# PAEDIATRIC EMERGENCIES, ETAT+, IMNCI

**BY CAROLYNE JUMA**

# 1. POISONING IN CHILDREN

- **Definition**
- A poison is any substance that harms the body and interferes with the body's normal functioning.
- Poisoning can occur through poison ingestion like paraffin, paracetamol alcohol, OPP), insecticides;  inhalation of carbon monoxide organophosphate (OPP)poison; skin exposure, eye contact, or any other mode that causes adverse effects.
- Ingestion accounts for the majority of poisonings.
- N/B Pathophysiology will depend of the type of poison and the site of entry in the body

# General clinical features of poisoning

- Vomiting and haematemesis
- Convulsions or involuntary movement
- Oculogyric spasms
- Hallucinations and agitation
- Pupils either dilated or constricted
- Renal failure
- Respiratory failure
- Cardiac failure
- Hypoglycaemia
- Metabolic acidosis
- Stupor/coma

# General management

- This will depend on the type of poison taken by the child, the time span since it was taken and the route of intake.
- Priority paid to ABCE (Stabilization of the child) of life support
- Some poisons have antidotes and some do not.
- The place where the patient is being cared for will also be of great importance because of the availability of th equipment supplies and qualified personnel.
- Some of the general actions, which can be taken in the management of poisons, include the removal of poisons from the body if these are known.
- This involves provoking vomiting (emesis) with the fingers for non-corrosive and non-inhalant ingested poisons. **Ipecacuanha** syrup may be used instead of the above.

- This is given as a dose of 15mls stat orally, followed by 200mls of water. Wait for 15-20 minutes for the patient to vomit.
- If there is no vomiting, repeat with a dose of 15mls orally and wait for 20 minutes.
- But its contra indications in <6 months children, Already vomiting individuals , decrease consciousness patient, impaired gag reflex and ingested acids, alkalis, sharp object,hydrocarboans
- If the patient still has not vomited, perform **gastric lavage.**
- Gastric emptying using lavage or emetic most effective when done within 1 hr of ingestion
- Gastric lavage used within 1-2hrs of ingest but Contra indicated in corrosive andgag reflex depressed patient.
- Complication may occur: **aspiration and perforation.**

- **Activated charcoal:** Effective in most oral poisonings when given alone or following
- ipecac/law.Decreases the amount of toxic agent available for absorption by gastric mucosa by 75%..Use 2 hrs after poisoning .
- Major concern: Vomiting occurs, in 15% of children – increaserisk of aspiration & pneumothorax

# Cont.

- The blood should be tested for the poisonous taken.
- An intravenous infusion using Darrow's solution of 50% Dextrose may be given to correct hypoglycaemia.
- Oxygen therapy can be administered where necessary.
- The child should be given oral alkaline fluids to neutralise the acid and vice versa.
- Urinary catheterisation is indicated in order to monitor urinary output when renal failure is suspected.
- The patient's general condition should be assessed to include level of consciousness and inspection of the mouth and lips for any burns in case of corrosive poisoning.
- Neurological investigations should also be undertaken.

## Kerosene (Paraffin) Poisoning

- Young children often drink kerosene by accident.
- It is kept in the houses as fuel for lamps or primus stoves and is often kept in an old juice, soda or beer bottle.
- A child will usually not drink more than a mouthful because of the unpleasant taste.
- **Clinical Features**
- The main danger lies in aspiration into the lungs, causing bronchopneumonia.
- For this reason, vomiting is dangerous and should never be induced.
- The kerosene also can cause acute pulmonary oedema. Another immediate effect may be coma due to narcotic effect of kerosene.

**Management**

- Do not induce vomiting and do not wash out the stomach
- Give 5ml of milk of magnesia as a laxative instead
- Pneumonia is such a common complication that it pays to start pneumonia treatment immediately
- **Assignment**
- Read and make notes on acetaminophen poisoning (paracetamol)

# 2. Insecticide Poisoning (Parathion, Malathion)

- **Contact with these poisons causes:**
- Tremors of the muscles
- Sweating
- Copious secretion of the saliva
- Lacrimation
- Pinpoint pupils
- **In the later stages it causes:**
- • Convulsions
- • Coma and/or paralysis
- The pinpoint pupils can help you make this diagnosis and guide you in the treatment.
- The treatment consists of first washing the child with soap and water, if there has been skin exposure,
- Then giving them very large doses of atropine intramuscularly - in children under five, 0.5mg and in older children 1mg atropine sulphate IM every 15-30 minutes, until the pupils become wide.

