The East, Central and Southern Africa Health Community (ECSA-HC) has continued to undertake advocacy and technical assistance to enable member countries to embrace and scale up nutrition interventions as a key strategy to reduce the burden of malnutrition in the region. Among its member states, ECSA-HC promotes sharing of experiences and best practices, identifying priorities, building capacity and advocating for improved policies and programmes in the region.

Nutrition training of frontline workers is one of the key actions necessary to facilitate the implementation and scaling up of high impact nutrition interventions in the region. Specifically, trained frontline nutrition workforce will improve the service delivery to the end users at all levels.

Since malnutrition has many different causes and consequences, a multi-sectoral approach is needed to address this issue. This in-service nutrition training package aims to build the knowledge, skills and competences of frontline workers working at health facility and community settings in order to improve the nutrition practices and maximize nutritional benefits. This package has been developed to provide technical reference resources that cover nutrition specific and sensitive topics necessary for the frontline workers in all contexts.

It is my hope that the use of this training package will help to strengthen the nutrition practices in our countries in an effort to scale up effective implementation of high impact nutrition interventions in the region.

Professor Yoswa Mbulalina Dambisya

Director General, ESCA-HC

Disclaimer:

The content of this training package can be adapted to suit country specific contexts. In such a case, the content of the resulting document will be the sole responsibility of the organization adapting and will not represent the views of the authors and that of the ECSA-HC. The use of the content of this training package should be duly acknowledged.
ACKNOWLEDGEMENTS

The in-service nutrition training package has been developed by the East Central and Southern Africa Health Community (ECSA-HC) with financial support from the World Bank through project ID P144629.

ECSA-HC wishes to convey profound thanks to all officials from various institutions, specifically the Ministries of Health for their efforts and cooperation in availing data for desk review, participation in various regional and national consultative meetings, online dialogue, pilot of the training packages and all the review processes. Without their commitment the development of these training packages would have been difficult. ECSA-HC would also like to acknowledge coordination of country stakeholders by the nutrition focal persons from the Ministries of Health in Kenya - Ms. Gladys Mugambi, Tanzania - Dr. Vicent Assey and Uganda - Dr. Jacent Asiimwe. Sincere gratitude goes to various training institutions, regulatory bodies, professional councils and other partners who were consulted and contributed to the process.

We appreciate the leadership of Prof. Yoswa Dambisya, the Director General at ECSA-HC and the Non Communicable Diseases and Food Security Nutrition cluster: Ms. Rosemary Mwaisaka (Manager) and Ms. Doreen Marandu (Program Officer) for their tireless efforts and dedication in coordinating this process. We thank Ms. Nomsa Mulima for her monitoring and evaluation input, and all other ECSA colleagues who supported the development process of this training package.

Finally, ECSA–HC appreciates the Centre for Global Child Health at the Hospital for Sick Children (SickKids) in Toronto, Canada, who led the development process of this package.
| UNIT 1: MATERNAL, INFANT AND CHILD NUTRITION | 6 |
| UNIT 2: NUTRITIONAL ASSESSMENT | 54 |
| UNIT 3: MANAGEMENT OF NUTRITIONAL DISORDERS | 89 |
| UNIT 4: LEADERSHIP AND COUNSELLING | 134 |
| UNIT 5: NUTRITION IN VULNERABLE CIRCUMSTANCES | 156 |
| PRACTICUM | 190 |
| ABBREVIATIONS | 218 |
UNIT 1:
MATERNAL, INFANT AND CHILD NUTRITION
UNIT 1: MATERNAL, INFANT AND CHILD NUTRITION

INTRODUCTION

This introductory unit is designed to give background on nutrition across the lifecycle, starting from infancy until adulthood. Maternal and child nutrition including the requirements and importance of infant and young child feeding is also discussed.

COMPETENCIES & UNIT OBJECTIVES

Key Professional Abilities (Competencies)

a. Nutrition Care: Provide service to meet the nutrition care needs of person/community.
b. Community Health: Promote nutrition health of groups and communities.
c. Professional practice: Demonstrates professionalism in delivery of safe, competent and ethical care.
d. Communication and Collaboration: Communicate effectively and practice collaboratively.

Unit Objectives:

By the end of this unit participants will be able to:

• Identify the forms and consequences of malnutrition
• Demonstrate knowledge of key macronutrients and micronutrients in food
• Explain the importance of nutrition in women and common nutritional deficiencies in women of reproductive age
• Describe appropriate and recommended Infant and Young Child Feeding (IYCF) practices
• Recognize the nutritional requirements in school-age children and the implications on future health
• Discuss the detrimental effects of an unhealthy diet on adolescent health

UNIT CONTENT

1. Introduction to Nutrition
   • Forms of Malnutrition
   • Macronutrients
   • Micronutrients

2. Nutrition in Women of Reproductive Age
   • Nutrition in Adolescent Girls
   • Recommendations

3. Nutrition in Pregnant and Lactating Women
   • Recommendations for Intake and Supplementation

4. Nutrition in Children
   • Breastfeeding
   • Complementary Feeding
   • Nutrition in School-Age Children

5. Water, Sanitation and Hygiene (WASH)
SESSION 1

INTRODUCTION TO NUTRITION
SESSION 1: INTRODUCTION TO NUTRITION

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Identify the forms and consequences of undernutrition and overnutrition
• Demonstrate knowledge of key macronutrients and micronutrients in food

SESSION CONTENT

Introduction to Nutrition
• Forms of Malnutrition
• Macronutrients
• Micronutrients
WHAT IS NUTRITION?

Nutrition is the science that studies food and how food nourishes our bodies and influences our health.

It is the intake of food and the interplay of biological, social and economic processes that influence the growth, function and repair of the body.

Malnutrition occurs when nutrient and energy intake does not meet or exceeds an individual's requirements to maintain growth, immunity and organ function. It is a general term and covers both undernutrition and overnutrition.

FORMS OF MALNUTRITION

Malnutrition includes both types - undernutrition and overnutrition.

Undernutrition is the consequence of an insufficient intake of energy, macronutrients and/or micronutrients, poor absorption or loss of nutrients due to illness or increased energy requirements. In general terms, it can be an outcome of insufficient quantity and quality of food and frequent episodes of infectious disease. Undernutrition describes a range of conditions including being underweight, short, thin and/or deficient in vitamins and minerals.

Overnutrition is the consumption of excess energy or excess intake of a specific nutrient. It can result in impaired body functions, chronic diseases, as well as, overweight and/or obesity. It results from too much nutrient intake relative to nutrient requirements based on age, gender, physical activity, height, weight, and health status of the individual.

FORMS OF UNDERNUTRITION

Undernutrition can manifest as:

- Acute malnutrition
- Chronic malnutrition

Acute Malnutrition: This is usually a result of acute or short-term insufficient food intake often combined with frequent illness. It usually manifests with an acute loss of weight as a consequence of loss of fat and muscle. The two important clinical forms are:
  - Moderate Acute Malnutrition (MAM)
  - Severe Acute Malnutrition (SAM)

Chronic Malnutrition: Inadequate nutrition over a long period of time leading to possible failure of linear growth. Maternal undernutrition can also result in stunting in children – a manifestation of chronic malnutrition.
SESSION 1: INTRODUCTION TO NUTRITION

MANIFESTATIONS OF UNDERNUTRITION

The most commonly used indicators of undernutrition are:

- **Stunting**: Stunting refers to a height-for-age below –2 z-score from the WHO Child Growth Standards and is a consequence of chronic malnutrition or long-term insufficient energy or micronutrient intake or repeated infections (or a chronic infection).

- **Wasting**: Wasting refers to a weight-for-height below -2 z-score from the WHO Child Growth Standards or a below normal body mass index (in adults) – which is a consequence of acute malnutrition. It usually results from acute or short-term insufficient food intake often combined with frequent illness.

- **Underweight**: Underweight is a weight-for-age below -2 z-score from the WHO Child Growth Standards. This can result from either acute or chronic malnutrition. It is an indicator assessing adequacy of weight-for-age, the causes of which can be short-term or long-term and are sometimes difficult to define.

- **Micronutrient deficiencies**: Micronutrient deficiencies are the critical lack of certain vitamins and minerals (e.g. vitamin A, vitamin D, zinc, iodine) that are essential for human survival, health and well-being. These nutrients are required in very small quantities hence they are called micronutrients. These deficiencies can result from a poor quality diet or from frequent illness which may increase requirement, utilization or loss of nutrients.

IMPACT OF UNDERNUTRITION IN CHILDHOOD

Undernutrition in children can cause several long-term consequences with detrimental effects on:

- Linear growth
- Language ability
- Psychological development in adolescence
- Ability to be employed in adulthood
THE MALNUTRITION AND INFECTION CYCLE

The cycle of undernutrition and infection is well established. Poor nutrition is both a cause and consequence of infection, and infections are both a cause and consequence of poor nutrition. Importantly, poor nutrition causes decreased immunity and increased susceptibility and recurrence of infections. Infections can further lead to poor appetite, loss of nutrients and lack of nutrient absorption. This vicious cycle is especially concerning in children as it can cause impaired growth and development.

OVERNUTRITION

Overnutrition is the consumption of excess energy or excess intake of a specific nutrient. Effects of overnutrition include increased lifetime risk of chronic diseases, including diabetes, cardiovascular disease, and cancer. Overnutrition can lead to both overweight and obesity.

The double burden of malnutrition refers to the dual burden of under- and overnutrition occurring simultaneously within a population.

BMI is a simple index of weight-for-height that is used to classify underweight, overweight and obesity in adults. It is defined as the body weight in kilograms divided by the square of the height in meters. A BMI of 18.5-24.9 is considered normal weight. A BMI of 25 -29.9 is considered overweight. A BMI of over 30 is considered obese.

CAUSES OF OVERWEIGHT & OBESITY

Overweight and obesity are caused by 2 main factors.

1. Unhealthy Diet – Increase in consumption of high-calorie, high-fat, high-sugar and nutrient-poor foods such as ready-to-eat meals, fast food and soft drinks. Generally such foods are readily available, relatively cheap and heavily promoted.
2. Sedentary Lifestyle – People have become increasingly sedentary and do not get enough physical activity which increases the risk of overweight and obesity. With urbanization, more are dependent on buying food instead of growing or harvesting themselves.
SESSION 1: INTRODUCTION TO NUTRITION

CHILDHOOD OBESITY

Several factors can contribute to childhood obesity such as:

- Poor breastfeeding practices
- Unhealthy diets
- Lack of parental awareness of healthy nutrition options
- Financial constraints
- Cultural norms
- Sedentary lifestyles

CONSEQUENCES OF OVERWEIGHT AND OBESITY

Maternal and childhood obesity can lead to an increase in the risk of non-communicable diseases such as cardiovascular disease and diabetes. Moreover, maternal obesity can also cause pregnancy complications.

UNHEALTHY DIETARY PATTERNS

Some common unhealthy dietary habits and patterns are:
SESSION 1: INTRODUCTION TO NUTRITION

KNOWLEDGE CHECK 1

Mark each of the following statements TRUE or FALSE:

a. Childhood obesity increases the chances of obesity in adulthood
b. Sedentary lifestyle is a contributing factor for obesity
c. High-fat and high-sugar diets in infants are not associated with future obesity
d. BMI is a measurement used to identify physical activity level

NUTRIENTS

Nutrients are components in foods that people need to survive and grow. There are two types of nutrients: macronutrients and micronutrients.

Macronutrients provide the bulk of energy an organism’s metabolic system needs to function, while micronutrients provide the necessary cofactors for metabolism to be carried out. Both types of nutrients can be acquired from the environment. Macronutrients can be classified as carbohydrates, proteins, fats and water whereas micronutrients are classified as vitamins and minerals.

CARBOHYDRATES

• Carbohydrates provide the body with energy to keep alive, build and repair tissues, stay warm, and move and work.
• 45-65% of daily calories should come from carbohydrates (USDA); 55-75% (WHO)
• Major food sources include: Starchy roots and tubers (cassava, yams, potatoes), fruits (mangoes, papaya, guavas), grains (rice, maize), beans, legumes, milk and yogurt. Sugar products like fizzy drinks, cookies, and candies are examples of refined carbohydrates.
• The type of carbohydrate is more important than the quantity. Foods high in fibre such as fruits, vegetables, beans, legumes and whole grains have many health benefits while more refined carbohydrate-containing foods such as those with refined sugars or grains have the least benefit (can increase the risk for diabetes).
SESSION 1: INTRODUCTION TO NUTRITION

PROTEINS

• Proteins provide the body with essential amino acids that have a range of functions: growth and development, repair or replacement of tissues, production of metabolic and digestive enzymes, and production of some hormones.
• At least 10-35% of daily calories should be from proteins.
• Major food sources include: meat, poultry, fish, cheese, milk, nuts, legumes, and in smaller quantities in starchy foods and vegetables.

FATS

• Fats are the most ‘feared’ nutrient because of their tendency to cause weight gain, as well as, the fact that they are increasingly difficult to recognize in processed foods.
• Fats are a concentrated source of energy which provide the body with essential fatty acids necessary to build cell membranes and to make hormones. They also help the body to absorb and transport a group of essential vitamins. Moreover, they are necessary for growth, reproduction, skin integrity, to maintain cells and to use body fat for energy.
• 20-35% of daily calories should come from fats.
• Major food sources include:
  • Monounsaturated and Polyunsaturated Fats: Olive oil, avocados, nuts, seeds, fish, vegetable oils, sunflower oil, canola oil
  • Saturated and Trans-Fats: Cream, lard, fried foods, snacks, baked goods

IMPORTANCE OF WATER IN NUTRITION

• Water is the body’s principal fluid. It makes up about 60 percent of the body weight and is important for many body functions importantly, removing wastes, regulating body temperature and lubricating joints.
• Water is found in many beverages and foods including fruits, vegetables, milk, juice and soup.
• Recommendations for fluid intake per day varies based on age, gender, climate and activity level. During pregnancy, drinking fluids is even more important as the body is going through many changes.
SESSION 1: INTRODUCTION TO NUTRITION

MICRONUTRIENTS

Micronutrients are vitamins and minerals that are essential for human survival, health and well-being. These nutrients are required in very small quantities hence the name micronutrients.

Vitamins

- Vitamins are a group of organic compounds that play important functions in the body. Some vitamins can be stored in the body and need to be eaten often but not every day (fat-soluble vitamins A, D, E and K), while others cannot be stored and should be eaten daily (water-soluble B vitamins, vitamin C). The body can synthesize vitamin D when exposed to sunlight.
- Vitamins play different roles in helping the body in important ways. Some examples include building protein and cells, protecting cells from damage, building bones, protecting vision, metabolizing macronutrients, and helping to heal wounds. Without essential vitamins, there are several nutritional deficiencies that can result.

Minerals

- Minerals are solid, inorganic group of compounds that may be thought of as essential building blocks of different types of cells.
- Essential minerals include iron, zinc, calcium, and iodine among others. For example, iron is part of red blood cells, which transport oxygen through the body. Zinc has many critical functions in the body involving growth, development and immunity.

Hidden Hunger

Hidden hunger is the phrase used to describe the critical lack or deficiency of these micronutrients. This is the ‘hunger’ that is usually neither obvious nor felt, but has threatening consequences for population’s physical and mental health, especially for pregnant mothers and growing children. More than 2 billion people worldwide suffer from hidden hunger. Factors that contribute to micronutrient deficiencies include a poor diet and certain life events that would increase micronutrient requirements (pregnancy and lactation, diseases or parasitic infections).

FOOD GROUPS

Food can be categorized into various food groups, within a food pyramid or plate. Healthy eating requires a diversity of foods from each food group in order to ensure adequate intake of macronutrients and micronutrients.
Food groups can be used as a guide for healthy eating. The main food groups are:

- Grains (including roots and tubers)
- Vegetables & Fruits
- Meats & Alternatives (including legumes, nuts, seeds, poultry, fish and eggs)
- Milk & Alternatives
- Fats & Oils

**Grains (including roots and tubers)**

Grain products, such as porridge, breads, chapati and cereals are mainly composed of flours (maize, rice, wheat, millet, sorghum) and are sources of carbohydrates. Choosing high quality grains such as whole grains with fibre is important for slower absorption. Slow absorption helps to lower cholesterol and maintain steady blood sugar levels.

**Servings Per Day:**
- Adults (19-51+ years) 7-10
- Adolescents (9-18 years) 6-7
- Children (4-8 years) 4
- Children (2-3 years) 3

**Serving Sizes:**
- 1 slice bread (35 g)
- ½ chapati (35 g)
- 125 mL (½ cup) cooked rice
- 30 g cold cereal or 175 mL (¾ cup) hot cereal
Vegetables & Fruits
A rich assortment of coloured vegetables and fruits is important for a healthy diet. This includes dark leafy greens, root vegetables, bright red, yellow and orange fruits and vegetables. Importantly, fruits and vegetables contain fibre that is essential for optimal digestion.

Servings Per Day:
Adults (19-51+ years) 7-10
Adolescents (9-18 years) 6-8
Children (4-8 years) 5
Children (2-3 years) 4

Serving Sizes:
• 125 mL (½ cup) fresh or canned vegetable
• 125 mL (½ cup) of 100% fruit juice
• 250 mL (1 cup) leafy raw vegetables or salad
• 1 piece of fruit

Meat & Alternatives (including legumes, nuts, seeds, poultry, fish and eggs)
Animal-sources, such as red meat, poultry, eggs and fish are excellent sources of protein. There are also plant-sources of protein such as legumes, nuts and seeds. The recommended intake is 8 grams of protein for every 20 pounds of body weight. For adult women over 19 years of age, this should equal approximately 46 grams of protein per day, and for adult men, approximately 56 grams of protein per day.

Servings Per Day:
Adults (19-51+ years) 2-3
Adolescents (9-18 years) 2-3
Children (4-8 years) 1
Children (2-3 years) 1

Serving Sizes:
• 75 g /125 mL (½ cup) cooked fish, shellfish, poultry or lean meat
• 175 mL (¾ cup) cooked beans
• 2 eggs
• 30 mL (2 tbsp) groundnut paste
**Milk & Alternatives**

Intake of products such as milk, yogurt, cheese and or alternative fortified plant-sourced products such as soy, and rice milk are necessary to supply essential vitamins and minerals such as calcium and vitamin D. Choosing lower fat milk product options is important for healthy eating.

Servings Per Day:
- Adults (19-51+ years) 2-3
- Adolescents (9-18 years) 3-4
- Children (4-8 years) 2
- Children (2-3 years) 2

Serving Sizes:
- 250 mL (1 cup) milk or fortified soy beverage
- 175 g (¾ cup) yogurt
- 50 g cheese

**Fats & Oils**

Including a small amount, (2 to 3 tablespoons/30-45 mL) of unsaturated fat each day is important for the absorption of some vitamins and minerals. Choosing healthy fats from avocados and nuts, or plant-based oils for cooking (canola, olive, soybean) is important for a healthy diet. Limit butter, margarine, lard and shortening to 1 tsp per day as they are high in saturated and trans-fats.

It is important to note that alcohol, food and drinks containing refined sugars do not fall into one of the food groups and therefore should be consumed sparingly.
FORTIFICATION AND ENRICHMENT

Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.

Enrichment is synonymous with fortification and refers to the addition of micronutrients to a food irrespective of whether the nutrients were originally in the food before processing or not.

These labels signify that the food has met each respective countries’ food fortification standards.

MEAL PLANNING

Like food groups, a healthy eating plate is another way patients, clients and communities can be guided on food choices and servings. As depicted in the illustration, making half of your plate vegetables and fruits, a quarter of your plate grains, a quarter of your plate with protein and healthy fats and oils in moderation is key for healthy eating. Drinking water instead of sugary drinks and alcohol (including juice) is important too. Finally, staying active is critical in maintaining a healthy body weight and preventing the development of non-communicable diseases.
PHYSICAL ACTIVITY RECOMMENDATIONS

Children and adolescents (5-17 years): 60 minutes of moderate to vigorous intensity physical activity daily; activities that strengthen muscle and bones should be done at least 3 times per week.

Adults (18-64 years): 150 minutes of moderate intensity physical activity during the week or 75 minutes of vigorous activity during the week; muscle strengthening activities should be done 2 or more days per week. For additional health benefits, moderate intensity physical activity can be increased to 300 minutes per week.

Adults (65 years+): 150 minutes of moderate intensity physical activity during the week or 75 minutes of vigorous activity during the week; muscle strengthening activities should be done 2 or more days per week. For those with poor mobility, physical activity to enhance balance and prevent falls, 3 or more days a week.

Moderate Intensity – Walking, cycling, gardening, housework and domestic chores, building tasks, sports, lifting moderate loads (<20 kg)

Vigorous Intensity – Running, climbing hills, fast cycling, aerobics, fast swimming, heavy digging, lifting heavy loads (>20 kg)
SESSION 2
NUTRITION IN WOMEN OF REPRODUCTIVE AGE
SESSION 2: NUTRITION IN WOMEN OF REPRODUCTIVE AGE

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Identify the importance of nutrition in women and common nutritional deficiencies in women of reproductive age
• Discuss associated risk factors that affect adolescents’ health
• Explain the detrimental effects of an unhealthy diet on adolescent health

SESSION CONTENT

Nutrition in Women of Reproductive Age
• Nutrition in Adolescent Girls
• Nutritional Recommendations
SESSION 2: NUTRITION IN WOMEN OF REPRODUCTIVE AGE

WOMEN’S NUTRITION

Women’s nutrition is critical throughout their entire life especially in the reproductive age (15-44 years of age). Maternal nutrition is important for optimal fetal and infant growth and development, as well as child survival.

Maternal undernutrition is associated with short stature, iron deficiency anemia and delivery complications. Moreover, it can lead to poor pregnancy outcomes, such as:
• stillbirths
• preterm delivery
• low birth weight babies
• obstructed labour
• birth asphyxia

THE IMPORTANCE OF NUTRITION IN ADOLESCENCE

The rapid growth that occurs in adolescence, second only to that in the first year of life, creates increased demands for energy and nutrients. Total nutrient needs are higher during adolescence than any other time in the lifecycle. Inadequate nutrition can affect sexual maturation and development. Moreover, optimal nutrition is vital to prevent diet-related non-communicable diseases of adulthood such as cardiovascular diseases or diabetes.

Gender-specific nutrient needs change during this period, where dietary reference intakes of macronutrients and micronutrients are slightly higher in males as their requirements are more. Also, there are many factors that can disrupt optimal adolescent nutrition. For instance, cultural practices or poor access to nutritious foods can alter intake. On top of this, early pregnancies, infections and sedentary lifestyles can contribute and worsen poor nutrition status.

IMPACT OF NUTRITION ON ADOLESCENT GIRLS

Implications of nutritional deficiencies are especially critical for adolescent girls. Growth spurts, menstrual blood losses and poor dietary intake put them at increased risk of nutritional deficiencies, especially iron deficiency. Early marriages and pregnancies put adolescent girls at even a greater risk. Optimal nutrition during this time is critical.

