

**Maternal and child health**

**Child Health**

**Lecture - 4/23-24**



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## **Objectives :**

**-Explain MNCH(Maternal Neonatal and Child Health (MNCH)**

- Identify objectives and elements of MNCH**
- Define IMCI**
- Identify the elements of IMCI**

- Define under-five mortality, its causes and its indices.**
- List the maternal and child health indicators.**



**MNCH**

Mother

Newborn

Child

Health

# **What is the MNCH** (Maternal Newborn and Child Health)

**A majority of the maternal and early newborn deaths can be avoided by ensuring prenatal, postnatal and newborn care and availability of EmONC services within reasonable travel distance.**

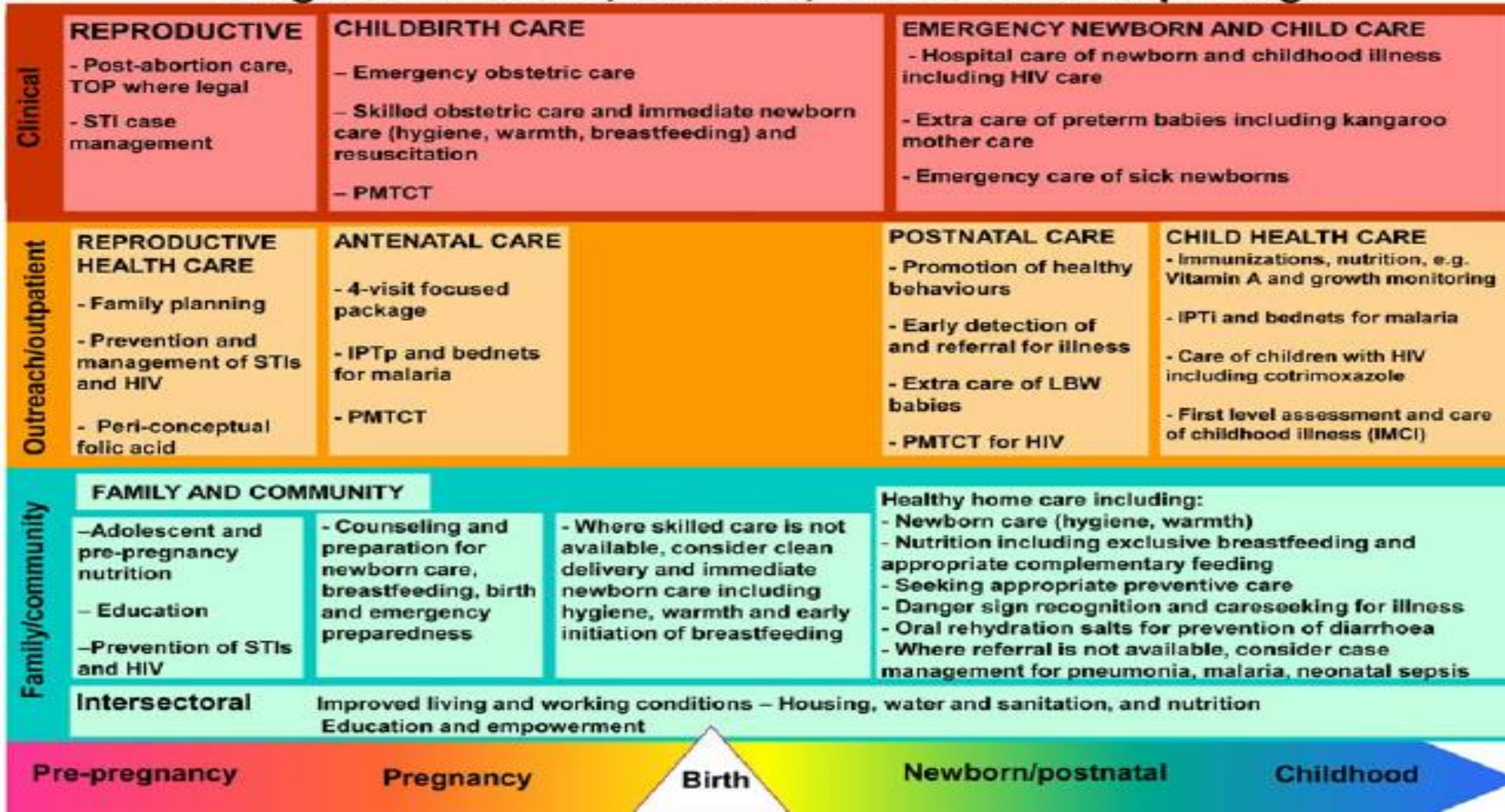
**Maternal, newborn and child health [MNCH] refers to the integrated continuum of care that delivers tools and treatments to mothers and their infants at critical points, and to children in their first five years of life**