# Antidotes

- Nalaxone – narcotics,
- N-acetylcysteine –panadol
- Flumazenil – benzodiazepines
- EDTA for lead
- Bicarbonate for – Antidpresants should be used as appropriate.
- Nursing management is that the best solution to childhood poisoning is prevention

# prevention measures: 

- Store chemicals out of reach of children; 
- Return toxic substances immediately after use to safe storage 
- Store products in their original containers.
- Never put potentially harmful products in food/beverage containers. 
- Refer medications by their proper names. 
- Buy products with child proof caps 
- Avoid having poisonous plants at home. 
- Have symp of ipecac but administer consulting a health care practitioner/ poison control centre. 
- Keep contact of poison control centre

# 2. **CONVULSIVE DISORDERS**

- **Childhood Seizures**
- A seizure is a sudden, episodic, involuntary alteration in consciousness, motor activity, behaviour, sensation, or autonomic function.
- **Causes of Seizures**
- The following are the causes of seizures:
- Excessive neuronal discharges (epilepsy)
- Hyper-excitable nerve cells that surpass the seizure threshold
- Neurons over-firing without regard to stimuli or need

**Clinical manifestations:** Depends on the type e.g.

- **Simple partial** – local motor, sensory, psychic & somatic manifestations. E.g. hallucinations,anxiety, paresthesias.
- **Complex partial:** Aura, Anxiety, fear, Déjà Vu, unusual tastes, Visual/ auditory hallucinations, disturbed consciousness.
- **Automatisms** – repeated non- purposeful action e.g. lip smacking, chewing, sucking, uttering same word .
- **Tonic/ clonic** – grandmal seizures. Manifested in typical phases of epileptic attack: prodromal, Aura, Tonic, clonic, Postictal/ post convulsive state

- **Absence/ petit mal**: Appear around 6th birthday & disappearance in adolescence transient loss of consciousness i.e. cessation of current activity. Stare at space. Loss of muscle tone – things drop from hand and head droop,Lip smacking occur.
- **Febrile seizures:** Type of clonic/ tonic .Associated with increase temperature. 39.0C at 6m- 5yrs .The family history vital ,Frequently accompany infections e.g. URTI, pneumonia, otitis media etc.
- **Infantile spasms**:**Salaam seizures** being at 3month of age. x 2 in males .Infants head sudden drop forward while arms & legs flexed, eyes roll upward/ downward. Cry out turn pale or cyanotic/ flushed and loss of consciousness may result

- **Diagnostic Findings of Seizures**
- EEG results help differentiate epileptic from no epileptic seizures. Each seizure has a characteristic EEG tracing.
- **Nursing Diagnoses of Seizures**
- Ineffective airway clearance
- Risk for injury
- Disturbed sensory perception (tactile)

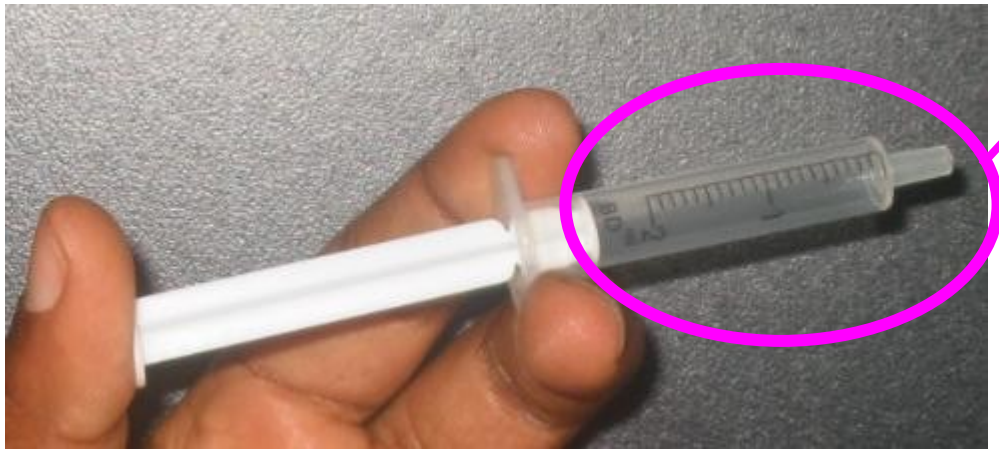
## Interventions and Rationales of Seizures

- Monitor vital signs to determine baseline values and detect any changes.
- Monitor neurologic status to detect changes.
- Stay with the child during a seizure to prevent injury.
- Move the child to a flat surface to prevent falling.
- Place the child on their side to allow saliva to drain out to ensure a patent airway.
- Do not try to interrupt the seizure to promote safety.
- Gently support the head and keep the child’s hands from inflicting self-harm, but do not restrain the child to prevent injury.

