one

MN 6/Slide 1

Topic 6
Nutritional metabolism and nutrition in post natal period

Objectives

1. Understand reasons for increased RDAs and significance of each nutrient in lactation
2. List the differences in nutrient requirements in pregnancy and lactation
3. Correctly identify sources for energy, carbohydrates, fats, proteins and select micronutrients

1

MN6 // SLIDE 1

MN 6/Slide 2

Energy requirements in postnatal period

There is an increase in energy requirement during breastfeeding because of the energy cost of producing breast milk.

The specific energy cost reflects the volume produced and the energy density of the breast milk.

RDA: An additional 600 Kcal energy is recommended daily over the recommended intake for non-pregnant and non-breastfeeding adult women (55 kg) varying with level of physical activity (1900 Kcal, 2230 Kcal and 2850 Kcal for sedentary, moderate and heavy worker) in the first six months followed by additional 520 Kcal between six to 12 months of lactation

Sources: Energy is derived from multiple food groups including whole grain cereals, millets, fats (vegetable oil, ghee butter), nuts and oilseeds and sugars.

Source: NIN, 2011

2

MN6 // SLIDE 2

MN 6/Slide 3

Protein requirements in postnatal period

The relationship between breast milk protein content and maternal diet and nutritional status is inconclusive.

None the less an increased intake is recommended

RDA: Recommended increase in protein intake for lactating mothers (55 kg) is 19 g per day at < 6 months and 13 g per day at 6-12 months resulting in an RDA of 74 g per day and 68 g per day respectively

Sources: Animal foods like milk, meat, fish and eggs and plant foods such as pulses and legumes are rich sources of proteins.

Animal proteins are of high quality as they provide all the essential amino acids in right proportions, while plant or vegetable proteins are not of the same quality because of their low content of some of the essential amino acids. However, a combination of cereals, millets and pulses provides most of the amino acids, which complement each other to provide better quality proteins.

Source: NIN, 2011, Emmett, 1997.

3

MN6 // SLIDE 3

MN 6/Slide 4

Fat requirements in postnatal period

Usually, just over half the energy content of breast milk is fat.

The fatty acids in breast milk are sourced from maternal diet or maternal fat stores or synthesized by the breast.

RDA: Daily intake of 30 g visible fat is recommended for lactating mother, drawn from a variety of sources, particularly those rich in alpha- linolenic acid (ALA), the building block for the longer chain omega-3 fatty acids and linoleic acid (LA), the building block for longer chain omega-6 fatty acids.

Sources: Fats are derived from both plant and animal sources and include ghee, butter, vegetable oils such as groundnut, mustard and soybean oil.

Source: NIN, 2011

4

MN6 // SLIDE 4

MN 6/Slide 5

Carbohydrates & dietary fibre requirements in postnatal period

Carbohydrate requirement increases in breastfeeding to provide the energy for the synthesis of milk. Lactose, the principal carbohydrate in breast milk, is synthesized in the breast from glucose.

RDA: About 50-60% of total energy should be drawn from carbohydrates, preferably from complex carbohydrates (non-specific to pregnancy).

As in pregnancy, dietary fibre needs to included in diet fro normal bowel movements.

Sources: Cereals and millets are the main sources of carbohydrates in Indian diets. The glycemic index (GI) of foods is an important consideration when sourcing carbohydrates.

Wheat bran, cereals and vegetables are good sources of water-insoluble non starch polysaccharides which form bulk of the fecal matter. Water soluble non starch polysaccharides which lower the GI of carbohydrate rich foods are present in fruits, peas, lentils and oats.

Source: NIN, 2011, Brand-Miller JC, 2003

5

MN6 // SLIDE 5

MN 6/Slide 6

Calcium & Vitamin D requirements in postnatal period

A breastfeeding woman transfers approximately 260 mg per day of calcium to breast milk

RDA: The requirements for calcium are same as in pregnancy which is 1200 mg. This is double the requirements for non-pregnant, non-breastfeeding adult women

Sources: Milk is the best source of bio-available calcium (125 mg per 100 ml). Other sources include cheeses, curds, green leafy vegetables, ragi and nuts.

Due to the increased demand for calcium in postnatal period, in addition to including calcium rich foods and exposure to sunlight, continued daily supplementation of 1g calcium with Vitamin D3 is recommended till 6 months.

Vitamin D is synthesised in the skin, hence dietary requirements depend on exposure to sunlight. Good sources of vitamin D are oily fish (Salmon, mackerel, sardines), fish oils and eggs.

Source: NIN, 2011, Goulding, 2002

6

MN6 // SLIDE 6

MN 6/Slide 7

Iron requirements in postnatal period

RDA: The requirements for iron are same as for non-pregnant, non-breastfeeding adult women (55kg) at 21 mg per day.

Sources: Meat, fish and poultry are good sources of haem iron. Green leafy vegetables, legumes (Soyabean 10.4mg/100g), nuts and jiggery (2.6mg per 100 g) are good sources of non-haem iron.

Source: NIN, 2011, Brand-Miller JC, 2003

7

MN6 // SLIDE 7

MN 6/Slide 8

Iodine requirements in postnatal period

Ninety micrograms of iodine are transferred into breast milk per day

RDA: Increased intake is recommended as in pregnancy

Sources: Iodine levels in soil, irrigation and fertilisers affect iodine in food. Sea food, milk are some sources. In iodine rich soils, cereals, legumes and vegetables are also good sources.

However, in India, as soils are deficient in iodine, adequately iodized salt (15 ppm iodine) is the best and recommended source for iodine.

Source: ICMR, NIN

8

MN5 // SLIDE 8

MN 6/Slide 9

Vitamin requirements in postnatal period

Activity	Vitamin A (mg)		Ascorbic acid (mg)	Folate (mcg)
	Retinol	βcarotene		
Sedentary	600	4800	40	200
Moderate				
Heavy				
Lactation <6mths	950	7600	80	300
Lactation 6-12mths				

Activity	B_1(mg)	B_2(mg)	B_4(mg)	B_5(mg)	B_6(mg)	B_{12} (mcg)
Sedentary	1.0	1.1	12	NA	2.0	1
Moderate	1.1	1.3	14			
Heavy	1.4	1.7	16			
Lactation <6mths	+0.3	+0.4	+4	NA	2.5	1.5
Lactation 6-12mths	+0.2	+0.3	+3			

Source: NIN, 2011

9

MN5 // SLIDE 9

At the end of the presentation share the combined RDA tables. Discuss differences in nutrient requirements between pregnant women and lactating mothers.

TOPIC MN 7:
CRITICAL CONTACT POINTS, INTERPERSONAL COMMUNICATION AND COUNSELING FOCUSING ON MIYCN

Method Tutorial 1

Objectives

1. Ask & listen effectively
2. Praise and build mothers confidence
3. Able to give relevant information and suggestion
4. Check mothers understanding.
5. Counseling a pregnant woman or a lactating mother

Outline

- **Introduction:** 15 mins
- **Recap: Listening and learning skills, Building confidence and checking understanding skills:** 15 min
- **Critical contact points for counselling:** 15 mins
- **Role Play and Discussion:** 60 Minutes
- **Recap:** 15 mins

Place Demonstration room/Lecture theatre

Resource person Faculty/ Senior resident

Preparation

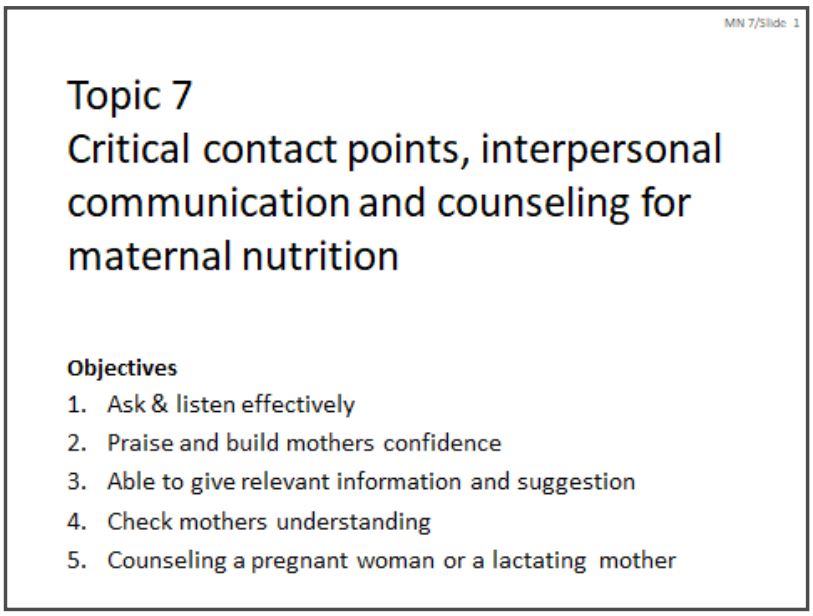
- **Case history for role play**
- **MN 7/ Slide 1**
- **Pregnancy services and messages (Annex 2)**
- **Counselling checklist (Annex 3)**
- **Technical module pages 27 to 29**

MCI codes and competencies

OG 8.1, OG 35.4, OG 35.5, OG 36.2, CM 5.6, PE 17.1, PE 18.3, PE 18.4 (Skill, Attitude, Communication)

Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors. Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family. Determine gestational age, EDD and obstetric formula. Organise antenatal, postnatal, well-baby and family welfare clinics. Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc. Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care. Provide intra-natal care and conduct a normal delivery in a simulated environment.

- Do a quick recap of counselling skill done under Community Medicine clinical posting/ demonstration.
- Show SLIDE 1 and discuss critical contact points during pregnancy.



MN7 // SLIDE 1

Discuss the services and important messages in each contact point using ANNEX 2

Now organise a role play using the case history.

ROLE PLAY

CASE HISTORY

Radha is primigravida at 20 weeks of gestation .She has been referred from primary health centre to register at the higher centre. Her pre pregnancy weight was 45 kg and height is 162 cms .Now her weight is 47 kg .Her BP is 110/80.She complains of tiredness and breathlessness in doing household work. She gives H/O passage of worms in stools .She visited primary health centre (dispensary) at 12 weeks. She received iron, calcium tabs and one TT there. But she is consuming them off & on as she feels it is not necessary .According to her dietary recall, her diet lacks green leafy vegetables. She has stopped taking non vegetarian diet thinking that it is heavy and hot (garm) food during pregnancy. All (ANC profile) investigations done were normal except Hb level which is 8.5gm%.

Examine and counsel her on the relevant issues at this visit.

ACTIVITY-

- Identify 5 participants for role play.
  1.Pregnant women **2.**Husband/Mother in-law. **3.**Nurse/Intern. **4.** Doctor. **5.** Counsellor.
- Explain every participant their role of high- lighting the important contact points.
- Ask the students to observe closely and make note of the following:
  - Ask the observers what doctor did good and bad (based on counselling skills)
  - What all counselling skills were used according to counselling check list
  - What are the feeding problems identified
  - What all good practices woman followed and was praised about.
  - What two relevant messages/ information were given to woman.

1ST STATION – NURSE/INTERN SITTING FOR – WEIGHT AND BP CHARTING

- Women comes after registration and with RCH number for weight , height & BP
- Greet her pleasantly and make her comfortable

2ND STATION- DOCTOR –

- Elicit the history by using all counselling skills
- Counsel in presence of husband/mother in law

Listen by using –

- Non- verbal
- Ask open & factual questions-
  - What all you have eaten since yesterday morning?
  - What was your pre pregnancy weight?
- By using gestures & reflect back,
- Empathize – About her breathlessness and tiredness.

Build Confidence –

- Accept mistaken idea-
  - **(1)** non veg hot (garm) food **(2)**IFA & Calcium not needed
- Praise –
  - **(1)**Visited PHC and got investigation done and TT received **(2)** At least taking IFA and calcium off & on
- Give relevant information by using simple language
  - Give 2 relevant information from the message list
  - Check understanding
- Give suggestion & not command.

3RD STATION – COUNSELLOR / POST GRADUATE/INTERN –REPEAT ADVICE/COUNSEL USING ALL SKILLS- ABOUT

- Rest, diet, , Weight gain ,Follow up
- Explain MCP chart for danger sigh etc

4TH /1ST STATION – NURSE –

- Send women to nurse for Injection TT

5TH STATION – LAB TECHNICIAN- & ULTRA SOUND ROOM

- Send women for ANC profile investigation & ultrasonography as advised

Thank the participants

TOPIC MN 8, MN 9 AND MN 10:

BALANCED DIET FOR PREGNANT WOMEN AND LACTATING MOTHERS, ANTHROPOMETRIC MEASURES OF NUTRITIONAL STATUS AND DIETARY ASSESSMENT TOOLS IN OPD SETTING

Method Tutorial 2

Objectives

1. Take anthropometric measurement (Height, weight and Mid-upper arm circumference (MUAC))
2. Calculate BMI and know BMI based weight gain in pregnancy (by WHO standard)
3. Description and use of dietary recall tool to identify diet related problems

Outline

- **Balanced diet and MDD-W:** 30 min
- **Anthropometry**
- **(a).Measurement of height, weight and MUAC:** 30 min
  (b).Calculation of BMI, Role of MUAC and weight gain according to BMI
- **Description and application of dietary recall tool to identify diet related problems:** 60 min
- **Counselling of Pregnant women about nutrition :**60 Minutes

Place Demonstration room/Lecture theatre

Resource person Faculty/ Senior resident

Preparation

- MN 8/ SLIDES 1 to 5; MN 9/ SLIDES 1 and 2
- Handout of serving size and energy from common Indian foods (MN 8-10/ Handout 1)
- 10/5 Food Groups Charts/Diagram /Live display
- Video/or Demonstrate how to take weight, height & MUAC (weighing scale, stadiometer, MUAC tape and recording sheet)
- Case history –for dietary recall
- Counselling and dietary messages check list (Annex 2)
- Technical module pages 16 **to 20**

MCI codes and competencies

BI 8.1, 8.5; CM 5.1,5.4, 5.5, 10.3; OG 8.1-8.3; IM 23.1; PE 9.4 (Knowledge, Skill)

Discuss the importance of various dietary components and explain importance of dietary fibre. Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance). Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions. Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of sociocultural factors.

Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of sociocultural factors. Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being. Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy. Assess and counsel a patient in a simulated environment regarding appropriate nutrition in pregnancy. Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care. Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses

Elicit, Document and present an appropriate nutritional history and perform a dietary recall. Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices.

INTRODUCTION

- Introduce the topic and share objectives

TOOLS AND TECHNIQUES

- Show power point slides from number 1 to 7

MN 8/Slide 1

Topic 8-10

8. Balanced diet for pregnant women and lactating mothers
9. Anthropometric measures of maternal nutritional status
10. Dietary assessment tools in OPD setting

Objectives

1. Explain balanced diet and RDA
2. Explain Minimum Dietary Diversity –Women (MDD-W)
3. Take anthropometric measurement (Height, weight and Mid-upper arm circumference (MUAC))
4. Calculate BMI and know BMI based weight gain in pregnancy (by WHO standard)
5. Description and use of dietary recall tool to identify diet related problems

1

MN8 // SLIDE 1

MN 8/Slide 2

Balanced diet

- A balanced diet is one which provides all the nutrients in required amounts and proper proportions.
- The quantities of foods needed to meet the nutrient requirements vary with age, gender, physiological status, weight and physical activity.
-
- A balanced diet should provide around 50-60% of total calories from carbohydrates, preferably from complex carbohydrates, about 10-15% from proteins and 20-30% from both visible and invisible fat.
- Antioxidants such as vitamins C and E, beta-carotene, riboflavin and selenium protect the human body from free radical damage.
- In addition, a balanced diet should provide other non-nutrients such as dietary fibre, antioxidants and phytochemicals which bestow positive health benefits.

Source: NIN, 2011

2

MN8 // SLIDE 2

MN 8/Slide 3

Balanced diet for pregnant woman (sedentary)

Food group	Portion size (g)	Number of portions	Total quantity (g)
Cereal and millet	30	9	270
Vegetables	300	3.5	1050
Fruits	100	2	200
Milk (cow) and products	100	5	500
Pulses	30	1 or 2*	30 or 60
Fats /oils	5	6	30
Sugars	5	4	20

*1 for non-vegetarians, 2 for vegetarians

Sample serving size and energy from common Indian foods in handout

Source: NIN, 2011, Emmett, 1997.

3

MN8 // SLIDE 3

MN 8/Slide 4

MN8 // SLIDE 4

Balanced diet for lactating mothers (sedentary)

Food group	Portion size (g)	Number of portions	Total quantity (g)
Cereals and millets	30	10	300
Vegetables	300	3.5	1050
Fruits	100	2	200
Milk (cow) and products	100	5	500
Pulses	30	3 or 5*	90 or 150
Fats /oils	5	6	30
Sugars	5	4	20

*1 for non-vegetarians, 2 for vegetarians

Sample serving size and energy from common Indian foods in handout

Source: NIN, 2011

4

MN 8/Slide 5

MN8 // SLIDE 5

Minimum Dietary Diversity-Women (MDD-W)

- MDD-W measures whether or not women 15–49 years of age have consumed at least five out of ten defined food groups the previous day or night.
- The proportion of women 15–49 years of age who reach this minimum in a population can be used as a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality

10 food groups in handout

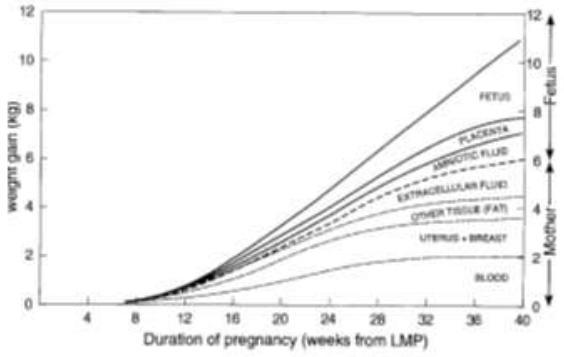
Source: FAO,FHI 360, 2016

5

MN 9/Slide 1

MN9 // SLIDE 1

Components and patterns of pregnancy weight gain

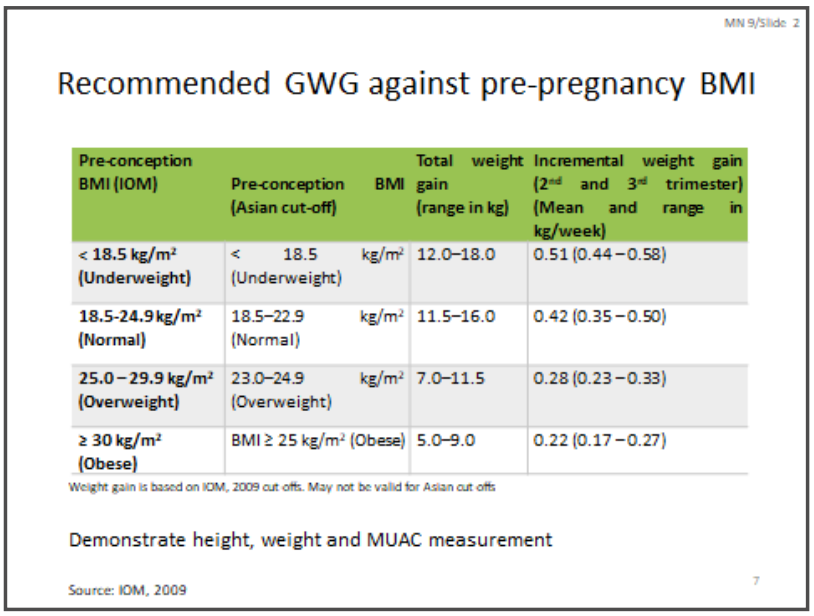


[1] Source: Pitkin RM. Nutritional support in obstetrics and gynecology. *Clinical obstetrics and gynecology*, 1976, **19**:489–513. Reproduced with the permission of the publisher.

Source: Pitkin, 1976

6

MN9 // SLIDE 2



- Distribute one copy of all the forms to all students (If students don't have these from previous session on balanced diet).
  - Serving size and energy from common Indian foods
  - List of 10 food groups
  - Counselling & Dietary Messages check list
- Show video or demonstrate how to take weight, height and MUAC using weighing machine and Stadiometer.