## Why to develop a MNCH

**1-To respond to the health and nutrition needs of women, newborns and children under 5 years old.**

**2-To improve effectiveness, quality and utilization of the MNCH services**

# Integrated maternal, newborn, and child health packages



## What are the elements of the MNCH?

### ➤ **During Pregnancy**

- **Tetanus toxoid immunization**
- **Nutrition (iodine, iron, balanced energy-protein supplementation)**
- **Management and prevention of maternal infections (STIs, malaria)**
- **Detection of maternal complications (eclampsia)**
- **Breast feeding counseling**

➤ **During Delivery**

- **Basic care for every delivery (clean, safe, emergency obstetric care)**
- **Early detection and early management of complications, including neonatal resuscitation**

➤ **At Early neonatal period**

- **Essential care for every newborn (drying, warming, prophylactic eye care, prevention of hypoglycemia)**
- **Early detection and treatment of complications**
- **Special care for babies with special needs**



➤ **In Late neonatal period**

- **Exclusive breastfeeding**
- **Appropriate hygiene**
- **Recognition of danger signs**
- **Prevention and management of illness**

➤ **During Childhood**

**IMCI(Integrated Management of Childhood Illness),which include:**

- **Prevention and management of childhood illness**
- **Immunization**
- **Nutrition interventions**

# What is IMCI (Integrated Management of Childhood Illness)?

**IMCI** is an integrated approach to child health that focuses on the well being of the whole child.

Is the best globally adopted child health plan for management of all children under 5 years of age.

**Aims** to reduce preventable mortality, minimize illness and disability, and promote healthy growth and development of children under five years of age.

**IMCI** includes both preventive and curative elements that are implemented by families, communities, and health facilities



**Family and  
community  
component**

**Health  
worker  
component**

**IMCI**



**Health systems  
component**



The IMCI strategy includes three main components:

- **Improving case management skills of health-care staff**
- **Improving overall health systems**
- **Improving family and community health practices.**



In health facilities, the IMCI objectives are :

**1-Supports the accurate identification of childhood illnesses in outpatient settings**

**2-Ensures appropriate combined treatment of all major illnesses**

**3-Strengthens the counselling of caretakers**

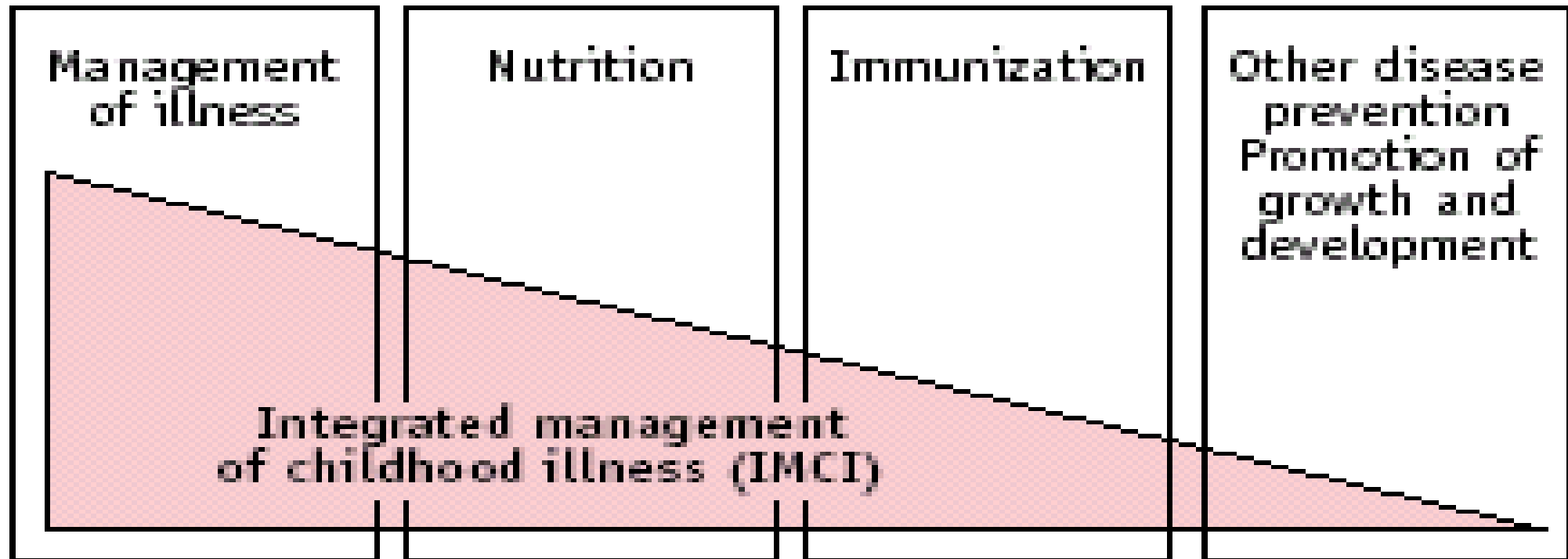
**4-speeds up the referral of severely ill children.**