# Cont.

- Reduce external stimuli to avoid worsening seizure activity.
- Loosen tight clothing to promote comfort.
- Record seizure activity. Description of seizure activity helps to diagnose the type, which will aid in developing a treatment plan.
- Pad the crib or bed to prevent injury.
- Monitor serum levels of anticonvulsant medications, such as diazepam 0.5 mgs per rectal or 0.3 mgs per i.v  or phenobarbitone 20mg/kg stat; further 5-10mg/kg can be given within 24 hours of the loading dose with maintenance doses of 5mg/kg daily.to prevent toxicity or sub therapeutic levels.
- ***N/B Do not use tongue blades tongue blades during seizure activity. This may cause trauma to the mouth and result in airway obstruction from an aspirated tooth or laryngospasm.***

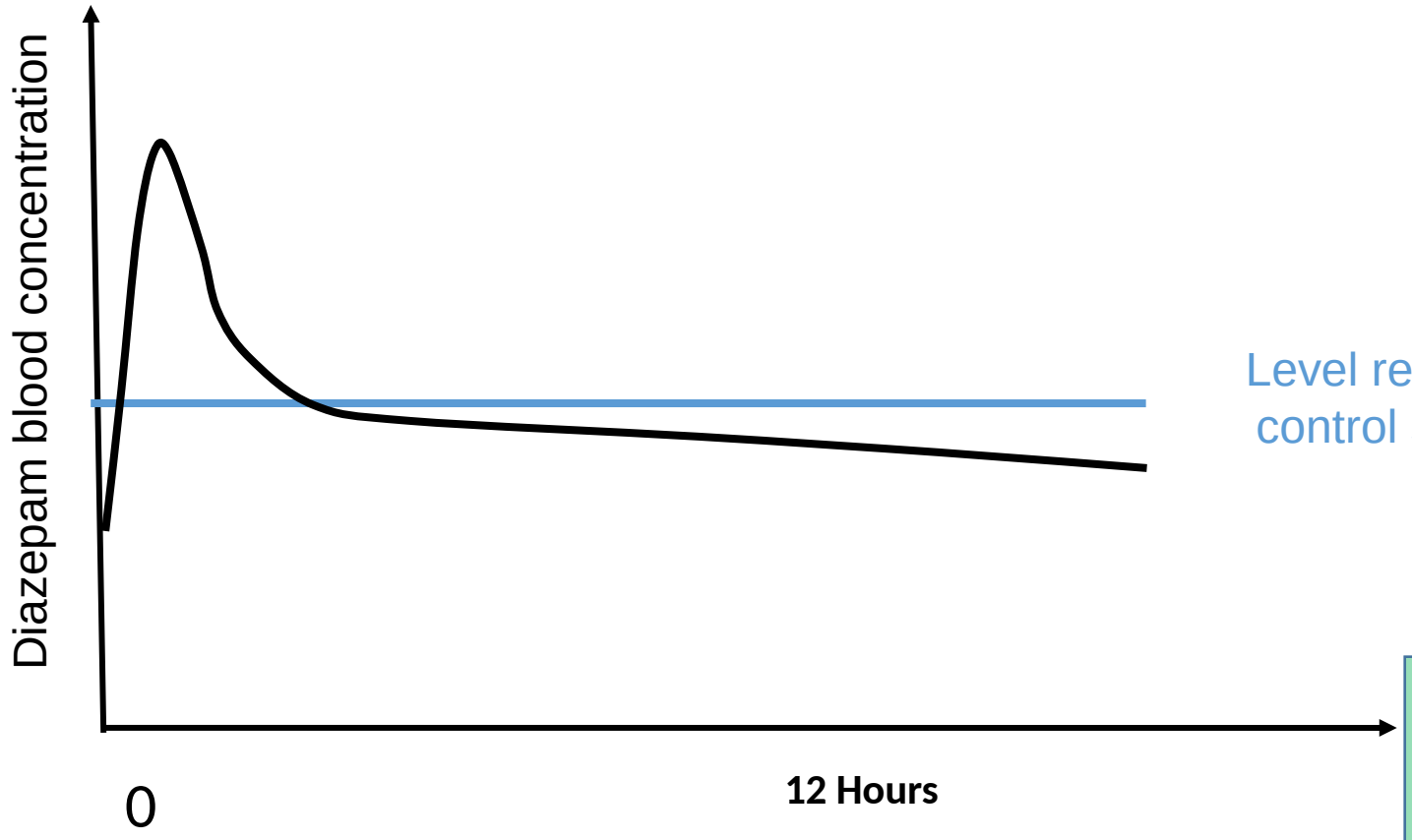
# Giving rectal diazepam



4 – 5 cm inside
the anal margin
All of the barrel of
a 2mls syringe
and nearly all of
a 1ml syringe

# Diazepam

After iv (0.3mg/kg) or pr(0.5mg/kg) administration adequate levels are reliably achieved within 5 mins but half of the drug is not cleared from circulation in 12 hours