EXERCISE

Give students different weight and height measurements of pregnant women to calculate

(a)	Underweight	45 kg & 162 cms (BMI -17.2)
(b)	Normal	52 kg & 160 cms (BMI- 20.3)
(c)	Overweight	62 kg & 161 cms (BMI- 24.7)
(d)	Obese	68 kg & 155 cms (BMI- 28.3)

ROLE PLAY

HYPOTHETICAL DIETARY RECALL–

Name: Kamala devi

Age: 19 years

Parity: Primi

Height: 150 cm

Weight: 43 kg

Hb: 10 g/dL

BP: 100/70

EDD: 10.9.19

Complaint: Nausea, vomiting

Dietary recall details

Day for which recall was taken: Thursday

Is it a typical day?: Yes

Time	Quantity	Food
7:00	1 cup	Tea (milk and sugar)
	2	Biscuits (parle)
9:30	1	Paratha
	½ bowl	Potato pea curry
1:00	1	Bread (white)
	½ bowl	Potato pea curry
4:00	1 cup	Tea (milk and sugar)
	7-8 pieces	Potato chips (packed namkeen)
8:00	1	Roti
	3 tbsp	Dal (channa)

A FOR DIETARY RECALL AND PROBLEM IDENTIFICATION –BY USING COUNSELLING SKILLS

Ask one student to act as pregnant woman

Give him/her copy of case and dietary history already prepared

Give him/her 5 minutes to read the history

Act as a health worker and introduce yourself

Greet the mother and take permission to talk

Explain you are interested to know about her nutrition

Here are some probes:

1. What do you generally eat in the morning? What did you have in the morning yesterday? Probe for quantity and ingredients
2. Were you able to finish everything in the plate?
3. When was the next meal?
4. Did you have anything between these two meals?
5. Please tell me what you had in snack/ meal after breakfast/ morning meal?
6. Were any special foods or drinks taken?
7. Do you remember taking any medicine/ tablet?

Use all listening and learning skill, confidence building and support skill while talking recall

Try to elicit the case history and fill up dietary recall form

Identify the feeding / dietary problems.

Praise at least two things she is doing right

Give at least two relevant information from key messages check list

Thank the mother once finished

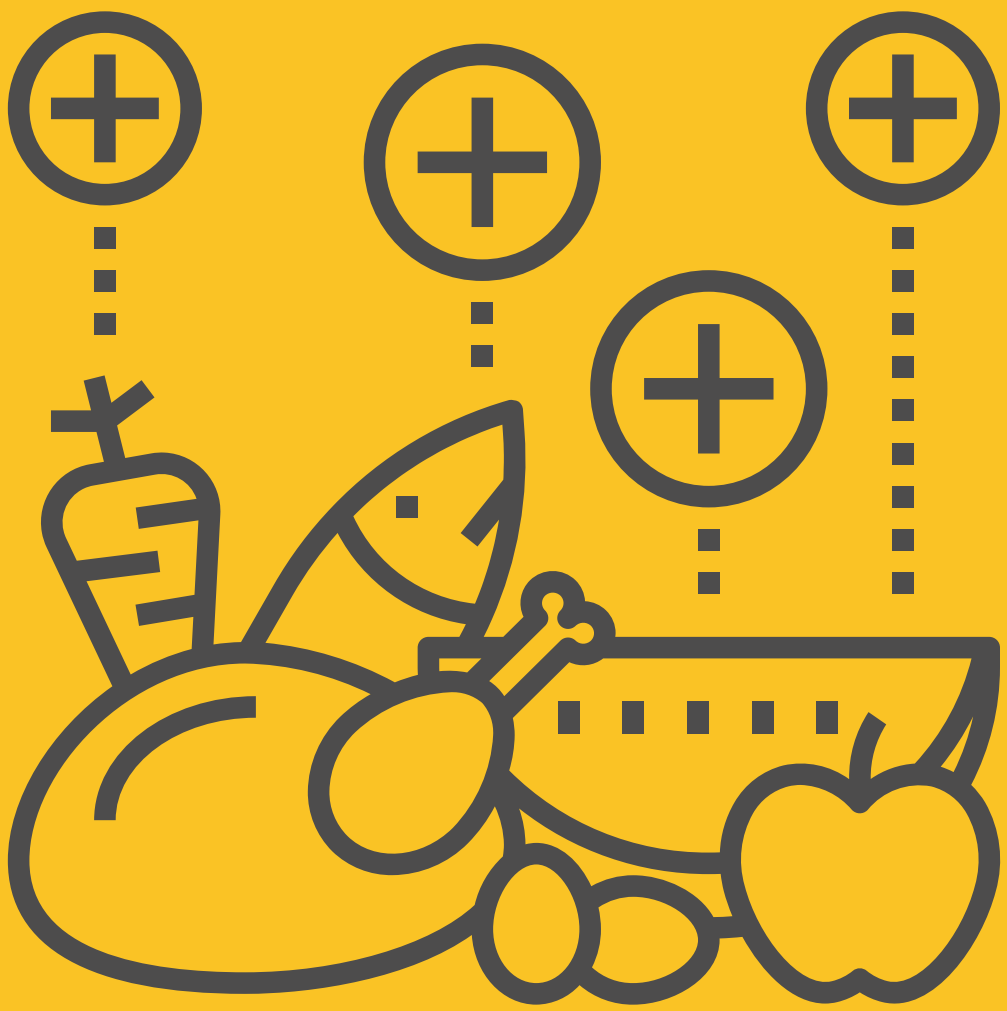
B COUNSELING PRACTICE IN STUDENTS GROUPS USING CASE HISTORY

- Discuss the role play
  - Ask the observer what counselor did good and bad
  - What all counseling skills were used according to counseling check list
  - What are the feeding problems identified
  - What all good practices woman followed & was praised about.
  - What two relevant messages/ information were given to woman.
- Explain that in a clinic setting a quick analysis may be done to assess if:
  - Woman had sufficient quantity of food (number of meals)
  - She consumed food from at least five food groups as per MDD guidelines
  - She consumed iron rich foods (legumes/ nuts/ organ meats/ green leafy vegetables)
  - She consumed recommended supplements for iron and calcium
- Ask the group if they have any questions.

Student's handout

Standard serving sizes and energy from commonly consumed foods

Food group	Serving size examples	Energy (Kcal)
Cereals and millets	1 cup cooked rice (100 g)	170
	2 chapattis (80-90 g)	160
	1 paratha (80-90 g)	150
	2 slices bread (70-80 g)	170
Vegetables	½ cup vegetable curry (100 g)	85
Fruits	1 medium sized seasonal fruit (100 g)	50 – 80
Milk (cow) and products	1 cup milk (200 ml)	170
	2 slices cheese (40 g)	100
	½ cup curd (50 g)	30
Pulses	½ cup cooked dal (20 g)	100
Fats /oils	1 teaspoon (5 ml)	9
Sugars	1 teaspoon (5 g)	4



TOPIC MN 11:
NUTRITIONAL ANEMIAS

Method — Lecture 6

Objectives

1. Differentiate among different types of anemia
2. List methods for anemia prevention in pregnancy
3. Know globally endorsed screening criteria for anemia in pregnancy

Outline

- **Introduction and objectives:** 5 mins
- **Types of anemia:** 20 mins
- **Screening for anemia:** 20 mins
- **Preventing and treating anemia:**10 mins
- **Recap:** 5 min

Place — Lecture theatre

Resource person — Faculty

Preparation

- **MN 11/ Slides 1 to 6**
- **Technical module pages 21 to 22**
-

MCI codes and competencies

OG 12.2, PA 13.4, IM 9.14, IM 9.20 (Knowledge)

Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy. Enumerate and describe the investigation of anemia.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 6 and explain one by one

MN 11/Slide 1

Topic 11
Nutritional anemia

Objectives

1. Differentiate among different types of anemia
2. List methods for anemia prevention in pregnancy
3. Know globally endorsed screening criteria for anemia in pregnancy

1

MN11 // SLIDE 1

MN 11/Slide 2

What is nutritional anemia?

- Intake of certain nutrients is insufficient to meet the demands for synthesis of haemoglobin and erythrocytes.
- Iron deficiency is the most common cause (nutritional or otherwise) of anaemia.
- Anaemia during pregnancy has been associated with poor maternal and birth outcomes, including premature birth, LBW and maternal, perinatal and neonatal mortality.
- Anaemia in the first or second trimester significantly increases the risk of LBW and preterm birth.
- Postpartum anaemia is associated with decreased quality of life, including increased tiredness, breathlessness, palpitations and infections.
- Women who have anaemia postpartum may also experience greater stress and depression, and be at greater risk of postpartum depression.

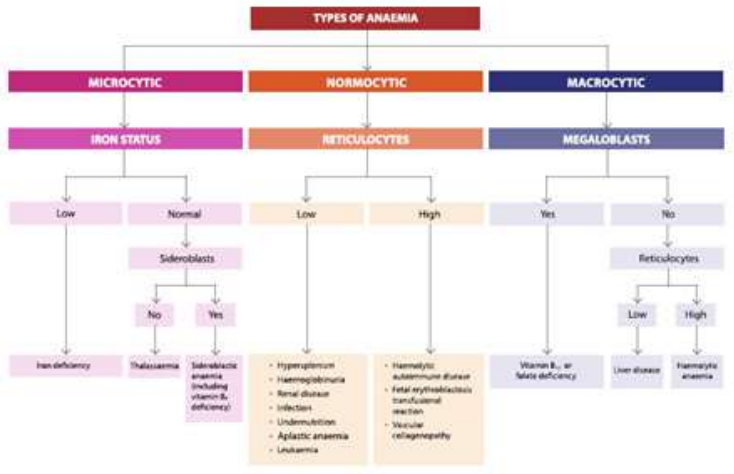
Source:Haider, 2013, Milman, 2011, Beard 2005, Corwin, 2003, Rasmussen, 2001

2

MN11 // SLIDE2

MN 11/Slide 3

Types of anemia



Source: Regill De LM, 2014

MN11 // SLIDE 3

MN11 // SLIDE 4

MN 11/Slide 4

Screening for anemia

- Clinical examination may be used for preliminary screening but must be followed by biochemical testing.
- Common symptoms - lassitude and fatigue or weakness (earliest manifestations), anorexia and indigestion, palpitation caused by ectopic beats, dyspnoea, giddiness and swelling of the legs, yellowish discoloration of urine or sclera, passage of worms in stools, difficulty in concentrating, dizziness, pale skin, leg cramps and insomnia.
- Symptoms like hunger for strange substances such as paper, ice, or dirt (a condition called pica), upward curvature of the nails, referred to as koilonychias, soreness of the mouth with cracks at the corners are specific to iron deficiency anaemia.
- A tingling, "pins and needles" sensation in the hands or feet is commonly reported in Vitamin B_{12} deficiency

Source:,Haider, 2013, Milman, 2011, Beard 2005, Corwin, 2003, Rasmussen, 2001

4

MN11 // SLIDE 5

MN 11/Slide 5

Screening for anemia

	No anaemia	Mild	Moderate	Severe
Pregnant women	≥11	10–10.9	7–9.9	<7
Non-pregnant women (≥20 years)	≥12	11–11.9	8–10.9	<8

Source: AMB, 2018

5

MN11 // SLIDE 6

MN 11/Slide 6

Prevention of anemia

Nutrition specific interventions	Nutrition sensitive interventions
▪ Food-based strategies: improve dietary diversity, fortification, processing/ cooking techniques	▪ Prevention of parasitic infections (malaria, soil transmitted helminth infections, schistosomiasis)
▪ Micronutrient supplementation (folic acid pre-conception, continued till 14 weeks of pregnancy; thereafter IFA tablets for 180 days in pregnancy and 180 days post-partum-60mg Iron, 500mcg folic acid)	▪ Access to reproductive health services ▪ Access to water, sanitation and hygiene services and products
▪ Social and behaviour change communication to increase uptake of interventions	

Source: WHO 2017

6

TOPIC MN 12:
NUTRITION IN SPECIAL CONDITIONS

Method Tutorial 3

Objectives

1. Understand standard nutrition management for GDM
2. Gain information required to offer practical advice to pregnant women with GDM, obesity and PIH

Outline

- **Introduction and objectives:** 10 mins
- **Special conditions in pregnancy:** 20 mins
- **Diets in special conditions:** 30 mins
- **Counselling in special conditions:** 30 mins
- **Recap:** 10 mins

Place Demonstration hall/Lecture theatre

Resource person Faculty/ Senior resident

Preparation

- **Slides MN Topic 12/Slides 1 to 4**
- **Handout on "Do's and Don'ts" in special conditions of pregnancy (MN Topic 12/Handout 1)**
- **Diet charts from kitchen for diabetes, PIH, obesity**
- **Role play to discuss counselling in special conditions**
- **Technical module pages 23 to 26**

MCI codes and competencies

OG12.3 (Knowledge, Skill)

Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 4 and explain one by one

MN 12/Slide 1

Topic 12
Nutrition in special conditions

Objectives

1. Understand standard nutrition management for GDM
2. Gain information required to offer practical advice to pregnant women with GDM
3. Understand need for calcium supplementation in pregnancy to prevent pre-eclampsia and eclampsia

1

MN12 // SLIDE 1

MN 12/Slide 2

Obesity in pregnancy

- Increased risk of gestational hypertension, pre-eclampsia, GDM, foetal macrosomia, shoulder dystocia, spontaneous abortion, pre-term birth, stillbirth and neonatal death.
- Labor is more likely to be prolonged and induction required in obese women than in non-obese women, which appears to cause subsequent complications.
- Maternal obesity is associated with increased birthweight.
- Infants whose mothers were obese also have greater risk of subsequent obesity and coronary heart disease.

Source:,Kiran U, 2005

2

MN12 // SLIDE2

MN 12/Slide 3

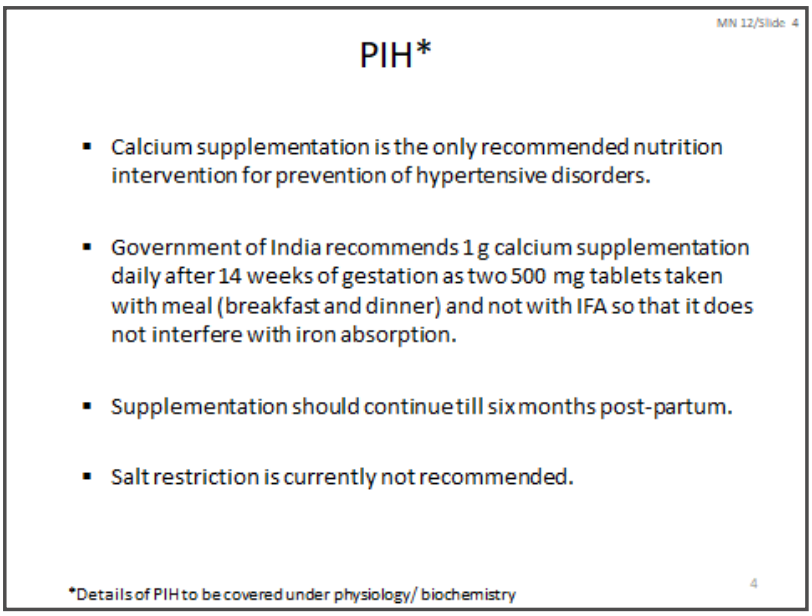
GDM*

- Medical Nutrition Therapy to be initiated on diagnosis
- A carbohydrate controlled balanced meal plan which promotes optimal nutrition for maternal and foetal health, adequate energy for appropriate gestational weight gain, and achievement and maintenance of normoglycemia.
- GDM is managed initially with MNT and if it is not controlled with MNT, insulin therapy is added to the MNT.

*Details of GDM to be covered under physiology/ biochemistry

3

MN12 // SLIDE 3



MN12 // SLIDE 4

ROLE PLAY ON MANAGEMENT OF GDM

Mrs Sudha is 30yrs primipara at 26 weeks of pregnancy .She is working in a factory .This is her 4nd ANC visit in the Hospital & she is very regular for her ante natal check-up. All her antenatal investigations done at 16 week are normal. But repeat OGTT at this visit shows a higher value (144mg/dL).She is not disciplined about her meal timing. Usually she gets late in the morning for office and so skips her breakfast. Her pre-pregnancy BMI was 25 and she is very fond of sweets.

Identify three students to play the role of doctor, Mrs. Sudha and her husband. Train the student to demonstrate counselling session keeping the following points in mind:

- Elicit the history by using all counselling skills
- Counsel in presence of husband/mother in law

Listen by using –

- Non- verbal
- Ask open and factual questions-
  - What all you have eaten since yesterday morning?
  - What was your pre pregnancy weight?
- By using gestures and reflect back,
- Empathize – About her breathlessness and tiredness.

Build Confidence –

- Praise –
  - (1)Regular ANC (2) Completed investigations in time
- Give relevant information by using simple language
  - Give 2 relevant information from the message list for special conditions. Advise MNT based on diet charts provided.
  - Check understanding
- Give suggestion and not command.

Student's handout (MN 12/ Handout 1)

"Do's and Don'ts" for pregnant women in special conditions

Practical advice for pregnant women who are obese

- Obese women who are planning to become pregnant should consider losing weight before becoming pregnant.
- Pre-pregnancy height and weight should be measured, and BMI recorded.
- Women who are obese before pregnancy should aim to gain around 5 -9 kg over their pregnancy.
- Obese women planning their pregnancy and who are pregnant should be offered nutrition counselling and encouraged to be physically active.
- All women should be screened for gestational diabetes.

Practical advice for pregnant women who have GDM

- Meal timings should be disciplined.
- Eating heavy at one meal or skipping any meal or fasting for long hours should be avoided.
- Include all food groups in daily diet i.e. cereal, pulses, milk and milk products, fruits, vegetable, and fats.
- For non- vegetarian women eggs, low fat meat like well- cooked fish or chicken can be included. Meal plan should be divided in to 3 major meals (breakfast, lunch and dinner) and 2-3 mid-day snack.

Student's handout

Sample meal plan for 1800 Kcal for pregnant women with GDM

(GoI Guidelines, 2014)

Meal	Menu	Amount	Number of carbohydrate serves as per exchange list
Breakfast (7-8 am)	Dalia/Porridge/Oats	½ cup	2
	Milk	1 cup	Other varieties can be included in meal plan as per the exchange list
Mid- Morning (10-10.30 am)	Mung bean sprouts (ankurit mung)/Roasted Mung	½ cup	1
Lunch (1-1.30 pm)	Chapati	2	2-3
	Or chapati + Rice	1+1/3 cup	
	Vegetables	1 cup	
	Yogurt/Curd	¾ cup	
	Soya nugget (soya badi) curry/Dal	½ cup	
Evening (4.30-5 pm)	Seasonal fruit (medium size)	1	1-2
	Murmura chat with vegetables/idli with sambhar	1 ½ cup/1	
Dinner (8-8.30 pm)	Chapati	2	2-3
	Or chapati + Rice	1+ 1/3 cup	
	Vegetable	1 cup	
	Dal	½ cup	
	Or Fish (curry/grilled/steamed)	½ cup	
Bed time (10-10.30 pm)	Milk	1 cup	1
	Brown bread	1	
Total fat/d		4 tsp/d	

* Meal plan containing 1800 k.cal approximately provides 70 gm protein, 60 gm fat and 247 gm carbohydrate

Sample meal plan for 2000 Kcal for pregnant women with GDM

(GoI Guidelines, 2014)

Meal	Menu	Amount	Number of carbohydrate serves as per exchange list
Breakfast (7-8 am)	Whole grain Bread (Brown Bread)	2	2
	Egg bhurji/egg omelet	1	
Mid- Morning (10-10.30 am)	Vegetable Dalia	½ cup	1
Lunch (1-1.30 pm)	Chapati	3	3-4
	Or chapati + Rice	2+1/3 cup	
	Vegetables	1 cup	
	Yogurt/Curd	¾ cup	
	Soya nugget curry/Dal	½ cup	
	Or Chicken/fish curry	1 cup	
Evening (4.30-5 pm)	Seasonal fruit (medium size)	1	1-2
	Vegetable Poha/vegetable upma	½ cup	
Dinner (8-8.30 pm)	Chapati	2	2-3
	Or chapati + Rice	1+ 1/3 cup	
	Vegetable	1 cup	
	Dal	½ cup	
Bed time (10-10.30 pm)	Milk	1 cup	1
	Chapati	1	
Total fat/d		5 tsp/d	

* Meal plan containing 2000 k.cal approximately provides 80 gm protein, 65 gm fat and 270 gm carbohydrate

TOPIC MN 13:
GLOBAL AND NATIONAL GUIDELINES ON MATERNAL NUTRITION

Method

Seminar 1

Objectives

1. Source major global and government guidelines on pregnancy and post-partum (Lactation) care and nutrition
2. List recommendations on maternal nutrition as per globally and nationally endorsed guidelines

Outline

- **Each group to present in 10 minutes**

Place

Demonstration hall/Lecture theatre

Resource person

Faculty/ Senior resident

Preparation

- **Handout on list of guidelines relevant to pregnancy and postnatal period (MN 13/ Handout 1)**
- **Technical module page 29**

MCI codes and competencies

CM 5.6, 10.4; IM 9.14, 12.2; PH 1.55 (Knowledge)

Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc. Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions. Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency. Describe and discuss the iodisation programs of the government of India

Explain to the students that they work in groups of four and develop 10 minute presentations on the maternal nutrition guidelines. They should present details of two guidelines of which one should be Anemia Mukt Bharat considering the public health burden of anemia in the country.

