UNIT 5 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
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
HIV and Nutrition

HIV has negative effects on the body and immune system with a greater risk for:

- weight loss
- infections
- fever
- diarrhea

HIV-positive individuals have:

- a reduced appetite
- lowered food absorption
- increased energy requirements

Thus an increased risk of MAM and SAM.
HIV AND NUTRITION

- Severe weight loss
- Muscle wasting
- Severe Acute Malnutrition (SAM) is often observed during the advanced stages of HIV infection
- SAM and MAM are also seen in those diagnosed with AIDS

“A well-nourished person has a stronger body to fight infection and cope with HIV”
DISCUSSION – WHAT DO YOU THINK THIS PICTURE SHOWS?
GUIDELINES TO EATING IN HIV

1. Eat a variety of foods – dietary diversity is critical
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 everyday.
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 meals by adding butter, oil, milk, egg, nuts or cream
9. Drink plenty of safe and clean water.

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 HIV-positive children, who experience weight loss, energy intake should be increased by 50-100% over normal requirements.
With low immunity and increased risk of infections food safety is very important in HIV.

1. The person, surrounding and cooking utensils should be clean. Hand hygiene is critical.
2. Raw and cooked foods be kept separate.
3. Food should be cooked thoroughly.
4. Food should be kept at safe temperatures.
5. Only safe water and safe raw materials/ingredients should be used.
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
Activity 5A: Role Play for HIV Nutrition Counselling

• Choose two participants.
• 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.
INFANT & YOUNG CHILD FEEDING IN HIV

- HIV-positive mothers ➔ lifelong antiretroviral (ARV) therapy or ARV prophylaxis to reduce HIV transmission through breastfeeding

- HIV-positive mothers (and whose infants are HIV uninfected or of unknown HIV status) ➔ 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 2 years or beyond.
Key message

Mothers living with HIV can be reassured that shorter durations of breastfeeding of less than 12 months are better than never initiating breastfeeding at all.
• 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
HIV-positive children under 5 years of age with severe acute malnutrition should be referred for 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?

1. Fats, oils and sugar should be avoided by HIV-positive individuals
2. HIV-positive mothers should only breastfeed their infants for 6 months followed by complementary feeding and breast milk alternatives
3. HIV-positive infants should be exclusively breastfed for 6 months, then started on complementary feeding, with continued breastfeeding till 2 years or beyond
4. Therapeutic feeding approaches for HIV+ individuals with SAM is different from HIV-negative individuals
SESSION 2: NUTRITION IN TUBERCULOSIS
Tuberculosis and Nutrition

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

Most individuals with TB can experience:
• loss of appetite
• weight loss
• nausea
• diarrhea/vomiting.
→ lack of nutrient intake and an increase in loss of nutrients.
1. Prompt TB diagnosis, treatment and care as per WHO guidelines – considered priority.

2. Adequate diet with all essential macro- and micronutrients

3. Nutrition assessment and management are key components of TB treatment

4. TB often co-exists with other issues such as HIV, diabetes, substance abuse etc. – need to be recognized and addressed

5. 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
For all population groups (under-five, school-age, adolescents, adults) → MAM and SAM should be treated as per WHO recommendations (as in individuals with no active TB).
SESSION 3: NUTRITION IN LOW BIRTH WEIGHT (LBW) INFANTS
Low birth weight (LBW) is weight at birth of less than 2.5 kg (2500g).

Very low birth weight (VLBW) is weight at birth less than 1.5 kg.

These infants are at higher risk of:
- infections,
- growth retardation
- developmental delay
- mortality.
FEEDING OF LBW BABIES

- Clinically stable LBW babies 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, can be fed mother’s milk by cup and spoon or be put on alternative milk (donor human milk or formula milk).
- 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.
FEEDING OF LBW BABIES

- LBW infants who need to be fed by an alternative oral feeding method should be fed by cup or spoon.
- VLBW infants requiring nasogastric (NG) tube feeding should be given bolus intermittent feeds.
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?

1. Feed expressed mother’s milk through bottle
2. Feed special formula milk for low birth weight babies with cup and spoon
3. Feed expressed mother’s milk through NG tube
4. Feed expressed mother’s milk with cup and spoon
5. Feed fresh cow’s milk with cup and spoon
SESSION 4: NUTRITION IN CHILDREN WITH DISABILITIES
Physical disabilities or behavioural issues (or both) can lead to feeding problems in children. Problems may be related to:

- Oral-motor (sucking, retaining in mouth, chewing, swallowing)
- Positioning
- Self-feeding
- Behavioural
IMPORTANT INTERVENTIONS FOR NUTRITION