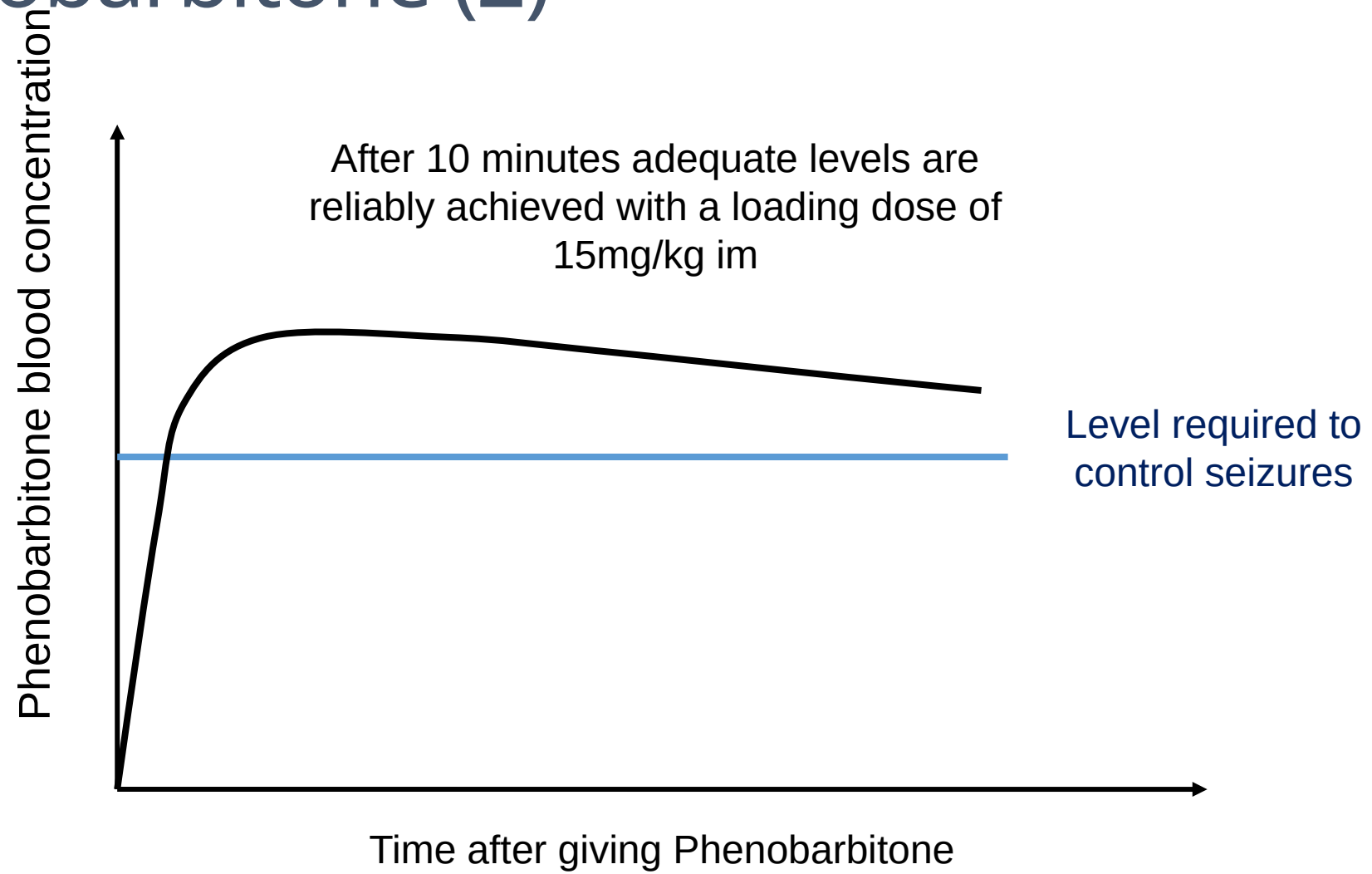



**Do not use im diazepam**

# Diazepam – side effects

- Respiratory depression
- After a single (correct) dose of diazepam up to 10% of children have discernable respiratory depression
- Give the correct dose 0.3mg/kg iv and 0.5mg/kg pr

# Phenobarbitone (2)



## The teaching topics of seizures include the following:

- Use drugs for Controlling seizures
- Instituting safety measures during seizure activity

# Well done!

- Hey look at this assignment on your own.

1. What about burns in children, degrees of burns, Rule of 7 in children kindly find out! Refer to your medical surgical-I notes.

2. Foreign bodies in the orifice. Refer to your First aid notes

3. Shock. Refer to your first aid notes

4. Chocking. Refer to your first aid notes

5. Cardio-pulmonary failure. Refer to your basic life support notes

**OTHERS look at :-**

6. Paediatric AIDS

7. Burkitts lymphoma

# INTRODUCTION TO ETAT+ 2017


KEMRI | Wellcome Trust

saving children's lives
ETAT+
Emergency Triage Assessement and Treatment plus admission

University of Nairobi

KENYA PAEDIATRIC ASSOCIATION

# EMERGENCY TRIAGE ASSESSMENT AND TREATMENT PLUS ADMISSION (ETAT+)

- **ETAT+ is an acronym** for Emergency Triage Assessment and Treatment plus admission care of new-borns and children in the first 48 hours. (2 DAYS).
- **Triage-** is the process of rapidly screening sick children soon after their arrival in hospital.
- **3 CATEGORIES OF TRIAGE**
- **1. Children with emergency signs,** who require immediate emergency treatment;
- **2. Children with priority signs,** who should be given priority in the queue so that they can be assessed and treated without delay; and
- **3. Children with non-urgent** cases, who have neither emergency nor priority signs

**EMERGENCY SIGNS** INCLUDE:

■ obstructed or absent breathing

■ severe respiratory distress

■ central cyanosis