Student's handout (MN 13, Handout 1)

GUIDELINES ON OVERALL NUTRITION AND CARE IN PREGNANCY AND POST-PARTUM

Dietary guidelines for Indian. National Institute of Nutrition. Indian Council of Medical Research. 2011.

In 2011, NIN released dietary guidelines for Indians which include requirements for adult women, pregnant women and lactating mothers. These are endorsed by the Indian Council of Medical Research and can be accessed from: ninindia.org/DietaryGuidelinesforNINwebsite.pdf

WHO recommendations on antenatal care for a positive pregnancy experience. 2016

In 2016 WHO released recommendations on antenatal care including nutrition for a positive pregnancy experience. These can be accessed at: http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/

GUIDELINES ON GWG

Weight gain during pregnancy. Reexamining the guidelines. Institute of Medicine and National Research Council. 2009

Guidelines on BMI based GWG are available from IOM. In the absence of India specific guidelines, these are used for Indian population and can be accessed from: https://www.nap.edu/catalog/12584/weight-gain-during-pregnancy-reexamining-the-guidelines

GUIDELINES ON IRON INTAKE/ ANAEMIA PREVENTION (MANDATORY)

Anemia Mukt Bharat. Intensified National Iron Plus Initiative. Operational guidelines for program managers. Ministry of Health and Family Welfare, Government of India. 2018.

Government of India recommends IFA supplementation for 180 days in pregnancy and post-partum in addition to dietary and anaemia prevention related recommendations. The recommendations have been recently revised in 2018 under the Intensified National Iron Plus Initiative. A major change has been increasing the number of supplementation days from 100 to 180 and reducing dosage from 100mg to 60 mg. The earlier guidelines under the National Iron Plus Initiative can be accessed from any of the state governments Health Mission websites and from: http://nhm.gov.in/nrhm-components/rmnch-a/maternal-health/guidelines.html

GUIDELINES ON DEWORMING IN PREGNANCY

National Guidelines for deworming in pregnancy. Ministry of Health and Family Welfare, Government of India. 2014

Government of India recommends single dose albendazole 400 mg preferably in second trimester for deworming in addition to complying with recommended hygiene and sanitation practices. The guidelines can be accessed from: http://nhm.gov.in/nrhm-components/rmnch-a/maternal-health/guidelines.html

GUIDELINES ON CALCIUM SUPPLEMENTATION IN PREGNANCY AND POST-PARTUM

National guidelines for calcium supplementation in pregnancy and lactation. Ministry of Health and Family Welfare, Government of India. 2014

Government of India recommends daily 1g calcium in form of two 500 mg tablets taken before meal such that they don't interfere with iron absorption. Supplementation is to begin in the 14th week for 180 days in pregnancy and six months post-partum. The guidelines can be accessed from: http://nhm.gov.in/nrhm-components/rmnch-a/maternal-health/guidelines.html

GUIDELINES ON PREVENTING IODINE DEFICIENCY DISORDERS

Revised policy of national iodine deficiency disorders control program. Ministry of Health and Family Welfare, Government of India. 2006.

These guidelines are applicable to all age groups and include recommendation on consumption of iodized salt with at least 15 ppm iodine daily. It can be accessed from: http://pbhealth.gov.in/revised%20policy%20guidelines%20govt.%20of%20india.pdf

CLINICAL SESSIONS

CLINICAL SESSION 1

DIETARY ASSESSMENT, ANTHROPOMETRIC MEASUREMENT AND IDENTIFYING FEEDING PROBLEMS AMONG PREGNANT WOMEN.

COUNSELLING BASED ON FINDINGS.

Method

Seminar 1

Objectives

1. Gather information about dietary practices by using dietary recall tool
2. Measurer weight , height and calculate BMI
3. Identify problems/difficulties about nutrition(dietary practice)
4. Counsel mother

Outline

- **Preparation and briefing : 30 mins**
- **Conduct of practical session**
- **Demonstration : 30 mins**
- **Self practice : 90 mins**
- **Discussion: 30 min**

Place

ANC, OPD / Gynae ward

Resource person

Faculty/ Senior resident

Preparation

- **Technical module pages 18 to 20**

MCI codes and competencies

CM 5.6, 10.4; IM 9.14, 12.2; PH 1.55 (Knowledge)

Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc. Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions. Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and Iodine deficiency. Describe and discuss the iodisation programs of the government of India

PREPARATION

- Identification of place for practice and discussion in OPD / ANC ward
- Availability of dietary recall forms
- Stadiometer and weighing scale
- BMI classification chart
- Nutritive value Indian food

INTRODUCTION

- Gather all students at suitable identified space.
- Ask them to recap –basics of measuring height, weight and MUAC and 10 food groups along with specific recommendations for pregnancy
- Inform them about the objectives of this session
- Distribute all forms & check list to all student
- Explain students to follow these points
    - Introduce yourself
    - Great the mother & take permission to take measurements
    - Explain you are taking these measurements
    - Take height and weight ,calculate BMI & plot weight in the chart to monitor weight gain
    - Fill dietary recall form
    - Praise at least two things she is doing right
    - Give at least two relevant information from key messages check list based on her nutritional status and diet
    - Thank the woman once finished

DISCUSS THE PRACTICE

- Once finished take them to area identified for discussion
- Ask the student(counsellor) talking to pregnant woman- How good or bad the practice went
- Ask the observer what counsellor did good and bad
- What all counselling skills used according to counselling check list
- How is the diet of the of woman going
- What are the diet related problems identified
- What all good practices she is doing was praised
- What two relevant information were given to the woman.

Ask the group if they have any questions.

PART B

INFANT AND YOUNG CHILD NUTRITION

SESSION PLAN

TOPICS IYCN 1 AND IYCN 2:

NUTRITION REQUIREMENTS IN INFANTS AND YOUNG CHILDREN, RECOMMENDED IYCF INTERVENTIONS AND EVIDENCE

Method Lecture 1

Objectives

1. Understand optimal infant and young child feeding
2. Know the importance of exclusive breastfeeding
3. Know the dangers of artificial feeding
4. Describe advantages of timely complementary feeding
5. Describe current recommendations on infant and young child feeding
6. Discuss the nutrient requirements of infant and young child

Outline

- Introduction and objectives: 5 mins
- Recommended IYCF interventions: 30 mins
- Nutrient requirements in infants and young children: 20 mins
- Recap: 5 min

Place Lecture theatre

Resource person Faculty

Preparation

- Slides IYCN 1-2/ Slides 1 to 8
- Handout on RDAs for infants and young children (IYCN 2/ Handout 1)
- Technical module pages 36 to 39

MCI codes and competencies

PE 9.1, 12.1-12.3, 12.6, 12.15-12.20, 13.1, 13.11-13.13; CM 5.1 (Knowledge)

Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins. Discuss the RDA, dietary sources of Vitamin A and their role in Health and disease. Describe the causes, clinical features, diagnosis and management of Deficiency / excess of Vitamin A. Identify the clinical features of dietary deficiency / excess of Vitamin A. Discuss the Vitamin A prophylaxis program and their recommendations. Discuss the RDA, dietary sources of Vitamin B and their role in health and disease. Describe the causes, clinical features, diagnosis and management of deficiency of B complex Vitamins. Identify the clinical features of Vitamin B complex deficiency. Discuss the RDA , dietary sources of Vitamin C and their role in Health and disease. Identify the clinical features of Vitamin C deficiency. Discuss the RDA, dietary sources of Iron and their role in health and disease. Discuss the RDA, dietary sources of Calcium and their role in health and disease. Describe the causes, clinical features, diagnosis and management of Ca Deficiency. Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions.

Discuss the advantages of breast milk. Define the term Complementary Feeding. Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 8 and explain one by one

IYCN 1&2/Slide 1

Topic 1 and 2

1. Nutrition requirements in infants and young children
2. Recommended IYCF interventions and evidence

Objectives

1. Understand optimal infant and young child feeding
2. Know the importance of exclusive breastfeeding
3. Know the dangers of artificial feeding
4. Describe advantages of timely complementary feeding
5. Describe current recommendations on infant and young child feeding
6. Discuss the nutrient requirements of infant and young child

1

IYCN 1 AND IYCN 2 // SLIDE 1

IYCN 1&2/Slide 2

Recommended IYCF interventions

Infants ≤ 6 months should be:

- Breastfed immediately after birth (within an hour)
  - -immediate skin-to-skin contact
  - -colostrum feeding
  - -no prelacteals
- Breastfed exclusively

After 6 months:

Initiate complementary feeding with continued breastfeeding (Quantity, consistency/energy density and frequency)

2

IYCN 1 AND IYCN 2 // SLIDE 2

IYCN 1&2/Slide 3

Recommended IYCF interventions

Minimum diet quantity and frequence for growing child

6-8 months

Half a bowl, twice a day
(1 Bowl=250 gms)

9-11 months

Half a bowl, thricw a day
Give 1-2 times nutritious snacks too
(1 Bowl=250 gms)

12-23 months

Full bowl, thricw a day
Give 1-2 times nutritious snacks too
(1 Bowl=250 gms)

3

IYCN 1 AND IYCN 2 // SLIDE 3

IYCN 1 AND IYCN 2 // SLIDE 4

IYCN 1&2/Slide 4

Early initiation of breastfeeding post C-section delivery

- Surgery is no barrier to initiating breastfeeding immediately after delivery
- Breastfeeding should be initiated within an hour of C-section performed under spinal anesthesia
- For mothers who have had general anesthesia, she may breastfeed postoperatively as soon as she is alert enough to hold the infant with support and is not overly sedated.
- Immediate skin- to-skin contact helps mothers to breastfeed successfully

4

IYCN 1 AND IYCN 2 // SLIDE 5

IYCN 1&2/Slide 5

Benefits of breastfeeding (colostrum)

- More antibodies and other anti-infective factors than mature milk
- More white blood cells than mature milk.
  (Protects from bacterial infections and allergies)
- Mild purgative effect, helps clear the baby's gut of meconium. Clears bilirubin from the gut, and helps to prevent jaundice.
- Contains growth factors, which help a baby's immature intestine to develop after birth.
  (Helps to prevent the baby from developing allergies and intolerance to other foods)
- Colostrum is richer than mature milk in some Vitamins - especially Vitamin A. Vitamin A helps to reduce the severity of any infection the baby might have.

5

IYCN 1 AND IYCN 2 // SLIDE 6

IYCN 1&2/Slide 6

Benefits of breastfeeding

Baby	Mother
Complete nutritional staple up to 6 months, up to 1/2 of nutritional requirements between 6-12 months, up to 1/3, between 12 and 24 months	Reduces post-delivery bleeding and anemia
Adequate calories and the right kind of proteins, fats, lactose, vitamins, iron and other minerals, enzymes.	Protective effect against breast and ovarian cancers
Water in the amounts necessary for the baby	Obesity is less common among breastfeeding mothers
Easily digested	Satisfies emotionally
Many anti-infective properties, protects child against several infections including diarrhea and pneumonia	Benefits whole family emotionally and economically
Free from contaminants	
Babies less prone to have diabetes, heart disease, eczema, asthma and other allergic disorders and adult onset diseases	

6

IYCN 1&2/Slide 7

Benefits of complementary feeding

- Prevents growth faltering
- Decreases risk of nutritional deficiencies
- Lessens risk of illnesses
- Helps in proper development

Breastfeeding has to be continued with complementary feeding as:

- it provides about 1/3rd of the protein and energy needs in the second year
- 45% of the vitamin A needs

7

IYCN 1 AND IYCN 2 // SLIDE 7

IYCN 1&2/Slide 8

Nutrient requirements in Infants and Young Children

Age	Ideal weight (kg)	Energy (Kcal)	Protein (g)	Visible fat (g)	Calcium (mg)	Iron (mg)
0-6 months	5.4	92 /kg	1.16 /kg	-	500	0.046/kg
6-12 months	8.4	80/kg	1.69 /kg	19	500	5
1-2 years	12.9	1060	16.7	27	600	9

Refer handout for other nutrients

8

IYCN 1 AND IYCN 2 // SLIDE 8

Student's handout (IYCN 2/ Handout 1)

RDA for energy, protein, fat, calcium and iron among infants and young children[1]

Age	Ideal weight (kg)	Energy (Kcal)	Protein (g)	Visible fat (g)	Calcium (mg)	Iron (mg)
0-6 months	5.4	92 /kg	1.16 /kg	-	500	0.046/kg
6-12 months	8.4	80/kg	1.69 /kg	19	500	5
1- 2 years	12.9	1060	16.7	27	600	9

RDA for Vitamins A, C, and folate per day for infants and young children

Age	Vitamin A (mg)		Ascorbic acid (mg)	Folate (mcg)
	Retinol	βcarotene		
0-6 months	-	-	25	25
6-12 months	350	2800	25	25
1-2 years	400	3200	40	80

RDA for Vitamins B_1, B_2, B_4, B_5, B_6 and B_{12} for infants and young children

Age	B_1(mg)	B_2(mg)	B_4(mg)	B_5(mg)	B_6(mg)	B_{12}(mcg)
0-6 months	0.2	0.3	710/kg	NA	0.1	0.2
6-12 months	0.3	0.4	650/kg	NA	0.4	0.2
1-2 years	0.5	0.6	8.0	NA	0.9	0.2-1.0

1 National Institute of Nutrition. Dietary guidelines for Indian, 2011.

TOPIC IYCN 3:
PHYSIOLOGY OF BREASTFEEDING

Method

Lecture 2

Objectives

1. Describe how milk is produced in the breast and ejection of milk
2. Describe correct attachment of the baby at the breast
3. Identify causes of poor attachment

Outline

- **Introduction and objectives: 5 mins**
- **Composition of breastmilk: 10 mins**
- **Hormonal control in breastmilk production: 20 mins**
- **Positioning and attachment: 20 mins**
- **Recap: 5 min**

Place

Lecture theatre

Resource person

Faculty

Preparation

- **Slides IYCN 3/Slides 1 to 9**
- **Technical module pages 40-44**

MCI codes and competencies

PE 7.2, 7.3; OG 17.1 (Knowledge)

Awareness on the cultural beliefs and practices of breast feeding.
Explain the physiology of lactation

INTRODUCTION

- Introduce the topic and share objectives of the session
- Ask the students to state the recommended IYCF interventions and do a quick recap

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 9 and explain one by one

IYCN Topic 3/Slide 1

Topic 3

Physiology of breastfeeding

Objectives

1. Describe how milk is produced in the breast and ejection of milk
2. Describe correct attachment of the baby at the breast
3. Identify causes of poor attachment

1

IYCN 3 // SLIDE 1

IYCN Topic 3/Slide 2

Composition of breastmilk

- 7g/100 ml lactose for energy (more than any other milk)
- 0.9g/100 ml protein, lower than animal milk (easily digested, low casein)
- sufficient vitamins (except Vitamin D) and anti-infective factors

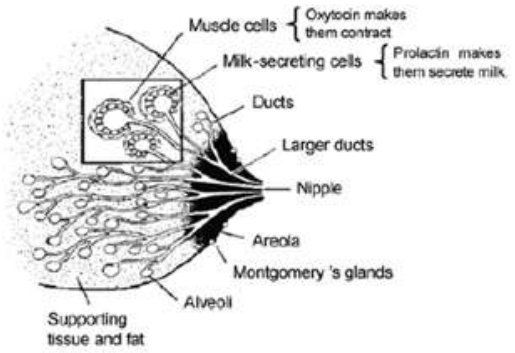
	Human colostrum	Human breast milk	Cow's milk
Total protein	23	11	31
Immunoglobulins	19	0.1	1
Fat	30	45	38
Lactose	57	71	47
Calcium	0.5	0.3	1.4
Phosphorus	0.16	0.14	0.90
Sodium	0.50	0.15	0.41

2

IYCN 3 // SLIDE 2

IYCN Topic 3/Slide 3

Breast anatomy

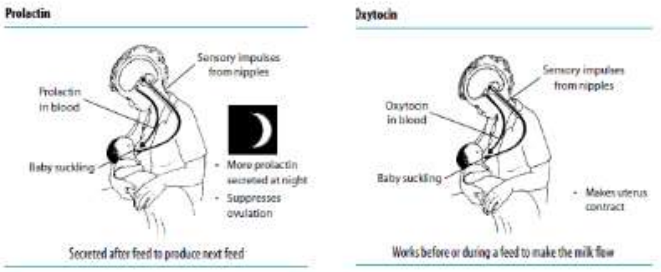


Source: WHO, 2009

3

IYCN 3 // SLIDE 3

Hormonal control of breastfeeding



Milk secretion

Milk ejection

Source: WHO, 2009

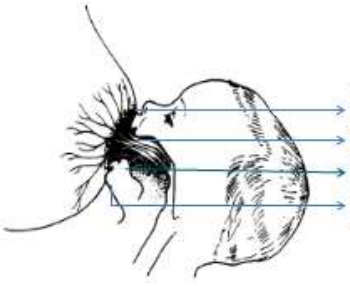
IYCN 3 // SLIDE 4

Reflexes in the baby

- Rooting
- Sucking
- Swallowing

IYCN 3 // SLIDE 5

Positioning for good attachment



Majority of areola inside baby's mouth

Baby's mouth wide open (breast tissue stretched out to form long teat)

Baby's lower lip turned out

Baby's chin touches mother's breast

IYCN 3 // SLIDE 6

IYCN Topic 3/Slide 7

Positioning for good attachment

Position of the mother

- Sitting or lying down, or standing,
- Needs to be relaxed and comfortable, and without strain, particularly of her back. If sitting, her back needs to be supported, and she should be able to hold the baby at her breast without leaning forward

Position of the baby

- The baby's body should be straight, not bent or twisted.
- Baby's head can be slightly extended at the neck, which helps his or her chin to be close in to the breast.
- The baby's body should be close to the mother which enables the baby to be close to the breast, and to take a large mouthful.
- His or her whole body should be supported.

7

IYCN 3 // SLIDE 7

IYCN Topic 3/Slide 8

Breastfeeding pattern

- Baby needs to feed as often and for as long as he or she wants, both day and night- *demand feeding*, *unrestricted feeding*, or *baby-led feeding*.
- The 24-hour intake of milk varies between mother-infant pairs from 440–1220 ml, averaging about 800 ml per day throughout the first 6 months.
- The baby should be allowed to continue suckling on the breast until he or she spontaneously releases the nipple.
- Prolonged, frequent feeds can be a sign of ineffective suckling and inefficient transfer of milk to the baby.

Source: Dewey, 1983

8

IYCN 3 // SLIDE 8

IYCN Topic 3/Slide 9

Causes of poor attachment

- Use of a feeding bottle
- Inexperienced mother
- Functional difficulty
- Lack of skilled support

9

IYCN 3 // SLIDE 9

TOPIC IYCN 4A:
MANAGEMENT AND SUPPORT FOR BREASTFEEDING IN MATERNITY FACILITIES
(topic covered in two parts 4A AND 4B)

Method Lecture 3

Objectives

1. Describe the 'Ten Steps to Successful Breastfeeding'.
2. Give antenatal counseling on infant feeding.
3. Help mother with an early breastfeed.
4. Identify and clarify myths and misconceptions about breastfeeding.
5. Learn to establish a mother support group in a community.

Outline

- Introduction and objectives: 5 mins
- 'Ten Steps to Successful Breastfeeding': 10 mins
- Observing breastfeeding session and counselling on breastfeeding: 20 mins
- Discussion on myths and misconceptions about breastfeeding: 20 mins
- Recap: 5 min

Place Lecture theatre

Resource person Faculty

Preparation

- Slides IYCN 4a/ Slides 1 to 3
- Handout on breastfeeding observation job-aid (IYCN Topic 4a/ Handout 1)
- Handout on Myths and Misconceptions about breastfeeding (IYCN Topic 4a/ Handout 2)
- Technical module pages 44 to 53

MCI codes and competencies

PE 7.1, 7.5, 7.6, 18.6, 20.6, 27.25 (Knowledge, Skill)

Awareness on the cultural beliefs and practices of breast feeding. Observe the correct technique of breast feeding and distinguish right from wrong techniques. Enumerate the baby friendly hospital initiatives. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning. Explain the follow up care for neonates including Breast Feeding, Temperature maintenance, immunization, importance of growth monitoring and red flags. Describe the advantages and correct method of keeping an infant warm by skin to skin contact.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 3 and explain one by one

Distribute the handout on breastfeeding observation job-aid after the slides have been presented.

