Maternal and child health

Child Health

Lecture – 4/24-25

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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.

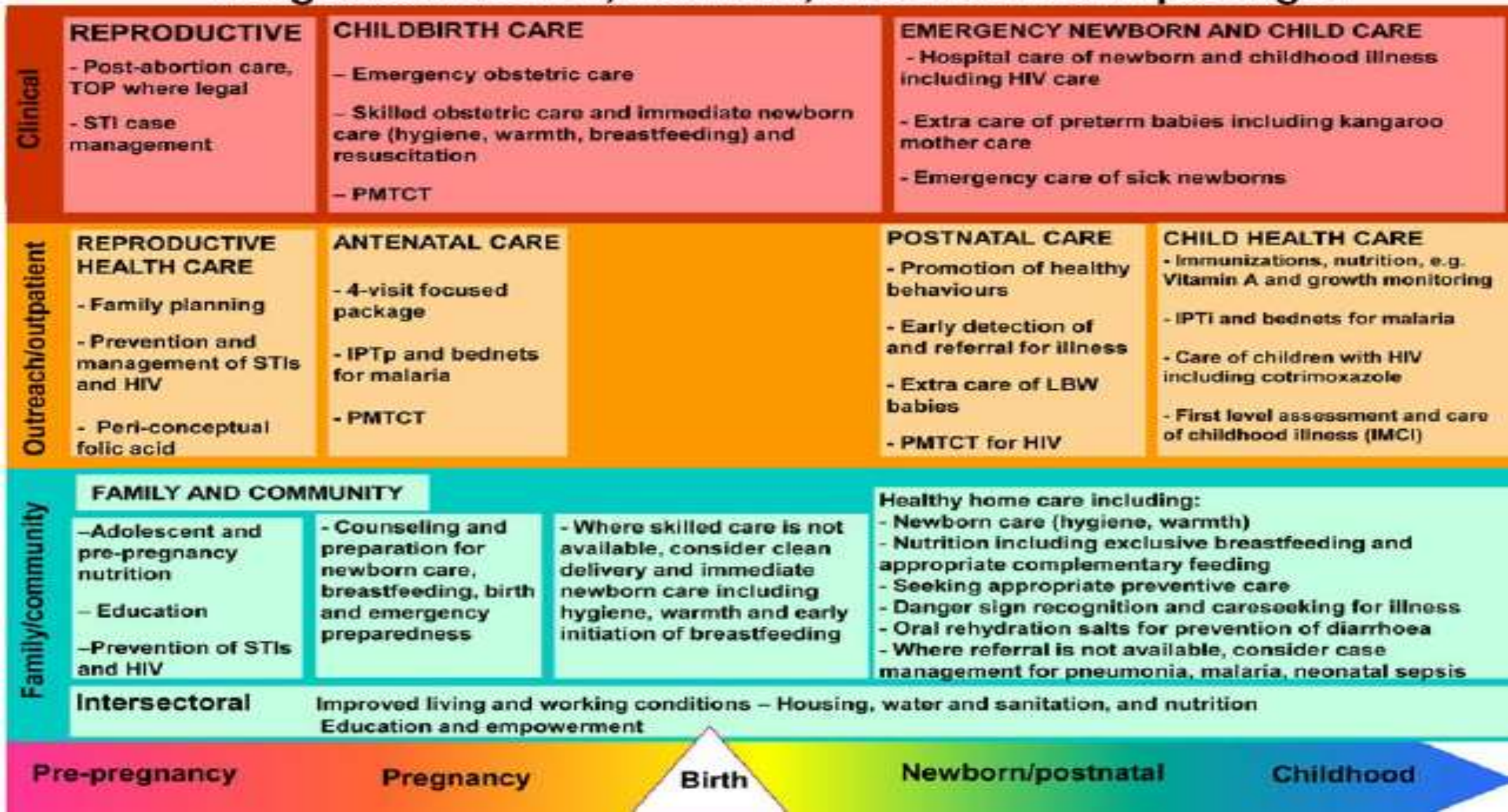
Maternal, newborn and child health [MNCH] refers to the integrated continuum of care that delivers tools and treatments to mothers and their infants at critical points, and to children in their first five years of life

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**

INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI)

What is IMCI (Integrated Management of Childhood Illness)?

Children brought for medical treatment, especially in the low and middle-income countries, are often suffering from more than one condition.

