

## **NUTRITION**

Nutrition is the provision of adequate energy and nutrients to the cells for them to perform their physiological function of growth, reproduction, defense and repair.

## **MALNUTRITION**

**Malnutrition** results from imbalance between the body's needs and the intake of nutrients, which occurs when a person's body is not getting enough nutrients (undernutrition) or getting excess nutrients (overnutrition).

**Undernutrition** may result from an inadequate or unbalanced diet, increased loss, increased demand, or a condition or disease that decreases the body's ability to digest and absorb nutrients from available food.

**Overnutrition** may result from overeating, insufficient exercise, excess intake of vitamins and minerals. Also over prescription of therapeutic diets, including parenteral nutrition.

In most developing countries problems are related to undernutrition rather than overnutrition. Types of malnutrition of public health importance include Protein Energy Malnutrition (PEM), Iron Deficiency Anemia (IDA), Iodine Deficiency Disorders (IDD), and Vitamin A Deficiency (VAD). These conditions are mainly affecting under fives and pregnant women.

### **Protein Energy malnutrition (PEM)**

Chronic energy and protein deficiency is the most wide spread nutritional problem in Tanzania. National estimates of PEM among underfives using three anthropometric indices of nutritional status shows that 37.7% under fives are short for their age (stunting) of which 12.8% are severely affected, those ones who are thin for their height (wasting) are 3% of which 0.4% are severely thin. Underweight is affecting 21.8% of under fives of which 3.7% are severely underweight (TDHS, 2005). The chances of being stunted are evidently higher in rural areas (41%) than in urban areas (26%). Likewise, the prevalence of underweight varies by urban and rural residence where by children in rural are more likely to be under weight (17%) than those in urban (23%). Wasting varies by age and is most common in children aged 12 -23 months (6%). There are also regional differences in prevalence of PEM. In the southern zone, the percentage of stunted children is the highest, 52% and those in the Eastern zone are the lowest (28%) while underweight ranges from 13% in Mwanza to 34% in Kigoma. There is also a high prevalence of low birth weight, 16%, which indicates maternal malnutrition in the community. In general prevalence of underweight is higher (19%) among women aged 15 – 19 years.

## **Protein Energy Malnutrition**

**PEM** is a condition which occurs as a result of a sustained negative energy (calorie) and protein balance which may be due to inadequate food intake, increased energy requirements or increased energy losses.

### **Classification according to anthropometric measurements**

To assess the nutritional status of a child, the commonly used indicators obtained from measuring height and weight are outlined below

#### **Stunting**

- height for child's age - below -2SD
- Chronic malnutrition

#### **Underweight**

- Weight for child's age - below -2SD
- Chronic and acute malnutrition

#### **Wasting**

- Weight for child's height - below -2SD
- Current or acute malnutrition

Underweight is the commonest measure which has been used in monitoring growth and nutrition trends in Tanzania

#### **Mild form**

##### **Underweight**

- failure of growth
- body weight of only 60/80% of Harvard Standard
- Child looks thinner and smaller than other children of its age

#### **Severe form**

##### **Marasmus**

- Remarkable failure of growth
- body weight is less than 60% of Harvard Standard
- very severe muscle wasting
- thin skin, loss of subcutaneous fat
- skin is wrinkled, old mans look
- wide awake, looks anxious and irritable

## **Kwashiorkor**

- failure of growth
- body weight of is 60/80% of Harvard Standard
- muscle wasting
- loss of subcutaneous fat
- swollen abdomen
- moon face
- hair changes (brown, soft, straight)
- skin rashes (flaky paint dermatosis). Skin changes color becomes light with dark color in areas of skin fold
- behaviour changes (apathetic/ disinterested, irritable, disoriented and difficult to feed)
- oedema

## **Marasmic-Kwashiorkor**

- Remarkable failure of growth
- body weight is less than 60% of Harvard Standard
- oedema
- other features characteristics of both marasmus and kwashiorkor

Birth weight (less than 2.5 kg) may also be used as an indicator of the nutritional status of women during pregnancy and as a risk factor of PEM

### **Causes:**

#### **Immediate causes:**

- inadequate nutrients intake
- infectious diseases such as measles, diarrhea and malaria, acute respiratory infection (ARI), worm infestation and others

#### **Underlying causes:**

- insufficient food security
- inadequate child and maternal care
- inadequate basic services particularly those related to health, water and sanitation

**Basic causes:**

- lack of resources, both human, economic and organizational
- political (e.g. policies on food and nutrition, agricultural, health, education, income, commodity prices)
- social (e.g. property relations, division of labour)
- ideological (e.g. religion, culture, tradition, beliefs)

**Prevention and Control:****Improvement of maternal nutrition**

Good nutrition of a mother is important so as to prevent intra-uterine growth retardation and facilitate lactation. Maternal nutrition is improved as follows:

- adequate maternal feeding
- adequate varieties meal sizes and frequencies
- decreased women's workload (work less and more rest and comfort)
- antenatal care (immunization, supplementation, deworming, prevention of malaria, screening of STI including HIV, monitoring of weight gain)