Distribute the handouts on Myths and Misconceptions about breastfeeding after a brief discussion on Breastfeeding observation job-aid

IYCN 4A // SLIDE 1

IYCN Topic 4a/Slide 1

Topic 4a

Management of breastfeeding in facilities

Objectives

1. Describe the 'Ten Steps to Successful Breastfeeding'.
2. Know signs of difficulty in breastfeeding.
3. Help mother with an early breastfeed.
4. Identify and clarify myths and misconceptions about breastfeeding.
5. Learn to establish a mother support group in a community.

1

IYCN 4A // SLIDE 3

IYCN Topic 4a/Slide 2

Baby friendly health facility

Ten steps to successful breastfeeding

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within one half hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
6. Give new-born infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in – allow mothers and infants to remain together – 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital.

IYCN 4A // SLIDE 3

IYCN Topic 4a/Slide 3

Risk factors for difficulty in breastfeeding

Maternal factors	Baby's factors
Previous breastfeeding difficulty.	Ineffective attachment and inability to suck.
Anaesthesia or surgery during delivery.	Use of pacifier or bottle.
Separation from infant.	Persistent sleepiness or irritability.
Damaged nipples.	Long intervals between feeds.
Unrelieved fullness or engorgement.	Baby is LBW.
Perceived insufficient milk.	Twin/multiple birth.
Breast and nipple condition, such as flat or inverted nipples.	Cleft palate or other oral anomaly.

3

Share handout on breastfeeding observation job-aid and discuss each observation point

Student's handout (IYCN 4a/ Handout 1)

Breastfeeding observation job-aid (WHO,2009)

Share handout on myths and misconceptions about breastfeeding and ask students to discuss among themselves. They should share myths they have heard from patients and family members.

Breastfeed Observation Job Aid

Mother's name..... Date.....

Baby's name..... Baby's age.....

Signs that breastfeeding is going well:	Signs of possible difficulty:
GENERAL	
Mother:	*Mother:*
☐ Mother looks healthy	☐ Mother looks ill or depressed
☐ Mother relaxed and comfortable	☐ Mother looks tense and uncomfortable
☐ Signs of bonding between mother and baby	☐ No mother/baby eye contact
Baby:	*Baby:*
☐ Baby looks healthy	☐ Baby looks sleepy or ill
☐ Baby calm and relaxed	☐ Baby is restless or crying
☐ Baby reaches or roots for breast if hungry	☐ Baby does not reach or root
BREASTS	
☐ Breasts look healthy	☐ Breasts look red, swollen, or sore
☐ No pain or discomfort	☐ Breast or nipple painful
☐ Breast well supported with fingers away from nipple	☐ Breasts held with fingers on areola
☐ Nipple stands out, protractile	☐ Nipple flat, not protractile
BABY'S POSITION	
☐ Baby's head and body in line	☐ Baby's neck and head twisted to feed
☐ Baby held close to mother's body	☐ Baby not held close
☐ Baby's whole body supported	☐ Baby supported by head and neck
☐ Baby approaches breast, nose opposite nipple	☐ Baby approaches breast, lower lip to nipple
BABY'S ATTACHMENT	
☐ More areola seen above baby's top lip	☐ More areola seen below bottom lip
☐ Baby's mouth open wide	☐ Baby's mouth not open wide
☐ Lower lip turned outwards	☐ Lips pointing forward or turned in
☐ Baby's chin touches breast	☐ Baby's chin not touching breast
SUCKLING	
☐ Slow, deep sucks with pauses	☐ Rapid shallow sucks
☐ Cheeks round when suckling	☐ Cheeks pulled in when suckling
☐ Baby releases breast when finished	☐ Mother takes baby off the breast
☐ Mother notices signs of oxytocin reflex	☐ No signs of oxytocin reflex noticed

Students handout (IYCN 4a/ Handout 2)

Myths and Misconceptions about breastfeeding

Myth #1 **Gurti should be given at birth**

Fact:

- ✓ Giving gurti (honey, lavor, butter with sugar etc) at birth is an unscientific practice
- ✓ Gurti suppresses hunger, inhibits the sucking reflex resulting in decrease production of breast milk and above all give infection.

Myth #2 **Breast milk is not enough during the first few days after birth**

Fact:

- ✓ Colostrum produced by mother in the first few days after delivery is rich in white cells and antibodies, especially sIgA, and it contains a larger percentage of protein, minerals and fat-soluble vitamins (A, E and K) than mature milk.

Myth #3 **Breastfeeding is not possible after caesarean section birth**

Fact:

- ✓ It depends upon the type of anaesthesia given during c- section. It is usually possible for a mother to breastfeed within about 4 hours after a c- section.
- ✓ For the first 24 hours she can breastfeed lying on her back, during the next 24 hours she can breastfeed by turning from side to side and from day three onwards, she can sit up with the pillows support for breastfeeding.
- ✓ It is important to nurse in a way that does not put pressure on the incision sight.

Myth #4 **A baby should be on the breast for sufficient time (5, 10, 20 mins or longer) on each side.**

Fact:

- ✓ It is important not to restrict the duration or the frequency of feeds – provided the baby is well attached to the breast. A baby needs to feed as often and for as long as s/he wants, both day and night.
- ✓ Prolonged, frequent feeds (more often than every 1–1½ hours each time) can be a sign of ineffective suckling and inefficient transfer of breast milk to the baby, in which case the baby's attachment needs to be checked and improved.

Myth #5 **Many women do not produce enough milk**

Fact:

- ✓ In many cases, the baby is in fact getting all the milk that s/he needs, and the problem is the mother's perception that the milk supply is insufficient.
- ✓ The mothers who believe that they do not have enough breast milk should be shown how to attach a baby properly by a skilled person.

Myth #6 **There is no way to know how much breast milk the baby is getting**

Fact: There are two signs that show reliably that a baby is getting enough breast milk.

- ✓ Adequate weight gain: A baby who is below his or her birth weight at the end of the second week and who does not gain from about 500 g to 1 kg or more each month after second week, needs to be assessed
- ✓ Passing urine about six times a day: If an exclusively breastfed baby is passing urine less than 6 times a day, especially if the urine is dark yellow and strong smelling, then s/he is not getting enough breast milk.

Myth #7 **Milk production is directly related to the size of the breast**

Fact:

- ✓ The size of breasts, either large or small, has nothing to do with the amount of milk they produce. The size of a breast is determined by the amount of fatty tissue it contains;
- ✓ However, most breasts have the same number of milk glands, regardless of their size. More the baby nurses, more is the breast milk produced.

Myth #8 **Breastfeeding is painful**

Fact:

- ✓ Any pain that is more than mild is abnormal and mostly due to the baby attaching poorly.
- ✓ Any excruciating or ongoing nipple pain that is not getting better by day 3 or 4 shouldn't be ignored and medical advice sought.

Myth #9 **Baby on exclusive breastfeeding needs extra water in hot weather.**

Fact:

- ✓ Healthy infants do not need additional water during the first 6 months if they are exclusively breastfed, even in a hot climate.
- ✓ Breast milk itself is 88% water and is enough to satisfy a baby's thirst. The practice of giving water and other fluids like tea to infants before 6 months has been associated with increased risk of lavora besides affecting breast milk production.

Myth #10 **Breastfeeding new-borns need vitamins and minerals/Iron supplements**

Fact:

- ✓ At least until the baby is 6 months old, one can be assured that the breast milk will provide for all her/his nutritional needs including vitamins, minerals and Iron, unless the mother herself is deficient.
- ✓ The exception is vitamin D. The infant needs exposure to sunlight to generate endogenous vitamin D – or, if this is not possible, a supplement.
- ✓ Infants born with low birth weight may need supplements with minerals/iron before 6 months.

Myth #11 **If the baby has diarrhoea/vomiting the mother should stop breastfeeding**

Fact:

- ✓ The best medicine for a baby's gut infection is breast milk. And breast milk is the only fluid which the baby requires during lavora and/or vomiting up to 6 months, except under exceptional circumstances. Breast milk should not be withheld from a sick child.
- ✓ Infants who are not breastfed are 6 to 10 times more likely to die in the first months of life than infants who are breastfed. Diarrhoea has been found to be more common and more severe in children who are artificially fed and is responsible for many of these deaths.

Myth #12 **If the mother has an infection/disease should stop breastfeeding**

Fact:

- ✓ Breast milk contains many factors that help to protect an infant against infection. The protection provided by these factors is uniquely valuable for an infant.
- ✓ Nevertheless, a small number of health conditions of the mother including HIV, may justify recommending that she does not breastfeed temporarily or permanently.

Myth #13 **If the mother is taking medicine, she should not breastfeed.**

Fact:

- ✓ There are very few medicines for which breastfeeding is absolutely contra-indicated. Remember to ask the doctor about non-prescription drugs.

Myth #14 **A Mother should wash her nipples each time before feeding the baby**

Fact:

- ✓ Routine daily bath for the mother and clean clothing including undershirt is all that is required from the breastfeeding mother.
- ✓ Washing nipples before feeding removes the protective oils from the nipple. Moreover, the sterility of the water with which the nipples are washed is always questionable, which might result in spreading infection to the baby.

Myth #15 **A Mother will not get pregnant if she is breastfeeding**

Fact:

- ✓ Hormones produced when a baby suckles prevent ovulation, and so delay the return of menstruation and fertility after childbirth. This is called the Lactation Amenorrhoea Method (LAM). LAM is effective under the following three conditions
  - The mother must be amenorrhoeic – that is, she must not be menstruating.

- The baby must breastfeed exclusively,
- The baby must be less than 6 months old.

✓ If these three conditions are met, then a woman's risk of becoming pregnant is less than 2%, which is as reliable as other family planning methods.

Myth #16 **A Mother must wean if she gets pregnant**

Fact:

✓ There is no reason of weaning unless the mother has a history of preterm labour

Myth #17 **Mother should have a good diet, or her milk won't nourish the baby properly**

Fact:

✓ It's best to eat a healthy, balanced diet during pregnancy and lactation

✓ Occasional lapses, however, are nothing to worry about. The quality and quantity of breast milk is still maintained.

Myth #18 **Breastfed babies will not sleep through the night until weaned.**

Fact:

✓ Breastfed babies do feed throughout day and night for the first few months in order to get nutrition.

✓ Breast milk is so easily digested that babies want to feed sooner than they would on a formula feed.

Myth #19 **Breastfeeding limits the freedom of the mother.**

Fact:

✓ Baby can be nursed by the mother anywhere and anytime, and thus breastfeeding is more liberating for the mother.

✓ Mothers do not have the added burden of caring around all that formula paraphernalia.

Myth #20 **Breastfeeding ruins the figure/shape of the breasts**

Fact:

✓ Breasts sag for all sorts of reasons, age, genetics, body type, etc and nothing can be done about them. Some breasts sag more than others.

✓ Pregnancy itself, and not breastfeeding, can cause breasts to sag.

✓ To maintain the shape of the breasts, the mother should tone up the muscles that support the breasts and avoid large and sudden weight gain or loss (pregnancy related or otherwise).

Myth #21 **A working mother can't breastfeed.**

Fact:

✓ It may be possible to schedule the work with a lunch break during which the mother may return home or go to the child's day-care centre to nurse.

✓ Caregiver might bring the child to mom's work place for feeding.

✓ Expressing and appropriately storing breast milk which can be given to the baby with cup by the caretaker in the absence of the mother can be done.

Myth #22 **It is easier to bottle feed than to breastfeed. Babies need to know how to take a bottle. Therefore, a bottle should always be introduced before the baby refuses to take one.**

Fact:

✓ Breastfeeding can be a lot more convenient than bottle feeding.

- o Breastfeeding, is certainly less time-consuming
- o Leaving the baby with the bottle can be extremely dangerous as the baby can easily choke on the liquid or spit up and choke on that.
- o Formula feeding mothers need to put in extra time and money for trips to the store to buy supplies, as well as possible extra trips to the doctor's office because of more incidence of infections in formula/bottle fed baby.

✓ Breastfeeding offers a new mother an amazing chance to bond with her child

✓ It is important to note that a baby who is bottle fed for the first two weeks of life, will usually refuse to take the breast, even if the mother has an abundant supply.

Myth #23 Modern formulas are almost the same as breast milk

Fact:

- ✓ Infant formula is usually made from industrially modified cow milk or soy products.
- ✓ The quantities of nutrients are adjusted during the manufacturing process to make them more comparable to breast milk.
- ✓ The qualitative differences in the fat and protein cannot be altered, and the absence of anti-infective and bio-active factors remain.
- ✓ Powdered infant formula is not a sterile product and may be unsafe in other ways too.
- ✓ Moreover, formulas do not vary from the beginning of the feed to the end of the feed, or from day 1 to day 7 to day 30, or from woman to woman, or from baby to baby. Whereas, breast milk is made as required to suit the baby whereas formulas are made to suit every baby, and thus no baby.

Myth #24 Breastfeeding twins are too difficult to manage.

Fact:

- ✓ Breastfeeding twins are easier than bottle feeding twins, if breastfeeding is started early.
- ✓ Mothers may need help to find the best way to hold two babies to suckle, either at the same time, or one at a time.

Myth #25 Babies who are breastfed are likely to be "colicky". Janam Ghutti relieves the colic pain.

Fact:

- ✓ Colic occurs at certain times of day, typically the evening. The baby cries and may pull up his/her legs as if in pain. S/he wants to feed but is difficult to comfort. The cause is not clear.
- ✓ Babies with colic usually grow well, and the crying decreases after 3–4 months. Carrying the baby more, using a gentle rocking movement, and pressure on the abdomen with the hands or against the shoulder, may help.
- ✓ One of the most common unscientific remedy is to give janam ghutti, as it has been an age-old remedy for colic in most Indian households. Use of Janam Ghuti can do more harm than good by giving infection and/or inducing sleep.

Myth #26 A mother who has mastitis or breast abscess should not breastfeed.

Fact:

- ✓ In case of mastitis, improve the removal of breast milk and try to correct any specific cause that is identified. The mother should breastfeed the baby frequently and should avoid leaving long gaps between feeds. If breastfeeding is very painful, milk must be removed by expression to prevent progression of the condition.
- ✓ An abscess in the breast needs to be drained and treated with antibiotics. Breastfeeding should continue from the unaffected breast; feeding from the affected breast can resume once treatment has started.

Myth #27 A mother who smokes/drinks alcohol should not breastfeed.

Fact:

- ✓ It would be better if the mother not smoke because smoking can reduce breast milk production temporarily. If the mother cannot stop or cut down smoking, then it is better she smokes (but not in the presence of the infant) and breastfeed than smoke and formula feed. Breastfeeding has been shown to decrease the negative effects of cigarette smoke on the baby's lungs.
- ✓ As is the case with most drugs, very little alcohol comes out in the breast milk. The mother can take some alcohol and continue breastfeeding as she normally does. Alcohol consumption can reduce breast milk production temporarily, so mothers should be encouraged not to use alcohol in excess and given the opportunities and support to abstain.

TOPIC IYCN 4B:
BREAST CONDITIONS AND BREASTFEEDING IN DIFFICULT CIRCUMSTANCES
(topic covered in two parts 4a and 4b)

Method

Lecture 4

Objectives

1. Identify and help a mother in the following breast conditions:
   - Flat, inverted, and long nipples.
   - Engorgement.
   - Blocked duct and mastitis.
   - Sore nipples and nipple fissure
2. Promoting breastfeeding in difficult circumstances (low birth weight, HIV, C section)
3. Know how to express breastmilk

Outline

- Introduction and objectives: 5 mins
- Breast conditions and management: 20 mins
- Feeding in difficult circumstances: 20 mins
- Expressing breastmilk: 10 mins
- Recap: 5 min

Place

Lecture theatre

Resource person

Faculty

Preparation

- **Slides IYCN Topic 4b/ Slides 1 to 7**
- **Technical module pages 44 to 53**

MCI codes and competencies

PE 5.2; OG 17.3 (Knowledge, Skill)

Describe the clinical features, diagnosis and management of Feeding problems. Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 7 and explain one by one

IYCN Topic 4b/Slide 1

Topic 4b

Breast conditions and breastfeeding in difficult circumstances

Objectives

1. Identify and help a mother in the following breast conditions:
   - Flat, inverted, and long nipples.
   - Engorgement.
   - Blocked duct and mastitis.
   - Sore nipples and nipple fissure
2. Promoting breastfeeding in difficult circumstances (low birth weight, HIV, C section)
3. Know how to express breastmilk.

1

IYCN 4B // SLIDE 1

IYCN Topic 4b/Slide 2

Breast conditions: symptoms and management

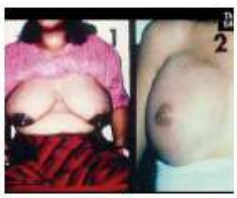
- **Breast engorgement**: breasts are swollen and oedematous, and the skin looks shiny and diffusely red
  Remove breastmilk by continuing breastfeeding or expressing
- **Blocked duct**: A tender, Localised lump in one breast, with redness in the skin over the lump
  Remove breastmilk and correct underlying cause
- **Sore or fissured nipple**: Visible fissure and pain when baby suckles
  Improve position and attachment. Fissure heals once good attachment established.
- **Flat/inverted nipple:** Baby unable to latch
  If non-protractile may need to be pulled using syringe (but not recommended)

2

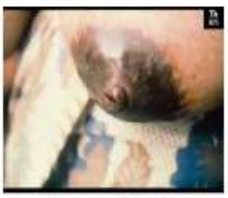
IYCN 4B // SLIDE 2

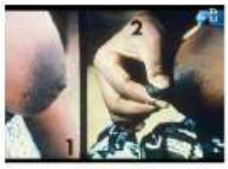
IYCN Topic 4b/Slide 3

Breast conditions

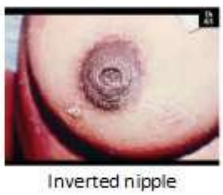


Engorged breast


Fissured nipple



Flat nipple


Inverted nipple

3

IYCN 4B // SLIDE 3

IYCN 4B // SLIDE 4

IYCN Topic 4b/Slide 4

Breastfeeding in LBW babies

	>36 weeks gestational age	32-36 weeks gestational age	<32 weeks gestational age
WHAT	Breastmilk	Breastmilk, expressed or suckled from breast	Expressed breastmilk
HOW	Breastfeeding	Cup, spoon, paladai (in addition to feeding at the breast)	Intra-gastric tube
WHEN	• Start within one hour of birth • Breastfeed at least every 3 hours	• Start within one hour of birth or as soon as the baby is clinically stable • Feed every 2-3 hours	• Start 12-24 hours after birth • Feed every 1-2 hours

4

IYCN 4B // SLIDE 5

IYCN Topic 4b/Slide 5

Breastfeeding after c-section

- In case of spinal or epidural anaesthesia, breastfeeding may be initiated within an hour of birth as in vaginal delivery.
- If general anaesthesia is administered, breastfeeding can be initiated immediately after birth if a trusted caregiver is available to support the baby in breastfeeding position till mother is comfortable and confident in doing so herself.
- Else, it is initiated when mother is alert (in about 4 hours); most normal weight healthy babies can wait for first feed till this time.
- Alternate feeding may be needed for small and sick babies to prevent hypoglycaemia.