At the first level of primary health care services, diagnostic supports such as laboratory and radiology services are commonly limited or non-existent.

Health care providers therefore benefit when they can use evidence-based algorithms using history, signs and symptoms to determine the course of management.

This enables them to provide quality care and make the best use of the available resources.

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

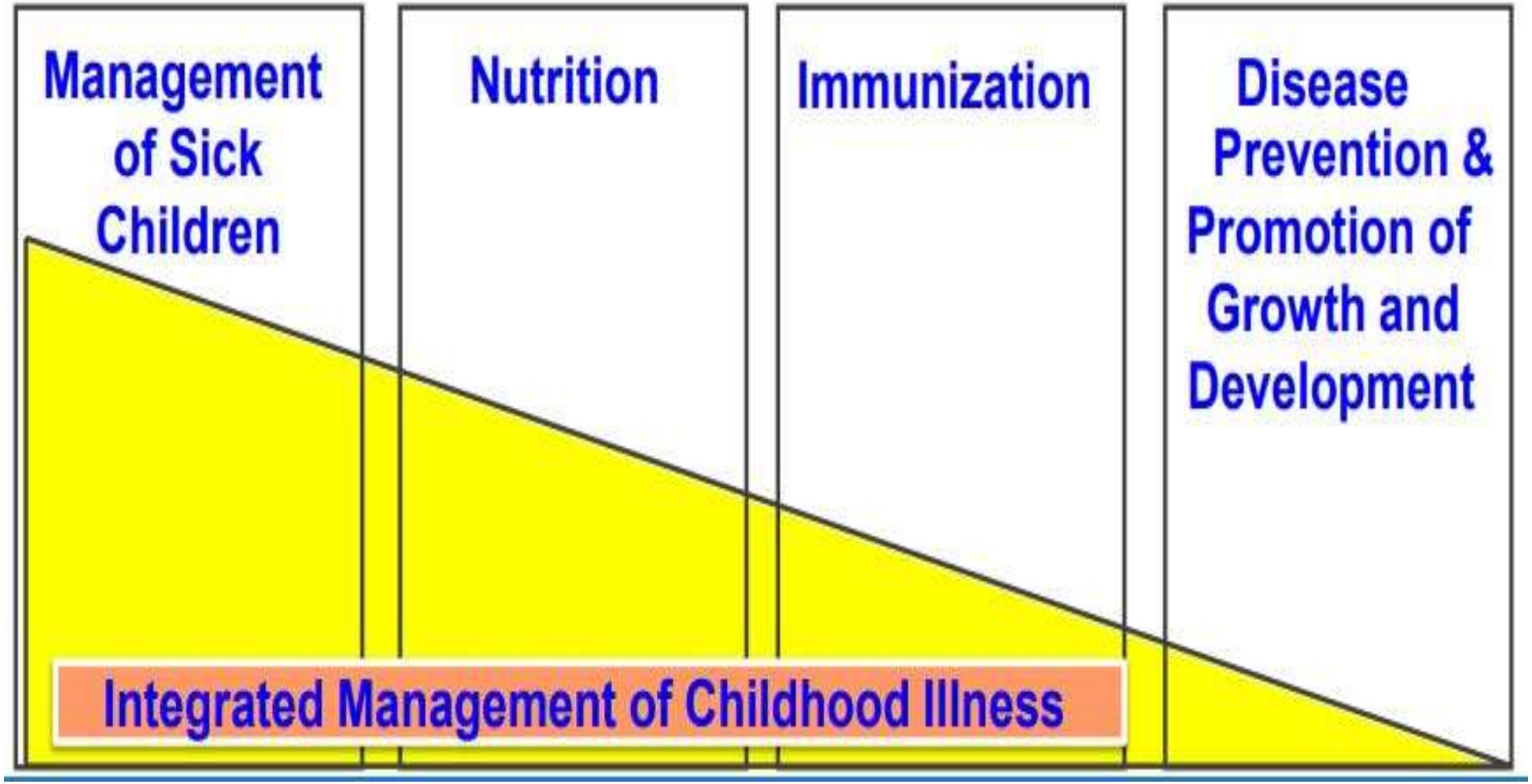
WHY IS IMCI BETTER THAN SINGLE-CONDITION APPROACHES?

IMCI considers each child that is brought to a health service in an all-inclusive way.

The clinical algorithms take into account the variety of conditions that may affect a newborn or child and put them at risk of preventable mortality or impaired growth and development.