AVERAGE ENERGY REQUIREMENTS OF WOMEN OF REPRODUCTIVE AGE

Average energy requirements for women 15-44 years are just under 2500 kilocalories per day.
NUTRITIONAL DEFICIENCIES

The most common deficiency is iron deficiency anemia (IDA) due to menstrual losses and rapid growth during this period. Also, calcium deficiency is often observed as skeletal growth increases. Other micronutrients are also important as they are integral to growth, but their deficiency is not as prevalent.

CONSEQUENCES OF ADOLESCENT OVERWEIGHT AND OBESITY

On the other end of malnutrition, overweight and obesity can impact adolescents both short-term and long-term. For example, hyperglycemia or increased short-term blood sugar could develop into a long-term disorder, type 2 diabetes.

KNOWLEDGE CHECK 2

Adolescent girls are mostly vulnerable to which one of the following micronutrient deficiencies?

a. Calcium deficiency
b. Zinc deficiency
c. Iron deficiency
d. Vitamin A deficiency
e. Iodine deficiency
SESSION 3
NUTRITION IN PREGNANT AND LACTATING WOMEN
SESSION 3: NUTRITION IN PREGNANT AND LACTATING WOMEN

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Describe recommendations for weight gain and nutrient intake during pregnancy

SESSION CONTENT

Nutrition in Pregnant and Lactating Women
• Energy and Micronutrient Recommendations
• Weight Gain Recommendations
SESSION 3: NUTRITION IN PREGNANT AND LACTATING WOMEN

IMPORTANCE OF NUTRITION

Nutrition of the mother during pregnancy and lactation is critical for both the mother’s health as well as the health of the fetus and infant. Nutrition in the first 1000 days of a child’s life (from conception till 24 months of age) is an important determinant of future growth and development.

Energy needs during pregnancy are increased to provide for:
- Growth of fetus, placenta and maternal tissues
- Increased metabolic demands of pregnancy
- Cardiovascular and respiratory activity
- Maintaining maternal weight, body composition and physical activity throughout pregnancy
- Adequate energy stores for lactation

ENERGY NEEDS DURING PREGNANCY

The recommended extra energy intake during pregnancy is:
- 85 kcal/day (first trimester)
- 285 kcal/day (second trimester)*
- 475 kcal/day (third trimester)

*In many instances, women do not seek prenatal care until the second trimester and in such circumstances it is advised that they increase their energy intake by 360 kcal/day in second trimester to compensate for increased energy requirements.

GUIDELINES FOR PREGNANT AND LACTATING WOMEN

Recommendations for carbohydrate, protein and omega-3 daily intake are greater in pregnant women as compared to pre-pregnant women in order to reduce the risk of low birth weight neonates. In addition, in lactating women, carbohydrate intake must be increased even more than the recommendation for pregnant women. This is important because lactating females require extra carbohydrates to produce milk. Lactating women are recommended to take an extra 450 kcal/day.
RECOMMENDED WEIGHT GAIN

Guidelines for gestational weight gain during pregnancy have been recommended by the WHO. It is important to note that women who are overweight or obese prior to pregnancy should not gain as much weight as a woman with a normal pre-pregnancy BMI. This table is also in your job aids.

<table>
<thead>
<tr>
<th>WEIGHT CATEGORY (PRE-CONCEPTION)</th>
<th>TOTAL WEIGHT GAIN IN PREGNANCY (KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight: BMI under 18.5</td>
<td>13-18 kg</td>
</tr>
<tr>
<td>Normal weight: BMI 18.5 – 24.9</td>
<td>11-16 kg</td>
</tr>
<tr>
<td>Overweight: BMI 25-29.9</td>
<td>7-11 kg</td>
</tr>
<tr>
<td>Obese: BMI greater or equal to 30.0</td>
<td>5-9 kg</td>
</tr>
</tbody>
</table>

MATERNAL OVERWEIGHT DURING PREGNANCY

If a mother is overweight or obese prior to pregnancy, or gains more than an optimal amount of weight during pregnancy it can lead to complications such as:

- Gestational diabetes (high blood sugar levels during pregnancy)
- Pre-eclampsia (a condition characterized by high blood pressure and loss of protein in the urine)
- Obstructed labor

MICRONUTRIENT SUPPLEMENTATION RECOMMENDATIONS

The WHO has encouraged the use of micronutrient supplementation, especially iron and folic acid, to prevent maternal anemia, low birth weight, and preterm birth. As well, vitamin A supplementation during pregnancy may be required in areas of severe vitamin A deficiency to prevent night blindness. Iodine supplementation may also be required in areas with low coverage of iodized salt.
KNOWLEDGE CHECK 3

All of the following statements regarding nutritional requirements during pregnancy are true EXCEPT:

a. Iron and folic acid are available as a combined supplement for pregnant women
b. Folic acid supplementation should be started preconception
c. Calcium supplementation in pregnancy can help reduce risk of hypertensive disorders of pregnancy
d. All women should gain 11-16 kg of weight during pregnancy
e. Iron supplements should be taken throughout pregnancy
SESSION 4

NUTRITION IN CHILDREN
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Explain the importance of adequate nutrition in infancy and childhood
• Describe appropriate and recommended Infant and Young Child Feeding (IYCF) practices
• Identifying key nutritional issues in school-age children

SESSION CONTENT

Nutrition in Children
• IYCF Definitions
• Principles of Breastfeeding
• Principles of Complementary Feeding
• Nutrition in School-Age Children
The first 1,000 days of life – from conception to 24 months of age - is a critical window of opportunity for growth and development. Optimal nutrition is important for development, cognition, immunity and prevention of non-communicable diseases in later life. Exposure to poor nutrition during this time can increase the odds of stunting, morbidity and mortality.

INFANT & YOUNG CHILD FEEDING

The WHO highlights three important feeding milestones in an infants’ life. These are:

- Within 1 hour of birth
- 6 months after birth
- At 6-24 months of age

Breastfeeding should be initiated within 1 hour of birth and continued exclusively till 6 months of age.

Nutritional and safe complementary foods should be introduced at 6 months of age, together with continued breastfeeding up to 24 months of age or beyond.

IYCF TERMS

The WHO defines exclusive breastfeeding as when an infant receives only breast milk from the mother, or expressed breast milk, and no other liquids or solids, not even water, with the exception of oral rehydration solution or medicines in the form of drops or syrups. Exclusive breastfeeding is recommended for the first 6 months of life.

Complementary feeding is defined as the process starting when breast milk is no longer sufficient to meet the nutritional requirements of infants and other foods and liquids are needed, along with breast milk. Introduction of complementary feeding can be initiated at 6 months of age and continued through to 23 months, even though breastfeeding may continue during this time and beyond two years.
The WHO has provided 7 principles of breastfeeding, in order to encourage optimal breastfeeding practice. (Participants can consult their IYCF counselling cards in their job aids, for visuals)

1. Place infant skin-to-skin with mother immediately after birth
   • This stimulates bonding and brain development
   • Also helps stimulate milk production and colostrum

Colostrum is the first milk secreted by the breast in the first few days after childbirth. Colostrum is high in carbohydrates, proteins and antibodies that are passed to the infant.

2. Initiate breastfeeding within first hour of birth
   • Make sure baby is well attached
   • Colostrum (or first milk) is yellowish and full of antibodies

3. Exclusively breastfeed from 0-6 months
   • Only give breastmilk to infant for first 6 months
   • Do not give anything else to infant for first six months, not even water

4. Breastfeed frequently (day and night)
   • Most newborns want to breastfeed 8-12 times a day
   • Frequent breastfeeding helps produce more breastmilk

5. Breastfeed on demand every time the baby asks to be breastfed
   • Crying is a late sign of hunger
   • Early signs that baby wants to be breastfed:
     • Restlessness
     • Opening mouth and turning head side to side
     • Putting tongue in and out
     • Sucking on fingers or fists

6. Let infant finish one breast and come off by him/herself before switching to other breast
   • Switching from one breast to the other prevents infant from getting nutritious hindmilk.
     • Foremilk: more water content, quenches thirst
     • Hindmilk: more fat content, satisfies hunger
7. Good positioning and attachment
   • Signs of good positioning:
     • Baby’s body is straight, facing the breast
     • Baby’s body is close to mother
     • Baby’s head, shoulders and hips should be aligned
     • Mother should support baby’s whole body
   • Signs of good attachment:
     • Mouth wide open
     • Chin touching breast
     • More areola showing above than below the mouth
     • Lower lip turned out
     • Baby’s sucking should not hurt mother

BENEFITS OF BREASTFEEDING

Breastfeeding provides benefits to both the child and the mother.

Child
• Improved growth and nutrition status
• Decreased mortality
• Increases immunity
  • Fewer ear infections
  • Fewer skin conditions
  • Fewer gastrointestinal disorders
  • Less diarrhea
  • Fewer respiratory infections
• Increased bonding
• Lower risk of chronic diseases (diabetes, heart disease, asthma, some cancers)
• Lower risk of being overweight or obese
• Improved cognitive and motor development

Mother
• Less postpartum depression
• Less likely to become pregnant in early months
• Lower risk of maternal cancers:
  • Ovarian
  • Breast
• Faster maternal recovery and weight loss postpartum
RISKS OF ARTIFICIAL FEEDING

Artificial Feeding is when an infant is fed only on a breast milk substitute. It is strongly discouraged within the first 6 months as there are many risks to physiological and psychological health for both mother and child.

**Child**
- Poorer growth and nutrition status
- Increased mortality
- Increased:
  - Ear infections
  - Skin conditions
  - Gastrointestinal disorders
  - Diarrhea
  - Respiratory infections
- Interferes with bonding
- Higher risk of chronic diseases (diabetes, heart disease, asthma, some cancers)
- Increased risk of being overweight or obese
- Lower scores on intelligence tests

**Mother**
- More postpartum depression
- More likely to become pregnant
- Increased risk of maternal cancers:
  - Ovarian
  - Breast
- Slower maternal recovery and less weight loss in the postpartum period
COMPLEMENTARY FEEDING

The WHO recommends timely and adequate complementary feeding starting at 6 months of age. This means all infants should start receiving foods in addition to breast milk from 6 months onwards. It is recommended to start the infant on a complementary diet at 6 months because:

- They have increased energy and nutrient needs which cannot be met by breast milk alone at this age
- Starting complementary feeding before 6 months can put the infant at risk of infections, especially diarrhea
- They are developmentally ready for other foods

It should be adequate, meaning that the complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding.

Foods should be prepared and given in a safe manner, meaning that measures are taken to minimize the risk of contamination with pathogens.

PRINCIPLES OF COMPLEMENTARY FEEDING OF THE BREASTFED CHILD

The WHO recommends to follow these principles for complementary feeding:

1. Practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age while continuing to breastfeed.
2. Continue frequent on-demand breastfeeding until 2 years of age or beyond.
3. Practice responsive feeding by responding to the needs of a child (avoid force-feeding).
4. Practice good hygiene and proper handling of food.
5. Start at 6 months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding.
6. Gradually increase food consistency and variety as the infant grows older, adapting to the infant’s requirements and abilities.
7. Increase the number of times the child is fed complementary foods as the child gets older.
8. Feed a variety of nutrient-rich foods to ensure all nutrient needs are met.
9. Use fortified complementary foods or vitamin-mineral supplements for the infant, as needed.
10. Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft foods. After illness, give food more often than usual and encourage the child to eat more.
MINIMUM DIETARY DIVERSITY

Minimum Dietary Diversity (MDD) is the proportion of children, 6–23 months of age, who receive foods from four or more of the 8 food groups. MDD is important for optimal growth and development of children. Assessing MDD can help make recommendations for complementary feeding. Please note that this food group classification applies to children 6-23 months of age as part of the MDD concept.

These food groups are:
- Grains, roots and tubers
- Legumes and nuts
- Dairy products (milk, yogurt, cheese)
- Flesh foods (meat, fish, poultry and liver/organ meats)
- Eggs
- Vitamin-A rich fruits and vegetables
- Other fruits and vegetables
- Fats and oils

COMPLEMENTARY FEEDING & MICRONUTRIENT POWDERS (MNPs)

Micronutrient powders are single-dose packets of vitamins and minerals in powder form that can be sprinkled onto any ready to eat semi-solid food consumed at home, school or any other point of use. The powders are used to increase the micronutrient content of a child’s diet without changing their usual dietary habits.

In populations where the prevalence of anemia in children under 5 years of age is 20% or higher, the WHO recommends home fortification of complementary foods with iron-containing micronutrient powders in infants and young children aged 6–23 months to improve iron status and reduce anemia.

![Suggested scheme for point-of-use fortification with multiple micronutrient powders of foods consumed by infants and children 6–23 months of age](image-url)
Complementary Feeding - What Foods to Give and Why?

Complementary foods that should be given to children after 6 months include:
- Milk Products, which are rich in calcium
- Staple Foods, which provide energy from carbohydrates and sometimes protein
- Animal-Source Foods including fish, which are rich in vitamin A (liver), iron, zinc, omega-3’s
- Green Leafy/Orange Vegetables, which are rich in vitamin A, vitamin C

Other complementary foods to be familiar with are:
- Seeds, which provide energy from protein
- Pulses, also provide protein and are sources of iron
- Oils and fats, which provide energy and fatty acids

Young children need foods rich in energy and nutrients because their stomachs are small and they cannot eat large amounts at each meal.

Porridge is the most common food for young children, but its energy and nutrient content is often too low to meet their needs fully. During cooking, these flours absorb much water, which makes them bulky and thick. If water is added to make the porridge less thick and easier for young children to eat, its energy and nutrient content is further decreased. Children would need to eat large quantities of such diluted porridge in order to meet their energy and nutrient needs, but because of their small stomachs it is difficult to consume large amounts.

Ways to make porridges more energy and nutrient-rich, and easy to eat are by:
- Adding energy-rich (e.g. oil, butter/ghee) and nutrient-rich foods (such as flours of groundnut and other legumes, or sunflower seed) to the porridge
- Making porridges with germinated or fermented cereal flours

Snacks also can be provided to young children such as:
- Fruits – mango, pawpaw, banana, avocado
- Boiled eggs
- Crackers, chapati or bread with groundnut paste or peanut butter
- Small pieces of boiled or fried cassava, plantain or yam
- Puddings, yogurt
KNOWLEDGE CHECK 4

Mark each of these statements on breastfeeding and complementary feeding as TRUE or FALSE:

a. Complementary feeding should be done in combination with breastfeeding by the introduction of small amounts of food each day.
b. It is preferable the complementary foods should be of a watery consistency.
c. Exclusive breastfeeding begins from 1 hour after birth to 1 year of age.
d. Fortified complementary foods should be fed to infants if needed after 6 months of age.

NUTRITION IN SCHOOL-AGE CHILDREN (SAC)

The school-age (6-12 years) is a period of continued physical growth and rapid cognitive and emotional development. Many girls will even experience their pubertal growth spurt during these years. Nutritional deprivation and disease in this group is very common and has long-term consequences.

Nutrition problems in this age group can include:

**Stunting**
Children stunted at school-age most likely experience poor nutrition in early childhood. Although the degree of stunting tends to increase in the school-age, an improvement in nutrition and living conditions can promote catch-up growth.

**Underweight**
Like stunting, underweight in this age group can be a consequence of poor prenatal nutrition status, nutrient deficiencies, infections or even inadequate caregiving.

**Wasting**
Wasting is not as common in SAC as stunting or underweight. However, acute food crises can change that.
Overweight
With rapid urbanization and nutrition transition, overweight and obesity is a growing issue amongst SAC, with the fastest growing prevalence rate in low- and middle-income countries. Overweight SAC have a greater risk of non-communicable disease later in life as well as more immediate consequences such as reduced quality of life and social isolation.

SAC need healthy foods and nutritious snacks. They have a consistent rate of growth and usually eat 4 to 5 times a day (including snacks). Many food habits, likes, and dislikes are set during this time which can contribute to stunting, underweight and overweight.

MICRONUTRIENT DEFICIENCIES IN SAC

SAC are at risk of micronutrient deficiencies because of increased energy needs. The following lifestyle factors can further increase this risk:

- Decreased meal frequency
- Inadequate caregiver attention
- Unhealthy food choices

Parasitic infections are most prevalent in this age group, which also increases the risk of micronutrient deficiencies especially iron deficiency.

The following table indicates the micronutrient requirements for children aged 4-8 years old.

<table>
<thead>
<tr>
<th>MICRONUTRIENTS</th>
<th>MALES &amp; FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>400 mcg RAE</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>600 IU</td>
</tr>
<tr>
<td>Zinc</td>
<td>5 mg</td>
</tr>
<tr>
<td>Iron</td>
<td>10 mg</td>
</tr>
<tr>
<td>Iodine</td>
<td>90 mcg</td>
</tr>
<tr>
<td>Vitamin B\textsubscript{12}</td>
<td>1.2 mcg</td>
</tr>
<tr>
<td>Folate</td>
<td>200 mcg</td>
</tr>
</tbody>
</table>

mcg - micrograms  
IU- international units  
mg- milligrams  
RAE- Retinal Activity Equivalents
SESSION 5
WATER, SANITATION AND HYGIENE (WASH)
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Apply WASH concepts to improve health outcomes related to nutrition

SESSION CONTENT

WASH
• Importance of WASH
• Reducing Transmission Strategies
• WHO Protocol of Proper Handwashing
• Handwashing Activity
The WHO states that ‘access to safe drinking water and basic sanitation is essential to human health and survival.’ Water, Sanitation and Hygiene (WASH) are critical components in improving health and nutrition status of vulnerable populations.

Maternal, infant and child nutrition is severely impacted with poor WASH practices. Pregnant mothers, infants and children have higher rates of anemia, illness and death due to water-related pathogens. Pregnant women and children under two are particularly vulnerable because they have weaker immune systems. Common diseases that have a direct link to WASH include diarrhea, typhoid, hepatitis A, cholera and soil-transmitted helminthes.

INTERVENTIONS TO REDUCE TRANSMISSION

As a health-facility worker, it is your job to educate patients on interventions to reduce transmission. It is important to remember to wash your hands before and after touching a patient in order to reduce transmission to another patient.

Proper handwashing, sanitation and clean removal of faeces from the environment, act as a primary barrier, and prevent pathogens from entering water and food sources.

Some critical handwashing periods include:
• Before preparing food or cooking
• Before eating or feeding a child
• After cleaning a child’s bottom
• After using the washroom
• Before and after attending to a patient in a health care setting
KEY MESSAGES OF UNIT 1

1. Malnutrition encompasses both under- and overnutrition. It is the single largest contributor to disease in the world.
2. Both macronutrients and micronutrients are essential for health and wellbeing – the deficiency of micronutrients is less apparent and is often missed (hidden hunger).
3. Choosing the right types of proteins, carbohydrates and fats for dietary consumption is as important as quantity.
4. Women of reproductive age, pregnant and lactating women have specific and often increased nutritional requirements.
5. Nutrition in the first 1000 days of a child’s life – from conception till the second birthday has long lasting effects.
6. Current recommendations state that infants should be exclusively breastfed for the first 6 months of life with the introduction of complementary foods at 6 months of age and continued breastfeeding up until 2 years or beyond.
7. Proper handwashing practice is critical within the household, community and health facility to reduce infection transmission.
ACTIVITY 1-A: FOOD SOURCE ACTIVITY

Instructions:

1. As a group, list what you normally eat for breakfast, lunch and dinner

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

2. Categorize what you eat for breakfast, lunch and dinner into boxes labelled:

- Iron
- Vitamin A
- Iodine
- Vitamin C
- Carbohydrate
- Fat
- Protein

(Please remember that some foods may fall into more than one nutrient category)

3. Discuss gaps in intake as a group – brainstorm other food sources available in the community that could meet your daily requirements.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
ACTIVITY 1-B: HANDWASHING SKILLS

This competency assessment tool will be used throughout the training both in classroom activities and during the practicum. Participants will mostly use the tool to guide each other through practice of the skills, so they will require an explanation on how to use the tool to evaluate each other.

The Bondy’s rating scale has been adapted and simplified to objectively evaluate participants in practicum settings. You are observed for the following characteristics and assessed on a scale from 0 to 1. You will use the scale in practice to evaluate your peers and to provide feedback to each other.

<table>
<thead>
<tr>
<th>Scale Label</th>
<th>Score</th>
<th>Characteristics of Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficient practice</td>
<td>1</td>
<td>• What the worker does is safe, appropriate and accurate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The worker focuses on the patient.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The worker performs skill using minimal time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The worker looks confident and does not require any hints.</td>
</tr>
<tr>
<td>Incomplete / unsafe practice</td>
<td>0</td>
<td>• What the worker does is unsafe, not completely accurate or incomplete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The worker does not show good skill.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The worker uses a lot of time and energy to perform the skill.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The worker looks uncomfortable and needs a lot of hints.</td>
</tr>
</tbody>
</table>
ACTIVITY 1-B: HANDWASHING SKILLS

Instructions: Demonstrate the process of handwashing as described by WHO. See steps below. Practice as a group, then have your colleagues complete the checklist below while you demonstrate the skill.
<table>
<thead>
<tr>
<th>Handwashing Activity 1-B</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVITIES / PROFESSIONAL BEHAVIORS</strong></td>
<td>Circle number</td>
<td></td>
</tr>
<tr>
<td>Turn on the tap and wet hands</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Apply liquid soap, enough to cover entire</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>surface of hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rub hands palm to palm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub dorsum of each hand with the palm of the</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>other hand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rub palms with fingers interlaced</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub back of fingers to opposite palms with</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>finger interlaced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rub left thumb while clasping in right palm and</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>vice versa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rub finger tips of each hand in the opposite</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>palm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rinse hands with water and dry them thoroughly</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>with a single-use towel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use single-use towel to turn off the faucet</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL POINTS</strong></td>
<td>/10</td>
<td></td>
</tr>
<tr>
<td><strong>FINAL RESULT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ &lt; 50% = Incomplete/unsafe practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 50-75% = Minimum level of safe practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 75%-100% = Proficient practice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACTIVITY 1-C WASH

Instructions:
Using the framework identify where the risk of transmission of bacteria is present within each case given below. Also consider what could be changed in the scenario to reduce the risk of illness for those involved.
ACTIVITY 1-C WASH

Cases

1. After treating Mr. Kirui for a diarrheal illness, Nurse Hali proceeds to take a pregnant patient’s temperature with a thermometer.

2. After changing an infant’s diaper, Nurse Hali rinses her hands then heads for lunch.

3. While preparing porridge, a mother reuses utensils and water from the closest pond.

4. Kiira, a 2 year old, is waiting for her mother to feed her dinner, she waits on the floor while the family chickens pick at dropped crumbs from dinner being prepared.

5. Mosi recently slaughtered one of the family’s goats for a community celebration. While he waits for it to be prepared, flies surround the meat.

