







OVERVIEW WEBINAH MALNUTRITION IN CHILDREN LOW RESOURCE COUNTRIES

## **BUSOGA HEALTH FORUM** WEBINAH SERIES

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## What is malnutrition?

- Refers to deficiencies, excesses or imbalances in a person's intake or use of energy and/or nutrients (WHO 2020)
- Covers 2 broad groups of conditions:
- Undernutrition to include
- Stunting (low height for age growth retardation),
- Wasting (low weight for height with/without oedema),
- $\circ$  Underweight (low weight for age) and
- Micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals)
- Overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes, and cancer)



## **Burden Distribution**

## Levels and trends in child malnutrition

UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates Key findings of the 2020 edition UN Regions presented

These new estimates supersede former analyses and results published by UNICEF, WHO and the World Bank Group.

unicef () for every child



# Africa and Asia bear the greatest share of all forms of malnutrition



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Asia

45%

In 2019, more than half of all **stunted** children under 5 lived in Asia and two out of five lived in Africa.





In 2019, almost half of all overweight children under 5 lived in Asia and one quarter lived in Africa.

Uganda, in a year over 8 million children become wasted

Africa

24%

## **Adolescent nutrition**



Lancet series, 2013

### **Under nutrition & child mortality – Consequeces**

- > 50% of child mortality is associated with <u>malnutrition</u>
- Severe wasting is an important cause of these deaths
- Proportion associated with acute malnutrition often grows dramatically in emergency contexts



- Short adults and with low birth weight babies
- Stunting leads to low cognitive development and low economic development
- Increased costs in health and education

#### MALNUTRITION

**Consequences of Malnutrition** 



#### Intergenerational Consequences Long-Term Consequences Short-Term Consequences **Cognitive development, health** Mortality, morbidity, disability economic productivity Maternal and Child Undernutrition Immediate Inadequate distary intake Disease Causes Underlying Inadequate foods, feeding, House, environment and

and care practices

Inadequate financial and

human resources

health services

Sociocultural: economic and

political context

**Household food insecurity** 

Inadequate access

to services

Causes

Basic

Causes

#### **UNICEF** Conceptual Framework of Malnutrition (adapted)

- Impact of Emergencies on Malnutrition
  - Increased mortality and disease epidemics
  - Deteriorated health environment
  - Household access to food is often reduced leading to:
    - displacement,
    - over-crowded settlements.
    - loss of earnings and • access to clean water, sanitation and health services
  - Deteriorating care practices
  - Donations of infant • formula and other powdered milk products endangers lives

## **Background Biology**

- Over 40 nutrients are essential to health
- If any one is deficient then the person will not be healthy and resist disease
- Nutrients are divided into two groups: Type I nutrients and Type II nutrients

## Type I – Functional Nutrients

- (Fe, I, vit A, D, E, K, ...)
- has a body store
- reduces in concentration with deficiency
- Specific signs of deficiency
- Growth failure not a feature
- variable in breast milk

## Type II – Growth Nutrients

- (K, Mg, Zn, Na,...)
- has no body store
- stable tissue concentration
- no specific signs of deficiency
- Growth failure the dominant feature
- stable in breast milk



#### **Control and type II deficient rats, dogs**







## Adaptation of the body = Reductive Adaptation

### What is it?

- It is the physiological response of the body to under nutrition. i.e. Systems slow down and do less in severe malnutrition in order to allow survival on limited calories
- The most obvious response is a reduction in body mass





## **Reductive Adaptation**

- Whole body
  - Activity low
- Organ
  - Cardiac function output and stroke volume reduced
  - Renal function filtration and excretion reduced
  - Intestinal function gastric acid, pancreas, absorption reduced
  - Liver function synthesis, metabolism, bile acid secretion reduced
  - Muscle function skin, fat, glands, muscle atrophy

### • Cell

- Protein synthesis reduced
- Sodium pump reduced and cell membranes permeable – increase in intracellular Na and decrease K<sup>+</sup> and Mag
- General
  - Temperature regulation regulation abnormal
  - Immune function reduced, response to infection, lymph glands depressed
- A severely malnourished child has all organs involved and to treat, understand the disturbances involved in the systems

## Who are the Most Vulnerable

- **Physiological vulnerability**: boys and girls 0-5 years, pregnant and lactating women, elderly and chronically ill
- **Geographical vulnerability**: flood or drought-prone areas, conflict front lines
- **Political vulnerability**: discrimination, persecution
- Internal displacement and refugee status: 38 million IDPs, 15.1 million refugees (UNHCR 2015)



#### TYPES OF UNDERNUTRITION

#### **GROWTH FAILURE**

ACUTE MALNUTRITION Wasting (thinness) or nutritional oedema

CHRONIC MALNUTRITION Stunting (shortness/ poor cognitive development)

ACUTE AND/OR CHRONIC MALNUTRITION Underweight

#### MICRONUTRIENT MALNUTRITION

Vitamin A deficiency

Iron deficiency

Iodine deficiency

Other micronutrient deficiencies.....