■ signs of shock (cold hands, capillary refill time longer than 3 s, high heart rate with weak pulse, and low or unmeasurable blood pressure)

■ coma (or seriously reduced level of consciousness)

■ convulsions

■ signs of severe dehydration in a child with diarrhoea (lethargy, sunken eyes, very slow return after pinching the skin or any two of these).

- Children with these signs require **immediate** emergency treatment to avert
- death.

# PRIORITY SIGNS:

- **T**iny infant: any sick child aged < 2 months
- **T**emperature: child is very hot
- **T**rauma or other urgent surgical condition
- **P**allor (severe)
- **P**oisoning (history of)
- **P**ain (severe)
- **R**espiratory distress
- **R**estless, continuously irritable or lethargic

# Cont.

- **R**eferral (urgent)
- **M**alnutrition: visible severe wasting
- **O**edema of both feet
- **B**urns (major)

- The above can be remembered from the mnemonic **3TPR MOB**.
- These children need prompt assessment (no waiting in the queue) to determine what further treatment is needed. Move a child with any priority sign to the front of the queue to be assessed next.

# 3. Principles of ETAT+

1. The ETAT+ programme is about more than identifying and treating sick new-borns and children.
2. ETAT+ Requires total collaboration of health workers, care givers and the sick child by recognizing and utilizing available limited resources
3. ETAT+ programme gives a structure for a rapid and comprehensive approach to initial assessment and intervention based on the acronym “ABCD”

# Why triage?

- Some children will die waiting to be seen
- Of all the children dying in hospital >50% will die within 24 hours.
- Some children can only be saved if treatment starts immediately.

# Who is most likely to die rapidly?

A

B

# Who can do triage?

- Anyone:
  - Doctor
  - Nurse
  - Cleaner
  - Askari
  - Records Clerk
- Simple tool
- Used in Malawi and deaths of children were reduced.