5

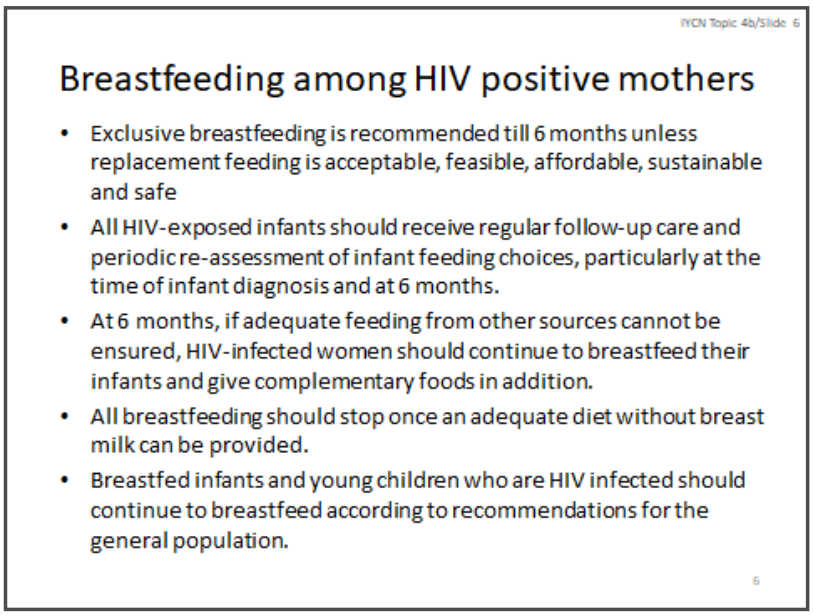
IYCN 4B // SLIDE 6

IYCN Topic 4b/Slide 6

Breastfeeding among HIV positive mothers

- Exclusive breastfeeding is recommended till 6 months unless replacement feeding is acceptable, feasible, affordable, sustainable and safe
- All HIV-exposed infants should receive regular follow-up care and periodic re-assessment of infant feeding choices, particularly at the time of infant diagnosis and at 6 months.
- At 6 months, if adequate feeding from other sources cannot be ensured, HIV-infected women should continue to breastfeed their infants and give complementary foods in addition.
- All breastfeeding should stop once an adequate diet without breast milk can be provided.
- Breastfed infants and young children who are HIV infected should continue to breastfeed according to recommendations for the general population.

6


IYCN Topic 4b/Slide 6
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• Exclusive breastfeeding is recommended till 6 months unless replacement feeding is acceptable, feasible, affordable, sustainable and safe
• All HIV-exposed infants should receive regular follow-up care and periodic re-assessment of infant feeding choices, particularly at the time of infant diagnosis and at 6 months.
• At 6 months, if adequate feeding from other sources cannot be ensured, HIV-infected women should continue to breastfeed their infants and give complementary foods in addition.
• All breastfeeding should stop once an adequate diet without breast milk can be provided.
• Breastfed infants and young children who are HIV infected should continue to breastfeed according to recommendations for the general population.
6

TOPIC IYCN 5:
GUIDING PRINCIPLES AND TECHNIQUES FOR COMPLEMENTARY FEEDING

Method

Tutorial 1

Objectives

- Understand the optimal age for children to start complementary feeding.
- Describe the local foods and their consistency that can fill up the energy gap and other nutrients (vitamin A, iron).
- Describe the frequency and amount of complementary feed at various ages.
- Describe feeding practices and their effect on the child's intake.
- Describe challenges in feeding a young child including in sickness and recovery.

Outline

- Introduction and objectives: 10 mins
- Age appropriate complementary feeding: 20 mins
- Feeding techniques – Demonstration by a role play: 20 mins
- Demonstrate and discuss counseling of a mother for complementary feeding- Role play: 60 mins
- Summary: 10 min

Place

Demonstration room/Lecture theatre

Resource person

Faculty/ Senior resident

Preparation

- **Slides IYCN Topic 5/ Slides 1 to 6**
- **Handout on age appropriate complementary feeding (IYCN Topic5/ Handout 1)**
- **Role play for demonstrating types of feeding techniques**
- **Technical module pages 58 to 61**

MCI codes and competencies

PE 5.2, 8.2; CM 5.7 (Knowledge, Skill)

Describe the clinical features, diagnosis and management of Feeding problems. Discuss the principles, the initiation, attributes, frequency, techniques and hygiene related to Complementary Feeding including IYCF. Describe food hygiene.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 6 and explain one by one

IYCN Topic 5/Slide 1

Topic 5

Guiding principles and techniques for complementary feeding

Objectives

1. Understand the optimal age for children to start complementary feeding.
2. Describe the local foods and their consistency that can fill up the energy gap and other nutrients (vitamin A, iron).
3. Describe the frequency and amount of complementary feed at various ages.
4. Describe feeding practices and their effect on the child's intake.
5. Describe challenges in feeding a young child including in sickness and recovery.

1

IYCN 5 // SLIDE 1

IYCN Topic 5/Slide 2

Guiding principles

- After 6 months of age, it becomes increasingly difficult for breastfed infants to meet their nutrient needs from human milk alone.
- Most infants are developmentally ready for other foods at about 6 months.
- Breastfeeding should be continued till child is two years of age.
- Complementary feeding should vary for breastfed versus non-breastfed infants and children

2

IYCN 5 // SLIDE 2

IYCN Topic 5/Slide 3

Responsive feeding

- Feeding infants directly and assisting older children when they feed themselves.
- Feeding should be done patiently and with encouragement. Children should not be force fed.
- Experiment with different food combinations, tastes, textures and methods if child refuses many foods.
- Minimize distractions during feeding sessions
- Keep eye-to-eye contact and talk while feeding to make it a learning experience

Time for bonding and learning for baby and caregiver

3

IYCN 5 // SLIDE 3

After this slide do a short role play as follows

ROLE PLAY

For this role play you should have already identified a participant to play the role of a mother and another participant to play role of a 10 month old child. Three feeding techniques will be demonstrated by them in the three scenes in this role play. And at the end the participants will be asked to share their observations regarding the same.

Scene 1: A child is sitting with support, and engrossed in playing. Her mother comes and offers food to the child. The child doesn't seem interested in eating. The mother starts scolding the child and forcibly tries to feed the baby. She mutters about her lack of time and other problems while doing so.

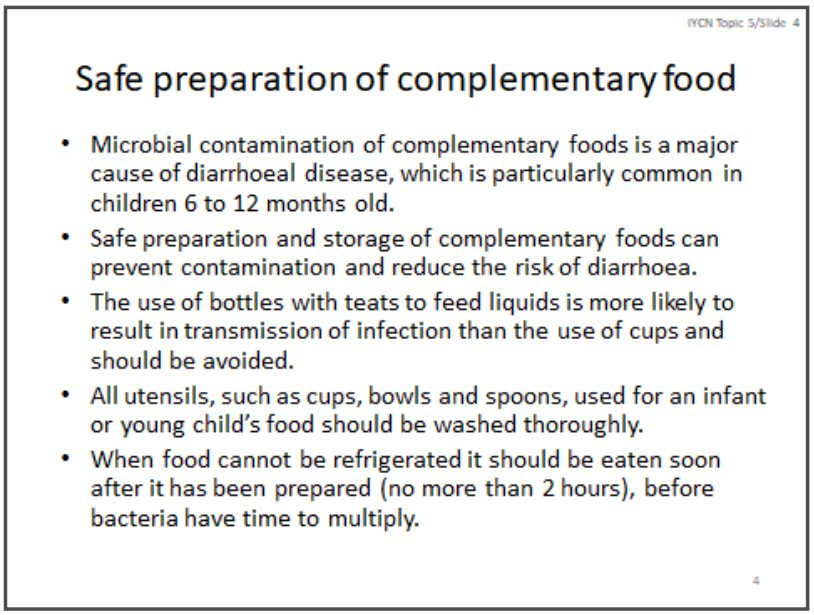
Scene 2: A child is sitting with support, and engrossed in playing. Her mother comes and offers food to the child. The mother casually keeps the plate in front of the child and lovingly tells the child to eat it. Then the mother gets busy in using her mobile and other activities. After a few seconds, the mother focuses her attention on the baby and sees that the baby has not eaten anything. The mother picks up the plate saying that "the child doesn't seem hungry".

Scene 3: A child is sitting with support, and engrossed in playing. Her mother comes and offers food to the child. The mother sits with the child and pays attention to the child's cues. She washes her own hands and child's hands before starting to feed. She talks to the child and allows the child to pick up certain food items that the child likes. The mother encourages the child to feed and tries to make it an enjoyable activity.

Ask the participants what they observed in the three scenes, what have they found being practiced in their homes or neighborhoods, and which one was the best technique according to them and why.

The facilitator should keep in mind that Scene 3 depicts Responsive feeding technique which is a preferred type.

Continue with slide 4, 5 and 6.



IYCN 5 // SLIDE 4

IYCN Topic 5/Slide 5

Difficulties in complementary feeding

Causes

- Lack of active and responsive feeding of the child (often due to mother's multiple duties and/or due to care being passed to an older sibling)
- Anatomical difficulties (for example, a severe cleft palate or oesophageal atresia)
- General illness, minor infections, such as cold and blocked nasal passages, intestinal infection, gastroesophageal reflux disease (which can also make feeding difficult, affect weight gain, and cause great stress for parents).

5

IYCN 5 // SLIDE 5

IYCN Topic 5/Slide 6

Feeding during illness

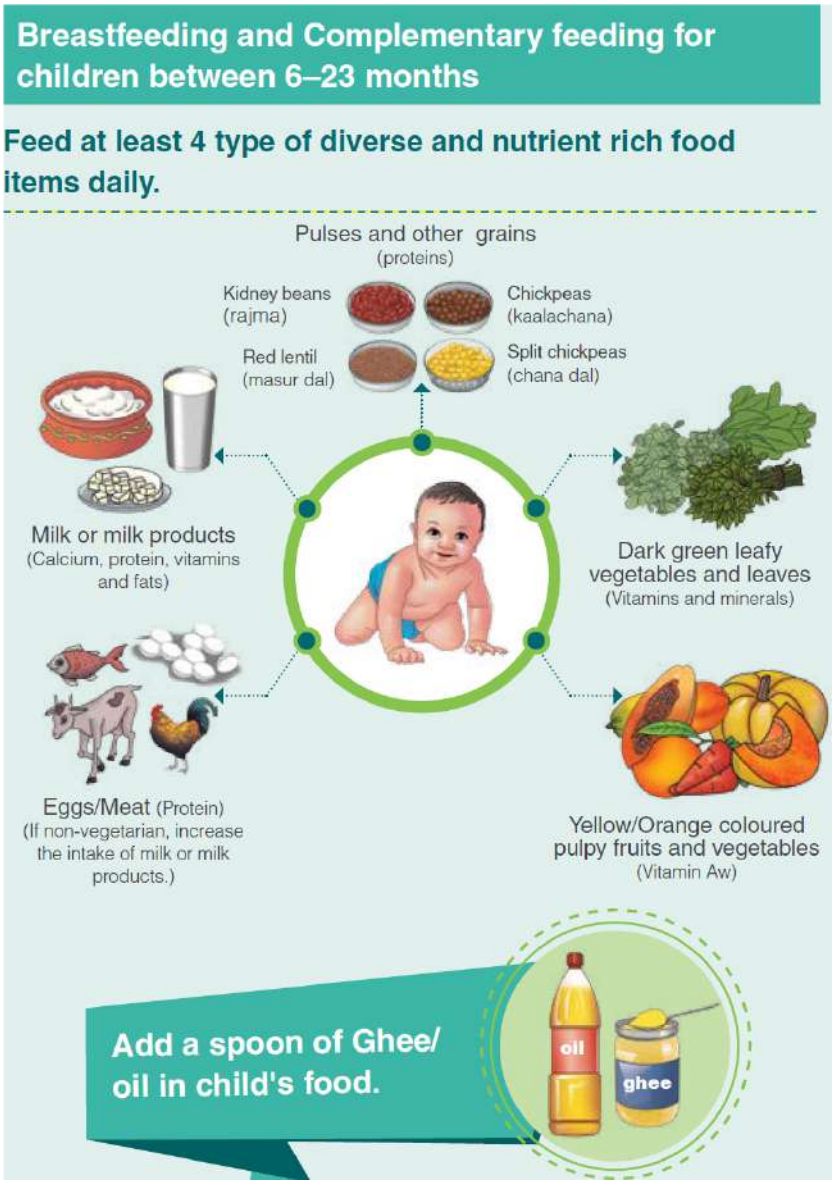
Condition	Advice
Child's mouth or throat is sore	Give soft or smooth food. Avoid citrus fruits, very sweet or spicy food. Drink through a straw.
Child has stuffy nose	Clear the nose before feeding, feed slowly, give time to breathe
Child has fever	Give extra fluids/breastfeeds and frequent small portions of food (consult doctor)
Child has chest infection or cough	Let child sit upright and slowly give small amounts of food and fluids
Child has diarrhoea	Continue to give normal food. Continue breastfeeding. If child is less than six months old give exclusive breastfeeding. Give ORS, extra fluids. Give bananas, mashed fruits, soft rice and porridge.
Child is vomiting	Give frequent small amounts of fluids/breastfeeds and small amounts of foods as frequently as possible
Child is sleepy	Watch for times when child is alert and then feed

IYCN 5 // SLIDE 6

Student's handout (IYCN 5/ Handout 1)

Age appropriate complementary feeding

Age	Energy needed/ day in addition to breastmilk	Texture	Frequency (per/ day)	Amount of food usually consumed/ meal
6-8 months	200 kcal/day	Thick porridge, mashed foods	2-3 (1-2 snacks may be added)	2-3 tablespoons
9-11 months	300 kcal/day	Finely chopped/ mashed foods, finger foods	3-4 (1-2 snacks may be added)	½ of 250 ml cup
12-23 months	550 kcal/day	Family foods. Chopped/ mashed if required	3-4 (1-2 snacks may be added)	¾ to full 250 ml cup



TOPIC IYCN 6:
GUIDING PRINCIPLES AND TECHNIQUES FOR COMPLEMENTARY FEEDING

Method Lecture 5

Objectives

1. Describe the indicators of IYCF
2. Use data collection tool to assess status of IYCF

Outline

- Introduction and objectives: 10 mins
- IYCF indicators: 20 mins
- Tool for assessing IYCF: 20 mins
- Summary: 10 min

Place Lecture theatre

Resource person Faculty

Preparation

- **Slides IYCN 6/ Slides 1 to 5**
- **Handout on IYCF dietary recall tool (IYCN 6/Handout 1)**
- **Technical module page 64**

MCI codes and competencies

PE 9.4-9.6 (Knowledge, Skill)

Elicit, document and present an appropriate nutritional history and perform a dietary recall. Calculate the age related Calorie requirement in Health and Disease and identify gap. Assess and classify the nutrition status of infants, children and adolescents and recognize deviations.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 5 and explain one by one

IYCN Topic 6/Slide 1

Topic 6

Measuring IYCF: indicators, tools and techniques

Objectives

1. Describe the indicators of IYCF
2. Use data collection tool to assess status of IYCF

1

IYCN 6 // SLIDE 1

IYCN Topic 6/Slide 2

IYCF indicators (breastfeeding)

Early initiation of breastfeeding: Proportion of children born in the last 24 months who were put to the breast within one hour of birth.

$$\frac{\text{Children born in the last 24 months who were put to the breast within one hour of birth}}{\text{Children born in the last 24 months}}$$

Exclusive breastfeeding under 6 months: Proportion of infants 0–5 months of age who are fed exclusively with breast milk.

$$\frac{\text{Infants 0–5 months of age who received only breast milk during the previous day}}{\text{Infants 0–5 months of age}}$$

Continued breastfeeding at 1 year: Proportion of children 12–15 months of age who are fed breast milk.

$$\frac{\text{Children 12–15 months of age who received breast milk during the previous day}}{\text{Children 12–15 months of age}}$$

2

IYCN 6 // SLIDE 2

Note: age 0-5 months denotes birth to 5 months and 29 days.

IYCN Topic 6/Slide 3

IYCF indicators (complementary feeding)

Introduction of solid, semi-solid or soft foods: Proportion of infants 6–8 months of age who receive solid, semisolid or soft foods.

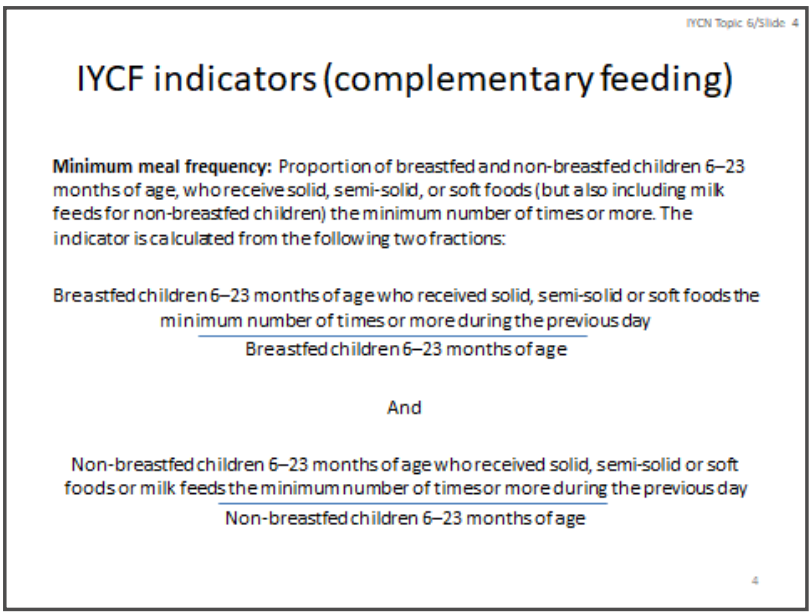
$$\frac{\text{Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day}}{\text{Infants 6–8 months of age}}$$

Minimum dietary diversity: Proportion of children 6–23 months of age who receive foods from 4 or more food groups.

$$\frac{\text{Children 6–23 months of age who received foods from ≥4 food groups during the previous day}}{\text{Children 6–23 months of age}}$$

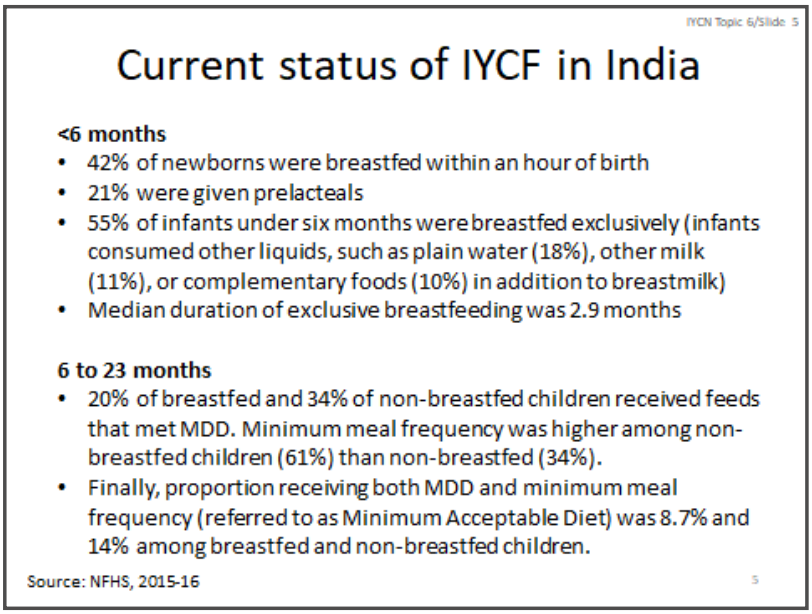
3

IYCN 6 // SLIDE 3



IYCN 6 // SLIDE 4

Note: Age 6-23 months denotes children with completed 6 months to 23 months 29 days of age.



IYCN 6 // SLIDE 5

Share handout on IYCF 24 hour dietary recall and discuss each question with the students

Tell the students that this IYCF dietary recall is to enquire from mothers or primary caregivers of children less than 2 years. The facilitator can add relevant examples of local food items consumed in the respective geographical area and make this tool more valid in the given circumstance.

The facilitator should demonstrate how to fill this dietary recall form to the students.

After demonstration, facilitator should explain the inference derived from the information collected and how it can help in counseling the mother/primary caregiver regarding child feeding.