6. Nyo is playing in the river with his friends after school, it’s hot that afternoon, so they drink the river water to keep hydrated.
UNIT 2:
NUTRITIONAL ASSESSMENT
UNIT 2: NUTRITIONAL ASSESSMENT

INTRODUCTION

This unit takes on the basic techniques in nutritional assessment including clinical, dietary, laboratory and anthropometric assessments to evaluate the nutrition status of both adults and children in limited resource settings.

COMPETENCIES & UNIT OBJECTIVES

Key Professional Abilities (Competencies)
a. Nutrition Care: Provide service to meet the nutrition care needs of person/community.
b. Community Health: Promote nutrition health of groups and communities.
c. Professional Practice: Demonstrates professionalism in delivery of safe, competent and ethical care.
d. Communication and Collaboration: Communicate effectively and practice collaboratively.

Unit Objectives:
By the end of this unit participants will be able to:
• Explain anthropometric, biochemical and physical examination to assess nutritional status
• Identify and use the tools employed for assessing and measuring dietary intake
• Demonstrate skills in anthropometric assessment following the WHO protocol

UNIT CONTENT

1. Nutritional Assessment: Clinical Signs & Dietary Tools
   • Clinical Assessment
   • Dietary Assessment
   • Laboratory Investigations

2. Anthropometry
   • Weight
   • Length/Height
   • Mid-Upper Arm Circumference (MUAC)
   • Growth Chart Interpretation
   • SBAR
   • Skills Lab

3. Identification of MAM and SAM
   • WHO Protocol to Identify MAM and SAM
   • Key Principles of Record Keeping
   • Diagnosis Case
SESSION 1

NUTRITIONAL ASSESSMENT: CLINICAL SIGNS & DIETARY TOOLS
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Understand clinical signs of malnutrition
• Describe dietary assessment tools to identify dietary intake of macronutrients and micronutrients

SESSION CONTENT

Nutritional Assessment: Clinical Signs & Dietary Tools
• Clinical Assessment
• Dietary Assessment
• Laboratory Investigations
SESSION 1: NUTRITIONAL ASSESSMENT: CLINICAL SIGNS & DIETARY TOOLS

DEFINITION

Nutritional assessment is defined as the interpretation of information obtained from anthropometric, biochemical, clinical and dietary studies. A complete health assessment is often needed within a nutritional assessment to evaluate and manage nutrition issues.

A health assessment of an adults or child should begin with a health history and diet history, followed by physical examination and anthropometry.

A clinical assessment is a general examination of the body and physical function especially to help determine nutritional status, signs of malnutrition and nutrient deficiencies. Laboratory testing may or may not be needed, but this is also depending on the resources of the health-facility.

HEALTH ASSESSMENT

Beginning with a health history is an excellent way to start the nutritional assessment process of a patient or client. Health history can have the following components:

• Biographic data (name, address, gender, birth date, languages spoken, marital status, children)
• Reasons for seeking care
• History of present health concerns
  • When did the health concern begin?
  • Duration?
  • Severity?
  • Any associated symptoms?
  • Is it better, worse or the same since it began?
  • Are you able to continue work or other activities?
• Past health history
  • Any childhood illnesses?
  • Are immunizations up-to-date?
  • Any surgeries or accidents?
  • Any allergies?
• Family health history (parents’, grandparents’ and or childrens’ health and longevity)
• Lifestyle and health practices (description of a typical day, type of work, exercise habits, sleeping habits, use of medications or other substances (alcohol), stressors, tobacco use)
• Diet (past and present diet, weight change, supplements)
There are two ways to examine diet – retrospectively or prospectively.

• Retrospective is the most common way to examine diet. This is by asking about someone’s past diet, for example: “What foods have you eaten in the past 1 week?” or ‘What foods have you eaten in the last 24 hours?’

• Prospectively, means to assess by asking about present diet.

RETROSPECTIVE METHODS: DIET HISTORY

• This involves a retrospective dietary assessment usually over a longer period of time (e.g. 1 week, 24 hours)

• Questions are asked about types, amount and frequency of food intake

• Very useful in assessing diets of infants and children – mother can provide diet history, especially when diets are relatively consistent

  For example:

  • Is your 3 month old baby exclusively breastfed?
  • What have you been eating in the past 2 days since the fever began?

Diet history is important in order to understand if any changes in diet were made, what foods are most frequent and if supplements were started at a certain time. Diet history is also important to observe seasonal changes.

PROSPECTIVE METHODS: FOOD DIARIES

A food diary consists of a detailed description of current food and drink intake over a period (usually three to five days) recorded at time of consumption. The method provides detailed dietary intake data that are more representative of usual intake. This is possible with literate subjects.

CLINICAL ASSESSMENT

Physical examination and clinical assessment is an important part of health and nutritional assessment.

Some common signs of nutritional deficiencies are:

• Pallor (skin appears to be pale)

• Goitre (swelling of the thyroid gland that causes a lump to form at the front of the neck)

• Rickets (bowing of legs, widening of wrists)
BILATERAL PITTING EDEMA

Bilateral pitting edema is a sign of severe acute malnutrition regardless of weight or mid-upper arm circumference (MUAC). Thumb pressure is applied on top of both feet for 3 seconds. If there is a pit (indentation) in the foot when lifting the thumb, pitting edema is present. The pit can remain in both feet for several seconds. For positive assessment, edema must be present in both feet.

LABORATORY INVESTIGATIONS TO NUTRITIONAL STATUS

Diagnostic laboratory testing is important if a physician wants to confirm a possible deficiency in a vitamin or mineral. In low-resource settings, most often only hemoglobin level will be tested for iron deficiency anemia. Hemoglobin is an iron-rich protein in red blood cells that carries oxygen around the body. Low hemoglobin means low iron or anemia.

The following tests can be performed to assess nutritional status of children and adults:

- Hemoglobin Levels
- Vitamin levels
  - Folic Acid
  - Vitamin B_{12}
  - Vitamin A (serum retinol, serum retinol binding protein)
  - Vitamin D (25-hydroxyvitamin D)
- Trace Elements
  - Iron (serum ferritin, serum transferrin)
Session 1: Nutritional Assessment: Clinical Signs & Dietary Tools

Knowledge Check 1

Nutritional assessment can be defined as the collection and interpretation of information obtained from all of the following sources EXCEPT:

a. Anthropometry
b. Biochemical studies
c. Clinical assessment
d. Dietary history
e. Physical activity log
SESSION 2: ANTHROPOMETRY

SESSION OBJECTIVES

By the end of this session, participants will be able to:
- Demonstrate skills in anthropometric assessment following the WHO protocol
- Interpret growth charts to identify stunting, wasting, underweight and overweight in children under-5
- Communicate findings using the principles of interprofessional communication

SESSION CONTENT

Anthropometry
- Weight
- Height/Length
- MUAC
- Growth Chart Interpretation
Anthropometry is the single most universally applicable, inexpensive, and non-invasive method available to assess the size, proportions, and composition of the human body. Some anthropometry measurements we will talk about are weight, height, length and mid-upper arm circumference (MUAC) in infants and children.

**IMPORTANCE OF ANTHROPOMETRY**

In children, anthropometry is used for assessment of growth and development. Body measurements such as weight, length/height and MUAC, in combination with age and sex, are used to assess growth or growth failure with help of growth charts.

In adults, Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person’s weight in kilograms divided by the square of his height in meters (kg/m²).

**INTERPRETATION OF ANTHROPOMETRY**

Anthropometry is used for the diagnosis of both undernutrition and overnutrition. We will be practicing growth chart plotting and interpretation in this session.

Undernutrition can be categorized as wasting, stunting or underweight.

Overnutrition can be categorized as overweight or obese. For adults, WHO defines overweight and obesity as follows:
- Overweight is a BMI greater than or equal to 25; and
- Obesity is a BMI greater than or equal to 30.

**KEY CONSIDERATIONS BEFORE INITIATING ANTHROPOMETRY**

- Start anthropometry with full preparation (equipment, material for documentation, assistant if needed). Do not rush into taking measurements unprepared.
- Check equipment before initiating measurement. Ensure it is in proper position and working condition. Moreover, familiarize yourself with the working of the equipment, its calibration and units.
- Being prepared helps in making accurate and precise measurements.
SESSION 2: ANTHROPOMETRY

WEIGHT

In ideal circumstances, WHO recommends to weigh infants and children using a scale with the following features:

- Solidly built and durable
- Electronic (digital reading)
- Measures to a precision of 0.1 kg (100 g)
- Allows tared weighing
  - If the child can’t stand, the mother holds the child
  - If able to stand, the child stands on the scale

“Tared weighing” means that the scale can be reset to zero with a person or an object standing or lying on it. In some cases it is used to weigh infants or children on an adult scale. On infant scales, taring the weight allows for the scale to return to zero so that anything on the scale (e.g. a cloth or towel) is not counted in the weight of the infant for a more accurate reading.

An example of the former use is when a mother can stand on the scale, be weighed, and the scale tared (i.e. return to zero, with the mother on the scale). While remaining on the scale, she is given her child to hold, the child’s weight alone appears on the scale and this can be used as an accurate measure of the child’s weight. On most digital scales there is a “tare” button which can be pressed for this function.

However, electronic and tared weighing scales are not always available. Some of the other scales used for weighing children are:

- Infant weighing scale: Appropriate for weighing infants lying down or sitting, but only within the scale’s maximum weight limit.
- Hanging spring scale: Normally used in community or emergency settings for small children. Weighs up to a maximum 25 kg.
- Paediatric balance beam scale: Appropriate for accurate weighing up to 65 kg in some types.
- Bathroom scale: For older children who can stand independently.

WHO PROTOCOL FOR WEIGHING CHILDREN UNDER 24 MONTHS WITH AN INFANT WEIGHING SCALE

- Wash hands with soap and water before and after touching the child or their surroundings. If soap and water are not available, hand antiseptic should be used.
- Remove the child’s diaper and heavy clothing (ideally the baby should be undressed completely, if the weather allows for it and is culturally acceptable).
- Calm the child down if agitated.
- Place scale on a hard, flat and unobstructed surface.
- Check and set the weighing scale for zero error.
- Place the child in a supine position (lying face upwards) on the weighing scale. Remain next to and facing the child at all time.
- Read and record the child’s weight to the nearest 0.1 kg (100 g).
WHO PROTOCOL FOR WEIGHING CHILDREN UNDER 24 MONTHS WITH A HANGING SPRING SCALE

- Wash hands with soap and water before and after touching the child or their surroundings. If soap and water are not available, hand antiseptic should be used.
- Adjust the pointer of the scale to zero level.
- Suspend the weighing pants from the lower hook of the scale and readjust the scale to zero or weigh the pants and subtract it from the final weight measurement.
- Remove the child’s diaper and heavy clothing (ideally the baby should be undressed completely, if the weather allows for it and is culturally acceptable).
- Place the child in the weighing pants and hook the pants to the scale.
- Ensure the child is hanging freely without holding onto anything.
- When the child is stable, read the scale at eye level to the nearest 0.1 kg (100 g) and record the value.
- Remove the child slowly and safely.

WHO PROTOCOL FOR WEIGHING CHILDREN OVER 24 MONTHS USING A STANDING SCALE

- Wash hands with soap and water before and after touching the child or their surroundings. If soap and water are not available, hand antiseptic should be used.
- Help child remove outer clothing and footwear.
- Calm the child down if agitated.
- Place scale on a hard, flat and free from obstruction.
- Check and set the weighing scale for zero error.
- Guide the child to step on the scale and stand at the center.
- The child should not be holding onto any object or person.
- Read and record the child’s weight to the nearest 0.1 kg (100 g).
SESSION 2: ANTHROPOMETRY

KNOWLEDGE CHECK 2

Mark each of the following statements as TRUE or FALSE:

a. The gender of a child does not matter when using height and weight reference standards

b. Anthropometry is useful in detecting growth failure in children

c. Weighing scales must be precise to at least 1 kg according to WHO

d. In children, regardless of age, it is essential to remove all clothing before weighing

a. 

b. 

c. 

d. 

HEIGHT/LENGTH

Measuring height or length is useful in determining:

- Length/height-for-age in children
- Weight-for-length/height in children
- Body Mass Index (BMI) in adults

Recumbent length is measured in children under 24 months and it is conducted lying down. Height is measured in children over 24 months and adults and it is conducted standing up.

Note: If a child less than 24 months will not lie down for measurement of length, measure standing height and add 0.7 cm to convert it to length. If a child aged 24 months or older cannot stand, measure recumbent length and subtract 0.7 cm to convert it to height. Standing height is about 0.7 cm less than recumbent length and has been taken into account by WHO when developing the Child Growth Standards.
SESSION 2: ANTHROPOMETRY

WHO PROTOCOL FOR MEASURING RECUMBENT LENGTH

- Wash hands with soap and water before and after touching the child or their surroundings. If soap and water are not available, hand antiseptic should be used.
- Calm the child down if agitated.
- Remove any head or footwear and heavy clothing.
- Place the infantometer on a flat and stable surface, like a table (but far from the edge).
- Place the child at the center of the infantometer with the head towards the top of the board.
- Head position: cup hands over the child’s ears so the vertical line from ear canal to the eye socket is perpendicular to the horizontal board. Ensure the mother or assistant positioning the head are doing it properly.
- Trunk and legs: stabilize the child’s trunk from the sides. Straighten knees by gently holding them, ensuring they are straight but not overextended.
- Position the child’s feet so the soles are against the infantometer footboard.
- Read and record the child’s length in centimetres (to the nearest 0.1 cm).

MEASURING HEIGHT

For adults or children greater than 24 months, a height board, sometimes called a stadiometer, is used to measure height. It should be mounted at a right angle between a level floor and against a straight, vertical surface such as a wall or pillar. Height is recorded to the nearest 0.1 cm.

WHO PROTOCOL FOR MEASURING HEIGHT OF CHILDREN OVER 24 MONTHS

- Wash hands with soap and water before and after touching the child or their surroundings. If soap and water are not available, hand antiseptic should be used.
- Calm the child down if agitated.
- Remove socks, footwear and any hair accessories or styles.
- Ensure the child stands against an unobstructed stadiometer, so the feet are slightly apart and the back of the head, shoulder blades, buttocks, calves and heels touch the vertical board.
- Position the child’s head so that the horizontal line from the ear canal to the eye socket runs parallel to the base board, and the eyes look straight ahead.
- Show the child how to stand straight and gently guide the child’s knees and ankles to keep the legs straight.
- Read and record the child’s height in centimeters to the nearest 0.1 cm.

MID-UPPER ARM CIRCUMFERENCE (MUAC)

Mid-upper arm circumference (MUAC) is the circumference of the left upper arm and measures the muscle mass of the upper arm. It is used to assess the nutritional status of both children (over 6 months) and adults.

MUAC can be used to diagnose moderate acute malnutrition (MAM) or severe acute malnutrition (SAM). MAM is characterized by an MUAC of 11.5-12.5 cm, while a MUAC of less than 11.5 cm indicates SAM (as per WHO/UNICEF guidelines).
WHO PROTOCOL FOR MEASURING MUAC

The WHO protocol for measuring MUAC is as follows:

- Wash hands with soap and water before and after touching the child or their surroundings. If soap and water are not available, hand antiseptic should be used.
- Expose the child’s left arm and shoulder.
- Bend the elbow at a 90° angle with the palm facing upwards.
- Locate the most prominent part (tip) of the child’s shoulder and mark it.
- Measure the distance from the shoulder mark to the tip of the elbow and divide the distance by two, which is the midpoint of the child’s upper arm.
- Mark the midpoint of the child’s upper arm.
- Release the child’s left arm and it will hang beside the child’s body.
- Wrap the tape over the marked midpoint (ensure the tape is not upside down).
- Pull the tape tight around the mid-upper arm so that it touches the child’s skin without compressing the underlying tissue. Ensure the measurement is on the outer surface of the child’s arm.
- Read the MUAC and record to the nearest 0.1 cm.

*Children under 24 months should be held in the mother’s lap*

KNOWLEDGE CHECK 3

The images below shows the child’s length being measured. From these images, do you think that correct protocol has been followed? If not, why?
SESSION 2: ANTHROPOMETRY

GROWTH INDICES

There are 4 growth indices that are important to recognize when interpreting measurements and choosing the appropriate growth chart. There is:

- **Length/Height-for-Age** – identifies stunting and chronic malnutrition
- **Weight-for-Age** – identifies underweight, acute/chronic malnutrition
- **Weight-for-Length/Height** – identifies wasting and acute malnutrition
- **BMI-for-Age** – identifies underweight and overweight in adults

EXAMPLE OF A GROWTH CHART

The chart displayed interprets length-for-age for boys from birth to 2 years.

- The curved lines represent reference lines
- Age is plotted on x-axis and length on y-axis
- The line labeled ‘0’ represents the average or the median while the other curved lines are z-score lines which represent deviation from the average
- Z-score lines are numbered 2, 3 or -2, -3 (depending on direction)

GROWTH CHART INTERPRETATION

This chart interprets weight-for-age for boys from birth to 6 months.

- Age (in weeks or months) is on the x-axis; weight in kilograms is on the y-axis
- A point has been plotted for an infant boy who is 6 weeks old and weighs 5 kg
- Curved lines on the graph are reference lines that help interpret the plotted points and trends

![Growth Chart for Weight-for-Age](image)
Z-SCORE INTERPRETATION

The reference lines on the growth charts are called z-score lines because they are based on z-scores, also known as standard deviation (SD) scores. Z-scores or SD scores are used to describe how far a measurement is from the median (average). In general, a plotted point that is far from the median in either direction (for example, close to the 3 or -3 z-score line) may represent a growth problem, although other factors must be considered, such as the growth trend, the health condition of the child and the height of the parents.

Using the appropriate growth chart, plotting, and identifying the z-score can help determine if the child/adult is underweight, overweight, obese, stunted or wasted. Using this table, find the identified z-score and follow along the row to the appropriate growth chart measurement.

<table>
<thead>
<tr>
<th>Z-score</th>
<th>Growth Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length/Height-for-Age</td>
</tr>
<tr>
<td>Above 3</td>
<td>A child in this range is very tall. Tallness is rarely a problem, unless it is so excessive that it may indicate an endocrine disorder such as a growth-hormone-producing tumor. Refer a child in this range for an assessment if you suspect an endocrine disorder (e.g. if parents of normal height have a child who is excessively tall for his or her age).</td>
</tr>
<tr>
<td>Above 2</td>
<td></td>
</tr>
<tr>
<td>Above 1</td>
<td></td>
</tr>
<tr>
<td>0 (median)</td>
<td></td>
</tr>
<tr>
<td>Below -1</td>
<td></td>
</tr>
<tr>
<td>Below -2</td>
<td>Stunted</td>
</tr>
<tr>
<td>Below -3</td>
<td>Severe stunted</td>
</tr>
<tr>
<td></td>
<td>It is possible for a stunted or severely stunted child to become overweight.</td>
</tr>
</tbody>
</table>
SBAR (PRONOUNCED S-BAR)

SBAR is a proven structured approach to use when communicating concerns to interprofessional colleagues. It can prove very useful in communicating nutrition and clinical assessment findings in an interprofessional scenario.

**S – Situation**
Give the patient’s name, age, gender and the reason for your communication. You should also state the urgency with which the situation needs to be addressed.

**B – Background**
Provide a brief but thorough clinical history to put the situation in context for the listener.

**A – Assessment**
Provide a recent clinical assessment of the situation, including the latest findings, vital signs, anthropometric measurements, results, current condition and needs. Then provide your assessment of the situation.

**R – Recommendations**
Be clear and specific about what you are asking or requesting from the listener and ensure that you have understood what the listener expects in return.
SESSION 3
IDENTIFICATION OF MAM AND SAM
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Describe the proper steps to identify SAM and MAM using WHO protocol
• Define key principles for record keeping in health
• Apply growth chart interpretation skills to diagnose a case

SESSION CONTENT

Identification of MAM and SAM
• WHO Protocol for Identification of MAM and SAM
• Key Principles for Record Keeping
SESSION 3: IDENTIFICATION OF MAM AND SAM

WHO CRITERIA FOR IDENTIFICATION OF MAM IN CHILDREN (6-59 MONTHS)

Moderate acute malnutrition (MAM) in children is defined as weight-for-height between -3 and -2 z-scores of the WHO child growth standards without edema, or MUAC of less than 12.5 cm but equal to or more than 11.5 cm.

• Thus if weight-for-length/height is plotted on the gender-appropriate growth chart and is found to be between -2 and -3 z-score then it is identified as MAM.
• If MUAC (in children 6-59 months) is less than 12.5 cm but equal to or more than 11.5 cm then it can also be identified as MAM.
• Presence of one of these or both is sufficient to make the diagnosis of MAM, if bilateral pitting edema is absent.

WHO CRITERIA FOR IDENTIFICATION OF SAM IN CHILDREN (6-59 MONTHS)

Severe acute malnutrition (SAM) is defined by the WHO as the presence of edema in both feet (bilateral) or severe wasting (weight-for-height/length ≤ 3 SD or mid-upper arm circumference (MUAC) < 11.5cm).

Thus the presence of any one or a combination of the following three can be categorized as SAM:
• Bilateral pitting edema.
• Weight-for-length/height less than or equal to -3 z-score (on gender-appropriate growth chart).
• MUAC less than 11.5 cm.

WHO IDENTIFICATION OF SAM IN OTHER AGE GROUPS

Although not well-defined, SAM identification in other age groups is as follows:
• School-age Children and Adolescents (5-19 years) – very low BMI-for-age
• Adults – very low BMI
• Pregnant Women – MUAC <21 cm SAM; 21-23 cm MAM

KEY PRINCIPLES FOR RECORD KEEPING

There are many principles when recording a patient’s history and physical examination findings. As a nurse, midwife, clinical officer or nutritionist record keeping is critical to:
• Compile a complete record of the patient’s health.
• Enable continuity of care for the patient between health practitioners/services.

Five main principles for record keeping are:
• Be clear, concise and accurate
• Be readable
• Dated, timed and signed
• Abbreviations/short form should be only used if well-known and described
• Only record factual data
SESSION 3: IDENTIFICATION OF MAM AND SAM

KNOWLEDGE CHECK 4

Five month old Abby’s anthropometric assessment reveals:
Length-for-age: Below -2 z-score
Weight-for-age: Above 2 z-score
Weight-for-length: Above 3 z-score

Using these z-scores as guidelines please identify which category Abby belongs to?
a. Stunted and wasted
b. Obese with normal length
c. Stunted and obese
d. Stunted and overweight
e. Severely stunted and obese
1. Nutritional assessment is conducted by interpretation of information obtained from dietary, biochemical, anthropometric and clinical studies.
2. Anthropometry is the use of body measurements, for a particular age and gender, to assess growth or growth failure.
3. Severe acute malnutrition in young children is diagnosed when weight-for-height is less than -3 z-score and/or MUAC is less than 11.5 cm and/or there is bilateral pitting edema.
ACTIVITY 2-A HEALTH ASSESSMENT ROLE PLAY

Instructions:
Begin by having one partner act as a health care professional asking questions to a patient. The
health care professional should be taking notes after each question. Once this is done, have the
partners switch roles.