**Improvement of Child Feeding****Breastfeeding**

- within one hour of delivery
- give colostrum
- breast feed the child on demand
- exclusive breast feeding for 6 months
- continue breastfeeding to the second year or beyond

**Complementary feeding from 6 months while continuing breast feeding**

- adequate, variety, frequency and safe meals
- gradual weaning

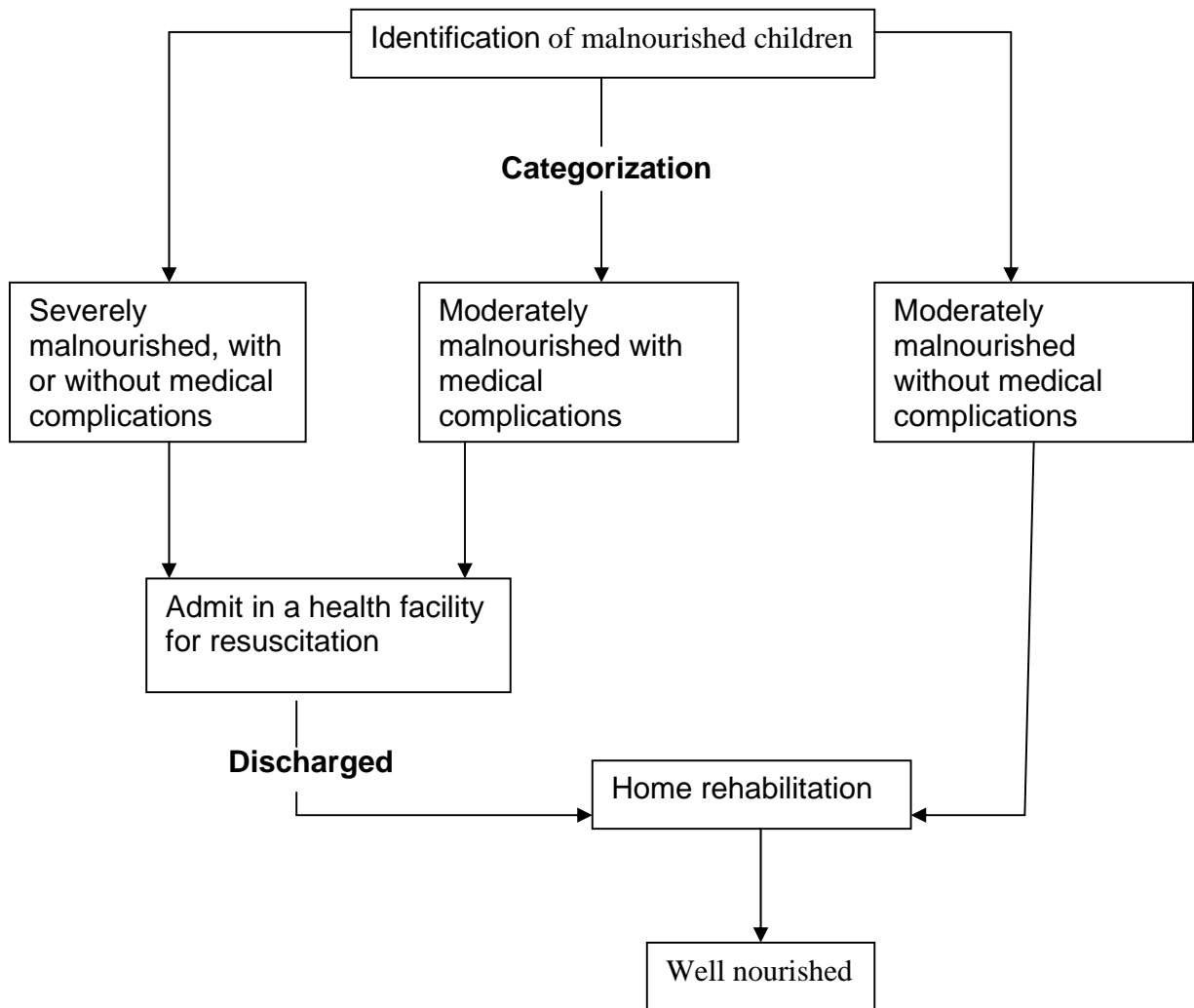
**Feeding after weaning**

- adequate meal sizes and varieties
- frequency, not less than 5 times a day

**Growth promotion activities**

- Immunization
- Diarrhea control and management
- Treatment of other emerging disease condition Growth monitoring (weighing, plotting, interpretation and appropriate action in relation to the condition diagnosed, see chart 1)

**Chart 1: summary of the screening and management procedures of PEM**



Source: TFNC, Guidelines for Community Based Nutrition Rehabilitation

## Surveillance of PEM

Indicators which can be used:-

- Growth, weight and height in relation to established standard
  - Low weight-for-height <-2SD – wasted
  - Low height-for-age < -2SD – stunted
  - Low weight-for-age < -2SD - underweight
- Birth weight less than 2.5 kg
- Household food security
- Body Mass Index for adults
- Infectious diseases rates