In the home setting, IMCI objectives  
are:

- ✓ **It promotes appropriate care seeking behaviour of parents**
- ✓ **Improved nutrition and preventative care**
- ✓ **Correct implementation of prescribed care**

# Key elements of IMCI

**Integrated management of childhood illness (IMCI)  
as a key strategy for improving child health**



**IMCI identifies general danger signs that may call for hospitalization of the child and then bases its assessment on the presence of**

**1-Cough and difficulty breathing**

**2-Diarrhea**

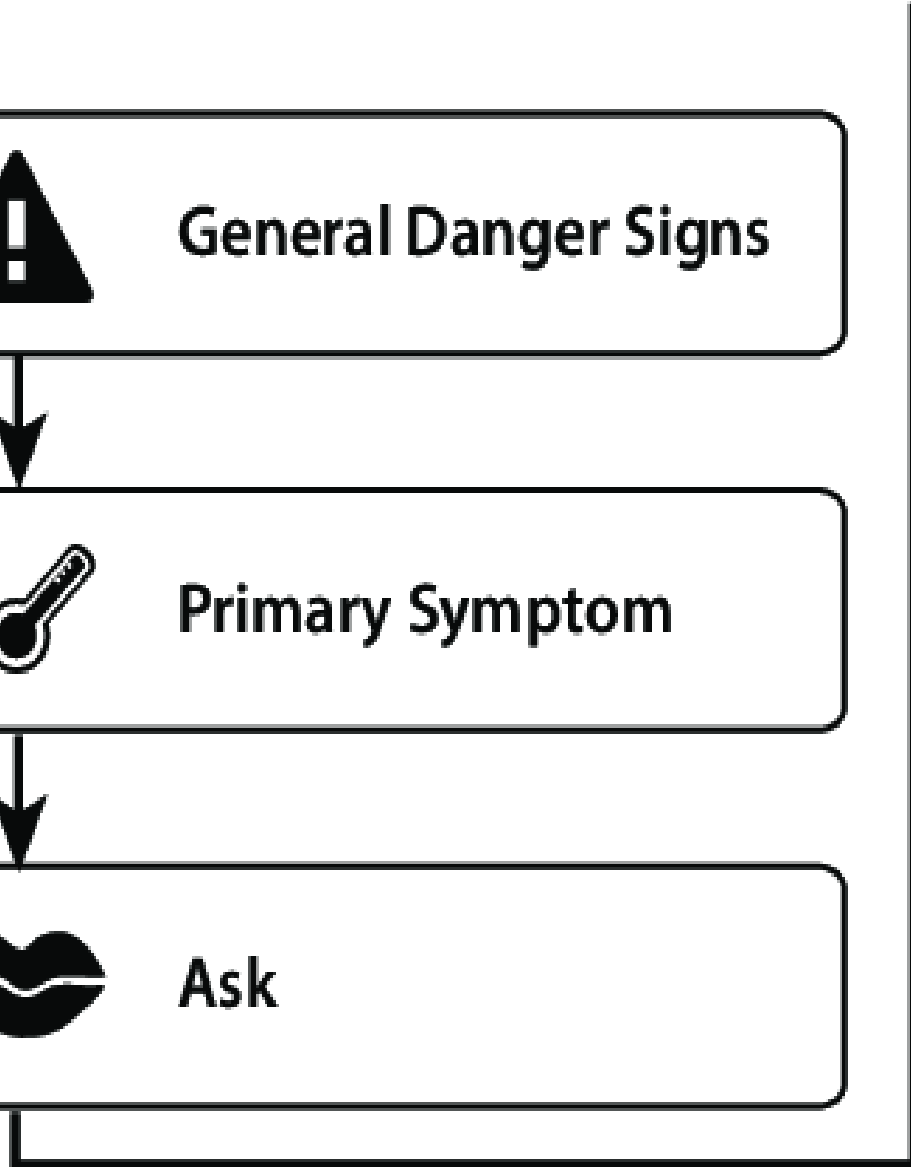
**3-Fever**

**4-Measles**

**5-Ear infection**

**6-Malnutrition**





1

- Asses the child for general danger signs and all presenting health problems

2

- Classify the child's illness using the colour coded triage system

3

- Identify specific treatment needed for the child's classification

4

- Treat the child

5

- Council the caretaker to resolve any feeding problems found

6

- Provide follow-up care

# The Integrated Case Management Process

## Check for danger signs

1. Convulsions
2. Lethargy/ unconsciousness
3. Inability to drink/breastfeed
4. Vomiting

## Assess main symptoms

1. Cough/difficulty in breathing
2. Diarrhoea
3. Fever
4. Ear problems

## Assess

- Nutrition
- Immunization status and
- Potential feeding problems

Check for other problems

Classify the condition of the child and assign to one of the three color codes and  
Identify the treatment actions as per the actions listed in that color band

## Urgent referral

1. Pre – referral treatments
2. Advise parents
3. REFER the child

## At the referral facility

1. ETAT
2. Diagnosis, treatment and
3. Monitoring and follow up