Questions:
1. Do you have any chronic illnesses?

2. Do you take any medications? If so, how often do you take them? What is the dose?

3. Do you take any vitamins or supplements? If so, how often do you take them? What is the
dose?

4. Have you noticed any changes in weight over the past 6 months? (Weight loss or gain)

5. Describe your activity level. Describe to the participant what Low, Moderate or Vigorous Activity
is classified as.

6. Do you follow any specific diet or have any dietary restrictions? Any food allergies or
intolerances? If so, describe.

7. Do you have any problems obtaining, preparing, or eating foods? If so, describe.

8. What have you eaten in the past 24 hours? Please describe.
ACTIVITY 2-B SKILLS LAB

You will now practice each of the following skills in stations 1-5, document your measurements in the space provided.

- Height measurement
- Length measurement
- Weight measurement
- MUAC measurement.
- SBAR exercise

Evaluate each other using the adapted Bondy rating scale.
ACTIVITY 2-B SKILLS LAB

STATION 1: HEIGHT

Using the height board (standiometer), each participant will measure one of the other participants along with another individual as the assistant. Have them document the height within their notebook. A fourth participant will act as the monitor and rate the competency on the Bondy scale.
## ACTIVITY 2-B SKILLS LAB

Bondy Scale

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a nurse responsible for patient’s care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Calm the child down if agitated</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remove socks, footwear and any hair accessories or styles</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ensure the child stands against an unobstructed stadiometer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ensures feet are slightly apart and the back of the head, shoulder blades, buttocks, calves and heels touch the vertical board</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Position the child’s head horizontally and have the child look straight ahead</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ensure the child is standing straight, guiding the child’s knees and legs</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read the child’s height in centimetres to the nearest 0.1 cm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>PERCENTAGE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>/11</td>
<td>%</td>
</tr>
</tbody>
</table>

**FINAL RESULT**

- **< 50%** = Incomplete/unsafe practice
- **50-75%** = Minimum level of safe practice
- **75%-100%** = Proficient practice
ACTIVITY 2-B SKILLS LAB

STATION 2: LENGTH

Using the length board (infantometer), each participant will measure a doll along with another individual as the assistant. Have them document the height within their notebook. A third participant will act as the monitor and rate the competency on the Bondy scale.
## Bondy Scale

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a nurse responsible for patient’s care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Calm the child down if agitated</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remove socks, footwear and any hair accessories or styles</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Place the infantometer on a flat and stable surface</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Head position: cup hands over the child’s ears and position the head so the child is looking straight forward</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trunk and legs: stabilize the child’s trunk from the sides and straighten the knees</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Position the child’s feet so the soles are against the infantometer footboard</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read the child’s height in centimetres to the nearest 0.1 cm</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Completes appropriate documentation.

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>PERCENTAGE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>/11</td>
<td>%</td>
</tr>
</tbody>
</table>

**FINAL RESULT**

- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice

---

**Length measurement**

**Rating**

**Circle number**

**Comments**
ACTIVITY 2-B SKILLS LAB

STATION 3: WEIGHT

Under 24 months: Using the hanging spring scale, each participant will measure the weight of a doll. Have them document the weight within their notebook. A third participant will act as the monitor and rate the competency on the Bondy scale.

---

Bondy Scale

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight measurement (under 24 months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Introduces oneself as a nurse responsible for patient’s care.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Adjust the pointer of the scale to zero level</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Remove the child’s diaper and heavy clothing</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Guide the child’s legs through the leg holes</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hold the child’s feet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hang the child on the Hanging Spring Scale</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Read the scale at eye level to the nearest 0.1 kg</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Remove the child slowly and safely</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TOTAL POINTS /11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINAL RESULT</td>
<td>□ &lt; 50% = Incomplete/unsafe practice □ 50-75% = Minimum level of safe practice □ 75%-100% = Proficient practice</td>
<td></td>
</tr>
<tr>
<td>PERCENTAGE: %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STATION 4: MUAC MEASUREMENT

Using the MUAC tape, each participant will measure another participant’s MUAC. Have them document the reading within their notebook. A third participant will act as the monitor and rate the competency on the Bondy scale.
## ACTIVITY 2-B SKILLS LAB

### Bondy Scale

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>MUAC measurement</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Introduces oneself as a nurse responsible for patient’s care.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Expose the child’s left arm and shoulder</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Bend the elbow at a 90° angle with the palm facing upwards</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Locate the most prominent part (tip) of the child’s shoulder and mark it</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Measure the distance from the shoulder mark to the tip of the elbow and divide the distance by two</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mark the midpoint of the child’s upper arm</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Release the child’s left arm and place hand beside the child’s body</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Wrap the tape over the marked midpoint</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pull the tape tight around the mid-upper arm so that it touches the child’s skin without compressing the underlying tissue.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Read the MUAC and record to the nearest 0.1 cm</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL POINTS**: 13

**PERCENTAGE**:%

**FINAL RESULT**

- ☐ < 50% = Incomplete/unsafe practice
- ☐ 50-75% = Minimum level of safe practice
- ☐ 75%-100% = Proficient practice
ACTIVITY 2-B SKILLS LAB

STATION 5: SBAR DOCUMENTATION

You are working at a local health centre. A mother and child arrive to see you because the child has not been well for the past few weeks. You identify that the 3 year old child is suffering from SAM and requires inpatient treatment. The following information was collected during your assessment. You will need to communicate with the receiving facility regarding your assessment. Using SBAR, communicate your findings to your group.

Esther- Age: 3 years old. Height: 95 cm. Weight: 12kg
Edema noted in both feet, Esther is sleepy and not breastfeeding or taking water well. Mom reports decreased breastmilk production since becoming pregnant again and expresses challenges with having access to food to feed Esther.

SITUATION:

BACKGROUND:

ASSESSMENT:

RECOMMENDATIONS:
UNIT 3:
MANAGEMENT OF NUTRITIONAL DISORDERS
UNIT 3: MANAGEMENT OF NUTRITIONAL DISORDERS

INTRODUCTION

This unit is designed to help health facility workers develop the knowledge and skills needed to implement nutrition actions in nutritional disorders, most importantly moderate acute- and severe acute malnutrition. Furthermore, prevention and management of micronutrient deficiencies is discussed to empower the workers to address these in the population.

COMPETENCIES & UNIT OBJECTIVES

Key Professional Abilities (Competencies)

a. Nutrition Care: Provide service to meet the nutrition care needs of person/community.
b. Community Health: Promote nutrition health of groups and communities.
c. Professional practice: Demonstrates professionalism in delivery of safe, competent and ethical care.
d. Communication and Collaboration: Communicate effectively and practice collaboratively.

Unit Objectives:

By the end of this unit the participant will be able to:

• Identify and classify cases of acute malnutrition
• Demonstrate knowledge of management of moderate acute malnutrition and severe acute malnutrition
• Describe the interventions for prevention and management of key micronutrient deficiencies
• Explain key steps to prevent and address overweight and obesity

UNIT CONTENT

1. Management of Acute Malnutrition
   • Types of Acute Malnutrition
   • Management of Moderate Acute Malnutrition
   • Management of Severe Acute Malnutrition

2. Prevention & Management of Micronutrient Deficiencies
   • Iron Deficiency
   • Vitamin A Deficiency
   • Iodine Deficiency
   • Zinc Deficiency
   • Vitamin D Deficiency

3. Intervention in Overweight and Obesity
   • Dietary Management
   • Avoiding Overweight and Obesity in Infants and Children
SESSION 1

MANAGEMENT OF ACUTE MALNUTRITION
SESSION 1: MANAGEMENT OF ACUTE MALNUTRITION

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Describe principles and process of management of moderate acute malnutrition
• Explain the management of cases of uncomplicated and complicated severe acute malnutrition

SESSION CONTENT

Identification & Management of Acute Malnutrition
• Management of Moderate Acute Malnutrition
• Supplementary Feeding in MAM
• Severe Acute Malnutrition (SAM) and its Classification
• Management of Uncomplicated SAM
• Management of Complicated SAM
SESSION 1: MANAGEMENT OF ACUTE MALNUTRITION

ACUTE MALNUTRITION

Acute malnutrition is characterized by inadequate nutrition leading to rapid weight loss or failure to gain weight normally. Usually caused by:

- Decrease in food intake
- Inadequate nutrients in diet
- Disease

TYPES OF ACUTE MALNUTRITION

- Moderate Acute Malnutrition
- Severe Acute Malnutrition

WHAT IS MODERATE ACUTE MALNUTRITION (MAM)?

Moderate acute malnutrition in children is defined as weight-for-height between -3 and -2 z-scores of the median of the WHO child growth standards without edema or mid-upper arm circumference (MUAC) of less than 12.5 cm but equal or more than 11.5 cm.

Vulnerable Groups for MAM: Nutritionally vulnerable groups such as children (6-59 months), pregnant and lactating women, and the elderly (> 60yrs).

MANAGEMENT OF MODERATE ACUTE MALNUTRITION

- The dietary management of children with MAM is based on the optimal use of locally available foods on an outpatient basis – aim is to prevent severe acute malnutrition.
- In times of food shortage, supplementary foods have been used to treat children with MAM.
WHAT ARE SUPPLEMENTARY FOODS?

Supplementary foods are specially formulated foods, in ready-to-eat or in milled form, which are modified in their energy density, protein, fat or micronutrient composition to help meet the nutritional requirements of specific populations. Examples of supplementary foods are fortified blended foods, which can be used to prepare smooth, ready-to-eat porridges, and lipid-based nutrient supplements.

Supplementary feeding programs (SFPs), are commonly implemented in times of:
- Emergencies (droughts, natural disasters, displacement situations)
- Chronic food insecurity

The aim of SFPs is to:
- Treat individuals with moderate acute malnutrition
- Prevent moderately malnourished individuals from becoming severely malnourished

PRINCIPLES OF SUPPLEMENTARY FEEDING FOR MAM

**Appropriate Amount of Supplementary Foods**
Nutrients should be provided at optimum levels. The amount has to be determined relative to the child’s habitual diet and state of undernutrition.

**Safe Formulation**
The WHO recommends that the formulation of these foods should be ‘safe and effective’.

**Maintain Hygiene Standards**
Food preparation should be safe and hygienic, complying with the standards set by the WHO for infant and young children’s food.

**Essential Nutrition Actions**
Supplementary feeding should be accompanied by essential nutrition actions such as breastfeeding promotion, nutrition counselling for families and other measures to address underlying causes of undernutrition including food insecurity.
SESSION 1: MANAGEMENT OF ACUTE MALNUTRITION

**Nutrient-Dense Foods**
Children with MAM need to consume nutrient-dense foods to meet their additional requirements for energy, weight and height gain, and recovery.

**Authorized Mineral Components**
Mineral components used in supplementary foods should be from the WHO approved list of additives and food fortificants for children.

**Anti-Nutrient Compounds**
The amount of anti-nutrient compounds (e.g. phytates and tannins) can be reduced by using appropriate food preparation methods such as soaking, fermentation and germination.

**SUPPLEMENTARY FEEDING IN MAM**

Food supplements may be distributed as:
- Take-home rations (e.g., dry rations and ready-to-use supplementary food [RUSF])
  - Dry ration include fortified blended food (FBF), high-energy biscuits, beans and lentils. Take-home rations are usually distributed every 2 weeks or every month
- RUSF – high-energy nutrient dense food (e.g. BP 5, Supplementary Plumpy®)
- On-site rations (wet rations)
  - Cooked at the feeding centre and consumed on-site. Usually implemented at peak of an emergency (temporary solution when security is a concern). Otherwise take-home rations are preferable.

**KEY MESSAGE**
Screening, diagnosis and management of moderate acute malnutrition (MAM) is often ignored in health facilities. It is very important to recognize MAM and manage it as MAM increases the risk of developing SAM and catching infections.

**KNOWLEDGE CHECK 1**

Are these statements TRUE or FALSE?

a. ‘Breastfeeding should be stopped during management of MAM.’

b. ‘A 3 year old child with a MUAC of 12 cm and bilateral edema of feet should be treated as a case of MAM.’
SESSION 1: MANAGEMENT OF ACUTE MALNUTRITION

SEVERE ACUTE MALNUTRITION (SAM)

If left untreated MAM can worsen and progress to SAM. Children with SAM have a higher risk of disease and death. The WHO has developed specific clinical guidelines for the management of SAM.

STEPS IN MANAGEMENT OF SAM

Inpatient or outpatient care

Uncomplicated SAM
• Clinically well
• Alert
• Pass the appetite test*

Complicated SAM
• Severe edema**
• Medical complications
• 1 or more IMCI danger signs
• Fail the appetite test

Treat as outpatient

Treat as inpatient

* Appetite test:
1. The child is given a packet or pot of ready-to-use therapeutic food (RUTF) to eat.
2. The child should eat at least one third of a packet or three teaspoons from a pot of RUTF to pass the test.
3. The health care provider observes the child eating the RUTF and decides whether the child passes or fails.
4. If the child passes, she/he can be sent home and continues treatment in outpatient care. If the child fails, referral procedures to inpatient care are started.
5. The health care provider notes on the outpatient care treatment card whether the child passed or “failed” the appetite test.

Note: Many children will eat the RUTF enthusiastically straight away while others might refuse initially. These children should sit quietly with their mothers/caregivers in a secluded place and be given time to become accustomed to the RUTF.

**Severe edema: generalized edema including both feet, legs, hands, arms and face
POSSIBLE MEDICAL COMPLICATIONS IN SAM

- **Septic shock:** A serious condition that is caused by a body-wide infection which results in a dangerous drop of blood pressure and possible multiple-organ failure.
- **Dehydration:** When the body uses or loses more fluid than the amount taken in and doesn’t have enough to carry out its normal functions.
- **Anemia:** A condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status.
- **Cardiac failure:** When the heart muscle doesn’t circulate the blood around the body as well as it should.
- **Hypoglycemia:** Low blood sugar levels.
- **Hypothermia:** Reduction in the mean body temperature. In SAM, WHO defines hypothermia as a rectal temperature below 35.5 C or an underarm temperature below 35 C.
- **Skin infections:** Infections of wounds, scratches or other defects in the skin.
- **Respiratory infections:** Infections of the respiratory tract (nose, trachea (windpipe) or lungs) e.g. pneumonia.
- **Urinary tract infections:** Infections of the urinary tract (kidneys, ureters, bladder or urethra).

DANGER SIGNS

- Not able to drink or breastfeed
- Vomits everything
- Convulsions
- Lethargic or unconscious

Children should be taken urgently to a health care provider if any of these danger signs are noted.

MANAGEMENT OF SAM

Children waiting for admission and being assessed can be given clean, safe water to drink. Where possible, sugar water should be given to help prevent hypoglycaemia.

Children in a severe condition should be triaged and treated first.
SESSION 1: MANAGEMENT OF ACUTE MALNUTRITION

KEY STEPS IN MANAGEMENT OF UNCOMPLICATED SAM

1. Provide Ready-to-Use Therapeutic Food (RUTF), containing iron, for therapeutic feeding
   • Weekly supply of RUTF given
   • Soap provided if available, for handwashing
   • Counselling on how to give RUTF
2. Antibiotic: Mother/caregiver gives first dose of amoxicillin in outpatient care under the guidance of health care provider. Caregiver is told how to continue the treatment at home (usually oral amoxicillin for 5 days)
3. Vitamin A dose is only given to children with NO bilateral pitting edema – (children with bilateral pitting edema should be given vitamin A before discharge only if there are signs of vitamin A deficiency or there is a measles outbreak)
4. Deworm the child on the second visit with mebendazole or albendazole
5. Cases of severe anemia should be referred to inpatient

KNOWLEDGE CHECK 2

A 2 year old has a MUAC of 12.2 cm, no edema and a weight-for-height < -3 z-score. She is thirsty but vomits anything she ingests and is becoming very lethargic and drowsy.

Would she receive outpatient or inpatient care?

MANAGEMENT OF COMPLICATED SEVERE ACUTE MALNUTRITION

• Urgent referral to hospital and inpatient care
• If being referred, before child leaves for hospital give:
  • 50 ml of 10% glucose or sucrose solution or 1 rounded teaspoon of sugar (4 grams) in 3 tablespoons of water (approximately 45-50ml)
  • First dose of amoxicillin
  • Keep child warm

INPATIENT CARE OF SAM

General care
• Keep in a warm area (25-30 degrees celsius)
• Separated from children with infections
• Ensure correct preparation of appropriate therapeutic foods
• Ensure accurate weight and MUAC monitoring and records
• 24 hour care and monitoring
TEN STEPS AND THE TIMEFRAME OF MANAGEMENT OF COMPLICATED SAM

<table>
<thead>
<tr>
<th>Step</th>
<th>Stabilization</th>
<th>Rehabilitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hypoglycaemia</td>
<td>Days 1–2</td>
</tr>
<tr>
<td>2.</td>
<td>Hypothermia</td>
<td>Days 3–7</td>
</tr>
<tr>
<td>3.</td>
<td>Dehydration</td>
<td>Weeks 2–6</td>
</tr>
<tr>
<td>4.</td>
<td>Electrolytes</td>
<td>no iron</td>
</tr>
<tr>
<td>5.</td>
<td>Infection</td>
<td>with iron</td>
</tr>
<tr>
<td>6.</td>
<td>Micronutrients</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Initiate feeding</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Catch-up feeding</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Sensory stimulation</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Prepare for follow-up</td>
<td></td>
</tr>
</tbody>
</table>

1. **HYPOGLYCEMIA**
   - If not already given, provide an immediate feed of 50 ml of 10% glucose or sucrose solution (1 teaspoon of sugar in 3 tablespoons of water)
   - If unconscious give through nasogastric tube or treat with intravenous 10% glucose

2. **HYPOTHERMIA**
   - If temperature not recordable or < 35 degrees Celsius, give active management for hypothermia
   - Keep warm and covered
   - Rehydrate and feed every two hours

3. **DEHYDRATION**
   - Over-diagnosed in cases of SAM – diagnose with caution
   - Watery diarrhea or reduced urine output indicate risk of dehydration
   - Intravenous route used ONLY in cases of shock
   - Oral rehydration (or through NG tube)
     - Slow oral rehydration - ReSoMal (low osmolar ORS) is used for malnourished children
     - 5 ml/kg every 30 minutes for the first 2 hours
     - 5-10 ml/kg per hour for the next 4-10 hours on alternate hours with F-75 formula
Details of some terms:

- **ReSoMal**: Powder for the preparation of an oral rehydration solution exclusively for oral or nasogastric rehydration of people suffering from severe acute malnutrition. To be used exclusively under medical supervision in inpatient care, and not to be given for free use to the mother or caregiver.
- **F-75**: A low-protein, cereal & milk-based starter therapeutic food given in the stabilization phase.
- **F-100**: High-protein, high-energy milk formula used in the rehabilitation phase.
- **Ready-to-use therapeutic food (RUTF)**: Lipid-based pastes that are used in the rehabilitation phase and have replaced F-100 in a variety of settings. Same nutrient content as F-100 with the addition of iron.

4. **ELECTROLYTE IMBALANCE IN SAM**

- Potassium and magnesium deficiencies are most common in SAM e.g., edema is a consequence of potassium deficiency and sodium retention
- Extra potassium given (3-4 mmol/kg per day)
- Extra magnesium given (0.4-0.6 mmol/kg per day)
- High sodium can kill - prepare food with minimal salt
- Electrolyte mineral solution helps to restore balance

5. **INFECTIONS**

Children with SAM are very prone to infections, so it is to be assumed that all children with SAM have an infection.

In complicated SAM, parenteral antibiotics are recommended:
- Benzylpenicillin or ampicillin for 2 days, then oral amoxicillin plus gentamicin once a day for 7 days.

**SAM AND HIV**

- In areas where HIV infection is common, children with SAM should be tested for HIV.
- If the child is infected with HIV, start anti-retroviral therapy (ART) as soon as possible after stabilization of metabolic complications and sepsis.
- Monitor closely (inpatient and outpatient) for first 6–8 weeks after starting ART to identify early metabolic complications and opportunistic infections.
6. MICRONUTRIENT DEFICIENCIES

- Micronutrients such as vitamin A, folic acid, zinc and copper are already present in F-75, F-100 and RUTF. If these are being given then there is no use for additional doses.
- Iron is not given till child starts gaining weight – at least until 2nd week. Even then do not give iron if child is receiving RUTF.
- Give additional vitamin A only if child has any signs of vitamin A deficiency like corneal ulceration or a history of measles.

7. INITIAL RE-FEEDING

- Gradual feeding.
- Every 2-3 hours of low-osmolar and low-lactose feeds (F-75 is a good starter formula).
- Continue breastfeeding, if child is breastfed.

8. CATCH-UP GROWTH FEEDING

Catch-up phase (can be conducted in outpatient) – characterized by:
- Return of appetite
- No episodes of hypoglycemia
- Reduced or disappearance of all edema
- Transition to F-100 or RUTF from F-75
- Replace starter F-75 with an equal amount of catch-up F-100 for 2 days.
- If on RUTF:
  - Start with small but regular meals of RUTF and encourage the child to eat often
  - If the child cannot take at least half of recommended amount of RUTF in 12 h, stop RUTF and give F-75. Try introducing RUTF again in 1–2 days until the child is able to take adequate amounts.
  - As RUTF does not contain water, children should also be offered safe drinking water to drink at will.

9. SENSORY STIMULATION

Provide to the child:
- Tender loving care.
- A cheerful, stimulating environment.
- Structured play therapy for 15–30 min/day.
- Physical activity as soon as the child is well enough.
- Support for as much maternal involvement as possible (e.g. comforting, feeding, bathing, playing).
10. DISCHARGE FROM INPATIENT TREATMENT

- It is not based on specific anthropometric or weight-for-height/length outcomes.
- Discharged from hospital to outpatient or a nutritional programme when:
  - Completed parenteral antibiotic treatment, and are clinically well and alert.
  - Medical complications are resolved.
  - Appetite has fully recovered and are eating well.
  - Edema has reduced or resolved.

DISCHARGE FROM NUTRITIONAL TREATMENT

Criteria for discharge:
- Weight-for-height/length is at least ≥ -2 z-score and they have had no edema for at least 2 weeks, or
- Mid-upper-arm circumference is ≥ 12.5 cm and they have had no edema for at least 2 weeks.
The decision should be based on the same anthropometric indicator that was used on admission.

PLAN - AFTER CONCLUSION OF NUTRITIONAL TREATMENT

The mother should be counselled on appropriate feeding to:
- Give appropriate meals with a high energy and protein content at least five times daily.
- Give nutritious snacks between meals (e.g. milk, banana, bread, biscuits).
- Assist and encourage the child to complete each meal.
- Give food separately to the child so that the child’s intake can be checked.
- Breastfeed as often as the child wants.