Student's handout (IYCN 6/ Handout 1)

Dietary recall tool (IYCF)

1. Was the baby given any vitamin drops or other medicines as drops yesterday during the day or at night? :
   i)Yes ☐ ii)No ☐

2. Was s/he given ORS yesterday during the day or at night? :
   i)Yes ☐ ii)No ☐

3. Did he/ she have any of the following liquids yesterday during the day or at night?(✓/ **X**)
   Plain water : _____
   Infant formula : _____
   Milk such as tinned, powdered or fresh animal milk: _____
   Juice or juice drinks: _____
   Clear broth : _____
   Yogurt: _____
   Thin porridge: _____
   Any other liquids: _____

4. Please describe everything the baby ate yesterday during the day or night, whether at home or outside the home.
   i. Porridge, bread, rice, noodles, or other foods made from grains: _____
   ii. Pumpkin, carrots, or sweet potatoes that are yellow or orange inside_____
   iii. White potatoes, or any other foods made from roots_____
   iv. Any dark green leafy vegetables_____
   v. Ripe mangoes, ripe papayas_____
   vi. Any other fruits or vegetables_____
   vii. Liver, kidney, heart or any other organ meat_____
   viii. Any meat such goat, chicken, etc _____
   ix. Eggs_____
   x. Fresh or dried fish, shellfish or seafood_____
   xi. Any foods made from beans, peas, lentils, nuts or seeds_____
   xii. Cheese, yogurt, or other milk products_____
   xiii. *Any oil, fats or butter, or food made with any of these_____
   xiv. Any sugary foods such as chocolates, sweets, candies, pastries, cakes, or biscuits_____
   xv. Condiments for lavor, such as chillies, spices, herbs, or fish powder_____

5. Did the child eat any solid, semi-solid, or soft foods yesterday during the day or at night?
   i)Yes ☐ ii)No ☐

6. If YES, what kind of solid, semi-solid, or soft foods did he/ she eat? _____

7. How many times did he/ she eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night? _____

8. Did the child drink anything from a bottle with a nipple yesterday during the day or at night?
   i)Yes ☐ ii)No ☐

TOPIC IYCN 7:
IYCF COUNSELLING: CRITICAL CONTACT POINTS AND NUTRITION INTERVENTIONS

Method

Lecture 6

Objectives

1. Identify the critical contact points for IYCF interventions including counseling
2. Know contact specific services and information

Outline

- Introduction and objectives: 5 mins
- Critical contact points for IYCF: 10 mins
- Services at each contact point: 20 mins
- Counselling for complementary feeding: 20 mins
- Recap: 5 min

Place

Lecture theatre

Resource person

Faculty

Preparation

- **Slides number IYCN 7/ Slides 1 to 6**
- **Role play for practicing counseling of a mother for complementary feeding**
- **Checklist of key messages (Annex 4)**
- **Technical module pages 65 to 69**

MCI codes and competencies

PE 7.8, 8.3-8.5, CM 10.3, 10.4 (Knowledge, Skill)

Enumerate the common complementary foods. Elicit history on the complementary feeding habits. Counsel and educate mothers on the best practices in Complementary Feeding. Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 6 and explain one by one

IYCN Topic 7/Slide 1

Topic 7

IYCF counseling: Critical contact points and nutrition interventions

Objectives

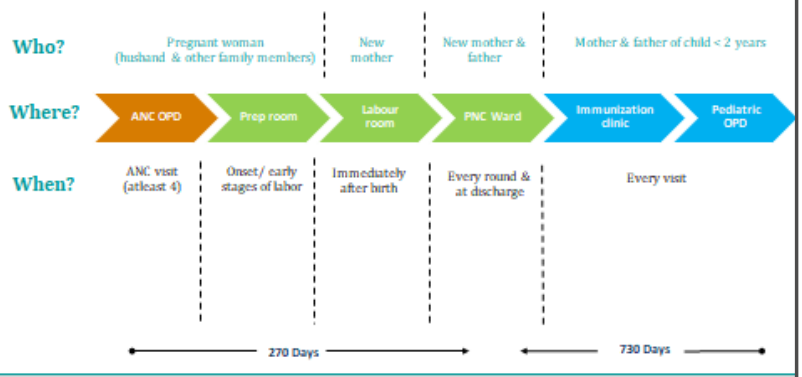
1. Identify the critical contact points for IYCF interventions including counseling
2. Know contact specific services and information

1

IYCN 7 // SLIDE 1

IYCN Topic 7/Slide 2

Critical contact points



Alive & Thrive

IYCN 7 // SLIDE 2

IYCN Topic 7/Slide 3

IYCF services (intrapartum period)

Nutrition interventions	Services
Early initiation of breastfeeding (colostrum feeding and no prelacteal)	Before delivery: Informing family members especially mothers/mother-in -law and husband on need for early initiation of breastfeeding
	After delivery: Keeping new-born in skin to skin contact immediately after birth. Support and Counsel mother and relatives on breastfeeding initiation and issues- correct position, latching and feeding on demand
Delayed cord cutting	After stoppage of cord pulsations (2 to 3 mins after birth)
Prophylactic injection Vitamin K1 (Phytonadione injectable emulsion)	Administer intramuscular Vitamin K1 injection

3

IYCN 7 // SLIDE 3

IYCN 7 // SLIDE 4

IYCN Topic 7/Slide 4

IYCF services (within 48 hours of delivery)

Nutrition interventions	Services
Promote exclusive breastfeeding till 6 months to achieve optimal growth, development and health	Assess breastfeeding in every baby before planning for discharge. For babies unable to suckle, explain expression of breastmilk, storage and feeding with paldai or cup and spoon. Make mother practice before discharge. Opt for alternate feeding only when medically indicated
	Advise mother and family member to seek advice/ treatment immediately if there are any challenges in feeding at home
Lactating mothers to continue IFA for 180 days postpartum and calcium supplementation till 6 months	Prescribe 180 IFA and 360 calcium tablets to continue as per pregnancy routine
Initiate Kangaroo Mother Care (KMC)	If new-born weighs below 2000gms, counsel on benefits and process for KMC to mother and attendant
	Support mother in initiating KMC
Advise on self and baby care	Advise on diet and rest, avoiding intake of alcohol and tobacco, prevent infection of mother and baby, exclusive breastfeeding
	Advise on improving quantity and diversity of food (or continue to eat optimal diet)

4

IYCN 7 // SLIDE 5

IYCN Topic 7/Slide 5

IYCF services (< 6 months infant visiting OPD or immunization clinic)

Nutrition interventions	Services
Growth monitoring	Measure weight and length. Chart weight for age.
Screening for SAM*	Growth faltering infants checked for bilateral pitting edema, referred to NRC or provided counselling on dietary intake (follow SAM protocol)
Promote exclusive breastfeeding till 6 months to achieve optimal growth, development and health	Take history of infant feeding using a 24-hour recall tool
	Counsel on exclusive breastfeeding, benefits for baby and mother, breastfeeding in illness
	If mother has to be away from baby, explain expression of breastmilk and how to feed with cup or paldai
Orientation to complementary feeding with continued breastfeeding (infants 4-5 months)	Provide information of types of first foods, feeding techniques
Lactating mothers to continue iron for 180 days postpartum and calcium tablets till 6 months	Assess compliance to micronutrient supplements and give more tablets if needed
Counsel on self and baby care	Counsel on diet and rest, avoiding intake of alcohol and tobacco, hygiene to prevent infection of mother and baby, exclusive breastfeeding till 6 months

5

IYCN 7 // SLIDE 6

IYCN Topic 7/Slide 6

IYCF services (6-23 months infant/young child visiting OPD or immunization clinic)

Nutrition interventions	Service
Growth monitoring	Measure baby's weight and length, record
	Update growth chart
Screening for SAM	Growth faltering infants should be checked for bilateral pitting edema and referred to NRC or provided counselling on dietary intake
Counselling on age appropriate complementary feeding with continued breastfeeding	Counselling on frequency, consistency and quantity of complementary feeding changes
Vitamin A supplementation (100 000 IU if 6-11 months/ 200 000 IU if 12-23 months)	Administer oral Vitamin A supplement when child visits for measles vaccination
IFA supplementation for infant (20 mg iron and 100 mcg folic acid syrup)	IFA supplementation is biweekly through the *Anganwadi* or sub-centre. Mother/caregiver is informed of this and given a dose if not initiated already. Do not recommend supplementation if infant has fever, diarrhoea or SAM
Deworming (bi-annual)	DOT, half tablet 400 mg albendazole

6

ROLE PLAY

Before starting the role play, the facilitator should recap the counseling skills – listening and learning skills and building confidence and giving support skills

Discuss queries of the students and ask them to practice among themselves in pairs

Inform the students that they will be doing a role play and the students will observe and take notes regarding feeding status of child, and the assessment done, and the counseling skills used by healthcare provider.

SAMPLE CASE HISTORY FOR ROLE PLAY

Ravi is a 22 months old, energetic boy who sleeps well and loves to run and gallop. Since last 3 months, his appetite has decreased, and he is reluctant to try new foods. He is weighing 13.5 kg and 91cm in height. His parents asked the healthcare provider how they can get Ravi to eat foods he needs to grow.

a. What are the parents' concerns regarding Ravi's feeding?
b. What questions would you ask to gather more information?
c. What assessment will you do?
d. Identify the areas of counseling

Ask four students to play role of Ravi, his parents and a healthcare provider. Train them on their roles. Nurse should undertake height, weight measurements of the child. Doctor should do the following:

- Evaluate the child's growth and progress in developing eating skills (chewing and swallowing)
- Assess the quantity, quality, and frequency of complementary feeding.
- Assess the type of feeding technique practiced at home for feeding Ravi.
- Use relevant counseling skills which includes learning and listening skills; and building confidence and providing support skills.

Points to emphasize

- Children need healthy meals and snacks at scheduled times throughout the day.
- Encourage parents to give the child opportunities to develop his eating skills by offering a variety of foods.
- Tell children that children are unpredictable in the amounts and types of foods they eat, from meal to meal and from day to day.
- Reassure parents that food aversions in children are common. Smaller servings of the favoured food can be offered, along with other foods to ensure that child eats a variety of foods.
- Tell parents that they can encourage the child to eat new foods by offering small portions.

Discussion

- Discuss the role play
  - ▶ Ask the observer what healthcare provider did good and bad
  - ▶ What all counselling skills were used according to counselling check list
  - ▶ What are the feeding problems identified
  - ▶ What all good practices parents followed and were praised about.
  - ▶ What two relevant messages/ information were given to parents.
  - ▶ Ask the group if they have any questions.

TOPIC IYCN 8:
UNDER-NUTRITION IN CHILDREN: CLASSIFICATION AND RISK FACTORS

Method Lecture 7

Objectives

1. Understand the causes and consequences of child undernutrition
2. Describe the measures of child nutrition status
3. Plot and interpret the WHO growth chart

Outline

- Introduction and objectives: 5 mins
- Causes and consequences of child malnutrition: 10 mins
- Measures of child nutrition status: 20 mins
- WHO growth charts and how to use them: 20 mins
- Recap: 5 min

Place Lecture theatre

Resource person Faculty

Preparation

- **Slides IYCN Topic 8/ Slides 1 to 4**
- **WHO growth charts to plot height weight and classify accordingly**
- **Technical module pages 61 to 63**

MCI codes and competencies

PE 1.1,1.3, 1.4, 10.1-10.3, 11.1; PE 11.1; PY 11.9, 11.10 (Knowledge, Skill)

Define the terminologies Growth and development and discuss the factors affecting normal growth and development. Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents. Define and describe the etio-pathogenesis, classify including WHO classification, clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM). Outline the clinical approach to a child with SAM and MAM. Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention. Describe the common etiology, clinical features and management of obesity in children. Interpret growth charts. Interpret anthropometric assessment of infants.

INTRODUCTION

- Introduce the topic and share objectives of the session
- Do a quick recap of assessment of IYCF status and then start lecture on undernutrition classification

TOOLS AND TECHNIQUES

- Powerpoint presentation
- Show slides 1 to 4 and explain one by one

IYCN 8 // SLIDE 1

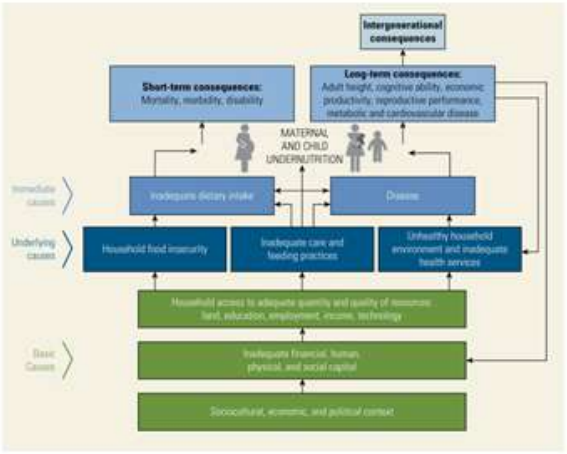
Topic 8
Undernutrition in children: classification and risk factors

Objectives

1. Understand the causes and consequences of child undernutrition
2. Describe the measures of child nutrition status
3. Plot and interpret the WHO growth chart

IYCN 8 // SLIDE 2

Causes and consequences of child malnutrition



IYCN 8 // SLIDE 3

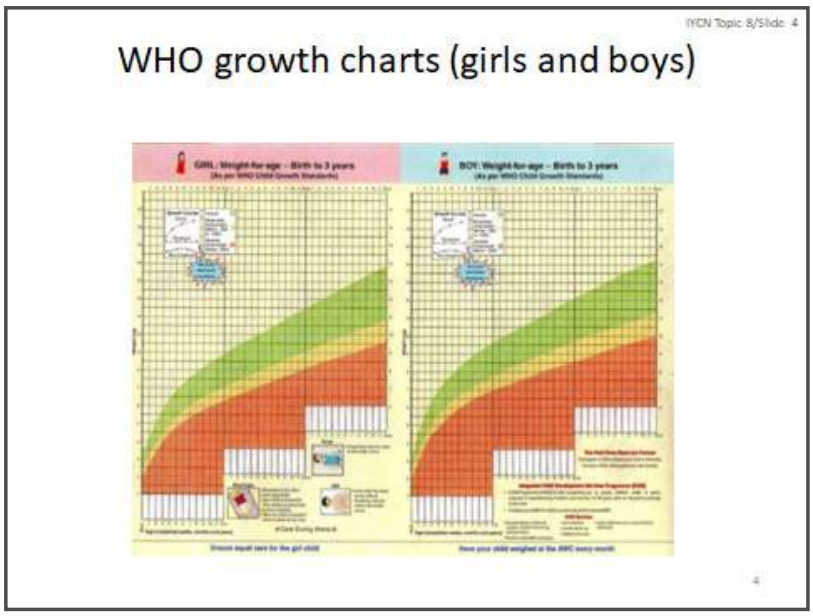
Measures of child nutrition status

Weight-for-age (underweight)
Cannot be relied upon in situations where the child's age cannot be accurately determined. Cannot distinguish between acute malnutrition and chronic low energy and nutrient intake.

Weight-for-length/height (wasting)
Useful in situations where children's ages are unknown (e.g. refugee settlements). Helps identify children who may be wasted or severely wasted and who may be at risk of becoming overweight or obese.
Requires two measurements – of weight and height

Length/height-for-age (stunting)
Helps identify children who are stunted (or short) due to prolonged undernutrition or repeated illness

MUAC
Another useful way to assess a child's present nutritional status. MUAC below 115 mm is an accurate indicator of severe malnutrition in children 6–59 months of age.



After showing these slides give students an exercise to plot following heights and weights and share their findings.

Boy Height : 62 cm Weight 5 kg, Girl Height 70 cm Weight 9 kg

TOPIC IYCN 7:
LEGISLATION IN SUPPORT OF IYCF (IMS ACT)

Method Lecture 8

Objectives

1. Know legislation in support of IYCF
2. Application of IMS act in a health facility

Outline

- Introduction and objectives: 10 mins
- Legislation in support of IYCF: 10 mins
- IMS Act: 30 mins
- Recap: 10 min

Place Lecture theatre

Resource person Faculty

Preparation

- **Handout on do's and don'ts (IYCN 9/ Handout 1)**
- **Technical module page 73**

MCI codes and competencies

PE 7.6, FM 4.2, FM 4.28 (Knowledge)

Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy. Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time. Enumerate the baby friendly hospital initiatives.

INTRODUCTION

- Introduce the topic and share objectives of the session

TOOLS AND TECHNIQUES

- Group discussion on ILO Maternity Protection Convention
- Share handout on Dos and Don'ts under IMS Act. Ask students to read and then discuss each point and how this can be applied in the health facility

Student's handout (IYCN 9/ Handout 1)

Dos and Don'ts under IMS Act

Dos	Don't s
☑ Promote breastfeeding at the safest, healthiest and most nourishing methods of feeding to all mothers and families	☒ Do not advertise or promote infant milk substitutes, feeding bottles or infant foods
☑ Encourage and support mothers to place babies skin to skin and start breastfeeding within the first hour after birth	☒ Do not give an impression or create a belief that feeding infant milk substitutes and infant foods are equivalent to or better than mother's breastmilk
☑ Provide skilled support and counselling to support mothers sustain breastfeeding	☒ Do not demonstrate how to use formula for children under two years of age
☑ Inform mothers and their family members the hazards of improper use of infant milk substitutes, feeding bottles and infant foods	☒ Do not allow companies selling or producing food products for children under two years of age to display products or materials in your health facility
☑ In rare cases when a mother faces difficulty in breastfeeding, advise use of expressed breastmilk or seeking support from a lactation management expert.	☒ Do not accept money, gifts or funding for seminars, meetings, conferences, educational courses, contests, fellowships, research work, or sponsorships from manufacturers, suppliers or distributors with the intent of promoting infant milk substitutes, feeding bottles or infant foods.

TOPIC IYCN 10 AND IYCN 11:
LEGISLATION IN SUPPORT OF IYCF (IMS ACT)

Method — Seminar

Objectives

1. Source major global and government guidelines on IYCF
2. List recommendations on IYCF as per globally and nationally endorsed guidelines

Outline

- Each group to present in 10 mins

Place — Demonstration hall/ Lecture theatre

Resource person — Faculty/ Senior resident

Preparation

- **List of guidelines with links to download them (IYCN 10 and 11/ Handout 1)**
- **Technical module pages 70,71 and 74**

MCI codes and competencies

PE 7.5, 7.9, 17.1, 18.6; CM 5.6; OG 17.2(Knowledge)

Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding. Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast engorgement, breast abscess. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning.

Observe the correct technique of breast feeding and distinguish right from wrong techniques. Educate and counsel mothers for best practices in Breast feeding. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning. Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding.

Student's handout (IYCN 10 and 11/ Handout 1)

LIST OF GUIDELINES FOR STUDENTS

Essential Nutrition Actions (ENA)

The WHO's ENAs, 2011, provides recommendations with evidence on improving maternal nutrition as well as IYCN. http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/

National guidelines on Infant and Young Child Feeding

Ministry of Woman and Child Development released guidelines on IYCF in 2004 with recommendations on breastfeeding, complementary feeding, feeing in difficult circumstances as well as institutional responsibilities for promotion of optimal IYCF. It also provides operational guidance on promoting IYCF detailing the roles of government, non-government organizations, professional bodies, commercial enterprises and development agencies. http://www.wcd.nic.in/sites/default/files/nationalguidelines.pdf

Mother's Absolute Affection (MAA)

MAA is a nation-wide government program to promote breastfeeding in-facility and in the community. The foru components of this program are:

1. Building enabling environment and demand generation through mass media and mid media activities
2. Capacity building of community health workers
3. Capacity building of ANMs/ Doctors on lactation management and reinforcement of breastfeeding at delivery points
4. Monitoring, recognition through awards for individuals and facilities.

The program aims to reach around 3.9 crore pregnant and lactating mothers, 8.8 lakh ASHAs to conduct mobilization and 18,000 birthing facilities to be skilled in lactation management.

Operational guidelines and related resources are available at: http://nhm.gov.in/nrhm-updates/536-maa-programme.html

National guidelines on comprehensive lactation management and human milk banking

CLINICAL SESSIONS:
CLINICAL SESSION 1
POSITIONING AND ATTACHMENT

Objectives

1. Help a mother to position her baby correctly at the breast.

Outline

- Introduction and objectives: 10 mins
- Demonstrate helping a mother to position her baby: 60 mins
- Help students to practice positioning a baby : 40 minutes
- Discussion as each group shares their experience regarding positioning: 60 minutes
- Summarize: 10 minutes

Place

Demonstration room with movable chairs so that floor space can be utilized for practicing

Resource person

Faculty and three more facilitators (Senior residents)

Preparation

1. **Role play**
2. **A cot or mattress with pillow, bed sheets and blanket.**
3. **Doll**
4. **Model breast**
5. **Technical module page 42**

MCI codes and competencies

PE 7.5, 7.9, 18.6; OG 17.2 (Skill, Attitude, Communication)

Observe the correct technique of breast feeding and distinguish right from wrong techniques. Educate and counsel mothers for best practices in Breast feeding. Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning. Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding.

INTRODUCE THE TOPIC

In this session you will learn how to help a mother to position her baby at the breast, so that he is well attached and can suckle effectively. There are three types of mothers whom you may need to help:

- new mothers, who are breastfeeding for the first time;
- mothers who have some difficulty with breastfeeding;
- mothers who bottle fed previously but now want to breastfeed

MAKE THESE POINTS:

Always observe a mother breastfeeding before you help her.

Take time to see what she does, so that you can understand her situation clearly. Do not rush to make her do something different.

Give a mother help only if she has difficulty.

Some mothers and babies breastfeed satisfactorily in positions that would be difficult for others.

This is especially true with babies more than about 2 months old. There is no point trying to change a baby's position if he is getting breastmilk effectively, and his mother is comfortable.

Let the mother do as much as possible herself.

Be careful not to 'take over' from her. Explain what you want her to do. If possible, demonstrate on your own body and show her what you mean.