## Treat at the OPD

1. Treat local infection
2. Give oral drugs
3. Advise and teach mother
4. Follow – up

Dr Poonima Tiwari

## Home Management

Counsel care taker on how to:

1. Give oral drugs
2. Treat local infections at home
3. Continue feeding
4. Danger signs
5. Follow – up

# Steps of IMCI

## Assess

### Assess

- Check for danger signs
- Assess children about other health problem

## Classify

### Classify

- Pink:- pre-referral treatment & referral
- Yellow:- specific medical treatment & advice
- Green :- simple advice on home management

## Identify

### Identify

- Specific treatment needs for the child:-
- If home based :- develop integrated treatment plan

# IMCI COLOUR CODING

Classification based on a colour-coded triage system

Red – urgent pre-referral treatments and referral  
**Or pink**

Yellow – specific medical treatment and advice

Green – simple advice on home management

# Cough or Difficulty of Breathing

## SIGNS

## CLASSIFY AS

## IDENTIFY TREATMENT

- Any general danger sign or
- Chest indrawing or Stridor in a clam child

**SEVERE PNEUMONIA OR VERY SEVERE DISEASE**

- Give first dose of an appropriate antibiotic
- Refer **URGENTLY** to a hospital

**Fast breathing**

**PNEUMONIA**

- Give an appropriate oral antibiotic for 5days
- Soothe the throat and relieve the cough with a safe remedy
- Advise mother when to return immediately
- Follow-up in 2days

**No signs of pneumonia or very severe disease**

**NO PNEUMONIA, COUGH OR COLD**

- If coughing >30days refer for assessment
- Soothe the throat and relieve the cough with a safe remedy
- Advise mother when to return immediately
- Follow-up in 6days if not improving