FOLLOW-UP

Weighed weekly after discharge. Refer back for assessment if client:
- Fails to gain weight over a 2-week period, or
- Loses weight between two measurements, or
- Develops loss of appetite or edema

KNOWLEDGE CHECK 3

Mark each of the statements: TRUE or FALSE

a. Antibiotics should not be started till the SAM patient is admitted for inpatient care.
b. Intravenous rehydration is only done in case of shock in a person with SAM.
c. RUTF should be given in the stabilization phase of treatment of SAM.
d. A wasted child may have adequate hydration but still appear dehydrated.
SESSION 1: MANAGEMENT OF ACUTE MALNUTRITION

SAM IN INFANTS UNDER 6 MONTHS

- Always given inpatient care
- **If the mother is present:**
  - Breastfeeding advice and support to the mother.
  - Supplemental suckling technique with diluted F-100.
  - Medical treatment as per WHO protocol.
  - Counselling for mother and family to ensure adequate feeding after discharge.

Aim: To restore exclusive breastfeeding with appropriate weight gain of 20 g per day for 5 days on breast milk alone.

- **If mother is absent or not breastfeeding:**
  - Nutritional rehabilitation with diluted F-100.
  - Medical treatment as per WHO protocol.
  - RUTF is NEVER given to infants under 6 months.
  - Retain in inpatient care until the age of 6 months or discharge on alternative methods of feeding based on national guidelines.

SAM IN ADOLESCENTS AND ADULTS

Principles of management and methodology is similar to what is done in children.

Moderate malnutrition:
- Additional 20-30% caloric intake.
- Frequent, small, nutrient-rich meals.
- Assess for any underlying cause/pathology that might be there.
- Treat any oral thrush, diarrhea or nausea.

Severe malnutrition:
- If able to eat, they are provided with RUTF, F-75 or F-100 as available. The amount of food given per kg is less for adults as they have lower energy requirements.
- Like in children, hypoglycemia, hypothermia and dehydration should be managed accordingly.

WATER, SANITATION AND HYGIENE

Provision of clean, drinking water and proper hand hygiene (washing hands thoroughly with soap) are key to preventing and managing malnutrition.

Hand hygiene is crucial to prevent spread of infections. It must be done before:
- Preparing and giving feed to children.
- Handling individuals with MAM & SAM.
SESSION 2

PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES
SESSION 2: PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Identify methods to prevent and manage key micronutrient deficiencies
• Discuss key dietary strategies to alleviate common micronutrient deficiencies in individuals

SESSION CONTENT

Prevention & Management of Micronutrient Deficiencies
• Iron Deficiency
• Vitamin A Deficiency
• Iodine Deficiency
• Zinc Deficiency
• Vitamin D Deficiency
IRON DEFICIENCY

Iron deficiency is the most common nutritional deficiency in the world. Often this deficiency leads to Iron Deficiency Anemia (IDA).

GROUPS VULNERABLE TO IRON DEFICIENCY

- Pregnant Females: Increased requirements.
- Women of Reproductive Age: Menstruation leading to blood loss.
- Vegetarians: Lack of heme iron in diet.
- Infants and Children: Increased requirements for growth, increased incidence of worm infestation.

IRON DEFICIENCY: PREVENTION STRATEGIES

- Improving diet
- Consumption of iron-fortified foods
- Deworming
- Iron supplementation
- Treatment with iron
- Malaria control and treatment

IRON: DIETARY SOURCES

Dietary iron can be found in two different forms:

**Non-Heme Sources**
- Lower bioavailability which is affected by other parts of diet
- Vitamin C, meat and some spices promote non-heme iron absorption
- Fibre, including phytates (grain husks), polyphenols (found in cereals, tea and many vegetables) and calcium inhibit non-heme iron absorption

**Heme Sources**
- Derived from hemoglobin and myoglobin with higher bioavailability
- Heme iron makes up 40% of the iron in meat, poultry and fish

KEY POINTS TO REMEMBER TO ENCOURAGE IRON ABSORPTION IN DIET

1. Although milk, eggs and cheese are animal proteins, they are actually very low in bioavailable iron.
2. Oranges and other fruits, poultry, meats, fish and certain spices help iron to be absorbed.
3. Whole wheat, beets and other vegetables, teas and coffee inhibit iron absorption.
SESSION 2: PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES

IRON FORTIFIED FOODS

Foods that are often fortified with iron are:
- Rice and flour
- Commercial infant porridges and cereals
- Therapeutic foods especially used in emergency situations or food aid (RUTF)
- Micronutrient powders (MNPs) added to foods at their point of use

DEWORMING

Worm infestation can lead to blood loss in intestines and iron deficiency.
- Deworming of high-risk population (pre-school aged and school-aged children and women of childbearing age) should be done at least once or even twice a year.
- Medication usually used is albendazole or mebendazole.

IRON SUPPLEMENTATION

Iron supplementation is key in preventing and managing iron deficiency in different population groups. The following slides show the WHO recommended iron supplementation guidelines for various groups. Folic acid is also included in this chart because of its importance during pregnancy as well as preconception. Country specific guideline/protocol for IFA supplementation should be followed.

RECOMMENDED DAILY IRON AND FOLIC ACID SUPPLEMENTATION IN PREGNANT WOMEN

| Supplement composition | Iron: 30–60 mg of elemental iron $^a$
Folic acid: 400 μg (0.4 mg) |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>One supplement daily</td>
</tr>
<tr>
<td>Duration</td>
<td>Throughout pregnancy. Iron and folic acid supplementation should begin as early as possible</td>
</tr>
<tr>
<td>Target group</td>
<td>All pregnant adolescents and adult women</td>
</tr>
<tr>
<td>Settings</td>
<td>All settings</td>
</tr>
</tbody>
</table>

$^a$ 30 mg of elemental iron equals 150 mg of ferrous sulfate heptahydrate, 90 mg of ferrous fumarate or 250 mg ferrous gluconate.
### Recommended Intermittent Iron and Folic Acid Supplementation in Women of Reproductive Age (WRA)

| Supplement Composition | Iron: 60 mg of elemental iron*  
<table>
<thead>
<tr>
<th></th>
<th>Folic acid: 2800 μg (2.8 mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>One supplement per week</td>
</tr>
<tr>
<td>Duration and time</td>
<td>3 months of supplementation</td>
</tr>
<tr>
<td>interval between</td>
<td>followed by 3 months of no</td>
</tr>
<tr>
<td>periods of</td>
<td>supplementation after which</td>
</tr>
<tr>
<td>supplementation</td>
<td>the provision of</td>
</tr>
<tr>
<td></td>
<td>supplements should restart.</td>
</tr>
<tr>
<td></td>
<td>If feasible, intermittent</td>
</tr>
<tr>
<td></td>
<td>supplements could be given</td>
</tr>
<tr>
<td></td>
<td>throughout the school or</td>
</tr>
<tr>
<td></td>
<td>calendar year</td>
</tr>
<tr>
<td>Target group</td>
<td>All menstruating adolescent</td>
</tr>
<tr>
<td></td>
<td>girls and adult women</td>
</tr>
<tr>
<td>Settings</td>
<td>Populations where the</td>
</tr>
<tr>
<td></td>
<td>prevalence of anaemia among</td>
</tr>
<tr>
<td></td>
<td>non-pregnant women of</td>
</tr>
<tr>
<td></td>
<td>reproductive age is 20% or</td>
</tr>
<tr>
<td></td>
<td>higher</td>
</tr>
</tbody>
</table>

*60 mg of elemental iron equals 300 mg of ferrous sulfate heptahydrate, 180 mg of ferrous fumarate or 500 mg of ferrous gluconate.

### Daily Iron and Folic Acid Supplementation in Children (6-23 Months)

<table>
<thead>
<tr>
<th>Target Group</th>
<th>Children (6 months – 23 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplement Dose</td>
<td>2 mg/kg daily</td>
</tr>
<tr>
<td>Settings</td>
<td>Where the prevalence of anaemia</td>
</tr>
<tr>
<td></td>
<td>in children approximately 1</td>
</tr>
<tr>
<td></td>
<td>year of age is above 40% or</td>
</tr>
<tr>
<td></td>
<td>the diet does not include</td>
</tr>
<tr>
<td></td>
<td>foods fortified with iron</td>
</tr>
</tbody>
</table>
## DAILY IRON AND FOLIC ACID SUPPLEMENTATION IN PRESCHOOL AND SCHOOL-AGE CHILDREN

<table>
<thead>
<tr>
<th>Target group</th>
<th>Preschool-age children (24–59 months)</th>
<th>School-age children (5–12 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplement composition</td>
<td>25 mg of elemental iron(^a)</td>
<td>45 mg of elemental iron(^b)</td>
</tr>
<tr>
<td>Supplement form</td>
<td>Drops/syrups</td>
<td>Tablets/capsules</td>
</tr>
<tr>
<td>Frequency</td>
<td>One supplement per week</td>
<td></td>
</tr>
<tr>
<td>Duration and time interval between periods of supplementation</td>
<td>3 months of supplementation followed by 3 months of no supplementation after which the provision of supplements should restart. If feasible, intermittent supplements could be given throughout the school or calendar year.</td>
<td></td>
</tr>
<tr>
<td>Settings</td>
<td>Where the prevalence of anaemia in preschool or school-age children is 20% or higher</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) 25 mg of elemental iron equals 75 mg of ferrous fumarate, 125 mg of ferrous sulfate heptahydrate or 210 mg of ferrous gluconate.

\(^b\) 45 mg of elemental iron equals 135 mg of ferrous fumarate, 225 mg of ferrous sulfate heptahydrate or 375 mg of ferrous gluconate.
IRON DEFICIENCY ANEMIA: MANAGEMENT

Dietary management and iron supplementation are both key strategies for handling iron deficiency. However IDA cannot be treated with diet alone and supplementation is almost always necessary.

Dietary Management
• Iron deficient populations would be advised to consume iron-rich foods and minimize simultaneous consumption of foods containing phytates, polyphenols and calcium.

Iron Supplementation
• Ferrous: These salts have the highest bioavailability.
• Ferric: This has a lower bioavailability so it should be taken with a source of ascorbic acid (vitamin C) to improve absorption.

CASE STUDY

Francis is an 8 year old boy. He walks to school every day and likes sports and outdoor activities. Lately he complains to his mother about feeling tired and not wanting to play. Often while walking to school he rests on the way because of breathlessness. His mother also notices that his cheeks are dull and greyish and takes him to the local doctor. After a thorough history and examination the doctor tells the mother that Francis seems to have anemia that is probably due to iron deficiency. Which of the following is the best dietary advice for Francis?

a. Eat more of meat and fish in combination with cereals
b. Eat more of meat and fish and take a glass of milk with every meal
c. Eat a big meat portion at breakfast with tea, egg and cheese
d. Eat more meat, fish, and spinach with fruits like oranges and guavas
e. Eat spinach and beans for dinner with a cup of tea
CASE STUDY

The doctor obtains a detailed history from Francis’ mother concerning his diet, symptoms and complaints. She tells the doctor Francis eats mostly rice and lentils, but with smaller portions of fish and meats. He likes to drink tea or milk with his meals. In addition to his symptoms of fatigue, Francis’ mother explains that she has seen occasional worms in his stools.

What should the doctor do?
I  Give dietary advice
II  Give iron supplements
III Give anti-helminthics (anti-parasite medication)

a.  I
b.  II
c.  III
d.  I & II
e.  I, II, & III
SESSION 2: PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES

VITAMIN A DEFICIENCY

Dietary Sources of Vitamin A

**Provitamin A Carotenoids**
These come from plant sources such as fruits & vegetables. The most important of these - beta carotene - is found in leafy green vegetables and in bright yellow and orange fruits & vegetables. Plant sources are not as bioavailable (absorbed) as animal sources.

**Preformed Vitamin A**
This is found in animal sources such as organ meats (liver), red meat and fish. Breast milk is a critical source of a preformed vitamin A for the infant.

**Etiology of Vitamin A Deficiency (VAD)**
The underlying cause of VAD is a diet chronically insufficient in vitamin A. Reasons for an inadequate level of vitamin A include:

1. Inadequate breastfeeding – the first critical source of vitamin A.
2. Diet lacking in vitamin A-rich foods (especially liver and full-fat dairy products).
3. Vegetarian diets with modest amounts of vitamin A-rich fruits and vegetables.

An inadequate diet and infections usually co-exist in vitamin A deficient populations. VAD increases the severity of infections, which in turn adversely affects vitamin A intake, giving rise to a ‘vicious cycle’ of VAD and infections.

PREVENTION STRATEGIES TO PREVENT VITAMIN A DEFICIENCY

- Improving diet: Encourage dietary diversification and consumption of foods rich in vitamin A. Breastfeeding is included in this strategy as it is the first best source of vitamin A for infants.
- Consumption of vitamin A-fortified foods: Vitamin A fortification of staple foods such as oil, flour, milk powder or sugar is a cost-effective strategy.
- Vitamin A supplementation programs: Periodic, targeted high doses of vitamin A supplementation (VAS) to populations at risk is a proven, low-cost intervention.
SESSION 2: PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES

VITAMIN A SUPPLEMENTATION (VAS)

For Children: The WHO recommends periodic VAS in children 6 - 59 months only in populations at risk.

*Priority countries for national vitamin A supplementation programs are identified as those having high under-5 mortality rates (over 70 per 1,000 live births), evidence of vitamin A deficiency among this age group, and/or a history of vitamin A supplementation programs.

<table>
<thead>
<tr>
<th>Target Group</th>
<th>Infants 6–11 months of age (including HIV+)</th>
<th>Children 12–59 months of age (including HIV+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>Once</td>
<td>Every 4 – 6 months</td>
</tr>
<tr>
<td>Dose</td>
<td>100 000 IU (30 mg RE) vitamin A</td>
<td>200 000 IU (60 mg RE) vitamin A</td>
</tr>
<tr>
<td>Route of Administration</td>
<td>Oral liquid, oil-based preparation of retinyl palmitate or retinyl acetate</td>
<td></td>
</tr>
<tr>
<td>Settings</td>
<td>Populations where the prevalence of night blindness is 1% or higher in children (24 to 59 months of age) or where the prevalence of vitamin A deficiency (serum retinol 0.70 μmol/L or lower) is 20% or higher in infants and children (6 to 59 months of age)</td>
<td></td>
</tr>
</tbody>
</table>
SESSION 2: PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES

For Mothers: In regions where vitamin A deficiency is a severe public health problem, supplementation in pregnancy is recommended to avoid night blindness in mothers. However, country protocols should be consulted for guidelines on VAS.

Adequate nutrition through a balanced diet is recommended for mothers in the postpartum period, especially during breastfeeding.

VITAMIN A SUPPLEMENTATION IN MEASLES

Measles, a viral infection, infects and damages epithelial tissues of the body. It can reduce vitamin A levels in the body.

Studies have shown that vitamin A supplementation given to children with measles reduces morbidity due to the disease. Thus, the WHO recommends vitamin A to be given to all children with measles in vitamin A deficient areas.
SESSION 2: PREVENTION & MANAGEMENT OF MICRONUTRIENT DEFICIENCIES

TREATMENT OF VAD AND XEROPHTHALMIA

Xerophthalmia refers to the spectrum of ocular manifestations due to vitamin A deficiency. Such signs include those involving impaired sensitivity of the retina to light (night blindness), and (in order of their appearance and severity) epithelial disruptions of the cornea and conjunctiva, such as conjunctival xerosis, Bitot spots, corneal xerosis and keratomalacia.

In Children

1. Vitamin A orally on days 1, 2 and 14 after diagnosis:
   • Aged less than 6 months - 50,000 IU
   • Older children - 200,000 IU
   • Aged 6–12 months - 100,000 IU

2. If the eyes show signs of corneal clouding or ulceration, the following care is given to the affected eye:
   • Chloramphenicol or tetracycline eye drops, 4 times daily as required for 7–10 days
   • Atropine eye drops, 1 drop 3 times daily for 3–5 days
   • Saline-soaked eye pads or bandages for the eye
   • A specialist referral, if necessary

In Women of Reproductive Age

Vitamin A orally, 5000 – 10,000 IU daily or 25,000 IU weekly for at least 4 weeks. Management of eyes as done in children.

IODINE DEFICIENCY

Iodine is important for the production of thyroid hormones. Thyroid hormones regulate many reactions within the body and are required for skeletal and central nervous system development in fetuses and infants.

Dietary Sources of Iodine

• Seaweed is one of the best food sources of iodine, though depending on the species, iodine content is highly variable.
• Other good sources include fish, shrimp, and other seafood. Foods of marine origin usually have a higher content because iodine in sea-water becomes concentrated in marine life.
• Iodine is also present in vegetables (e.g. green peas, maize, beans) and fruits (e.g. dried prunes, bananas).
• Few foods contain iodine naturally - of those that do iodine content is generally low. Iodine content varies depending on:
  • Soil content
  • Fertilizer use
  • Irrigation practices
Strategies to Prevent Iodine Deficiency
- Salt iodization: The main strategy to prevent iodine deficiency is universal salt iodization. Families and patients should be encouraged to consume iodized salt only and iodized salt should be kept away from heat to protect its iodine content.
- Iodine supplementation: Supplementation in vulnerable populations with iodine is recommended by WHO and UNICEF as an alternative strategy if salt iodization is not feasible. Iodine supplementation is particularly recommended for pregnant or lactating women, women of child-bearing age and children aged 0-24 months.

ZINC DEFICIENCY
Zinc is an important mineral for the body’s immune system, growth and development.

Dietary Measures to Increase Zinc Consumption
Dietary diversification strategies, especially for households with predominant plant-based diets:
- Increase production and use of animal source foods (e.g. beef and poultry)
- Employ household phytate reducing techniques such as soaking cereals and legumes and leavening of grains
- Encourage breastfeeding and complementary feeding as per WHO recommendations. Breastfeeding is sufficient for meeting an infant’s zinc requirements up to 6 months of age, after which appropriate complementary feeding should be initiated

Dietary Sources of Zinc: Liver, beef, veal, lamb, pork, chicken, soy products and seeds (i.e. squash seeds).

Foods Inhibiting Absorption of Zinc: Whole grains, legumes, cereals and nuts are phytate-containing foods which inhibit zinc absorption. Non-heme iron intake can also reduce zinc absorption which is a cause of concern for individuals on iron supplementation.

People on phytate-rich diets might have zinc requirements up to 50% higher than the normal population.
Strategies to Prevent Zinc Deficiency

- Improving diet
- Zinc supplementation
- Zinc fortification

Zinc Therapy in Diarrhea

The World Health Organization and UNICEF recommend zinc supplementation for children under-5 to treat all forms of diarrhea.

- Recommended dose: 20 mg/day for 10-14 days (10 mg/day for infants <6 months).
- Oral Rehydration Salts (ORS) are given along with zinc. Both are essential and not a substitute for the other.
- Severely dehydrated children are given zinc once intravenous rehydration is no longer required and vomiting, if any, has stopped.

Research has shown that zinc therapy reduces:

- Diarrhea-related admissions to hospital by 23%
- Duration of the diarrheal episode (acute diarrhea by 10 hours and persistent diarrhea by 16 hours)
- Diarrhea-related mortality
VITAMIN D DEFICIENCY

Vitamin D is an important micronutrient required for strong bones (by helping calcium absorption), muscle and nerve function, as well as helping the immune system.

Endogenous Skin Synthesis: Exposure of uncovered skin to sunlight leads to beneficial vitamin D synthesis in the skin.

Sources of Vitamin D:
- Fish liver oils (e.g. cod and halibut)
- Fatty fish (e.g. salmon, tuna, sardine)
- Egg yolks
- Fortified foods (e.g. milk, cheese, cereals, margarine)
- Sunlight is a major source of vitamin D in tropical countries

Etiology of Vitamin D Deficiency
Vitamin D is synthesized by the skin when exposed to sunlight. Moreover it is also available in certain foods.
Most commonly vitamin D deficiency can be due to:
- Inadequate exposure to sunlight – due to reduced outdoor exposure time, air pollution, skin coverings or sunscreen use.
- Diet poor in vitamin D.
- High amounts of melanin (skin pigment).

Vulnerable Groups
- Pregnant and Lactating Women: Need vitamin D to ensure adequate stores in the baby and sufficient vitamin D in breast milk.
- Neonates and Infants: Neonates are born with low vitamin D stores and the breast milk vitamin D content is dependent on the mother’s vitamin D status (which is often not adequate).
- Older Adults (>65 years of age): Skin of older adults does not synthesize vitamin D as efficiently as that of younger people.
- Inadequate Sun Exposure: Inadequate exposure to sun leads to inadequate synthesis of vitamin D.
Strategies to Prevent Vitamin D Deficiency
- Adequate exposure to sun
- Vitamin D-rich diet
- Vitamin D supplements

Treatment of Vitamin D Deficiency
In many settings, vitamin D deficiency (and rickets in children) is treated with supplementation. However there is no global consensus on doses given to adults and children.

An example of commonly followed treatment regimen in children includes:

*Nelson Textbook of Paediatrics*

Treat nutritional deficiency of vitamin D in children manifesting as rickets using either of the following therapies:

1. 300,000-600,000 IU orally or intramuscularly divided into 2-4 doses (observed) over 1 day
2. 2000-5000 IU vitamin D daily orally for 4-6 weeks

Maintenance Therapy
Follow either strategy by vitamin D intake of 400 IU/day if <1 yr old or 600 IU/day if >1 yr old with adequate dietary intake of calcium and phosphorus.
An example of commonly followed treatment for adults includes:

The Endocrine Society in the USA recommends adults with vitamin D deficiency be treated with either of the following two protocols:

1. 50,000 IU weekly for 8 weeks
2. 6000 IU daily for 8 weeks

Maintenance Therapy
Either protocol should be followed by 1500-2000 IU/day.
SESSION 3

INTERVENTIONS IN OVERWEIGHT & OBESITY
SESSION 3: INTERVENTIONS IN OVERWEIGHT & OBESITY

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Recall the etiology of overweight and obesity
• Describe key measures to prevent overweight and obesity

SESSION CONTENT

Overweight & Obesity
• Dietary Management
• Avoiding Overweight & Obesity in Infants and Children
OVERWEIGHT AND OBESITY

High-calorie diets and inadequate physical activity can lead to overweight and obesity in childhood, adolescence and adulthood. Obesity in childhood and adolescence tends to persist in adulthood and put individuals at risk of chronic diseases like cardiovascular disease and diabetes.

Overweight and obesity can be identified in children using the WHO weight-for-height and BMI-for-Age charts (see job aids).

In the 5-19 year old age group, BMI-for-Age cut offs for overweight and obesity are:
Overweight: above +1 z-score
Obese: above +2 z-score

DIETARY MANAGEMENT OF OVERWEIGHT AND OBESITY

• Limit saturated and trans fat intake – consume more unsaturated fats.
• Decrease intake of sugar (sugar-sweetened drinks, sweets, added sugar in fruit juices, honey, syrups).
• Avoid excessive use of salt – do not add extra salt to food.
• Increase consumption of fruit, vegetables, pulses, whole grains and nuts.