By facilitating an integrated assessment and combined treatment of conditions, IMCI focuses on effective case management and prevention of disease, and contributes to healthy growth and development, including through immunization and nutritional and developmental counselling.

childhood development, prevention of illness, and correct implementation and adherence to treatment.


Management of Sick Children
Nutrition
Immunization
Disease Prevention & Promotion of Growth and Development
Integrated Management of Childhood Illness

The IMCI strategy includes three main components:

- **Improving case management skills of healthcare providers**

- **Improving health systems to provide quality care**

- **Improving family and community health practices for health, growth and development.**

Family and community component

Health worker component

IMCI

Health systems component

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 support for early childhood development**
- ✓**prevention of illness**
- ✓**Correct implementation and adherence to treatment**

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

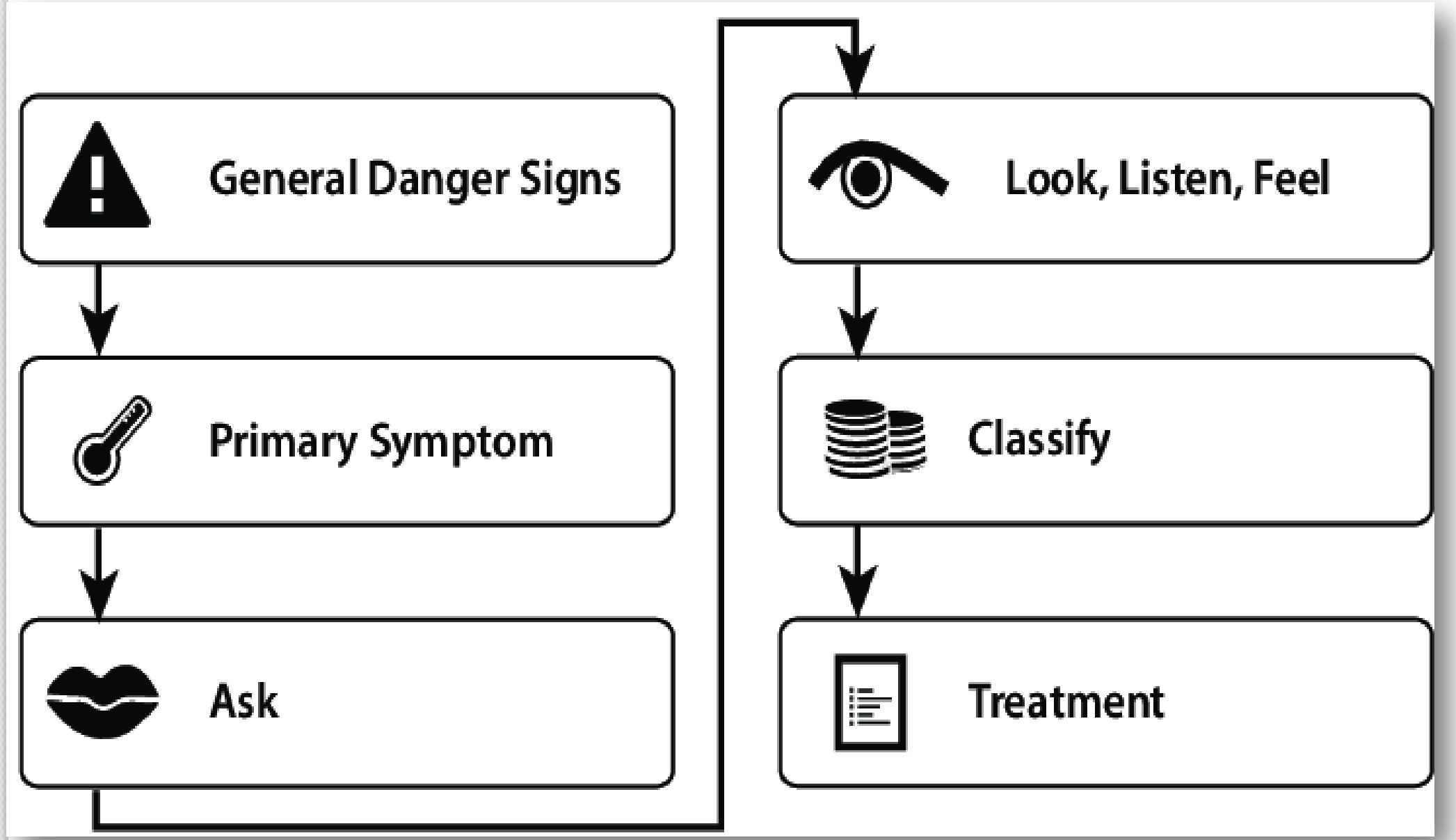
2-Diarrhea

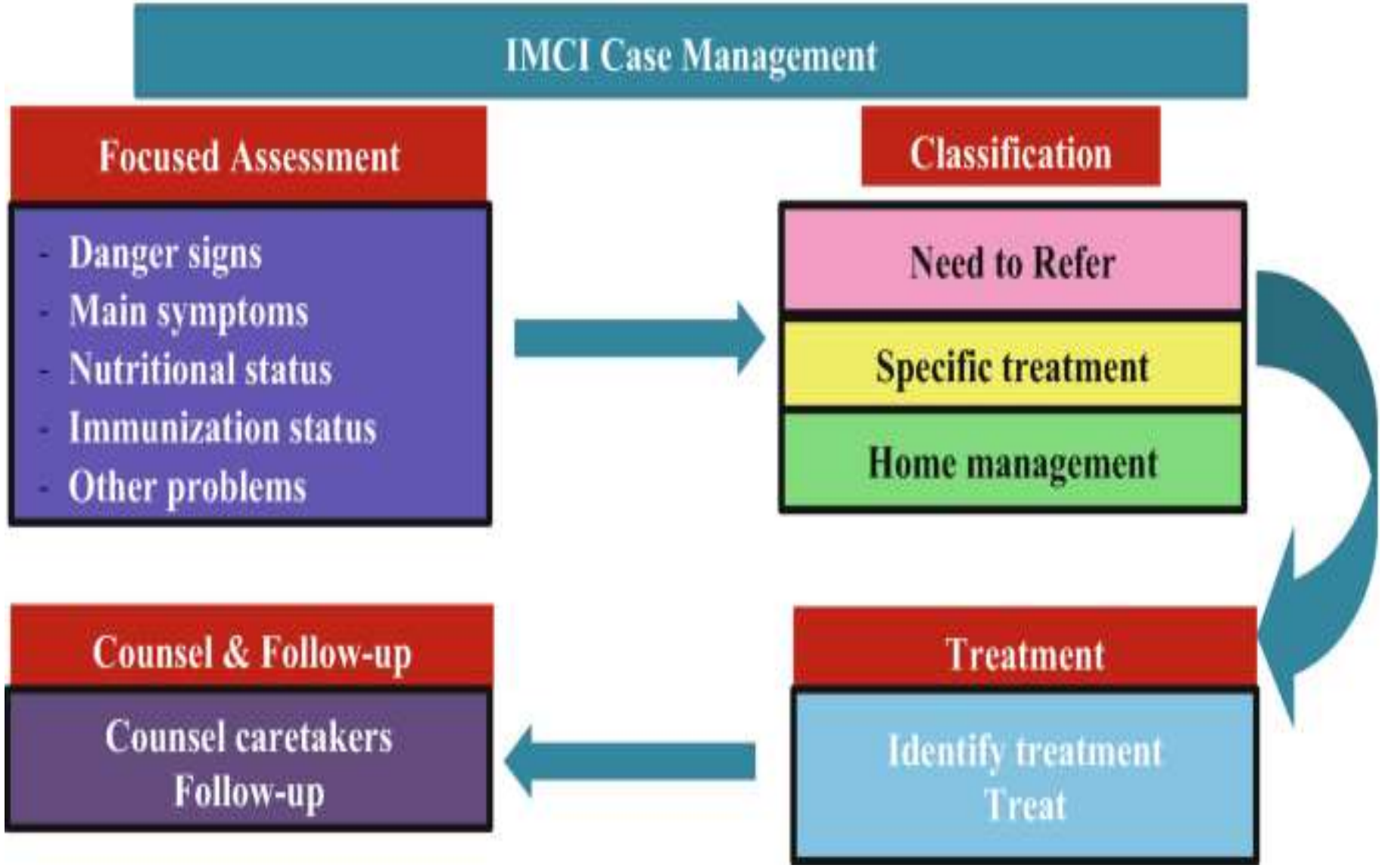
3-Fever

4-Measles

5-Ear infection

6-MaInutrition


General Danger Signs
Primary Symptom
Ask
Look, Listen, Feel
Classify
Treatment


IMCI Case Management
Focused Assessment
- Danger signs
- Main symptoms
- Nutritional status
- Immunization status
- Other problems
Classification
Need to Refer
Specific treatment
Home management
Treatment
Identify treatment
Treat
Counsel & Follow-up
Counsel caretakers
Follow-up