# DIARRHEA

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT <b>(Urgent pre-referral treatments are in bold print)</b>
<p>Two of the following signs:</p> <ul style="list-style-type: none"> <li>• Lethargic or unconscious</li> <li>• Sunken eyes</li> <li>• Not able to drink or drinking poorly</li> <li>• Skin pinch goes back very slowly</li> </ul>	<p><b>SEVERE DEHYDRATION</b></p>	<p><b>▶ If child has no other severe classification</b>  <b>- Give fluid for severe dehydration (Plan C).</b>  <b>OR</b>            If child also has another severe classification:            Refer <b>URGENTLY</b> to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding.</p> <p><b>▶ If child is 2 years or older, and there is cholera in your area, give antibiotic for cholera.</b></p>
<p>Two of the following signs:</p> <ul style="list-style-type: none"> <li>• Restless, irritable</li> <li>• Sunken eyes</li> <li>• Drinks eagerly, thirsty</li> <li>• Skin pinch goes back slowly.</li> </ul>	<p><b>SOME DEHYDRATION</b></p>	<p><b>▶ Give fluid, Zinc supplements and food for some dehydration (Plan B)</b>  <b>▶ <i>If Child also has a severe classification:</i></b>  <i>Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding.</i></p> <p><b>▶ Advise mother when to return immediately.</b>  <b>▶ Follow-up in 5 days if not improving.</b>  <b>▶ If confirmed/symptomatic HIV, follow-up in 2 days if not improving.</b></p>
<ul style="list-style-type: none"> <li>• Not enough signs to classify as some or severe dehydration</li> </ul>	<p><b>NO DEHYDRATION</b></p>	<p><b>▶ Give fluid, Zinc supplements and food to treat diarrhoea at home (Plan A)</b>  <b>▶ Advise mother when to return immediately.</b>  <b>▶ <i>Follow-up in 5 days if not improving.</i></b>  <b>▶ If confirmed/symptomatic HIV, follow-up in 2 days if not improving.</b></p>

Two of the following signs:

- Lethargic or unconscious
- Sunken eyes
- Not able to drink or drinking poorly
- Skin pinch goes back very slowly

**SEVERE DEHYDRATION**

Two of the following signs:

- Restless, irritable
- Sunken eyes
- Drinks eagerly, thirsty
- Skin pinch goes back slowly.

**SOME DEHYDRATION**

- Not enough signs to classify as some or severe dehydration

**NO DEHYDRATION**



## THEN CHECK FOR ACUTE MALNUTRITION

### CHECK FOR ACUTE MALNUTRITION LOOK AND FEEL:

Look for signs of acute malnutrition

- Look for oedema of both feet
- Determine WFH/L\* \_\_\_ z-score.
- Measure MUAC\*\* \_\_\_ mm in a child 6 months or older

If WFH/L less than -3 z-scores or MUAC less than 115 mm, then:

- Check for any medical complication present:
  - Any general danger signs
  - Any severe classification
  - Pneumonia with chest indrawing
- If no medical complications present:
  - Child is 6 months or older, offer RUTF\*\*\* to eat. Is the child:
    - Not able to finish RUTF portion?
    - Able to finish RUTRF portion?
  - Child is less than 6 months, assess breastfeeding:
    - Does the child have a breastfeeding problem?

CLASSIFY  
NUTRITIONAL  
STATUS

<ul style="list-style-type: none"> <li>• Oedema of both feet OR</li> <li>• WFH/L less than -3 z-scores or MUAC less than 115 mm AND any one of the following:                             <ul style="list-style-type: none"> <li>○ Medical complication present or</li> <li>○ Not able to finish RUTF or</li> <li>○ Breastfeeding problem</li> </ul> </li> </ul>	<p><b>Pink : COMPLICATED SEVERE ACUTE MALNUTRITION</b></p>	<ul style="list-style-type: none"> <li>➢ Give first dose appropriate antibiotic</li> <li>➢ Treat the child to prevent low blood sugar</li> <li>➢ Keep the child warm</li> <li>➢ Refer <b>URGENTLY</b> to a hospital</li> </ul>
<ul style="list-style-type: none"> <li>• WFH/L less than -3 z-score OR</li> <li>• MUAC less than 115 mm AND</li> <li>• Able to finish RUTF</li> </ul>	<p><b>Yellow: UNCOMPLICATED SEVERE ACUTE MALNUTRITION</b></p>	<ul style="list-style-type: none"> <li>➢ Give oral antibiotics for 5 days</li> <li>➢ Give ready-to-use therapeutic food for a child aged 6 months or more</li> <li>➢ Counsel the mother on how to feed the child</li> <li>➢ Assess for possible TB infection</li> <li>➢ Advise mother when to return immediately</li> <li>➢ Follow up in 7 days</li> </ul>
<ul style="list-style-type: none"> <li>• WFH/L between -3 and -2 z-scores OR</li> <li>• MUAC 115 up to 125 mm</li> </ul>	<p><b>Yellow: MODERATE ACUTE MALNUTRITION</b></p>	<ul style="list-style-type: none"> <li>➢ Assess the child's feeding and counsel the mother on the feeding recommendations</li> <li>➢ If feeding problem, follow up in 7 days</li> <li>➢ Assess for possible TB infection</li> <li>➢ Advise mother when to return immediately</li> <li>➢ Follow up in 30 days</li> </ul>
<ul style="list-style-type: none"> <li>• WFH/L -2 z-scores or more OR</li> <li>• MUAC 125 mm or more</li> </ul>	<p><b>Green : NO ACUTE MALNUTRITION</b></p>	<ul style="list-style-type: none"> <li>➢ If child is less than 2 years old, assess the child's feeding and counsel the mother on feeding according to the feeding recommendations</li> <li>➢ If feeding problem, follow up in 7 days.</li> </ul>