WHAT ARE SATURATED AND UNSATURATED FATS?

• Saturated fats mostly come from animal sources such as beef, poultry, whole-fat milk, cheese and butter, however some come from plant sources like coconut, palm and palm kernel oils. Saturated fats raise levels of both total blood cholesterol and low-density lipoprotein (or “bad” cholesterol).

• Unsaturated fats come from plant foods, such as nuts and seeds, and are liquid at room temperature. Examples include vegetable oils such as olive, peanut, safflower, sunflower, soybean and corn. Unsaturated fats do not raise blood cholesterol or low-density lipoprotein levels.

AVOIDING OVERWEIGHT & OBESITY IN INFANTS & CHILDREN

• Promotion of exclusive breastfeeding till 6 months of age followed by continued breastfeeding along with appropriate complementary feeding till 2 years of age or beyond
• Discourage formula feeding
• Avoid sugar-sweetened milk, fruit juices and fizzy drinks
• Avoid calorie-rich, nutrient-poor ready-to-eat foods
• Encourage physical activity and sports in children
KEY MESSAGES OF UNIT 3

1. Screening, diagnosis and management of moderate acute malnutrition (MAM) is often ignored in health facilities. It is very important to recognize MAM and manage it as MAM increases the risk of developing SAM and catching infections.

2. MUAC and weight measurements are critical in identifying MAM and SAM. Appropriate and timely referral to health facilities is important to avoid complications from SAM.

3. Micronutrients are critical for health and their deficiencies can be managed by diet and supplementation.

4. Dietary management and adequate physical activity are key to preventing and managing overweight and obesity. Lifestyle changes are essential to prevent gaining weight.
ACTIVITY 3-A: PLOTTING AND INTERPRETATION OF WEIGHT-FOR-HEIGHT

Instructions:
Plot the measurements of the following two cases and categorize whether the children suffer from MAM or not.

Children’s measurements are as follows:

Caroline – 2 years old – weight 12 kg and height 82 cm
Margaret – 3 years old – weight 10.5 kg and height 92 cm
ACTIVITY 3-B: INTERPRETATION OF MUAC

Instructions:

The arrow indicates the MUAC measurement of a child, which is 11.9 cm. Would you classify this child as normal or undernourished?
Instructions:
Plot the measurements of the following two cases and categorize whether the children suffer from SAM or not.

Joseph – 1.5 years old – weight 7 kg and height 78 cm
Peter – 9 months – weight 5.5 kg and length 68 cm
ACTIVITY 3-D: INTERPRETATION OF MUAC

Instructions:
Hannah and Ben are siblings who live in a village in Uganda. Based on their MUAC measurements indicated by arrows, are they suffering from acute malnutrition or not?

Hannah
Ben
ACTIVITY 3-E: HANDWASHING SKILLS

Instructions:
Demonstrate the process of handwashing as described by WHO. See steps below. Practice as a group, then have your colleagues complete the checklist below while you demonstrate the skill.
### ACTIVITY 3-E: HANDWASHING SKILLS

<table>
<thead>
<tr>
<th>Scale Label</th>
<th>Score</th>
<th>Characteristics of Competency</th>
</tr>
</thead>
</table>
| Proficient practice              | 1     | • What the worker does is safe, appropriate and accurate.  
• Worker performs skill using minimal time.  
• Worker looks confident and does not require any hints. |
| Incomplete / unsafe practice     | 0     | • What the worker does is unsafe, not completely accurate or incomplete.  
• Worker does not show good skill.  
• Worker uses a lot of time and energy to perform the skill.  
• Worker looks uncomfortable and needs a lot of hints. |

<table>
<thead>
<tr>
<th>Handwashing</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITIES / PROFESSIONAL BEHAVIORS</td>
<td>Circle number</td>
<td></td>
</tr>
<tr>
<td>Turn on the tap and wet hands</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Apply liquid soap, enough to cover entire surface of hands</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rub hands palm to palm</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rub dorsum of each hand with the palm of the other hand</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rub palms with fingers interlaced</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rub back of fingers to opposite palms with finger interlaced</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rub left thumb while clapping in right palm and vice versa</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rub finger tips of each hand in the opposite palm</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Rinse hands with water and dry them thoroughly with a single-use towel</td>
<td>0 1</td>
<td></td>
</tr>
<tr>
<td>Use single-use towel to turn off the faucet</td>
<td>0 1</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL POINTS** /10 **PERCENTAGE:** %

**FINAL RESULT**

- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice
ACTIVITY 3-F: MICRONUTRIENT ACTIVITY STATION

Instructions:
In groups, go through the four micronutrient information stations and:

• Review the information package at each.
• Discuss and answer two questions related to the specific micronutrient given on the following pages.

Cases:

Station A: Vitamin A

What are good food sources of vitamin A?
When is vitamin A supplementation recommended in children and pregnant women?

Station B: Iodine

What are good sources of iodine? Would iodine deficiency be more common in coastal areas or mountainous regions?
What are the strategies to prevent iodine deficiency?
Station C: Zinc

What are good dietary strategies to prevent zinc deficiency?
In what dose is zinc given during diarrhea in children under-five?

Station D: Vitamin D

What is the best source of vitamin D?
Why is vitamin D deficiency even common in regions which get a lot of sunshine?
UNIT 4:
LEADERSHIP AND COUNSELLING
UNIT 4: LEADERSHIP AND COUNSELLING

INTRODUCTION

This module is designed to help frontline workers develop the skills needed to support families in healthy nutrition practices. It applies concepts of professional practice, communication, collaboration, leadership, management, and advocacy to engage individuals, families and communities in nutrition behaviours that improve health. Participants are guided through key concepts related to leadership and counselling with case studies to consolidate their learning.

COMPETENCIES & UNIT OBJECTIVES

Key Professional Abilities (Competencies)

a. Nutrition Care: Provide service to meet the nutrition care needs of person/community.
b. Community Health: Promote nutrition health of groups and communities.
c. Professional practice: Demonstrates professionalism in delivery of safe, competent and ethical care.
d. Communication and Collaboration: Communicate effectively and practice collaboratively.
e. Leadership, management and advocacy: Leadership, management and advocacy involves the application of principles of decision making, problem solving and conflict resolution to facilitate a care environment that is supportive to person and community health related to food and nutrition.

Unit objectives:
By the end of this unit the participant will be able to:
• Explore leadership concepts and how to be an effective leader within the workplace
• Define counselling and the context in which it takes place
• Describe the principles and skills required for effective counselling
• Apply the principles and skills to the counselling process

UNIT CONTENT

1. Leadership
   • Describe leadership and its process
   • Identify concepts for developing as a leader

2. Counselling in Nutrition
   • What is counselling including definition and process
   • What are the guiding principles for effective counseling
   • Necessary skills for improving your counseling sessions.
   • Tools to aid in the counseling process
   • How to best facilitate group counseling sessions
SESSION 1

LEADERSHIP
SESSION 1: LEADERSHIP

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Describe leadership and its associated processes
• Identify concepts to enhance leadership skills

SESSION CONTENT

Leadership
• What is Leadership
• Being a Leader Everyday
LEADERSHIP

Leadership is a multifaceted process of identifying a goal, motivating other people to act, and providing support and motivation to achieve mutually negotiated goals.”

LEADERSHIP AS A PROCESS

Leadership is a process involving the influence of others, within the context of a group, in order to reach goals which are shared by leaders and their followers.

Leadership is:

• Defined as a process, which suggests that leadership is not a characteristic or trait with which only a few, certain people are endowed with at birth. More important, it means that leadership is not restricted to just the one person in a group who has formal position power (i.e. the formally appointed leader).

• A transactional event that happens between leaders and their followers.

• A two-way, interactive event between leaders and followers rather than a linear, one-way event in which the leader only affects the followers. Leaders affect and are affected by their followers either positively or negatively.

• About influence—the ability to influence your subordinates, your peers, and your bosses in a work or organizational context. Without influence, it is impossible to be a leader.
  • Having influence means that there is a greater need on the part of leaders to exercise their influence ethically.

• Group-oriented - This means that leadership is about influencing a group of people who are engaged in a common goal or purpose.
EVERYDAY LEADERSHIP

You can play a leadership role by:
• Identifying and responding to clients’ needs
• Coordinating interprofessional team members to work together
• Working in partnership with patients and families to help achieve health-related goals
• Using professional behaviours to positively influence health outcomes
• Demonstrating effective communication with individuals involved in patient care
• Coordinating resources
• Listening to others

LEADERSHIP CONCEPTS

Dignity and respect: Leaders listen to and honor patient and family perspectives and choices. Patient and family knowledge, values, beliefs, and cultural backgrounds are incorporated into the planning and delivery of care.

Information sharing: Leaders communicate and share complete and unbiased information with patients and families in ways that are affirming and useful. Patients and families receive timely, complete, and accurate information in order to effectively participate in care and decision-making.

Participation: Leaders encourage and support patients and families to participate in care and decision-making at the level they choose.

Collaboration: Leaders collaborate in policy and program development, implementation, and evaluation; and in professional education, as well as in the delivery of care.
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Define counselling and the context in which it takes place
• Describe the principles and skills required for effective counselling
• Understand the use of tools and group counselling methods
• Apply the concepts of counselling to breastfeeding, complementary feeding and handwashing

SESSION CONTENT

Counselling in Nutrition
• What is Counselling
• Guiding Principles and Counselling Skills
• Tools for Facilitating Counselling and Group Sessions
WHAT IS COUNSELLING?

Counselling is a process, based on a relationship that is built on empathy, acceptance and trust. Within this relationship, the counsellor focuses on the client’s feelings, thoughts and actions, and then empowers clients to:
• Cope with their lives,
• Explore options,
• Make their own decisions, and
• Take responsibility for those decisions

Power, needs, time and boundaries need to be considered when entering into a relationship with an individual you will be counseling.
• Power difference: not an equal relationship.
• Client/patient is vulnerable/in need.
• Focus is on client’s needs, not counsellor’s needs.
• Time difference: you do not have the luxury of time to establish the relationship. This is why elements of trust, understanding and acceptance are so important.
• Confidentiality is essential, and must be discussed with the client.
• Boundaries and limits are placed on the relationship.

COUNSELLING ENVIRONMENT

The counselling environment should be quiet and private. If the location is familiar to the individual they may feel more comfortable to open up and share their story with you.
THE COUNSELLING PROCESS

The main focus of this session will be on the process (the top semi-circle), but you need to be aware of the context, guiding principles, and skills required in order to effectively proceed through the counselling process.

Understanding CONTEXT will give you guidance on how to act, what is appropriate and the situation, culture and norms of those you will be working with.

Adopting GUIDING PRINCIPLES will strengthen your counselling skills.
GUIDING PRINCIPLES

Self-reflection: Be aware of your own attitudes, beliefs and values and how they might impact the care you provide.

Empathy and respect: Try to understand the individual’s situation and value their knowledge and decisions.

Encouraging interaction: Engage the individual in discussion. Build on skills and knowledge and allow the individual to question, discuss and integrate new ideas with their existing knowledge.

Shared problem solving: Act as a facilitator to identify and make a plan regarding the individual’s needs.

Tailoring to specific needs: Each individual is different and the counselling process will be different.

COUNSELLING SKILLS

1. TWO WAY-COMMUNICATION

Communication involves the exchange of information and is most productive when it is a two-way process which offers an opportunity for each of the parties involved to clarify issues, provide feedback and discuss topics.

Key point: What is said and what is heard are often different. In order to make sure that you are heard and understood, it is often important to check the client’s understanding by asking them what he/she understood. It is also important to make sure you regularly check your understanding of what the client has said to you.

2. FORMING AN ALLIANCE

• The frontline worker’s first communication task is to build an alliance, or a partnership, with the individual and, if present, partner or family.
• The counselling relationship is healing in and of itself. If the relationship is healthy, then the counselling outcome has the best chance of being productive.
• Simply talking to someone about your problems can be healing by itself. It can allow a person to “vent” their feelings, to feel heard and accepted.
3. ACTIVE LISTENING

Listening is more than just hearing someone else’s words, you need to be attentive and demonstrate that you have heard and understand what is being communicated to you.

- Demonstrating that you really are listening will increase the individual’s trust and confidence in you as a counsellor, and will make them feel more at ease thus helping to form an alliance.
- Demonstrating that you have heard and understood what has been said to you can be done by paraphrasing, whereby you repeat back what has been said to you using different words.

Non-verbal communication means showing your attitude through your posture, your expressions and gestures without speaking. Good non-verbal communication skills will encourage the client to talk more, focus his/her responses and establish a positive environment.

4. TIPS FOR ASKING QUESTIONS

- Ask questions directly and clearly.
- Ask questions concisely; be specific and brief. Do not ask long, drawn out questions.
- Ask only one question at a time—more than one question can be confusing and make the individual feel like they are being interrogated.
- Share your purpose for asking the question.
- Ask questions gently

5. TYPES OF QUESTIONS

**Open-ended questions** are those that have many possible answers. They encourage the individual to talk about their situation and explore their feelings, beliefs, knowledge and specific need. Examples: What brings you here today? What are your main concerns?

**Closed-ended questions** can be answered with one work and can be used when you need specific information. Examples: How old are you? What is your name?

6. PROVIDING INFORMATION

Providing information is used when specific factual information is required or requested.

- Relevant and accurate information should be shared with the individual.
- This should not be confused with ADVICE (being told what to do), they should be presented with the information as OPTIONS (suggesting what you can do).

Remember, with good questioning skills you can find out what is already known so you only need to provide additional and relevant information. You can also find out about beliefs and any misconceptions and explain why they may be wrong as well as discuss different ideas. You should also use your questioning skills to make sure that the information you provide is culturally appropriate, and relevant to the situation and context of their life.
Many individuals’ problems stem from their beliefs that they have no options. They feel stuck in a certain situation. Often individuals have options or alternatives that they have not considered. These options can include a potential action, a new perspective or even an alternate attitude. Facilitating the individual to find alternative/new solutions to their problem and to follow the best path for them is an important skill in counselling.

Facilitation is the process of assisting an individual or family in problem-solving. Helping individuals to identify tools for looking at and solving their problems is part of facilitation. A guiding activity could be:

- Have them make a list of all the possible solutions
- Identify the advantages and disadvantages of the possible solutions

THE COUNSELLING PROCESS

1. Introduction: Introduce yourself and get to know a little bit about the client.
2. Assess situation: What are the challenges the person is facing, why have they come to see you?
3. Define problems, needs and information gaps: What has the client tried in the past? What resources do they have that would help them solve this problem? What other resources do they think they will need? What don’t we know about the problem or the potential solutions?
4. Generate alternatives: What are some alternative that we can consider? Brainstorm possible solutions.
5. Prioritize solutions: Which of the possible solutions is best suited for this client?
6. Develop a plan: How will you work towards solving the problem using this solution?
7. Review and evaluate: How will you know if your plan has been successful? What are the next steps for the client to take?
TOOLS TO AID IN COUNSELLING

Visual aids can help to prompt you on what should be covered and reinforce your discussions. These could include:
- Posters, leaflets or fact sheets
- Models or pictures
- Chalk, white boards or paper and a pen

Visual aids can be used to reinforce your discussion. Visual aids can also stand alone as methods of providing information. The main disadvantage of using them alone without discussion is that they do not allow for interactive communication and therefore may be misunderstood. If you do give out visual aids without having a discussion you can overcome this difficulty by providing people with an opportunity to ask questions at a later point either in group or individual discussions.

They should be used along with your discussion to allow the individual a chance to ask questions or create discussion.

When facilitating these sessions:
- Make sure you can be heard and visual aids can be seen
- Talk slowly and clearly
- Move around the group to connect with the various members
- Allow time for the group to ask questions
- Ask questions of the group to ensure they have understood the topic
KEY MESSAGES OF UNIT 4

1. Counselling is an important process to improve the health of individuals we see.
2. Incorporating key principles can improve the relationship built during counselling and improve the effectiveness of the process.
3. The counselling provided in each situation will differ according to the individual’s history and needs.
4. Group counselling can be an effective way to reach a larger number of individuals and key principles should be considered to ensure success.
ACTIVITY 4-A OPEN AND CLOSED QUESTIONS

Instructions: Read each statement and determine whether it is an open or closed question and indicate it in the left hand column.

<table>
<thead>
<tr>
<th>Answer key</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What brings you here today?</td>
</tr>
<tr>
<td>2.</td>
<td>Have you eaten this morning?</td>
</tr>
<tr>
<td>3.</td>
<td>Do you care about your health?</td>
</tr>
<tr>
<td>4.</td>
<td>What are the reasons you aren’t breastfeeding?</td>
</tr>
<tr>
<td>5.</td>
<td>What are you worried about regarding your children’s diet?</td>
</tr>
<tr>
<td>6.</td>
<td>What do you typically drink throughout the day?</td>
</tr>
<tr>
<td>7.</td>
<td>How has your daughter been eating?</td>
</tr>
<tr>
<td>8.</td>
<td>Do you have diarrhea?</td>
</tr>
<tr>
<td>9.</td>
<td>Do you have access to meat?</td>
</tr>
<tr>
<td>10.</td>
<td>Do you know how to wash your hands?</td>
</tr>
</tbody>
</table>

For each closed-ended question you identified, rewrite it as an open-ended question:
ACTIVITY 4-B COUNSELLING PROCESS

Instructions:
As a class you will walk through the steps in the counselling process. 2 volunteers will participate, one role playing as a client and the second as the counsellor. The rest of the class will observe and provide feedback to the counsellor.

Role 1: Client: Scenario options

- You find yourself frequently hungry in the afternoons
- OR
- Your baby is not breastfeeding well.

Role 2: Counsellor you will walk through the steps of counselling the individual on the problem they have brought to you. Remember to use the guiding principles and skills you have learned to provide the best possible counselling to the individual seeking care.

Observers: Observe the interaction between the worker and the individual receiving counselling. Complete the checklist (page 157) for the “counsellor”.

1. Introduction
2. Assess situation
3. Define problems, needs and information gaps
4. Generate alternatives
5. Prioritize solutions
6. Develop a plan
7. Review and evaluate
ACTIVITY 4-B COUNSELLING PROCESS

After you finished role playing the scenario, discuss the following questions:

a. Client: How did the counsellor make you (the individual) feel regarding your problem?

b. Client: How appropriate was the solution both of you developed when thinking of the context of you as an individual? Appropriate for your socio-economic status? Social and cultural norms? Gender roles? Household decision-making process?

c. Counsellor: What challenges did you face in getting all the information you needed from the individual as the counsellor?

d. Counsellor: What do you think you would do differently next time?
2. Checklist for the observer:

<table>
<thead>
<tr>
<th>The process</th>
<th>Skills/principles demonstrated (Include examples if you can)</th>
<th>Completed Yes/No?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Introduction/Greeting (Establish the relationship)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forming an Alliance</td>
<td></td>
</tr>
<tr>
<td>Exploration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Assess the situation</td>
<td>Active listening</td>
<td></td>
</tr>
<tr>
<td>2. Define the problem</td>
<td>Two way communication</td>
<td></td>
</tr>
<tr>
<td>3. Generate alternatives</td>
<td>Open-ended questioning</td>
<td></td>
</tr>
<tr>
<td>4. Prioritize solutions</td>
<td>Shared problem solving</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Develop a plan</td>
<td>Facilitation</td>
<td></td>
</tr>
<tr>
<td>6. Review and evaluate</td>
<td>Providing information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tailoring to specific needs</td>
<td></td>
</tr>
</tbody>
</table>

Trust and Empathy (list ways the counsellor built trust with the individual)
Instructions:
• In groups of 3 apply the counselling skills you have learned to one of the four case studies provided. The facilitator will assign each group which case to complete.
• Choose a group member to be each the client, the counsellor and the observer.
• The ‘counsellor’ will ‘counsel’ the family through the needed information in your case study.
• Consider the knowledge you have gained in the previous 3 units regarding breastfeeding, complementary feeding and WASH, and overweight/obesity.
• You can use job aids during the activity.
• Report back to the class about what counselling was provided to the family and what challenges you faced while completing the counselling.

Case 1
Amali, a 28 year old woman, arrives to your clinic accompanied by her husband, Farid, and their two-week old baby, Malik. She delivered Malik at home accompanied by her grandmother and has come to you because she is worried he hasn’t gained weight since birth. After your assessment you note that Malik is underweight with no signs of SAM. Counsel Amali and Farid regarding breastfeeding practices that would help Malik gain weight.

Case 2
Grace, a 26 year old woman, arrives to the clinic accompanied by her 5 month old daughter Amina. She has noticed that Amina is frequently reaching for her food and is worried she is hungry. After your assessment you note that Amina is of appropriate weight for her age and is otherwise healthy. Counsel Grace on the best practices related to complementary feeding to ensure that Amina is receiving enough of the right foods.
Case 3
Emmanuel brings his family of 5 to your clinic. He explains that the family frequently experiences diarrhea and that they require treatment for parasites every 6 months. Emmanuel is concerned for his family’s health and would like to find out the best way to prevent these recurrent parasite infections. Counsel Emmanuel on WASH to reduce the risk of transmission of parasites and other diarrheal illnesses.

Case 4
Isaac, a 54 year old, arrives to your OPD. You note that his BMI is 26. After completing a dietary assessment, you note that Isaac frequently eats takeaway from the local fast food restaurant and consumes very few fruits or vegetables. Counsel Isaac regarding the principles of healthy eating and his risk for developing obesity.
UNIT 5:
NUTRITION IN VULNERABLE CIRCUMSTANCES
UNIT 5: NUTRITION IN VULNERABLE CIRCUMSTANCES

INTRODUCTION

This unit focuses on nutrition priorities and actions in vulnerable and difficult circumstances. It encompasses nutrition in infectious diseases, namely, HIV and tuberculosis as well as role of nutrition in non-communicable diseases (NCDs). Moreover, the unit highlights nutrition interventions in emergencies with a focus on vulnerable groups. Feeding of low birth weight (LBW) babies is also covered in this unit.

COMPETENCIES & UNIT OBJECTIVES

Key Professional Abilities (Competencies)

a. Nutrition Care: Provide service to meet the nutrition care needs of person/community.
b. Community Health: Promote nutrition health of groups and communities.
c. Professional practice: Demonstrates professionalism in delivery of safe, competent and ethical care.
d. Communication and Collaboration: Communicate effectively and practice collaboratively.