## 3 Steps for Nutrition Programming Assess the Analyse the Design actions for

Nutrition information systems (NIS) collect, analyze, interpret and report on information about the nutritional status of the population.

situation

#### Sample sources for NIS:

situation

- Demographic Health Survey
- Multi-cluster Indicator Survey
- SMART Survey
- LQAS
- Clinic-based monitoring report
- Sentinel site surveillance

- School census data
- Rapid nutrition assessments
- MUAC measurement
- CMAM database
- Information from other sectors (WASH, Food Security, Health, etc.)

appropriate

interventions



Key indicators used to assess the severity of an emergency in general include: mortality, acute malnutrition, morbidity, food security and livelihood indicators.

Different frameworks and tools exist for classifying an emergency and analyzing the situation (IPC, WHO threshold).

WHO threshold for severity of acute malnutrition:

Severity of malnutrition	Prevalence of wasting (% below median -2SD)	Mean weight-for-height (Z score)
Acceptable	< 5%	> -0.4
Poor	5–9%	-0.4 to - 0.69
Serious	10–14%	-0.7 to -0.99
Critical	> 15%	< 1.00

While **analysing**, pay attention to:

- Malnutrition trends over time
- Underlying causes of malnutrition
- The relationship between malnutrition and mortality
- Seasonal interpretation
- Attempt to predict trends





 Ensuring good water supply





### **Community Management of Acute Malnutrition (CMAM) Approach**

- Community-based management of acute malnutrition endorsed by WHO in 2007
- Its components are:
  - Community mobilization and active case-finding
  - Outpatient care for SAM without complications
  - Inpatient care for SAM with complications
  - Management of moderate acute malnutrition (MAM)
  - Preventative services (BSFP, IYCF-E)



### **Classification of Acute Malnutrition**



UNICEF Harmonised Training-Mod 12

#### **Community Mobilization and Active Case-Finding**

#### To find cases of children with acute malnutrition and refer them for treatment

MUAC is usually used for children 6-59 months and for pregnant and lactating women to determine eligibility for programme admission



### **Inpatient Treatment of SAM in Stabilization Centers**

# For children with SAM with complications and infants with SAM 0-5 months

**Stabilization phase**: treatment of medical complications and commencement of cautious feeding

**Transition phase**: RUTF is introduced gradually, together with feeds of F100 or F75 to foster child's weight gain

**Rehabilitation phase**: or catch up growth phase. In most cases this phase is now replaced by outpatient therapeutic care



## **Outpatient treatment of SAM**

# For children with SAM <u>without</u> complications

- Used when child will take RUTF (Ready to use therapeutic food) with a little encouragement.
- Includes registration, a series of treatments and checks including vaccination, medical care and health education



UNICEF Harmonised Training-Mod 13

## **Targeted Supplementary Feeding Programmes**

For children with MAM, malnourished pregnant and breastfeeding mothers, and other nutritionally at-risk individuals

Provides nutritional support (Ready to use supplementary food – RUSF) and routine treatment to individuals with MAM.



Pakistan, WHO/Bower

## **Blanket Supplementary Feeding Programmes**

- Targets a food supplement to all members of a specified at risk group (age or status), regardless of whether they have acute malnutrition
- Could be distributed as a wet or dry ration.
- It aims at prevent further deterioration of the group and reduce GAM





#### The Nutrition Cluster Partially Covers Micro-Nutrient Deficiencies MNDs...



#### Providing Food Supplementation Products for Homebased Fortification

Micronutrient powders for children

Lipid-based Nutrient Supplements (LNS) for children and/or other groups



UNICEF Harmonised Training-Mod 17

## **Distribution of micronutrient supplements**

Vitamin A capsules for children

Iron and folic acid or micronutrient tablets for pregnant women



## Deworming

Periodic treatment with anthelminthic (deworming) medicines, without previous individual diagnosis to all at-risk people living in endemic areas.

People at risk are:preschool-aged childrenschool-aged childrenwomen of childbearing age





Communication

## **Optimal IYCF recommendations**



## **THANK YOU!**



#### **From Wasting to Surviving and Transformation**