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

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 (Urgent pre-referral treatments are in bold print)
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**	► If child has no other severe classification - Give fluid for severe dehydration (Plan C). OR If child also has another severe classification: Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding. ► If child is 2 years or older, and there is cholera in your area, give antibiotic for cholera.
Two of the following signs: • Restless, irritable • Sunken eyes • Drinks eagerly, thirsty • Skin pinch goes back slowly.	**SOME DEHYDRATION**	► Give fluid, Zinc supplements and food for some dehydration (Plan B) ► ***If Child also has a severe classification:*** ***Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding.*** ► Advise mother when to return immediately. ► Follow-up in 5 days if not improving. ► If confirmed/symptomatic HIV, follow-up in 2 days if not improving.
• Not enough signs to classify as some or severe dehydration	**NO DEHYDRATION**	► Give fluid, Zinc supplements and food to treat diarrhoea at home (Plan A) ► Advise mother when to return immediately. ► *Follow-up in 5 days if not improving.* ► If confirmed/symptomatic HIV, follow-up in 2 days if not improving.

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

• Oedema of both feet OR • WFH/L less than -3 z-scores or MUAC less than 115 mm AND any one of the following: ○ Medical complication present or ○ Not able to finish RUTF or ○ Breastfeeding problem	***Pink :*** **COMPLICATED SEVERE ACUTE MALNUTRITION**	➢ ***Give first dose appropriate antibiotic*** ➢ ***Treat the child to prevent low blood sugar*** ➢ ***Keep the child warm*** ➢ ***Refer URGENTLY to a hospital***
• WFH/L less than -3 z-score **OR** • MUAC less than 115 mm **AND** • Able to finish RUTF	***Yellow:*** **UNCOMPLICATED SEVERE ACUTE MALNUTRITION**	➢ Give oral antibiotics for 5 days ➢ Give ready-to-use therapeutic food for a child aged 6 months or more ➢ Counsel the mother on how to feed the child ➢ Assess for possible TB infection ➢ Advise mother when to return immediately ➢ Follow up in 7 days
• WFH/L between -3 and -2 z-scores **OR** • MUAC 115 up to 125 mm	***Yellow:*** **MODERATE ACUTE MALNUTRITION**	➢ Assess the child's feeding and counsel the mother on the feeding recommendations ➢ If feeding problem, follow up in 7 days ➢ Assess for possible TB infection ➢ Advise mother when to return immediately ➢ Follow up in 30 days
• WFH/L -2 z-scores or more **OR** • MUAC 125 mm or more	***Green :*** **NO ACUTE MALNUTRITION**	➢ If child is less than 2 years old, assess the child's feeding and counsel the mother on feeding according to the feeding recommendations ➢ If feeding problem, follow up in 7 days.

**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
• Tender swelling behind the ear	**MASTOIDITIS**
• Pus seen draining from the ear or • discharge is reported for less than 14 days or • Ear pain	**ACUTE EAR INFECTION**
• Pus is seen draining from the ear or • discharge is reported for more than 14 days	**CHRONIC EAR INFECTION**
• No ear pain and • No pus seen or reported draining from the ear	**NO EAR INFECTION**

1 - 4-year Mortality Rate

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

- 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.

Over 80% of the under-five deaths are due to neonatal conditions and infectious diseases like pneumonia, diarrhea, malaria, measles and meningitis, often compounded by malnutrition.

PROTECTING CHILDREN FROM THE ENVIRONMENT

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

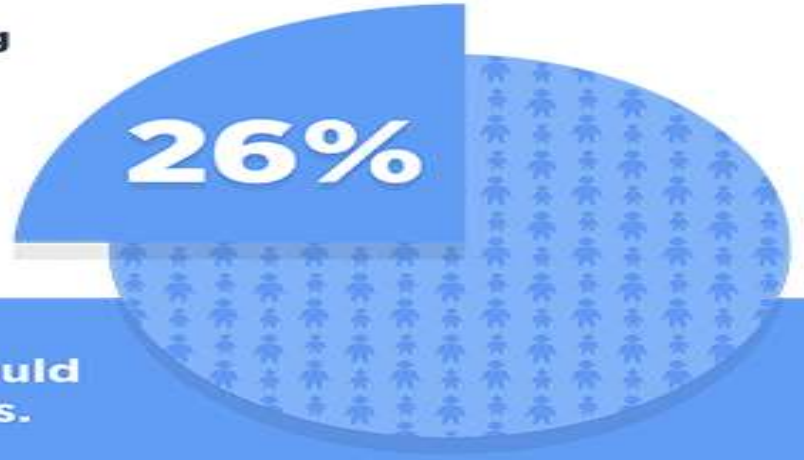
570,000 deaths — Respiratory infections, including pneumonia