• Use locally available iron- and micronutrient-rich foods e.g. green vegetables, whole grains, fruits.
• Low-cost, nutritious recipes
• Children with feeding problems should not be neglected
• Referral to appropriate therapists for specific feeding difficulties
• Monitor weight in children with limited mobility to avoid excess weight gain – alter diet if required
• Breastfeeding should be promoted as much as possible in infants with disabilities
IMPORTANT INTERVENTIONS FOR NUTRITION

• 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  
  – Active, responsive feeding  
  – Modified feeding techniques (tube feeding)

• Participation in local nutrition initiatives should be encouraged – especially those where growth is monitored and supplements provided.
FEEDING A CHILD WITH DEVELOPMENTAL DISABILITIES

- Reduce risk of aspiration and choking by ensuring child is positioned correctly while feeding. Hips and knees of the child should be at right angles to body and head in midline, with chin tucked in slightly
- Reduce distractions
- Allow child to feed themselves under supervision
- Use manageable size bites
- Ensure the child is swallowing well
- Feeding should be stopped when child is tired
FEEDING IN 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 OF CHILDREN WITH DISABILITIES

- Adequate nutrition
- Adequate hydration
- Maintain health
- Pulmonary function – avoid aspiration
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

- Influence local authorities to provide services and facilities for disabled populations
- Community members be motivated to help and assist when needed
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 – can be due to:
  - Crop failure
  - Loss of live stock
  - Market failure
  - Economic reasons

- Change in diet – can be due to:
  - Disrupted everyday life
  - Relying on food rations
  - Consumption of wild foods
  - Decreased dietary diversity
COMMON NUTRITION ISSUES IN EMERGENCIES

- Moderate or severe acute malnutrition (especially in children)
- Micronutrient deficiencies
- Increased susceptibility to disease
This is a mother and her children during an emergency. What can be some of the challenges she is facing in feeding them?
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.
NUTRITION INTERVENTIONS 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 deficiency and communicable diseases (infections), and
- nutritional support for at-risk groups, including infants, pregnant and lactating women, elderly people, and people living with HIV.

- 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
  - Safe havens (safe, private spots) for breastfeeding mothers
  - Nutritional and emotional support for mothers
- Support complementary feeding starting at 6 months of age
- Use of artificial feeding/breastmilk substitutes when needed (if mother can’t breastfeed or mother has died) – artificial feeding should be clean, safe and WITHOUT use of bottles/teats
WASH MEASURES IN EMERGENCIES

• Make effort for provision of clean water
• Hand washing facilities
• Distribution of soap
• Education of families/mothers on hand washing and hygiene
Activity 5B: Handwashing Skills

Duration: 15 minutes

- Instructions: Participants will demonstrate the process of handwashing as per WHO guidelines. Demonstrate the process of handwashing as described by WHO. Make groups of two, one participant demonstrates while the other rates on the scale.
DIARRHEA AND ORT IN EMERGENCIES

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

1. Vaccination
2. Oral rehydration therapy in diarrhea
3. Breastfeeding and appropriate complementary feeding
4. Vitamin A supplementation
5. Food vouchers
Zeinah lives with her two children in a conflict-ridden province. 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.

They reach a refugee camp which has a temporary clinic. What can be the key nutrition interventions the team at the clinic adopt for Zeinah and her kids?
SESSION 6: NUTRITION IN NON-COMMUNICABLE DISEASES (NCD)
Chronic Diseases

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

These diseases are referred to as non-communicable diseases (NCDs).

• Communicable diseases are those that can be passed on person to person.

• Name examples of communicable and NCDs
Common NCDs

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

**Relation to Nutrition**
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

**Relation to Nutrition**
Diets high in carbohydrates 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
  - Hypercholesterolemic
  - Hypertension
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%
Risk Factors for NCDs: Unhealthy Eating

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 NCD: 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.

Globally 6.3 million deaths were due to smoking cigarettes or second-hand smoke. Estimates suggest 71% of lung cancer and 10% of CVD deaths arose from smoking.
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 $\geq 140$ mmHg and/or diastolic blood pressure of $\geq 90$ mmHg.

High salt intake and low potassium intake $\rightarrow$ 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
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?

1. Reduce consumption of sugar-sweetened drinks
2. Sprinkle salt on food before consumption
3. Reduce alcohol consumption
4. Consume more than 3 cups of coffee or tea per day
5. Consume dark, leafy green vegetables on a daily basis
6. Take a multi-vitamin supplement daily
7. Do moderate to vigorous exercise at least 3-4 days a week
8. Consume more fiber in diet
KNOWLEDGE CHECK #5

Which of these steps can help lower high blood pressure?

1. Lower salt intake
2. Lower potassium intake
3. Increase intake of vegetables that are processed and canned
4. Use condiments such as soy sauce and fish sauce
5. 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.