\*WFH/L is Weight-for-Height or Weight-for-Length determined by using the WHO growth standards charts.

\*\* MUAC is Mid-Upper Arm Circumference measured using MUAC tape in all children 6 months or older.

\*\*\*RUTF is Ready-to-Use Therapeutic Food for conducting the appetite test and feeding children with severe acute malnutrition.

## CLASSIFY CHILD EAR PROBLEM

SIGNS	CLASSIFY AS
<ul style="list-style-type: none"><li>• Tender swelling behind the ear</li></ul>	<b>MASTOIDITIS</b>
<ul style="list-style-type: none"><li>• Pus seen draining from the ear or</li><li>• discharge is reported for less than 14 days or</li><li>• Ear pain</li></ul>	<b>ACUTE EAR INFECTION</b>
<ul style="list-style-type: none"><li>• Pus is seen draining from the ear or</li><li>• discharge is reported for more than 14 days</li></ul>	<b>CHRONIC EAR INFECTION</b>
<ul style="list-style-type: none"><li>• No ear pain and</li><li>• No pus seen or reported draining from the ear</li></ul>	<b>NO EAR INFECTION</b>

## 1 - 4-year Mortality Rate

$$1-4 \text{ MR} = \frac{\text{No. of deaths of children aged 1-4 years during a year}}{\text{Total no. of children aged 1-4Y at the middle of the year}} \times 1000$$

- Mid-year estimated population means population counted on the 1st of July

- **This rate reflects the main environmental factors affecting the child health, such as nutrition, sanitation, communicable diseases and accidents around the home.**
- **It is more advanced indicator of social situation of country than IMR .**
- **25 times higher in developing countries compared to developed countries.**

# Causes of 1-4 years mortality

## Developing countries

**Diarrhea**

**ARI**

**Malnutrition**

**Infectious diseases**

**Accidents**

## Developed countries

**Accidents**

**Congenital anomalies**

**Malignancies**

**Influenza**

**Pneumonia**

## Under-five mortality (child mortality)

**Child mortality, also known as under-5 mortality or child death, refers to the death of infants and children under the age of five years.**

**Nearly half of these deaths are in newborns.**



## PROTECTING **CHILDREN** FROM THE ENVIRONMENT

**Each year 1.7 million deaths of children under 5 are linked to the environment.**

**570,000** deaths



**Respiratory infections, including pneumonia**

**360,000** deaths



**Diarrhoea**

**270,000** deaths



**Neonatal conditions, including prematurity**

**200,000** deaths



**Unintentional injuries, such as burns, drowning**

**200,000** deaths



**Malaria**

**26%**



**World Health Organization**

**Reducing environmental risks could prevent a quarter of these deaths.**

# Under 5 Mortality Rate

**Number of deaths of < 5 years of age in a given year**

$$\text{U5MR} = \frac{\text{Number of deaths of } < 5 \text{ years of age in a given year}}{\text{Total number of live births in the same year}} \times 1000$$





The leading causes of death among children under five are :