360,000 deaths — Diarrhoea

270,000 deaths — Neonatal conditions, including prematurity

200,000 deaths — Unintentional injuries, such as burns, drowning

200,000 deaths — Malaria



World Health Organization

Reducing environmental risks could prevent a quarter of these deaths.

Under 5 Mortality Rate

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

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

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

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

U5MR of Iraq in 2006 = 39/1000 live births

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

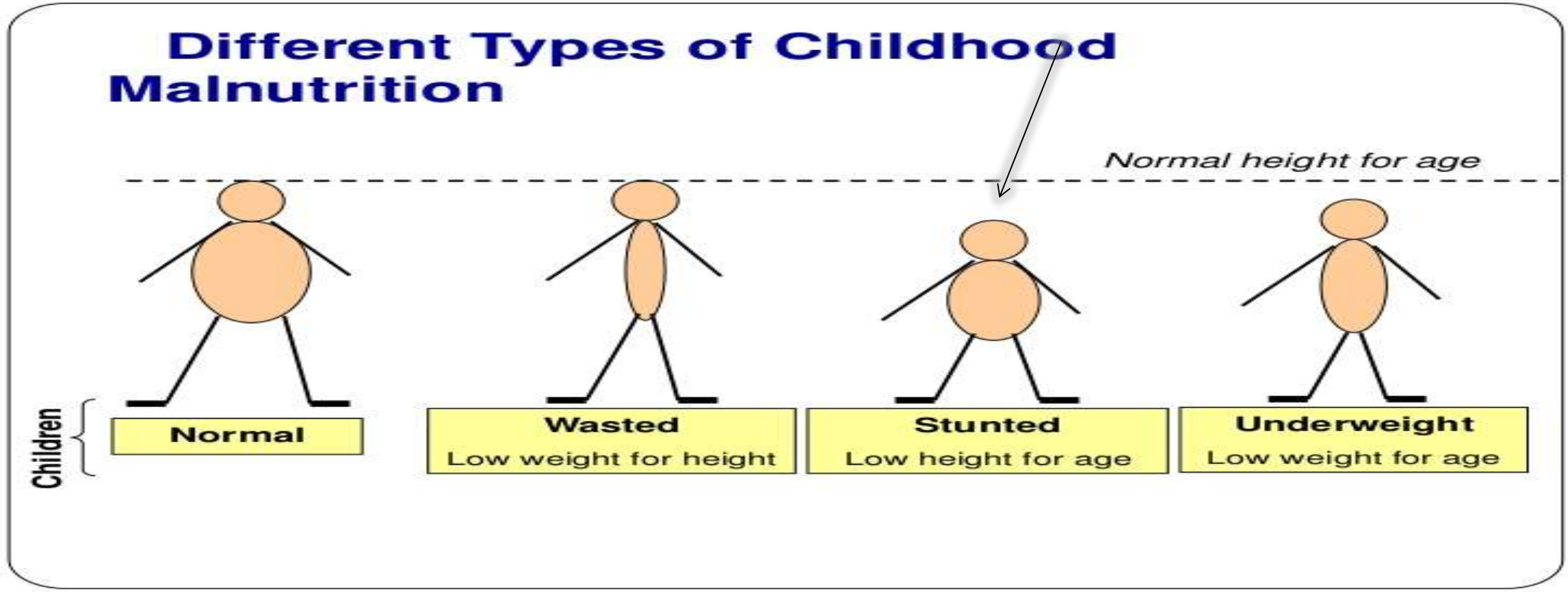
2-Under-five child mortality, with the proportion of newborn deaths

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

<u>Stunting</u> 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

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 14 March 2025.

Multiple Indicator Cluster Surveys (MICS) [website]. New York: UNICEF; 2020 (http://mics.unicef.org), accessed 21 March 2025.