## FOUR APPROACHES OF ETAT+

i. The ABC approach to triage.

ii. The ABC approach to basic life support (BLS) of a collapsed infant or child.

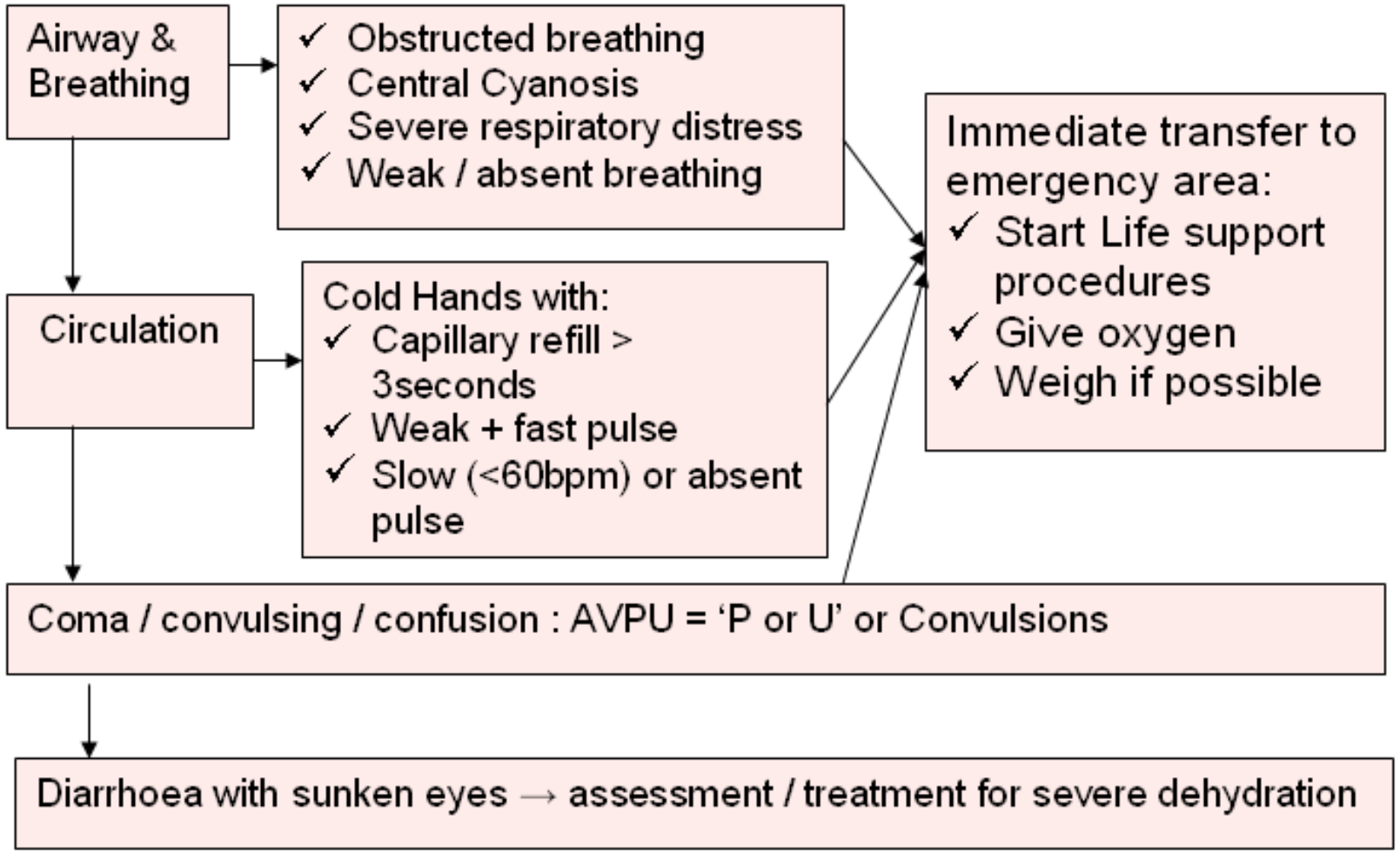
iii. The ABCD approach to provision of emergency care when there are signs of life in a neonate, infant or child.

iv. The ABC approach for new-born resuscitation.