**1-Preterm birth complications**

**2-Pneumonia**

**3-Intrapartum-related complications**

**4-Diarrhea**

**5-Congenital abnormalities.**

**6-Nutritional deficiency Problems include**

✓ **Malnutrition**

✓ **Vitamin A Deficiency**

✓ **Iron Deficiency**

✓ **Low Birth Weight**

# Why use the U5MR as the single most important indicator of the state of the world's children?

For the following reasons

**1-The U5MR reflects the nutritional health and the health knowledge of the mothers.**

**2-The level of immunization and ORT use.**



**3-The availability of maternal and child health services [including the antenatal care].**

**4-Income and food availability in the family.**

**5-The availability of clean water and safe sanitation.**

**6-The overall safety of the child's environment**

# Child Survival Index

$$\text{CSR} = \frac{1000 - \text{under 5 mortality rate}}{10}$$

**This figure shows the percentage of those who survive to the age of 5 years.**

**U5MR of Iraq in 2006 = 39/1000 live births**

$$\text{CSR} = 1000 - 39/10 = 96.1\%$$

- **Child Survival Index points towards the need for preventive services through:**

1. **Breast feeding**
2. **Adequate nutrition**
3. **Clean water**
4. **Immunization**
5. **Oral Rehydration Therapy**
6. **Birth spacing**

## What are health indicators?

- **A health indicator is a measure designed to summarize information about a given priority topic in population health or health system performance.**
- **They provide comparable and actionable information across different geographic, organizational or administrative boundaries and/or can track progress over time.**

Maternal and child health status is assessed through mortality, morbidity and growth and development and other indicators

**1- Maternal mortality ratio**

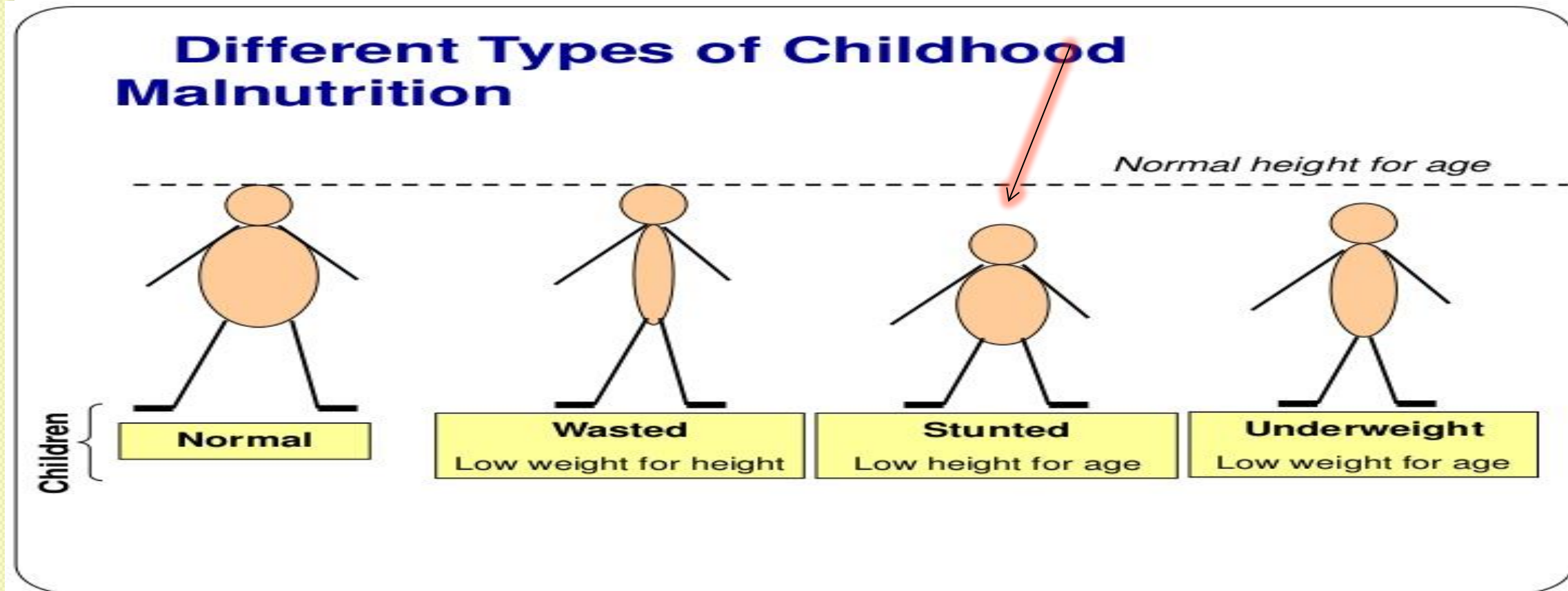
**2-Under-five child mortality, with the proportion of newborn deaths**