Make sure that she understands what you do so that she can do it herself.

Your aim is to help her to position her own baby, it does not help, if you can get a baby to suckle, and if his mother cannot.

DEMONSTRATE AND EXPLAIN HOW TO ASSESS A BREASTFEED (40 MINUTES)

Give the four demonstrations described below.

As you follow each step:

- Demonstrate how to talk to a mother. Be gentle. Explain what you do so that she understands.
- Talk in a way, which builds her confidence.
- Explain to students what you are doing.
- Sometimes you need to step out of your role of helping the mother, to make sure that students understand what you are demonstrating.

1. DEMONSTRATE HOW TO HELP A MOTHER WHO IS SITTING

Ask one of the students to sit on the chair or bed that you have arranged. She should hold the doll across her body in the normal way, but in a poor position: loosely, supporting only his head, with his body away from hers, so that she has to lean forward to get her breast into his mouth. Tell her that you will ask her how breastfeeding is going, and she should say that it is painful when the baby suckles.

Follow these steps:

- Greet the 'mother', introduce yourself, and ask her name and her baby's name. Ask her how she is and ask one or two open questions about how breastfeeding is going.

- The participant says that breastfeeding is painful.
- Assess a breastfeed.
- Ask her, if you may see, "How (baby's name) breastfeeds is going on". Ask her to put her/ him to her breast in the usual way. Observe her breastfeeding for a few minutes.
- Then say:

  "Breastfeeding might be less painful if (baby's name) took a larger mouthful of breast when he suckles. Would you like me to show you how?"

If she agrees, you can start to help her.

Explain to students:

- A low seat is usually best, if possible one that supports the 'mother's' back. If the seat is rather high, find a stool for her to put her feet on.
- If she is sitting in bed, pillows may help (if available in this community).
- If she is sitting on the floor, make sure that her back is supported.
- If she supports her baby on her knee, help her to hold the baby high enough so that she does not lean forward to put him onto her breast.

Sit down yourself, so that you also are comfortable and relaxed, and in a convenient position to help.

Explain to students:

You cannot help a mother satisfactorily if you are in an awkward, uncomfortable position yourself. Explain to the mother how to hold her baby. Show her what to do if necessary.

Make sure that you make these four key points clear:

1. The baby's head and body should be in a straight line.
2. His face should face the breast, with his nose opposite the nipple.
3. His mother should hold his body close to hers.
4. If her baby is newborn, she should support his bottom, and not just his head and shoulders.

Show her how to support her breast with her hand during breastfeeding:

- She should rest her fingers on her chest wall under her breast, so that her first finger forms a support at the base of the breast.
- She can use her thumb to press the top of her breast slightly. This can improve the shape of the breast so that it is easier for her baby to attach well.
- She should not hold her breast too near to the nipple.

Explain to students:

If a mother has large and low breasts, support may help her milk to flow, because it makes it easier for the baby to take the part of the breast with the lactiferous sinuses into his mouth. If she has small and high breasts, she may not need to support them.
Explain how she should touch her baby's lips with her nipple, so that he opens his mouth.

Explain that she should wait until her baby's mouth is opening wide, before she moves him onto her breast. His mouth needs to be wide open to take a large mouthful of breast.

It is important to use the baby's reflexes, so that he opens his mouth wide to take the breast himself. You cannot force a baby to suckle.

Explain or show how to quickly move her baby to the breast, when he is opening his mouth wide.

- She should bring her baby to her breast. She should not move herself or her breast to the baby.
- She should aim her baby's lower lip below her nipple, so that his chin will touch her breast

Try not to touch the mother or baby if possible. But if you need to touch them to show the mother what to do:

- Put your hand over her hand or arm, so that you hold the baby through her.
- Hold the baby at the back of his shoulders - not the back of his head. Be careful not to push the baby's head forward.

Notice how the mother responds.
(The student playing the 'mother' should say, "Oh, that feels better!")

Explain to students:

- If you improve a baby's poor suckling position, a mother sometimes spontaneously says that it feels better.
- If the mother says nothing, ask her how her baby's suckling feels.

Look for all the signs of good attachment (which you cannot see with a doll).

If the attachment is not good, try again.

Tell the mother to look into child's eyes and smile while breastfeeding. This will help in successful breastfeeding and sustainable.

It often takes several trials to get a baby well attached. You may need to work with the mother again at a later time, or the next day, until breastfeeding is going well.

Make sure that the mother understands about her baby taking enough breast into his mouth.

If she is having difficulty in one position, try to help her to find a different position. That is more comfortable for her (for example, in one of the positions described below).

2. DEMONSTRATE OTHER WAYS FOR A MOTHER WHO IS SITTING TO POSITION (TO HOLD HER BABY)

Follow these steps:

Help the 'mother' to hold her baby in the underarm position, as below:

Exactly the same four key points are important.

She may need to support the baby with pillows at her side.

Explain to students:
The baby's head rests in the mother's hand, but she does not push it at the breast.

The underarm position is useful:

- for twins
- if she is having difficulty attaching her baby across the front
- to treat a blocked duct
- if a mother prefers it

Show the 'mother' how to hold her baby with the arm opposite to the breast as shown in the picture below.

Exactly the same four key points are important.

If she needs to support her breast, she can use the hand on the same side as the breast.

Explain to students:

The mother's forearm supports the baby's body.

Her hand supports the baby's head, at the level of his ears or lower.

She does not push at the back of the baby's head.

3. DEMONSTRATE HOW TO HELP A MOTHER WHO IS LYING DOWN

Ask the participant who is helping you to demonstrate breastfeeding lying down.

She should lie flat on her back with the doll far from her body, loosely held on the bed.

Follow these steps:

- Help the mother after cesarean section to initiate the breastfeeding within an hour.

Explain to students:

- When the mother comes out from the operation theater, staff nurse or health worker can introduce the baby to the breast from above the shoulders or from side of the mother.
- Show how to hold the baby.
- Exactly the same four key points are important.
- Health worker supports the baby with her both hands under the arms of baby and gives support to the baby's chin with her forefingers and supports neck and shoulders with her thumbs and holds the chest with the rest of the hand.
- If mother has a pillow, health worker can use that pillow for resting the baby's body.

- Sometimes difficulty in attachment of the baby can be faced by the caregiver/ health worker in this position.

Always remember: never push the baby's head towards the mother's chest for attachment in that case baby may refuse to attach to the breast. The caregiver who is holding the baby should first sit/stand in a comfortable position and then only help the baby in positioning and attachment.

Now, for second lying down position, the participant who is helping you should lie down propped on one elbow, with the doll far from her body, loosely held on the bed.

Follow these steps:

- Help the 'mother' to lie down in a comfortable, relaxed position.

Explain to students:

To be relaxed, she needs to lie down on her side in a position in which she can sleep.

Being propped on one elbow is not relaxing for most mothers.

If she has pillows, a pillow under her head and another under her chest may help.

Show her how to hold her baby.

Exactly the same four key points are important.

She can support her baby with her lower arm. She can support her breast if necessary with her upper arm. If she does not support her breast, she can hold her baby with her upper arm.

Explain to students:

A common reason for difficulty in attaching when lying down, is that the baby is too 'high', and his head has to bend forwards to reach the nipple. Breastfeeding lying down is useful.

»» when a mother wants to sleep, so that she can breastfeed without getting up;

»» soon after a Caesarian section, when lying on her back or side may help her to breastfeed her baby more comfortably.

Figure 7.2: A mother breastfeeding her baby lying down

Make these points:

- There are many other positions in which a mother can breastfeed. In any position, the important thing is for the baby to take enough of the breast into his mouth so that he can suckle effectively.
- For example:

»» A mother can breastfeed standing up.

»» if a baby has difficulty in attaching to the breast, it sometimes helps if the mother lies on her front, propped on her elbows, with the baby underneath her.

»» if she has an oversupply of milk, (and the baby gets too much milk too fast), lying on her back with the baby on top of her sometimes helps.

4. DEMONSTRATE SOME COMMON MISTAKES

You can give these demonstrations quite quickly, holding a doll and a model breast yourself.

Make this point:

There are some ways in which a mother holds a baby which can make it difficult for him to attach to her breast and suckle effectively.

Give the demonstration:

Use a doll to show these ways of holding a baby:

»» Too high (for example, sitting with your knees very high).

»» Too low (for example, with the baby unsupported, so you have to lean forward).

»» Too far to the side (for example, putting a small baby too far out in the 'crook' of the arm, instead of on the forearm.

Explain to students:

- If a mother holds her baby in these ways, his mouth will not be opposite her nipple. It will be difficult for him to take the breast into his mouth.
- On your own clothed body, or on a model, show these ways of holding a breast:

»» holding the breast with fingers and thumb close to the areola

»» pinching up the nipple or areola between your thumb and fingers, and trying to push the nipple into a baby's mouth

»» holding the breast in the 'scissor' or 'cigarette' hold (index finger above and middle finger below the nipple)

Holding the breast in these ways makes it difficult for a baby to attach and suckle effectively.

The 'scissor hold' can block milk flow.

Demonstrate holding the breast back from the baby's nose with a finger.

Explain to students:

This is not necessary, and can pull the nipple out of the baby's mouth. A baby can breathe quite well without the breast being held back.

Ask students if they have any questions, and try to answer them.

Help students to practice positioning a baby

Gather your group of 4-5 students into a corner of the classroom.

Give them a doll to work with.

Explain that this summarizes the main points of the demonstration.

(Other Teachers do the same with the other groups.)

Explain to students:

You will now work in pairs to practice helping a mother to position her baby. One of you plays the mother, and one plays the nurse. Other students in the group observe.

If you are the mother:

»» Sit and hold the doll in the common way, across your front. Hold him in a poor position.

»» When the nurse asks you how breastfeeding is going, say that it is very painful, and your nipples are sore.

If you are the nurse:

Follow steps to help mother position baby for breastfeeding

Try to use one or two listening and learning skills - for example, try to say something to empathize with the mother.

Make sure that each participant has a turn to play the part of the nurse helping a mother to position her baby.

If you have enough time, let students practice helping mothers in different positions, and with different stories.

Discussion from each group

Teacher asks each group to present in front of all the students.

Each group is asked to share their experiences regarding positioning the baby.

Some questions which can be asked to the groups:

a. Was the position proper?

b. If no, why did you think so?

c. What did you to correct the position?

d. What points did you keep in mind while correcting the position?

e. What challenges you faced while doing it?

f. Do you think that with your correction, the mother will be able to position correctly afterwards also?

The teacher can ask other relevant questions pertaining to the case being discussed at that time.

Summarize

CLINICAL SESSIONS:
CLINICAL SESSION 2
ASSESSING AND COUNSELING ON COMPLEMENTARY FEEDING

Objectives

1. Understand principles and practical tips of complementary feeding
2. Help a mother/ care giver feed infant >6 months following recommended practices.

Outline

- Introduction and objectives: 10 mins
- Practical tips on complementary feeding: 60 mins
- Observation of feeding practices: 60 mins
- Discussion on observations: : 40 minutes

Place

Demonstration room

Immunization clinic/Pediatric OPD

Resource person

Faculty and three more facilitators (Senior residents)

Preparation

3. **24 hour dietary recall tool**
4. **Technical module pages 65 to 69**

MCI codes and competencies

PE 8.4, 8.5,9.4, CM 5.4 (Skill, Attitude, Communication)

Elicit history on the Complementary Feeding habits. Counsel and educate mothers on the best practices in Complimentary Feeding. Elicit document and present an appropriate nutritional history and perform a dietary recall. Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment.

INTRODUCE THE TOPIC

In this session you will learn how to assess a complementary feeding session and how to give practical tips to caregivers to make complementary feeding a learning and enjoyable experience for baby and caregiver.

A child needs food, and care to grow and develop. Even when food and health resources are limited, good care giving can make best use of these limited resources.

The behaviour and practices of a caregiver and family that provide the food, healthcare, stimulation and emotional support is necessary for the child's healthy growth and development.

An important time to use good caring practices is at meal times – while helping young children to eat.

Generally the feeding style is one of three different ways:

- In controlled feeding, caregiver decides when and how much the child should eat. This may include force-feeding. The child may not learn to regulate their intake, which may lead to obesity later.
- Leaving the child to feed themselves where the caregiver believes that the child will eat if hungry. The caregiver may also believe, if the child stops feeding himself, he has had enough to eat. If the child has a low appetite or poor motor skills or is too young, this can result in underweight and malnutrition.
- Feed in response to the child's cues or signals using encouragement and praise

Discuss some feeding styles and ask the students to identify which type of feeding stlye is being discussed.

Option 1: The 'young child' is sitting on a mat on the floor.

Caregiver puts a bowl of food besides the child with a spoon in it.

Caregiver turns away and continues with other activities.

Caregiver does not make eye contact with the child or help very much with feeding.

Child pushes food around the bowl, looks to caregiver for help, eats a little, cannot manage a spoon well, he tries with his hands but drops the food, he/she gives up and moves away.

Caregiver says, "Oh, you aren't hungry" and takes the bowl away.

Ask: How do you think this child feels about eating? Which feeding style is this?

»» Wait for a few replies and also ask the 'child' how she felt.

»» The 'child' may feel eating is very difficult, may be hungry, sad...

Option 2: Caregiver washes the child's hands with her/his own hands and then sit facing with child level with child. Caregiver keeps eye contact and smiles at child. Using a small spoon and an individual bowl, small amounts of food are put to the child's lips and child opens his mouth and takes it a few times.

Caregiver praises child and makes pleasant comments: "Aren't you a good boy/girl".

"Here is lovely dinner" while feeding slowly.

Child stops taking food by shutting mouth or turning away.

Caregiver tries once: "Another spoonful of lovely dinner?"

Child refuses and caregiver stops feeding.

Caregiver offers a piece of food that child can hold – bread crust, biscuit or something similar.

"Would you like to feed yourself?"

Child takes it, smiles and sucks/munches it.

Caregiver encourages "You want to feed yourself, do you?"

Ask: How do you think this child feels about eating? Which feeding style is this?

Option 3: The 'young child' is sitting next to the caregiver (or on the caregiver's knees). The caregiver prevents the child from putting his hands near the bowl or the food.

The caregiver spoons the food into the child's mouth.

If the child struggles or turns away, he is brought back to the feeding position.

Child may be slapped or forced if he does not eat.

The caregiver decides when the child has eaten enough and takes the bowl away.

Ask: How do you think this child feels about eating?

»» Wait for a few replies and also ask the 'child' how he felt.

»» The 'child' may feel eating is very frightening, uncomfortable, feel scared...

Do a quick recap of how to use a 24 hour dietary recall tool. Instruct the students to for groups of four undertake a 24 hour dietary recall with a care giver present in the immunization clinic/ pediatric OPD and counsel caregivers on using responsive feeding techniques. Every student should undertake one while the others observe the counselling session.

After the session, have a sharing of findings and observations with all students.

CLINICAL SESSIONS:
CLINICAL SESSION 3
PREPARING A COMPLEMENTARY FEED

Objectives

- Students will practice making complementary feed-one meal for their child.

Outline

- Introduction and objectives: 10 mins
- Preparation of feed: 60 mins
- Discussion: 50 mins

Place

Demonstration room

Resource person

Faculty

Preparation

1. Cereals (over cooked rice, bread, etc.), cooked pulses (legumes, beans),cooked vegetable (green, yellow), boiled leafy vegetable, potato(boiled), milk, curd, butter/ghee/oil, boiled egg, fruits (banana, orange, etc.), sugar, lemon.
2. Plate, bowl (250-300 ml) spoon for each group.
3. Service plate and service spoons, towels.
4. Table/ work station

MCI codes and competencies

PE 8.5 (Skill)

Counsel and educate mothers on the best practices in complementary feeding.

INTRODUCE THE TOPIC

Give each group of students a different age group for developing complementary feed, eg. 7, 10 and 15 months, etc., and ask them to prepare feed (one meal) for that child.

Also tell them to write 3 key messages about the food.

WORKSHEET: AMOUNT OF FOOD IN 1 MEAL OF A YOUNG CHILD?

Ask students to choose foods that have been provided for the demonstration and mention the amount of different foods for one meal for a young child aged 7, 10, 12 and 15 months.

Amount of food for 1 meal (cooked/ripe)-table spoon/tea spoon	Age			
	7 Months	10 months	12 months	15 months
Rice				
Bread				
Raggi				
Maize				
Potato				
Bengal gram				
Beans				
Legumes				
Thick pulse				
Vegetables				
Fruits				
Banana				
Orange				
Liver				
Egg				
Fish				
Cured				
Yoghurt				
Oil				
Butter				
Ghee				
Sugar				

- What key message could you give for each of the foods you have chosen?
- Whether hygiene was maintained (hand washing, etc.)
- What all ingredients were taken?
- How much quantity was taken?
- What is the consistency made?

Facilitator will demonstrate how to evaluate consistency. Take some prepared feed on a spoon and demonstrate that it stays there. Put two spoonful of prepared feed on a plate. Tilt plate at 30° and show whether:

1. Feed travels and takes tongue shape—good consistency.

2. Feed travels fast or runs. Thin consistency.

3. Feed stays at plate and does not move. Consistency is hard and very thick.

Discuss

Discuss with each group about following points:

- Hygiene maintained while preparing food--safe hands, safe utensils, safe surface, etc.
- Quantity of food prepared –according to age of the child.
- Quality of food prepared (what all in gradients added).
- Consistency of food prepared.
- What message written on the paper.

Thank the students and summarize.

ANNEXURES

ANNEX 1

MIYCN RELEVANT COMPETENCIES BY DOMAIN, LEVEL, TEACHING-LEARNING METHOD, ASSESSMENT METHODS AND VERTICAL/HORIZONTAL INTEGRATION ACROSS OTHER DEPARTMENTS

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
Pediatrics										
PE 1.1	Define the terminologies Growth and development and discuss the factors affecting normal growth and development	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			IYCN 8.	Undernutrition in children: Classification and risk factor.
PE 1.3	Discuss and describe the methods of assessment of growth including use of WHO and Indian national standards. Enumerate the parameters used for assessment of physical growth in infants, children and adolescents	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce		Psychiatry	IYCN 8.	Undernutrition in children: Classification and risk factor.
PE 1.4	Perform Anthropometric measurements, document in growth charts and interpret	S	P	Y	Small group discussion	Document in log book			IYCN 8.	Undernutrition in children: Classification and risk factor.
PE 5.2	Describe the clinical features, diagnosis and management of feeding problems	K	K	N	Lecture/ Small group discussion	Written test			IYCN 4b. IYCN 5.	Breast conditions and breastfeeding in difficult circumstances. Guiding principles and techniques for complementary feeding
PE 7.1	Awareness on the cultural beliefs and practices of breast feeding	K	K	Y	Small group discussion	Written		OBGYN	IYCN 4a.	Management and support for breastfeeding in facilities
PE 7.2	Explain the physiology of lactation	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Physiology		IYCN 3.	Physiology of breastfeeding
PE 7.3	Describe the composition and types of breast milk and discuss the differences between cow's milk and Human milk	K	KH	Y	Lecture/debate	Written/ Vivavoce	Physiology		IYCN 3.	Physiology of breastfeeding

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
PE 7.4	Discuss the advantages of breast milk	K	KH	Y	Lecture/debate	Written/ Vivavoce			IYCN 2.	Recommended IYCF interventions and evidence
PE 7.5	Observe the correct technique of breast feeding and distinguish right from wrong techniques	S	P	Y	Bed side clinic	Skill assessment			IYCN 4a. IYCN 12.	Management and support for breastfeeding in facilities. How to position mother and baby for breastfeeding
PE 7.6	Enumerate the baby friendly hospital initiatives	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			IYCN 4a. IYCN 9.	Management and support for breastfeeding in facilities. Conventions and legislation in support of IYCF.
PE 7.7	Perform breast examination and identify common problems during lactation such as retracted nipples, cracked nipples, breast, engorgement, breast abscess	S	SH	Y	Bed side clinic	Skill assessment		OBGYN, AETCOM	IYCN 11.	Comprehensive lactation management and human milk banking
PE 7.8	Educate mothers on ante natal breast care and prepare mothers for lactation	A/C	SH	Y	DOAP session	Log book		AETCOM	IYCN 7.	IYCF counseling: critical contact points and nutrition interventions
PE 7.9	Educate and counsel mothers for best practices in Breast feeding	A/C	SH	Y	DOAP session	Log book		OBGYN, AETCOM	IYCN 12.	How to position mother and baby for breastfeeding
PE 8.1	Define the term Complementary Feeding	K	K	Y	Lecture/small group discussion	Written/ Vivavoce	Community medicine		IYCN 2.	Recommended IYCF interventions and evidence
PE 8.2	Discuss the principles the initiation, attributes , frequency, techniques and hygiene related to complementary feeding	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Community medicine		IYCN 2. IYCN 5.	Recommended IYCF interventions and evidence. Guiding principles and techniques for complementary feeding
PE 8.3	Enumerate the common complementary foods	K	K	Y	Lecture/small group discussion	Written/ Vivavoce	Community medicine		IYCN 7.	IYCF counseling: critical contact points and nutrition interventions