# Emergency Signs – A, B, C, D

**Emergency Signs:**

*If history of trauma ensure cervical spine is protected.*



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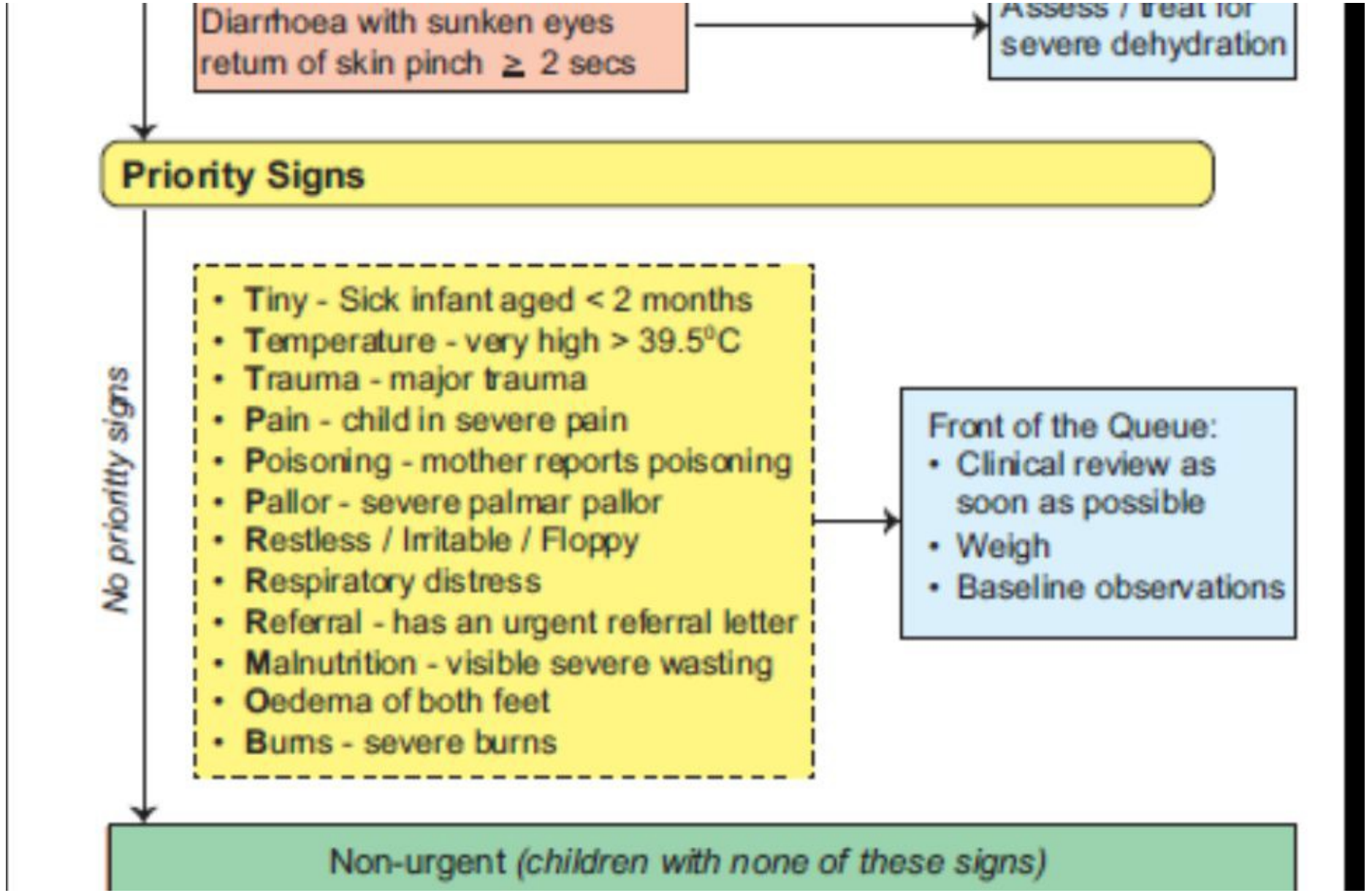

Diarrhoea with sunken eyes
return of skin pinch ≥ 2 secs
severe dehydration
Priority Signs
No priority signs
• Tiny - Sick infant aged < 2 months
• Temperature - very high > 39.5°C
• Trauma - major trauma
• Pain - child in severe pain
• Poisoning - mother reports poisoning
• Pallor - severe palmar pallor
• Restless / Irritable / Floppy
• Respiratory distress
• Referral - has an urgent referral letter
• Malnutrition - visible severe wasting
• Oedema of both feet
• Burns - severe burns
Front of the Queue:
• Clinical review as soon as possible
• Weigh
• Baseline observations
Non-urgent (children with none of these signs)