Unit Objectives:

By the end of this unit the participant will be able to:

• Explain the nutrition management for HIV positive and tuberculosis patients
• Describe the recommended nutrition management of low birth weight infants
• Recognize nutrition issues in emergencies and identify interventions to address them
• Explain the key role of nutrition in development and control of non-communicable diseases

UNIT CONTENT

1. Nutrition in HIV
   • Guidelines to Eating in HIV
   • Food Safety in HIV
   • Improving Food Intake
   • Nutrition and HIV Management
   • Infant and Young Child Feeding in HIV
   • Management of MAM in HIV
   • Management of SAM in HIV
2. Nutrition in Tuberculosis
3. Nutrition in Low Birth Weight Infants
5. Nutrition in Emergencies
6. Nutrition in NCDs
WHAT ARE VULNERABLE CIRCUMSTANCES?

Situations that could put nutrition of individuals at risk and increase their chances of suffering from nutritional problems. Examples: diseases, emergencies (conflict, drought, natural disaster, flood), socioeconomic problems.

WHO IS VULNERABLE TO NUTRITIONAL ISSUES?

- Infants and children (especially the under-five age group). Some of the children more at risk are:
  - Suffering from disease
  - Orphan or deserted children
  - Children with disabilities
- Women of reproductive age
- Pregnant women
- Elderly
- People living in poverty
SESSION 1
NUTRITION IN HIV
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Recognize the influence of nutrition on HIV and vice versa
• Explain the recommendations for eating, food safety and infant and young child feeding in HIV
• Describe the guidelines for managing MAM and SAM in HIV

SESSION CONTENT

Nutrition in HIV
• HIV and Nutrition
• Guidelines to Eating in HIV
• Food Safety in HIV
• Improving Food Intake in HIV
• Infant and Young Child Feeding in HIV
• Management of MAM and SAM in HIV
HIV AND NUTRITION

With HIV having detrimental effects on the body and immune system, there is weight loss and a greater risk for infections. HIV-positive individuals have a reduced appetite, lowered food absorption and increased energy requirements.

One of the most concerning nutritional impacts of HIV infection is the emergence of severe weight loss and muscle wasting. Moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) are often observed during the advanced stages of HIV infection. MAM and SAM are also often observed in those diagnosed with AIDS.

GUIDELINES TO EATING IN HIV

1. Consume a variety of foods – dietary diversity is critical to consume adequate nutrients.
2. Make staples or starchy foods the largest part of the meal.
3. Use peas, beans, lentils, nuts and seeds, if possible every day.
4. Use animal and milk products regularly.
5. Eat a wide variety of vegetables and fruits every day.
6. Use fats and oils as well as sugar and sugar containing foods regularly but in moderation.
7. If possible, use foods that are fortified with essential nutrients.
8. Add extra calories to everyday food by adding butter, oil, milk, egg, nuts or cream.
9. Drink plenty of safe and clean water (at least 8-10 glasses per day).

These are general guidelines which may need to be modified based on age, health and socioeconomic status.

Energy Requirements in HIV

- In asymptomatic HIV-infected individuals, energy requirements are likely to increase by 10% to maintain body weight and physical activity in symptomatic infection, requirements increase by 20-30% to maintain body weight.
- In children with HIV who are experiencing weight loss, energy intake should be increased by 50-100% over normal requirements.

FOOD SAFETY IN HIV

With low immunity and increased risk of infections, food safety is very important in HIV.
- The person, surrounding and cooking utensils should be clean. Hand hygiene is critical.
- Raw and cooked foods be kept separate.
- Food should be cooked thoroughly.
- Food should be kept at safe temperatures.
- Only safe water and safe raw materials/ingredients should be used.
IMPROVING FOOD INTAKE IN HIV

The HIV positive person should be assessed for and then helped to deal with problems that would affect appetite and intake, such as:

- Sore mouth/throat
- Dry mouth
- Change in taste
- Diarrhea
- Nausea/vomiting

INFANT AND YOUNG CHILD FEEDING IN HIV

- Lifelong antiretroviral (ARV) therapy or ARV prophylaxis in HIV-positive mothers reduces HIV transmission through breastfeeding
- HIV-positive mothers (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed for the first 6 months of life, introducing appropriate complementary foods thereafter, with continued breastfeeding till 24 months or beyond
- Breastfeeding should then only stop once a nutritional and safe diet can be provided

In infants and young children known to be HIV infected, mothers should exclusively breastfeed for the first 6 months of life, start complementary foods and continue breastfeeding up to 24 months or beyond.

MANAGEMENT OF MAM IN HIV

- Individuals who have MAM and are HIV-positive should be referred to outpatient or inpatient care depending on national guidelines.
- MAM in children and adults with HIV is treated as per WHO recommendations i.e. with appropriate use of available foods and also supplementary foods
**MANAGEMENT OF SAM IN HIV**

- Children under 5 years of age with severe acute malnutrition who are HIV-infected should be referred to inpatient care and:
  - Started on antiretroviral drug treatment as soon as possible after stabilization of metabolic complications and sepsis.
  - Managed with the same therapeutic feeding approaches as children who have SAM and are HIV-negative.
- Adults who are HIV-positive can be treated as inpatient using F-75 and F-100 or outpatient using RUTF.

**KNOWLEDGE CHECK 1**

Which of the following statements is correct?

a. Fats, oils and sugar should be avoided by HIV-positive individuals
b. HIV-positive mothers should only breastfeed their infants for 6 months followed by complementary feeding and breast milk alternatives

c. HIV-positive infants should be exclusively breastfed for 6 months, then started on complementary feeding, with continued breastfeeding till 24 months or beyond

d. Therapeutic feeding approaches for HIV+ individuals with SAM is different from HIV-negative individuals
SESSION 2
NUTRITION IN TUBERCULOSIS
SESSION 2: NUTRITION IN TUBERCULOSIS

SESSION OBJECTIVES

By the end of this session, participants will be able to:

• Identify the principles of nutrition actions in tuberculosis
• Describe the guidelines for management of MAM and SAM and micronutrient supplementation in tuberculosis

SESSION CONTENT

Nutrition in Tuberculosis

• Principles of Nutrition Management in Tuberculosis
• Management of MAM and SAM in Tuberculosis
• Micronutrient Supplementation in Tuberculosis
TUBERCULOSIS AND NUTRITION

Undernutrition increases the risk of tuberculosis and tuberculosis increases the risk of undernutrition. Also, undernutrition can increase the risk of latent TB turning into an active TB infection.

Apart from the typical symptoms of the disease (cough, low grade fever), most individuals with TB can experience loss of appetite, weight loss, nausea and even diarrhea/vomiting. Thus, there can be a lack of nutrient intake and an increase in loss of nutrients.

PRINCIPLES OF NUTRITION MANAGEMENT IN TUBERCULOSIS

1. Prompt TB diagnosis, treatment and care as per WHO guidelines is a priority.
2. Adequate diet with all essential macro- and micronutrients.
4. TB often co-exists with other issues and conditions such as HIV, diabetes, substance abuse etc, which need to be recognized and addressed.

MANAGEMENT OF MAM AND SAM IN TB

• Should be managed as per WHO recommendations for management of MAM and SAM – through nutrient-rich or fortified supplementary foods to restore nutritional status in MAM and SAM management as per guidelines.
• If the individual fails to regain normal nutritional status after 2 months of TB treatment or is losing weight during treatment – then they should be investigated for irregularity of treatment and co-infections.
SESSION 3

NUTRITION IN LOW BIRTH WEIGHT INFANTS
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Explain the principles of feeding of low birth weight infants

SESSION CONTENT

Nutrition in Low Birth Weight Infants
• Feeding of LBW Babies
NUTRITION IN LOW BIRTH WEIGHT INFANTS

Low birth weight (LBW) is weight at birth of less than 2.5 kg (2500g). Very low birth weight (VLBW) are infants with a weight of less than 1.5 kg. These infants are at higher risk of:
• Infections,
• Growth retardation
• Developmental delay
• Mortality

FEEDING OF LBW BABIES

• LBW infants who are clinically stable (no signs of infection, respiratory distress or low blood oxygen levels, if available) should be put to the breast as soon as possible after birth
• Should be exclusively breastfed until 6 months of age
• Those who cannot breastfeed and have to be put on ‘alternative oral feeding’ should be fed expressed breast milk by cup and spoon – NOT bottle
• LBW and VLBW infants who cannot be fed mother’s own milk or donor human milk should be fed standard infant formula but with cup and spoon. VLBW should be given preterm infant formula if they fail to gain weight despite adequate feeding with standard infant formula.
• Feeding should be on-demand except if infant remains asleep for more than 3 hours since last feed. In this case the infant should be woken for feeding
• VLBW infants requiring nasogastric (NG) tube feeding should be given bolus intermittent feeds. However, nasogastric feeding is a temporary solution and oral feeding should be encouraged as soon as possible.

KNOWLEDGE CHECK 2

A baby weighing 2.0 kg is born at the hospital by caesarean section. The mother has discomfort in her incision site and refuses to breastfeed. Which of the following is the next best option that should be advised for the baby’s feeding?
a. Feed expressed mother’s milk through bottle
b. Feed special formula milk for low birth weight babies with cup and spoon
c. Feed expressed mother’s milk through NG tube
d. Feed expressed mother’s milk with cup and spoon
e. Feed fresh cow’s milk with cup and spoon
SESSION 4

NUTRITION IN CHILDREN WITH DISABILITIES
SESSION 4: NUTRITION IN CHILDREN WITH DISABILITIES

SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Identify key priorities in feeding in children with disabilities.

SESSION CONTENT

Nutrition in Children with Disabilities
• Challenges in Feeding
• Important Interventions for Feeding
• Priorities in Feeding
Malnutrition in children with disabilities can result from not getting enough to eat and/or poor eating habits causing subsequent health problems.

**CHALLENGES IN FEEDING**

Physical disabilities or behavioural issues (or both) can lead to feeding problems in children. Problems may be related to:
- Oral-motor function (sucking, retaining in mouth, chewing, swallowing)
- Positioning
- Self-feeding
- Behavioural

**IMPORTANT INTERVENTIONS FOR FEEDING**

- Use locally available iron- and micronutrient-rich foods e.g. green vegetables, whole grains, fruits.
- Use low-cost, nutritious recipes that are easy to make and give to these children.
- Ensure children with disabilities are not ignored and are getting sufficient amounts to eat. Often these children have feeding problems and are thus neglected.
- Refer to appropriate therapists (if available), if these children are identified with specific feeding difficulties (such as chewing or swallowing problems).
- Monitor weight in children with limited mobility to avoid excess weight gain and alter diet if required.
- Breastfeeding should be promoted as much as possible in infants with disabilities.
- Educate families on simple methods which can help in feeding these children better e.g:
  - Modify food (mash or puree, chop, grind, thicken)
  - Appropriate positioning to help feeding
  - Specific devices and utensils to help children feed themselves
  - Modified feeding techniques (tube feeding – only when all other methods fail)
- Participation in local nutrition initiatives should be encouraged – especially where growth is monitored and supplements provided. Traditional anthropometry can be challenging in some children with disabilities and additional assistance can be required.

**FEEDING A CHILD WITH DEVELOPMENTAL DISABILITIES**

It is important to be aware of the position of the child during feeding to ensure the child is able to safely swallow foods, reduce the risk of choking or aspirating and encourage adequate nutrient intake. Aspiration is when food or fluid enter the airway, which can lead to difficulty breathing, choking or even a secondary lung infection.

Stability and symmetry are the goals of providing support to the child during feeding. The following can be used to ensure proper positioning of the child and safety during feeding.
- Positioning the hips and knees of the child at right angles to their body.
- Their head should be midline with the chin tucked in slightly. If the head is extended upwards, they will have increased risk of aspiration.
SESSION 4: NUTRITION IN CHILDREN WITH DISABILITIES

Other important concepts to keep in mind include:
• Reduce distraction during feeding to keep the focus on the activity to improve intake and reduce risk of aspiration.
• Allow the child to feed themselves if they are able, although continue to provide supervision.
• Provide the child with manageable size bites to increase their coordination in swallowing.
• Ensure the child is swallowing well and only place more food in the mouth once they have swallowed, this is called pacing.
• If the child begins to get tired, feeding should be stopped, as they can have increased risk of aspiration when fatigued. Make sure foods are of high nutritional density if the child tires easily, so they meet their nutritional needs.

FEEDING IN CHILDREN WITH AUTISM

Following are some helpful tips for feeding children with autism:
• Follow a mealtime schedule and routine
• Avoid snacking in between meals
• Minimize distractions during meals
• Get child involved in the selection and preparation of meals
• Practice health eating behaviors as a family
• Reward good behavior
• Present food in a tempting way (making small portions makes it easier to eat)

PRIORITIES IN FEEDING

• Adequate nutrition
• Adequate hydration
• Maintain health
• Pulmonary function – prevent aspiration

IMPORTANCE OF WASH IN CHILDREN WITH DISABILITIES

• Clean water and sanitation measures help in maintaining health and minimizing infections and complications in children with disabilities. Families can find it challenging to provide adequate sanitation to these children because of the physical difficulties.
• It is important to encourage caregivers to make an effort to ensure for these children:
  • Cleanliness and hygiene
  • Access to adequate sanitation
  • Provision of clean drinking water, utensils and hygienic food
• Moreover, health workers and families should influence local authorities to provide services and facilities for disabled populations
• Community members should be motivated to help and assist when needed
SESSION 5

NUTRITION IN EMERGENCIES
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Recognize the concept of emergencies and disasters and the threat to food security caused by them
• Identify the various pathways in emergencies through which food insecurity can occur
• Explain key nutrition interventions that should be implemented in emergencies

SESSION CONTENT

Nutrition in Emergencies
• Emergencies and Disasters
• Threats to Food Security
• Impact on Health, Sanitation and Hygiene
• Food Insecurity in Emergencies
• Nutrition Interventions in Emergencies
• Infant and Young Child Feeding in Emergencies
• Water, Sanitation and Hygiene in Emergencies
• Diarrhea and ORT in Emergencies
• Vitamin A Deficiency in Emergencies
EMERGENCIES & DISASTERS

Emergencies are disasters or conflict that disrupt the functioning of a community and cause human or material losses.

NATURAL DISASTERS

- Earthquakes, tsunami, volcanic activity
- Avalanches, floods
- Extreme temperatures, wildfires, drought
- Cyclones, hurricanes
- Disease epidemics

MAN-MADE HAZARDS

- War/conflict
- Displaced populations
- Industrial disasters

WHAT ARE THE REASONS WHY NUTRITION OF POPULATIONS MAY BE AFFECTED IN EMERGENCIES?

- Decreased food availability which can be due to:
  - Crop failure
  - Loss of live stock
  - Market failure
  - Economic reasons
- Change in diet due to:
  - Disrupted everyday life
  - Relying on food rations
  - Consumption of wild foods
  - Decreased access to a variety of foods

COMMON NUTRITION ISSUES IN EMERGENCIES

- Moderate or severe acute malnutrition (especially in children)
- Micronutrient deficiencies
- Increased susceptibility to disease
CHANGES IN INFANT AND YOUNG CHILD FEEDING DURING EMERGENCIES

• Maternal undernutrition, anxiety and trauma can affect breastfeeding
• Breast milk substitutes/infant formulas in food rations can encourage mothers to shift to artificial feeding practices
• Mothers have less time to feed and care for their child because of disruption of normal life
• Limited food available
• Families can be separated or there can be deaths in the family which can harm the diet and health of children

WASH AFFECTED IN EMERGENCIES

Lack of adequate nutrition, water, sanitation and hygiene gives rise to disease amongst the affected populations, leading to a vicious cycle of undernutrition and disease. Infectious diseases like diarrhea, acute respiratory infections and cholera are frequently encountered in emergencies.

NUTRITION INTERVENTIONS IN EMERGENCIES

These are key nutrition interventions that should be priority in emergencies:
• Nutritional and needs assessment.
• Identification and prioritization of vulnerable groups.
• Distribution of a general food ration.
• Prevention and treatment of moderate malnutrition and severe acute malnutrition in children and adults.
• Prevention and treatment of micronutrient deficiencies and communicable diseases (infections).
• Nutritional support for at-risk groups, including infants, pregnant and lactating women, elderly people, and people living with HIV.
• Ensure provision of clean drinking water and sanitation.
• Team work and coordination between various cadres of health and nutrition workers can help address challenges during emergencies.

INFANT AND YOUNG CHILD FEEDING IN EMERGENCIES

• Promote exclusive breastfeeding till 6 months and continued up to 2 years and beyond.
  • Safe havens (safe, private spots) for breastfeeding mothers
  • If possible, arrange food rations for mothers
  • Emotional support for mothers (counselling)
• Support complementary feeding starting at 6 months of age with safe and nutritious food.
• Use of artificial feeding/breast milk substitutes when needed (if mother can’t breastfeed or mother has died) – artificial feeding should be clean, safe and WITHOUT use of bottles/teats.
SESSION 5: NUTRITION IN EMERGENCIES

WASH IN EMERGENCIES

• Make effort for provision of clean water
• Handwashing facilities
• Distribution of soap
• Education of families especially mothers on handwashing and hygiene

DIARRHEA AND ORT IN EMERGENCIES

• High risk of infections and diarrhea in emergencies
• Oral rehydration therapy (ORT) and zinc supplements should be given to children with diarrhea
• Ensure use of clean, drinking water to formulate ORS
• Continue feeding the child
• Severe dehydration to be treated as per WHO protocols

VITAMIN A DEFICIENCY IN EMERGENCIES

Inadequate food supply and/or measles outbreak can increase risk of vitamin A deficiency. In high-risk populations, interventions to prevent or manage vitamin A deficiency should be taken:
• High-dose vitamin A supplements
• Measles vaccination
• Inclusion of vitamin A-rich foods in diet
• Ensure sanitation and hygiene to prevent diarrhea

Tip: Link with program at facility managing MAM/SAM

KNOWLEDGE CHECK 3

What is the most effective intervention to prevent deaths in children under two years, during emergencies?

a. Vaccination
b. Oral rehydration therapy in diarrhea
c. Breastfeeding and appropriate complementary feeding
d. Vitamin A supplementation
e. Food vouchers
SESSION 6
NUTRITION IN NCDs
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Describe the main features of key NCDs and their relation to nutrition
• Explain the role of various nutrition-related risk factors that can contribute to the development of NCDs

SESSION CONTENT

Nutrition in NCDs
• Specific NCDs and their Relation to Nutrition
• Risk Factors for NCDs
• Intermediate Risk Factors
CHRONIC DISEASES

Chronic diseases are:
• Not passed from person to person
• Of long duration
• Generally of slow progression

These diseases are also referred to as non-communicable diseases (NCDs). On the other hand, communicable diseases are those that can be passed on person to person.

COMMON NCDS

Some of the common NCDs are:
• Cardiovascular disease
• Diabetes Mellitus
• Cancer

SPECIFIC NCDS & THEIR RELATION TO NUTRITION

Cardiovascular Disease:
High levels of triglycerides and LDL (low-density lipoprotein) cholesterol, smoking and high blood pressure are major causes of blood vessel damage. These factors can lead to development of cardiovascular disease.

Diabetes
Diet high in carbohydrates and free sugars can raise the body’s blood sugar (hyperglycemia) and put individuals at risk for impaired glucose tolerance and diabetes. These foods are categorized as high on the Glycemic Index and include refined carbohydrates (white bread, white rice, potatoes).

RISK FACTORS FOR NCDS

• Unhealthy eating
• Lack of physical activity
• Tobacco
• Alcohol consumption
• Intermediate risk factors
  • Overweight and obesity
  • Hypercholesterolemia
  • Hypertension
SESSION 6: NUTRITION IN NCDS

RISK FACTORS FOR NCDS: UNHEALTHY EATING

The WHO classifies unhealthy eating by:
- Low dietary intake of fruits (< 5 servings/day) and vegetables (< 2 servings/day)
- High intake of salt (> 5 grams/day or one teaspoon)
- Total daily energy from free sugars is greater than 10% (50 grams)
- Total daily energy from fat is greater than 30%

Consumption of low quality macronutrients often contribute to the development of NCDs. Examples of such diets are:
- More saturated and trans fats versus unsaturated fats
- Refined carbohydrates (with a high glycemic index) and less fibre

RISK FACTORS FOR NCDS: LACK OF PHYSICAL ACTIVITY

Low physical activity is another risk factor that contributes to development of NCDs in vulnerable populations.

RISK FACTORS FOR NCDS: ALCOHOL & TOBACCO

Excessive alcohol consumption
Heavy alcohol drinking >60 grams of pure alcohol in a week (approximately 6 drinks).

Tobacco consumption
Smoking, sucking, chewing or snuffing tobacco can be harmful.

INTERMEDIATE RISK FACTORS: HYPERCHOLESTEROLEMIA

Hypercholesterolemia is characterized by elevated total cholesterol of ≥5.0 mmol/L (190 mg/dL). Dietary sources of cholesterol include animal products such as:
- Eggs
- Meats
- Organ Meats
- Poultry
- Seafood

INTERMEDIATE RISK FACTORS: HYPERTENSION

Hypertension is characterized as systolic blood pressure of ≥140 mmHg and/or diastolic blood pressure of ≥90 mmHg.

High salt intake and low potassium intake → hypertension and increased risk of heart disease and stroke.

Examples of foods high in salt and low in potassium include:
- Highly salted foods such as processed meats, cheese and salty snack foods
- High quantities of processed foods, such as bread, cereal products and instant noodles
- Additional sodium found in condiments & seasoning, such as soy sauce, fish sauce and table salt
INTERMEDIATE RISK FACTORS: OVERWEIGHT AND OBESITY

High-calorie diets and a sedentary lifestyle can lead to overweight and obesity in childhood, adolescence and adulthood. Overweight and obesity can have adverse metabolic effects on blood pressure, cholesterol and insulin resistance. An increasing body mass index increases the risk of developing cardiovascular disease, diabetes and even cancer.

KNOWLEDGE CHECK 4

A 25 year old male with a family history of diabetes and cardiovascular disease has come to the health facility for his annual check-up. He is concerned about his family history of NCDs and seeking advice about preventive lifestyle measures. Which of the following recommendations would you suggest to him?

a. Reduce consumption of sugar-sweetened drinks  
b. Sprinkle salt on food before consumption  
c. Reduce alcohol consumption  
d. Consume more than 3 cups of coffee or tea per day  
e. Consume dark, leafy green vegetables on a daily basis  
f. Do moderate to vigorous exercise at least 3-4 days a week  
g. Consume more fiber in diet

KNOWLEDGE CHECK 5

Which of these steps can help lower high blood pressure?  
a. Lower salt intake  
b. Lower potassium intake  
c. Increase intake of vegetables that are processed and canned  
d. Use condiments such as soy sauce and fish sauce  
e. Reduce weight by following a low-carbohydrate diet
KEY MESSAGES OF UNIT 5

1. A variety of foods should be consumed by the HIV-positive person to ensure all nutrients are taken in adequate amounts.
2. HIV-positive mothers should exclusively breastfeed for the first 6 months of life, introducing appropriate complementary foods thereafter, with continued breastfeeding till 24 months or beyond.
3. Diet of tuberculosis patients should be adequate with all essential nutrients. If a tuberculosis patient continues to lose weight and/or has a poor appetite and/or has other accompanying issues, refer them to a specialist for re-assessment.
4. Breast milk is best for LBW babies and they should be breastfed as soon as possible after birth.
5. Maintaining adequate hydration and nutrition is the priority in feeding of children with disabilities. Feeding should be done carefully, with the appropriate method especially to avoid aspiration.
6. Emergencies and disasters pose a threat to the nutritional status of communities especially vulnerable groups such as pregnant women, infants and the elderly.
7. Nutritional assessment, prompt recognition of nutrition issues and appropriate management are key in preventing malnutrition in affected populations.
8. Unhealthy eating and unhealthy life style can increase risk of NCDs.
ACTIVITY 5-A: ROLE PLAY FOR NUTRITION COUNSELLING IN HIV

Instructions:

Two participants will be chosen by the facilitator. One participant will act as an ‘HIV-positive individual’ while the other acts as a ‘health worker’. The focus of the interaction is on nutrition counselling for HIV patients.