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
PE 8.4	Elicit history on the Complementary Feeding habits	S	SH	Y	Bed side clinics/skill lab	Skill assessment	Community medicine		IYCN 7. IYCN 13.	IYCF counseling: critical contact points and nutrition interventions. Assessing and counseling on complementary feeding
PE 8.5	Counsel and educate mothers on the best practices in Complementary Feeding	A/C	SH	Y	DOAP session	Document in log book	Community medicine		IYCN 7. IYCN 13. IYCN 14.	IYCF counseling: critical contact points and nutrition interventions. Assessing and counseling on complementary feeding. How to prepare a complementary feed?
PE 9.1	Describe the age related nutritional needs of infants, children and adolescents including micronutrients and vitamins	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry, Community medicine		IYCN 1.	Nutrition requirements in infants and young children
PE 9.4	Elicit, Document and present an appropriate nutritional history and perform a dietary recall	S	SH	Y	Bed side clinics/skill lab	Skill assessment	Community medicine		MN 10. IYCN 6. IYCN 13.	Dietary assessment tools in OPD setting. Measuring IYCF: indicators, tools and techniques. Assessing and counseling on complementary feeding
PE 9.6	Assess and classify the nutrition status of infants, children and adolescents and recognize deviations	S	SH	Y	Bed side clinics/skill lab	Skill assessment	Community medicine		IYCN 6.	Dietary assessment tools in OPD setting. Measuring IYCF: indicators, tools and techniques
PE 10.1	Describe the etio-pathogenesis , Classify including WHO classification , clinical features, complication and management of Severe Acute Malnourishment (SAM) and Moderate Acute Malnutrition (MAM)	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Physiology, biochemistry		IYCN 8. IYCN 10	Undernutrition in children: Classification and risk factor. Guidelines on IYCN

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
PE 10.2	Outline the clinical approach to a child with SAM and MAM	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Physiology, biochemistry		IYCN 8.	Undernutrition in children: Classification and risk factor.
PE 10.3	Assessment of a patient with SAM and MAM, diagnosis, classification and planning management including hospital and community based intervention, rehabilitation and prevention	S	SH	Y	Bed side clinic/Skills lab	Skill station	Physiology, biochemistry		IYCN 8.	Undernutrition in children: Classification and risk factor.
PE 11.1	Describe the common etiology, clinical features and management of obesity in children	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Physiology, biochemistry, pathology		IYCN 8.	Undernutrition in children: Classification and risk factor.
PE 12.1	Discuss the (RDA) , dietary sources of Vitamin A and their role in Health and disease	K	K	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1.	Nutrition requirements in infants and young children
PE 12.3	Identify the clinical features of dietary deficiency / excess of Vitamin A	S	SH	Y	Bed side clinics, Small group discussion	Document in log book	Biochemistry		IYCN 1.	Nutrition requirements in infants and young children
PE 12.6	Discuss the RDA, dietary sources of Vitamin D and their role in Health and disease	K	K	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry			Nutrition requirements in infants and young children
PE 12.15	Discuss the RDA , dietary sources of Vitamin B and their role in Health and disease	K	K	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 12.16	Describe the causes, clinical features, diagnosis and management of Deficiency of B complex Vitamins	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 12.17	Identify the clinical features of Vitamin B complex deficiency	S	SH	Y	Bed side skills/ skill station	Document in log book	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 12.18	Diagnose patients with Vitamin B complex deficiency and plan management	S	SH	Y	Bed side skills/ skill station	Document in log book	Biochemistry		IYCN 1	Nutrition requirements in infants and young children

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
PE 12.19	Discuss the RDA, dietary sources of Vitamin C and their role in Health and disease	K	KH	N	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 12.20	Describe the causes, clinical features, diagnosis and management of Deficiency of Vitamin C (scurvy)	K	KH	N	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 13.11	Discuss the RDA, dietary sources of Calcium and its role in Health and disease	K	K	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry, community medicine		IYCN 1	Nutrition requirements in infants and young children
PE 13.12	Describe the causes, clinical features, diagnosis and management of Ca deficiency	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 13.13	Discuss the RDA , dietary sources of Magnesium and their role in Health and disease	K	K	N	Lecture/small group discussion	Written/ Vivavoce	Biochemistry		IYCN 1	Nutrition requirements in infants and young children
PE 17.1	State the vision and outline the goals, strategies and plan of action of NHM and other important national programs pertaining to maternal and child health including RMNCH A+, RBSK, RKSK, JSSK mission Indradhanush and ICDS	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Community medicine		MN. 7 IYCN 10	Critical contact points and interpersonal communication and counselling for maternal nutrition. Guidelines on IYCN
PE 18.3	Conduct Antenatal examination of women independently and apply at-risk approach in antenatal care	S	SH	Y	Bed side clinics	Skill station	Community medicine	OBGYN	MN. 7, MN. 9	Critical contact points and interpersonal communication and counselling for maternal nutrition. Anthropometric measures of maternal nutrition status
PE 18.4	Provide intra-natal care and conduct a normal Delivery in a simulated environment	S	SH	Y	DOAP session	Document in log book	Community medicine	OBGYN	MN. 7	Critical contact points and interpersonal communication and counselling for maternal nutrition

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
PE 18.6	Perform Postnatal assessment of newborn and mother, provide advice on breast feeding, weaning and on family planning	S	SH	Y	Bed side clinics	Skill station	Community medicine	OBGYN	IYCN 4a. IYCN 11. IYCN 12.	Management and support for breastfeeding in facilities. Comprehensive lactation management and human milk banking. How to position mother and baby for breastfeeding
PE 27.25	Describe the advantages and correct method of keeping an infant warm by skin to skin contact	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			IYCN 4a.	Management and support for breastfeeding in facilities
Community medicine										
CM 1.9	Demonstrate the role of effective Communication skills in health in a simulated environment	S	SH	Y	DOAP session	Skill assessment	AETCOM		MN 4.	Basics of counselling skills
CM 4.1	Describe various methods of health education with their advantages and limitations	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			MN 4.	Basics of counselling skills
CM 4.2	Describe the methods of organizing health promotion and education and counselling activities at individual family and community setting	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			MN 4. MN 14.	Basics of counselling skills. Anthropometry, dietary assessment and counselling
CM 5.1	Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine, pediatrics		MN 1. MN 2. MN 5. MN 6. MN 8. IYCN 1.	Nutrition through life cycle. Nutritional demands of pregnancy and lactation (summary). Nutrient metabolism and nutritional demands of pregnancy. Nutrient metabolism and nutritional demands in lactation. Balanced diet for pregnant women and lactating mothers. Nutrition requirements in infants and young children.

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
CM 5.2	Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method	S	SH	Y	DOAP session	Skill assessment	General medicine, pediatrics		MN 14.	Anthropometry, dietary assessment and counselling
CM 5.3	Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine, pediatrics		MN 2.	Nutritional demands of pregnancy and lactation (summary)
CM 5.4	Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment	S	SH	Y	DOAP session	Skill assessment	General medicine, pediatrics		MN 3. MN 8. IYCN 13.	Balanced diet in pregnancy and lactation (Summary). Balanced diet for pregnant women and lactating mothers. Assessing and counseling on complementary feeding
CM 5.5	Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of sociocultural factors	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine, pediatrics		MN 8. MN 9.	Balanced diet for pregnant women and lactating mothers. Anthropometric measures of maternal nutrition status
CM 5.6	Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Pediatrics		MN 7. MN 13. IYCN 10.	Critical contact points and interpersonal communication and counselling for maternal nutrition. Guidelines on maternal nutrition. Guidelines on IYCN
CM 5.7	Describe food hygiene	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce		Microbiology	IYCN 5.	Guiding principles and techniques for complementary feeding
CM 10.3	Describe local customs and practices during pregnancy, childbirth, lactation and child feeding practices	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	OBGYN, pediatrics		MN 10. IYCN 7.	Dietary assessment tools in OPD setting. IYCF counseling: critical contact points and nutrition interventions

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
CM 10.4	Describe the reproductive, maternal, newborn & child health (RMCH); child survival and safe motherhood interventions	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	OBGYN, pediatrics		MN 13. IYCN 7.	Guidelines on maternal nutrition. IYCF counseling: critical contact points and nutrition interventions
Obstetrics and gynaecology										
OG 8.1	Enumerate, describe and discuss the objectives of antenatal care, assessment of period of gestation; screening for high-risk factors.	K	KH	Y	Lecture/small group discussion/ bed side clinic	Written/ Vivavoce/ skill assessment		Community medicine	MN 7.	Critical contact points and interpersonal communication and counselling for maternal nutrition
OG 8.3	Describe, demonstrate, document and perform an obstetrical examination including a general and abdominal examination and clinical monitoring of maternal and fetal well-being	K/S	SH	Y	Bed side clinic/ DOAP session	Skill assessment			MN 9.	Anthropometric measures of maternal nutrition status
OG 12.2	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of anemia in pregnancy	K	KH	Y	Lecture/small group discussion/ bed side clinic	Written/ Vivavoce/ skill assessment		General medicine	MN 11.	Nutritional anemia
OG 12.3	Define, classify and describe the etiology, pathophysiology, diagnosis, investigations, criteria, adverse effects on the mother and foetus and the management during pregnancy and labor, and complications of diabetes in pregnancy	K	KH	Y	Lecture/small group discussion/ bed side clinic	Written/ Vivavoce/ skill assessment		General medicine	MN 12.	Nutrition is special conditions
OG 17.1	Describe and discuss the physiology of lactation	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			IYCN 3.	Physiology of breast-feeding
OG 17.2	Counsel in a simulated environment, care of the breast, importance and the technique of breast feeding	S/A/C	SH	Y	DOAP session	Skill assessment			IYCN 11. IYCN 12.	Comprehensive lactation management and human milk banking. How to position mother and baby for breast-feeding?

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
OG 17.3	Describe and discuss the clinical features, diagnosis and management of mastitis and breast abscess	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce			IYCN 4b.	Breast conditions and breastfeeding in difficult circumstances
OG 35.4	Demonstrate interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family	K/S	SH	Y	Bedside clinic	Clinical assessment/ vivavoce			MN 7	Critical contact points and interpersonal communication and counselling for maternal nutrition
OG 35.5	Determine gestational age, EDD and obstetric formula	K/S	SH	Y	Bed side clinic	Skill assessment/ vivavoce			MN 14.	Anthropometry, dietary assessment and counselling
OG 36.2	Organise antenatal, postnatal, well-baby and family welfare clinics	K/S	SH	Y	Bed side clinic	Skill assessment/ vivavoce			MN 7.	Critical contact points and interpersonal communication and counselling for maternal nutrition
Biochemistry										
BI 6.9	Describe the functions of various minerals in the body, their metabolism and homeostasis.	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine	Physiology	MN 5. MN 6.	Nutrient metabolism and nutritional demands of pregnancy. Nutrient metabolism and nutritional demands in lactation.
BI 8.1	Discuss the importance of various dietary components and explain importance of dietary fibre.	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Pathology, Pediatrics, General medicine		MN 8.	Balanced diet for pregnant women and lactating mothers
BI 8.3	Provide dietary advice for optimal health in childhood and adult, in disease conditions like diabetes mellitus, coronary artery disease and in pregnancy	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine		MN 5. MN 6.	Nutrient metabolism and nutritional demands of pregnancy. Nutrient metabolism and nutritional demands in lactation.
BI 8.5	Summarize the nutritional importance of commonly used items of food including fruits and vegetables.(macro-molecules & its importance)	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Community medicine, Pathology, General medicine		MN 8.	Balanced diet for pregnant women and lactating mothers

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
BI 11.23	Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine		MN 5. MN 6.	Nutrient metabolism and nutritional demands of pregnancy. Nutrient metabolism and nutritional demands in lactation.
General medicine										
IM 9.14	Describe the national programs for anemia prevention	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Pharmacology, community medicine		MN 11. MN 13.	Nutritional anemia. Guidelines on maternal nutrition
IM 9.15	Communicate the diagnosis and the treatment appropriately to patients	C	SH	Y	DOAP session	Skill assessment			MN 14.	Anthropometry, dietary assessment and counselling
IM 9.20	Communicate and counsel patients with methods to prevent nutritional anemia	C	SH	Y	DOAP session	Skill assessment			MN 11. MN 14.	Nutritional anemia. Anthropometry, dietary assessment and counselling
IM 12.12	Describe and discuss the iodisation programs of the government of India	K	KH	Y	Lecture/small group discussion	Short note	Community medicine		MN 13.	Guidelines on maternal nutrition
IM 23.1	Discuss and describe the methods of nutritional assessment in an adult and calculation of caloric requirements during illnesses	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	Physiology, biochemistry	Pediatrics	MN 14.	Anthropometry, dietary assessment and counselling
Pathology										
PA 13.4	Enumerate and describe the investigation of anemia	K	KH	Y	Lecture/small group discussion	Written/ Vivavoce	General medicine		MN 11.	Nutritional anemia
Pharmacology										
PH 1.55	Describe and discuss the following National Health Programmes including Immunisation, Tuberculosis, Leprosy, Malaria, HIV, Filaria, Kala Azar, Diarrhoeal diseases, Anaemia & nutritional disorders, Blindness, Non-communicable diseases, cancer and iodine deficiency	K	KH	Y	Lecture	Written/ Vivavoce		Community medicine	MN 13.	Guidelines on maternal nutrition

MCI Number	Competency	Domain	Level	Core	Teaching/learning method	Assessment	Vertical integration	Horizontal integration	MIYCN code	MIYCN topic and competency
Physiology										
PY 11.9	Interpret growth charts	K	KH	N	Small group teaching	Practical/ OSPE/Viva voce	Pediatrics		IYCN 10.	Undernutrition in children: Classification and risk factor.
PY 11.10	Interpret anthropometric assessments of infants	K	KH	N	Small group teaching	Practical/ OSPE/Viva voce	Pediatrics		IYCN 10.	Undernutrition in children: Classification and risk factor.
Forensic Medicine and Toxicology										
FM4.2	Describe the Code of Medical Ethics 2002 conduct, Etiquette and Ethics in medical practice and unethical practices & the dichotomy	K	KH	Y	Small group discussion	Written/ Viva voce	AETCOM		IYCN 9.	Conventions and legislation in support of IYCF
FM4.28	Demonstrate respect to laws relating to medical practice and Ethical code of conduct prescribed by Medical Council of India and rules and regulations prescribed by it from time to time	A and C	SH	Y	Lecture/small group discussion	Written/ Viva voce	AETCOM		IYCN 9.	Conventions and legislation in support of IYCF

ANNEX 2

KEY SERVICES AND MESSAGES FOR PREGNANT WOMEN

PREGNANT WOMEN IN FIRST TRIMESTER

Nutrition interventions[1]	Service provider's actions	Key messages for woman
Initiate weight monitoring and counselling	Measure and record weight and height Calculate BMI BMI based weight gain counselling	Know your weight, height and recommended weight gain
Screening for anaemia	Clinical examination and Haemoglobin measurement for anaemia and record findings in MCP card Advice/ Need based counselling on supplementation, dietary diversification, hygiene, malaria prevention	Know your haemoglobin level. Consume iron and vitamin rich foods – cereals, pulses, nuts, green leafy vegetables, citrus fruits. Non-vegetarians should have organ meals, fish. Sleep under a bed-net if malaria is common in area.
Folic acid supplementation (400 mcg)	Prescribe folic acid tablets as per number of remaining days in the first trimester and explain benefits	
Nutrition education or counselling on increasing daily energy-protein intake to prevent LBW	Undertake dietary assessment Advice on improving quantity and diversity of food (at least five food groups)	Have at least two meals/ day in the first trimester. Consume wholegrain breads, cereals, vegetables and legumes, dried fruit, nuts and seeds, and have vitamin C-rich foods and drinks (fruit, fruit juices and vegetables) with meals
Daily consumption of adequately iodized salt (15 ppm)	Advise consumption of iodized salt	Purchase and use only iodized salt

1 Based on relevant GoI guidelines as well as World Health Organisation recommendations as per Essential Nutriton Actions, 2011 and Antenatal care for positive pregnancy experience, 2016.

PREGNANT WOMEN IN SECOND AND THIRD TRIMESTER

Nutrition interventions[2]	Service provider's actions	Key messages for woman
Weight monitoring and counselling	Measure and record weight Counselling based on weight gain since previous visit	Know your weight gain and recommended weight gain
Screening for anaemia	Review of Hb estimation report and record findings in MCP card Need based counselling for treatment of anaemia, therapeutic supplementation, dietary diversification, malaria prevention	Know your haemoglobin level. Consume iron and vitamin rich foods – cereals, pulses, nuts, green leafy vegetables, citrus fruits. Non-vegetarians should have organ meals, fish. Sleep under a bed-net if malaria is common in area.
Prophylactic IFA (60 mg iron and 500mcg folic acid/ day) and calcium (1g/day) supplementation starting 14th week. IFA for 180 days of pregnancy	Check timely initiation, compliance and address any issues on side effects related to supplementation. Prescribe tablets to cover the remaining period of pregnancy (if not done earlier).	Have calcium tablet with meal and give gap before having IFA tablet. Avoid having milk with IFA tablet. Avoid having tea/ coffee with meals.
Therapeutic IFA supplementation	Prescribe double the number of tablets	
Single dose of 400 mg albendazole (deworming)	DOT for deworming done once during pregnancy	Wash hands before and after meal and after using the toilet. Practice personal hygiene.
Nutrition education or counselling on increasing daily energy-protein intake to prevent LBW	Undertake dietary assessment Advise on improving quantity and diversity of food (at least five food groups)	Have three main meals/ day in second trimester and three meals with two healthy snacks (fruit, milk/dahi, 'laddu', halwa, matthi, or boiled/fried egg) in third trimester. Non-vegetarians should include oily fish, organ meats and eggs. Be physically active at moderate intensity for a total of 30 minutes on most, all days of the week
Daily consumption of adequately iodized salt (15 ppm)	Advise consumption of iodized salt	Purchase and use only iodized salt

Additional themes for advising women close to term and lactating mothers:

1. Early skin to skin contact and initiation of breast feeding (within 1hr)
2. Benefits of colostrums and breast-feeding
3. Dangers of pre-lacteal feeding and artificial feeding.
4. Exclusive breast feeding for 6 months not even water.
5. About IMS act .
6. When to come for follow up visit

2 Based on relevant GoI guidelines as well as World Health Organisation recommendations as per Essential Nutriton Actions, 2011 and Antenatal care for positive pregnancy experience, 2016.

ANNEX 3

COUNSELING CHECKLIST

LISTENING & LEARNING :

- Use helpful non-verbal communication
    - Posture: Keep your head level
    - Distance: Keep appropriate distance
    - Eye Contact: Pay attention
    - Barriers: Remove barriers
    - Taking Time: Take time 'Do not hurry'
    - Touch: Appropriately
- Ask open questions
- Use responses and gestures
- Reflect back
- Empathize
- Avoid judging words

CONFIDENCE BUILDING AND SUPPORT

- Accept
- Recognize and praise
- Give practical help
- Give little relevant information and Check understanding
- Use simple language
- Make one or two suggestions and not commands.

ANNEX 4

Key IYCF messages for caregivers

1. Breastfeeding for at least two years of age helps a child to grow strong and healthy.
2. Children who start complementary feeding after six months grow well.
3. Family foods with a thick, soft consistency nourish and fill the child's stomach - foods that stay easily on the spoon.
4. Animal foods are special food for children.
5. Legumes – peas, beans, lentils and nuts – are good source of nutrients.
6. Vitamin C rich foods help body to absorb iron.
7. Dark green leafy vegetables and orange and yellow coloured fruits and vegetables help the child to have healthy eyes and fewer infections.
8. A growing child needs frequent meals and snacks: give a variety of foods.
9. A growing child needs increasing amount of food.

alive&thrive

nourish. nurture. grow.

MLN Medical College, Allahabad, UP

BRD Medical College Gorakhpur, UP

GSVM Medical College Kanpur, UP

Government Medical College, Kannauj, UP

Anugrah Narayan Magadh Medical College & Hospital, Gaya, Bihar

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