**3- Children under five who are stunted**

**Stunted typically have short heights and low body masses for their age group.**

**Number of children under five years of age whose length-for-age or height-for age is below minus two standard deviations from the median of the WHO Child growth standards**

**Stunting reflects continued, long term exposure to poor health and nutrition, particularly during the first two years of life**





More than 40% of  
all kids in Tanzania  
are stunted.

This line is the median  
height of 9-year-olds  
worldwide

We couldn't find a 9-year-old  
in Mirongoine, Tanzania who  
stood taller than this line

SOURCE: World Health Organization, Child Growth Standards, 2014

[gatesnotes.com](http://gatesnotes.com)

## 4-Demand for family planning satisfied

**Definition: Percentage of women of reproductive age (15-49 years or age), either married or in a union, who have their need for family planning satisfied.**

**Use: This indicator enables assessment of family planning programmers and progress in providing contraceptive services to women and their partners who wish to make decisions about family size and timing of pregnancies.**

**This contributes to maternal and child health by preventing unintended pregnancies and pregnancies that are too closely spaced, which are at higher risk for poor obstetrical outcomes.**

## 5-Antenatal care coverage

**Antenatal care coverage (percentage of women aged 15–49 with a live birth who received antenatal care by a skilled health provider at least four times during pregnancy)**

## 6-Births attended by skilled health personnel

**Percentage of births attended by skilled health personnel.**

**Skilled attendant at birth is a measure of a health system's ability to provide adequate care for pregnant women during labour and delivery.**

## 7-C-sections as a percentage of all births in the population

**CESAREAN SECTION DELIVERY RATE** is the total number of cesarean deliveries among woman divided by the total number of deliveries for a specified geographical area during a specified time period per 100 live births.

### Purpose:

**1-The proportion of CS conducted at the population level is proposed to reflect the accessibility and utilization of services and the functionality of the health system**

**2-It can serve as a proxy for policy-makers and governments in assessing progress in maternal and infant health and in monitoring emergency obstetric care and resource utilization**

**3-The appropriate use of a CS leads to a decrease in maternal mortality and morbidity, as well as a decrease in perinatal morbidity and mortality**

**While WHO has in the past proposed an “ideal rate” for CS of between 10% and 15% ,more recent recommendations propose that the preferred level set needs to be locally informed by the epidemiological/ demographic pattern in respective countries.**

**Rates above 15% suggest overuse of the procedure for non-emergency reasons.**

**(WHO),state that caesarean section use continues to rise globally, now accounting for more than 1 in 5 (21%) of all childbirths.**

**This number is set to continue increasing over the coming decade, with nearly a third (29%) of all births likely to take place by caesarean section by 2030**

**The overall CS rate in Iraq in the 2018 survey was 33.2%, which is much higher than the recommended level of 10-15%. The CS rate increased significantly and remarkably from 2011 to 2018, with a relative change of 49.5%.Mar 26, 2021**

8-Three doses of the combined diphtheria, pertussis and tetanus vaccine

**(percentage of infants aged 12–23 months who received three doses of diphtheria/pertussis/tetanus vaccine)**

9-Antiretroviral prophylaxis among HIV-positive pregnant

**Definition:** Percentage of HIV-infected pregnant women provided with antiretroviral drugs to reduce the risk of mother-to-child transmission during pregnancy and delivery

**10-Exclusive breastfeeding for six months (percentage of infants aged 0–5 months who are exclusively breastfed)**

**11-Antibiotic treatment for pneumonia (percentage of children aged 0–59 months with suspected pneumonia receiving antibiotics).**

**12-Postnatal care for mothers and babies (percentage of mothers and babies who received postnatal care visit within two days of childbirth)**



**Any Question ?**



## **References:**

The DHS Program [website]. Rockville: ICF International; 2020 (<http://www.dhsprogram.com/>), accessed 21 March 2024.

Multiple Indicator Cluster Surveys (MICS) [website]. New York: UNICEF; 2020 (<http://mics.unicef.org>), accessed 21 March 2024.