Case scenario:

- HIV positive patient is concerned about the following:
  - What am I allowed to eat? / Should I avoid all fatty foods?
  - How can I keep my food safe?
  - I don’t feel like eating.

The ‘health worker’ will counsel the ‘HIV-positive individual’ and address concerns.

The participants who watch the interaction between the ‘HIV-positive patient’ and the ‘health worker’ and identify:

3 things that were done well

3 things that can be improved in the interaction
ACTIVITY 5-B: HAND WASHING SKILLS

Instructions:
Demonstrate the process of handwashing as described by WHO. Make groups of two, one participant demonstrates while the other rates on the scale.
## ACTIVITY 5-B: HANDWASHING SKILLS

<table>
<thead>
<tr>
<th>Scale Label</th>
<th>Score</th>
<th>Characteristics of Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficient practice</td>
<td>1</td>
<td>• What the worker does is safe, appropriate and accurate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Worker performs skill using minimal time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Worker looks confident and does not require any hints.</td>
</tr>
<tr>
<td>Incomplete / unsafe practice</td>
<td>0</td>
<td>• What the worker does is unsafe, not completely accurate or incomplete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Worker does not show good skill.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Worker uses a lot of time and energy to perform the skill.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Worker looks uncomfortable and needs a lot of hints.</td>
</tr>
</tbody>
</table>

### Handwashing Activity

<table>
<thead>
<tr>
<th>Handwashing Activity</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITIES / PROFESSIONAL BEHAVIORS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn on the tap and wet hands</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Apply liquid soap, enough to cover entire surface of hands</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub hands palm to palm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub dorsum of each hand with the palm of the other hand</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub palms with fingers interlaced</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub back of fingers to opposite palms with finger interlaced</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub left thumb while clasping in right palm and vice versa</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub finger tips of each hand in the opposite palm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rinse hands with water and dry them thoroughly with a single-use towel</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Use single-use towel to turn off the faucet</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL POINTS</td>
<td>/10</td>
<td></td>
</tr>
<tr>
<td>FINAL RESULT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FINAL RESULT

- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice
Instructions:
Read through the following case study and then answer the questions

Zeinah lives with her two children in a conflict-ridden region. Her youngest is a 3 month old boy who was being breastfed by Zeinah before she was displaced from her home 2 days back because of bombing. She has since been giving the baby water through a bottle. Her 3 year old daughter is suffering from diarrhea and has not eaten in 2 days when they reach a refugee camp which has a temporary clinic.

Discussion question for class
What should be the key nutrition interventions the team at the clinic adopt for Zeinah and her kids?
PRACTICUM
INTRODUCTION

The practicum is an opportunity for participants to apply classroom concepts in a real life care environment. Participants are expected to use knowledge and skills gained from the classroom and apply them in a practical environment supervised by an instructor. The participants will reflect on their own experiences with providing nutrition care and set personalised learning objectives to meet their unique learning needs. A set of core skills must be demonstrated by each participant during the practicum in order to evaluate the participant’s competencies.

COMPETENCIES & UNIT OBJECTIVES

Key Professional Competencies:

a. Nutrition Care
b. Community Health
c. Professional Practice
d. Communication and Collaboration

Practicum Objectives:

By the end of the practicum participants will be able to:

• Demonstrate skills related to assessment of nutritional status
• Apply theoretical concepts related to nutrition care
• Set and meet objectives specific to your practice
• Explore the environment where counselling and education take place

PRACTICUM CONTENT

1. Pre-Practicum Planning
   • Understanding practicum responsibilities
   • Setting learning objectives
   • Outline your personal learning objectives

2. In Practicum
   • Competencies completion
   • Ward rounds and application of nutrition care theory and SBAR communication
   • Environmental scan for counselling

3. Post-Practicum
   • Debrief
   • Collaborative learning

4. Additional learning activities
   • Diet recall assessment and counselling
   • Handwashing
SESSION 1

PRE-PRACTICUM PLANNING
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Describe the tasks required for success of practicum
• Describe principles of setting learning objectives
• Outline own learning objectives for practicum

PREPARATION

Explore the plan for the next day’s practicum. Ensure the participants understand their responsibilities and activities they are responsible for and activities they can complete when they have independent time.
The practicum is an opportunity for participants to apply classroom concepts in a care environment. Participants are expected to use knowledge and skills gained from the classroom and apply them in a practical environment supervised by an instructor. The participants will reflect on their own experiences with providing nutrition care and set personalized learning objectives to meet their unique learning needs. A set of core skills must be demonstrated by each participant during the practicum in order to evaluate the participant’s competencies.

RESPONSIBILITIES DURING PRACTICUM

<table>
<thead>
<tr>
<th>TRAINER</th>
<th>LEARNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitate meeting practicum objectives</td>
<td>Be open to experiences</td>
</tr>
<tr>
<td>Support learners by providing feedback</td>
<td>Seek opportunities for learning</td>
</tr>
<tr>
<td>Act as link between learners and facility</td>
<td>Work to meet practicum objective</td>
</tr>
<tr>
<td>Supervise participants while in practicum facilities</td>
<td>Complete additional activities when between objective activities</td>
</tr>
</tbody>
</table>

OVERVIEW OF PRACTICUM DAY

Four components will be present in the practicum:
1. Competencies
2. Ward rounds and SBAR communication
3. Environmental scan
4. Learning objectives (to be identified on the pre-practicum day and achieved during the practicum)

The goal of the practicum day will be for each participant to have the opportunity to explore each of these components. These will be the focus of the practicum learning facilitated by the trainer. Two additional activities are available (see session 4) if participants have down-time to ensure they have the most opportunity to learn from the practicum environment. These include:

- Counsel an individual/group regarding nutrition
- Complete a diet recall assessment
COMPETENCIES

Three skills will be the focus of the practicum:
1. MUAC
2. Documentation
3. Height, Length or Weight

You will be expected to complete skills 1 and 2. You should complete one of the skills listed under 3 and make an effort to assist or watch another participant complete the other skills.

The trainer will need to evaluate competency on the skill while it is performed. This will be done using the competency tool used during the skill station activity in class. You will need to present the tool to the facilitator while they complete the assessment.

WARD ROUNDS AND SBAR

This is an opportunity to see real cases related to nutrition and consider application of concepts learned in class. A case will be identified and you will have the opportunity to review the case and discuss the care of this individual or family. Consider the context in which the nutrition challenges have developed and what type of care will be required to ensure the ongoing health of the individual or family reviewed in the case. You will then prepare to present the case to the other participants during the post-practicum debrief session using SBAR.

ENVIRONMENTAL SCAN

An environmental scan can help you see factors that may create success or barriers to providing care. During the practicum, explore the practice environment and consider the questions.
1. Where does counselling take place?
2. What facilitators or barriers are there for engaging the individual, family or group?
3. Where does education or teaching is taking place?
4. What concepts from group counselling are present?
5. What would you consider adding to these sessions to enhance learning?
LEARNING OBJECTIVE

This will be your individual learning objective that you will aim to achieve during the practicum. Setting learning objectives can help keep your learning focused and provide a clear idea of what you want to learn. Learning objectives should be SMART:

1. **Specific.** A specific objective is detailed, focused and clearly stated. Everyone reading the objective should know exactly what you want to learn.
2. **Measurable.** A measurable objective is quantifiable, meaning you can measure the results with numbers.
3. **Attainable.** An attainable objective can be achieved based on your skill, resources and area of practice.
4. **Relevant.** A relevant objective applies to your current role and is clearly linked to your key role responsibilities.
5. **Time-limited.** A time-limited objective has specific timelines and a deadline. This will help motivate you to move toward your objective and to evaluate your progress.

HOW DO YOU WRITE A SMART LEARNING OBJECTIVE?

1. What do you want to learn?
2. Be specific and use action words to make sure you can measure if you reached your objective. Examples of Action words:

<table>
<thead>
<tr>
<th>Identify</th>
<th>Develop</th>
<th>Plan</th>
<th>Design</th>
<th>Demonstrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare</td>
<td>Describe</td>
<td>Evaluate</td>
<td>Explain</td>
<td>Create</td>
</tr>
</tbody>
</table>

3. Make sure your goal is realistic so you can reach it.
4. Make sure it relates to your own practice.
5. Some examples of SMART learning objectives include:
   - By the end of the practicum I will demonstrate taking a MUAC measurement with greater than 75% competency
   - By the end of practicum I will identify one area of nutrition theory learned in class that could improve the health of the case I review in ward rounds.
SESSION 1: PRE-PRACTICUM PLANNING

POST-PRACTICUM DEBRIEF

After completing the practicum session we will return to the classroom to complete the post practicum debriefing. The post-practicum debriefing will allow an opportunity to discuss and learn from each other’s experiences. Post-practicum debriefing is an important aspect of integrating classroom learning with hands on learning.

Debriefing sessions can:
- Promote interactive learning, collaboration, and teamwork
- Help you develop problem-solving, decision-making, and critical thinking skills
- Provide an opportunity for self-reflections and assess personal learning

The Think➔Pair➔Share model will be used:
- Think- about your own experiences in the practicum before arriving to post-practicum.
- Pair- with the person next to you, discuss your experiences: good/bad, new/challenging/interesting.
- Share- discuss the experiences as a group. Share stories of new learning and challenging situations.

Sharing situations that you found difficult emotionally can help relieve caregiver burden and help you help the next individual or family you encounter.

WHAT SHOULD YOU BRING TOMORROW TO THE PRACTICUM?

You will need to bring to practicum:
- Participant manual
- Pen
- Lab coat (if available)
SESSION 2

IN PRACTICUM
SESSION OBJECTIVES

By the end of this session, participants will be able to:

• Demonstrate competency in the key skills for nutrition assessment (anthropometry)
• Participate in ward rounds and apply concepts from theory of nutrition care and communicate your findings using SBAR
• Complete an environmental scan for where counselling and education takes place
• Explore individual learning objectives

SESSION CONTENT

In Practicum
Complete each of the following activities throughout the practicum day. These are the priority activities to complete, additional activities are found in session 4 that the participants can refer to if the opportunity is available or if an activity is needed while waiting to complete the priority activities.
SESSION 2: IN PRACTICUM

A: COMPETENCY ASSESSMENT

Complete each competency using the provided checklist. Document the measurements in the space provided.

### MUAC

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a care provider responsible for the child’s care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Expose the child’s left arm and shoulder</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bend the elbow at a 90° angle with the palm facing upwards</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Locate the most prominent part (tip) of the child’s shoulder and mark it</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Measure the distance from the shoulder mark to the tip of the elbow and divide the distance by two</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mark the midpoint of the child’s upper arm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Release the child’s left arm and place hand beside the child’s body</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Wrap the tape over the marked midpoint</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pull the tape tight around the mid-upper arm so that it touches the child’s skin without compressing the underlying tissue.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read the MUAC and record to the nearest 0.1 cm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL POINTS** /13

**FINAL RESULT**

- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice

**MUAC:**
## Documentation

<table>
<thead>
<tr>
<th>Documentation</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITIES / PROFESSIONAL BEHAVIORS</td>
<td>Circle number</td>
<td></td>
</tr>
<tr>
<td>Documentation is clear and concise</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Information included is accurate</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hand writing is readable</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Date and time are included</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Only well-known short forms/abbreviations used</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Factual- no irrelevant content</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Documentation is signed</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

| TOTAL POINTS | 7 |
| FINAL RESULT | ☐ < 50% = Incomplete/unsafe practice | ☐ 50-75% = Minimum level of safe practice | ☐ 75%-100% = Proficient practice | PERCENTAGE: | % |

---

**SESSION 2: IN PRACTICUM**

- Documentation is clear and concise: 1
- Information included is accurate: 1
- Hand writing is readable: 1
- Date and time are included: 1
- Only well-known short forms/abbreviations used: 1
- Factual- no irrelevant content: 1
- Documentation is signed: 1

Total Points: 7

Percentage: %
### Length

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a care provider responsible for the child’s care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Calm the child down if agitated</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remove socks, footwear and any hair accessories or styles</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Place the infantometer on a flat and stable surface</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Head position: cup hands over the child’s ears and position the head so the child is looking straight forward</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trunk and legs: stabilize the child’s trunk from the sides and straighten the knees</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Position the child’s feet so the soles are against the infantometer footboard</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read the child’s height in centimetres to the nearest 0.1 cm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL POINTS** /11

**PERCENTAGE:**

- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice

**FINAL RESULT**

Length:
### Height Measurement

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a care provider responsible for patient's care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Calm the child down if agitated</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remove socks, footwear and any hair accessories or styles</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Place the child standing against and stable stadiometer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Head position: Bridge the back of the head under the headboard so the child is looking straight forward.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Position the child's head horizontally and have the child look straight ahead.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Position the child's standing straight, are guiding the infant's knees.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read the child's height in centimetres to the nearest 0.1 cm</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>PERCENTAGE:</th>
<th>FINAL RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>/11</td>
<td></td>
<td>- &lt; 50% = Incomplete/unsafe practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 50-75% = Minimum level of safe practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 75%-100% = Proficient practice</td>
</tr>
</tbody>
</table>

Height: ____________________________
Weight Using Hanging Spring Scale (under 24 months)

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a care provider responsible for the child’s care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Adjust the pointer of the scale to zero level</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remove the child’s diaper and heavy clothing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Guide the child’s legs through the leg holes</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hold the child’s feet</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hang the child on the hanging spring scale</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read the scale at eye level to the nearest 0.1 kg</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Remove the child slowly and safely</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL POINTS /11 PERCENTAGE: %

FINAL RESULT
- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice
### Weight Using Standing Scale (over 24 months)

<table>
<thead>
<tr>
<th>ACTIVITIES / PROFESSIONAL BEHAVIORS</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash hands with soap and water or hand sanitizer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Introduces oneself as a care provider responsible for the individual’s care.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Explains to caregiver what they are going to do.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Help child remove outer clothing and footwear</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Calm the child down if agitated</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Place scale on a hard, flat and free from obstruction</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Check and set the weighing scale for zero error</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Guide the child to step on the scale and stand at the center</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>The child should not be holding onto any object or person</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Read and record the child’s weight to the nearest 0.1kg</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Completes appropriate documentation.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL POINTS** 11 **PERCENTAGE:**

**FINAL RESULT**

- □ < 50% = Incomplete/unsafe practice
- □ 50-75% = Minimum level of safe practice
- □ 75%-100% = Proficient practice

---

Weight Using Standing Scale (over 24 months)
SESSION 2: IN PRACTICUM

B: WARD ROUNDS

This is an opportunity to see real cases related to nutrition and consider application of concepts learned in class. A case will be identified and you will have the opportunity to review the case and discuss the care of this individual or family. Consider the context in which the nutrition challenges have developed and what type of care will be required to ensure the ongoing health of the individual or family reviewed in the case.

Use the SBAR tool to describe how you will communicate their findings to the other participant during the debriefing session.

SITUATION:

BACKGROUND:

ASSESSMENT:

RECOMMENDATIONS:
C: ENVIRONMENTAL SCAN

Environmental scan can help you see factors that may create success or barriers to providing care. Explore the environment of the practice area where you are completing the practicum. Note the following:

1. Where does counselling take place?

2. What facilitators or barriers are there for engaging the individual, family or group?

3. Where does education or teaching is taking place?

4. What concepts from group counselling are present?

5. What would you consider adding to these sessions to enhance learning?
D: LEARNING OBJECTIVES

You had the opportunity to develop a learning objective prior to the practicum.

Describe the learning objective you developed:

What actions did you take to meet this objective?

Describe what you have learned that you will take back to your everyday work:
SESSION OBJECTIVES

By the end of this session, participants will be able to:

- Demonstrate application of nutrition theory in practice by reporting the ward rounds case using SBAR
- Participate in group learning based on participants experiences
- Critically reflect on learning and experiences from practicum

SESSION CONTENT

Post-Practicum
Discuss the practicum experiences and have the participants work through their learning and any challenges they faced.
A: DEBRIEF

Post-practicum debriefing is an important aspect of integrating classroom learning with hands-on learning. Debriefing sessions can:

- Promote interactive learning, collaboration, and teamwork
- Help participants develop problem-solving, decision-making, and critical thinking skills
- Provide an opportunity for self-reflections and assess personal learning

Post-Practicum will include two sections:

1. Case presentations using SBAR
2. Description- Summarize events or new learning
   - THINK → PAIR → SHARE
   - Think- about your own experiences in the practicum before arriving to post-practicum.
   - Pair- with the person next to you, discuss your experiences: good/bad, new/challenging/interesting.
   - Share- discuss the experiences as a group. Share stories of new learning and challenging situations.
SESSION OBJECTIVES

By the end of this session, participants will be able to:
• Complete a diet recall assessment and complete appropriate counselling
• Handwashing competency

SESSION CONTENT

Additional Activities
These activities can be used throughout the practicum in addition to the four learning objectives when needed.
ACTIVITY: DIET RECALL

We will use the following table to complete a dietary assessment of an individual. Ask the following questions, then complete the table below by filling in the items that the individual ate. If they ate a meal with mixed ingredients, ask what type of foods were included in the prepared meal to get an idea of what they are eating. Complete the column (missing micro/macro nutrients) after you have collected the information from the individual.

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many meals would you say you had yesterday?</td>
<td></td>
</tr>
<tr>
<td>Was this a typical day of eating?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>Do you ever have difficulty getting access to food for you or your family?</td>
<td></td>
</tr>
<tr>
<td>Do you follow any specific diet or have any dietary restrictions?</td>
<td></td>
</tr>
<tr>
<td>Are there any foods you do not eat because you don’t think they are good for you?</td>
<td></td>
</tr>
<tr>
<td>Are there any foods you do eat regularly because you think they are good for you?</td>
<td></td>
</tr>
</tbody>
</table>
What have you eaten in the past 24hrs? (Complete the table)

<table>
<thead>
<tr>
<th></th>
<th>Foods Reported</th>
<th>How much</th>
<th>Missing micro/macro nutrients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meal 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meal 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meal 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What foods could be added to the individual’s diet to address any missing nutrients?

Discuss with the client the best way to meet these missing requirements using the principles of counselling.
SESSION 4: ADDITIONAL ACTIVITIES

HANDWASHING COMPETENCY ASSESSMENT

Have another participant assess your competency in handwashing. Let each other know how they did.

<table>
<thead>
<tr>
<th>Handwashing</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITIES / PROFESSIONAL BEHAVIORS</td>
<td>Circle</td>
<td>number</td>
</tr>
<tr>
<td>Turn on the tap and wet hands</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Apply liquid soap, enough to cover entire surface of hands</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub hands palm to palm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub dorsum of each hand with the palm of the other hand</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub palms with fingers interlaced</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub back of fingers to opposite palms with finger interlaced</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub left thumb while clasping in right palm and vice versa</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rub finger tips of each hand in the opposite palm</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rinse hands with water and dry them thoroughly with a single-use towel</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Use single-use towel to turn off the faucet</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL POINTS /10</td>
<td></td>
<td>PERCENTAGE: %</td>
</tr>
<tr>
<td>FINAL RESULT</td>
<td></td>
<td>□ &lt; 50% = Incomplete/unsafe practice</td>
</tr>
</tbody>
</table>
ABBREVIATIONS
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART</td>
<td>Anti-retroviral therapy</td>
</tr>
<tr>
<td>AI</td>
<td>Adequate intake</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
</tr>
<tr>
<td>BF</td>
<td>Breastfeeding</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>IDA</td>
<td>Iron deficiency anemia</td>
</tr>
<tr>
<td>IMCI</td>
<td>Integrated Management of Childhood Illness</td>
</tr>
<tr>
<td>IYCF</td>
<td>Infant young child feeding</td>
</tr>
<tr>
<td>LBW</td>
<td>Low birth weight</td>
</tr>
<tr>
<td>LDL</td>
<td>Low density lipoprotein</td>
</tr>
<tr>
<td>MAM</td>
<td>Moderate acute malnutrition</td>
</tr>
<tr>
<td>MDD</td>
<td>Minimum dietary diversity</td>
</tr>
<tr>
<td>MNP</td>
<td>Micronutrient powders</td>
</tr>
<tr>
<td>MUAC</td>
<td>Mid-upper arm circumference</td>
</tr>
<tr>
<td>NCD</td>
<td>Non-communicable disease</td>
</tr>
<tr>
<td>NG</td>
<td>Nasogastric</td>
</tr>
<tr>
<td>ORS</td>
<td>Oral rehydration salts</td>
</tr>
<tr>
<td>ORT</td>
<td>Oral rehydration therapy</td>
</tr>
<tr>
<td>RAE</td>
<td>Retinol activity equivalents</td>
</tr>
<tr>
<td>RDA</td>
<td>Recommended daily allowance</td>
</tr>
<tr>
<td>RUSF</td>
<td>Ready-to-use supplementary food</td>
</tr>
<tr>
<td>RUTF</td>
<td>Ready-to-use therapeutic food</td>
</tr>
<tr>
<td>SAC</td>
<td>School-age children</td>
</tr>
<tr>
<td>SAM</td>
<td>Severe acute malnutrition</td>
</tr>
<tr>
<td>SBAR</td>
<td>Situation, Background, Assessment, Recommendations</td>
</tr>
<tr>
<td>SFP</td>
<td>Supplementary feeding program</td>
</tr>
<tr>
<td>SGA</td>
<td>Small-for-gestational age</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations International Children's Emergency Fund</td>
</tr>
<tr>
<td>USDA</td>
<td>U.S Department of Agriculture</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>VAD</td>
<td>Vitamin A deficiency</td>
</tr>
<tr>
<td>VAS</td>
<td>Vitamin A supplementation</td>
</tr>
<tr>
<td>VLBW</td>
<td>Very low birth weight</td>
</tr>
<tr>
<td>WASH</td>
<td>Water, Sanitation and Hygiene</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WRA</td>
<td>Women of reproductive age</td>
</tr>
</tbody>
</table>