# ASSESSMENT AND TREATMENT OF THE INFANT/CHILD WITH SIGNS OF LIFE (NON-COLLAPSED CHILD)

- *Welcome to this interesting section!*
- Before we start using the ABCD approach in these children, however, we need to check:

i. Are we prepared to provide emergency care – always check where you are working that the right equipment and resources are available

ii. Has the child collapsed or are there clear signs of life – you may need to observe and stimulate to check for clear signs of life

iii. Do you need help?

iv. Have you considered your safety and that of the child

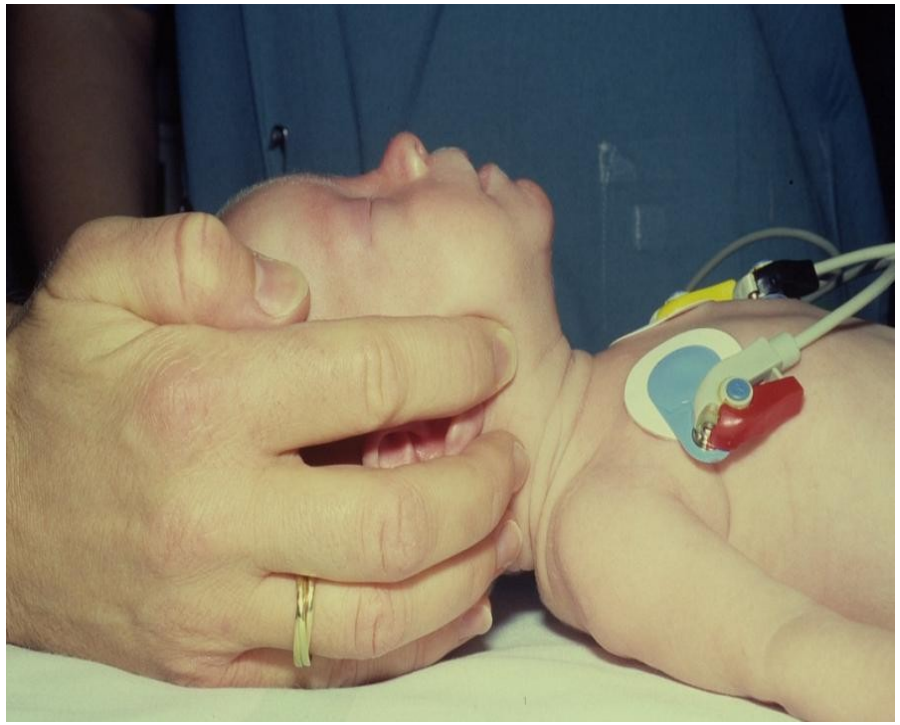
# Signs that point to Airway Problems

- **<u>FIRST LETTER A- AIRWAY (We have two signs to look for airway problem)</u>**
- **1. Noisy breathing.** Assessment of the airway should therefore involve listening to sounds such as stridor and/or bubbling/crackling (gargling) sounds (sounds of excessive secretions at the back of the throat). Remember this should not take more than 10 seconds.
- In the child who is alert and sitting with the carer then to check the airway simply stand with your head close to the child's and listen carefully – do not try to force the mouth open to look inside.
- If there is severe stridor or sounds of obstruction you may need to call for expert help

# CONT.

- **2. unresponsive  Child or has reduced level of consciousness** should be placed on a resuscitation table/couch for further assessment and treatment.
- The mouth should be opened gently and examined for the presence of secretions or foreign body.
- Presence of these signs requires urgent intervention to clear the airway.
- The airway may also need to be positioned either in a neutral (infants below one year) or sniffing (children above one year) position to make sure it remains clear.
- Additionally, the maintenance of the airway may involve the use of the oropharyngeal (Guedel) Airways that prevent the tongue from falling back and obstructing the airway in the unconscious child.

# Resuscitation A - Airway



- **Is the airway clear and safe?**
- **At risk?**
- **Obstructed?**
- Look in the mouth
  - Vomit?
  - Secretions?
- Position the airway

*The picture shows the neutral position in an infant*

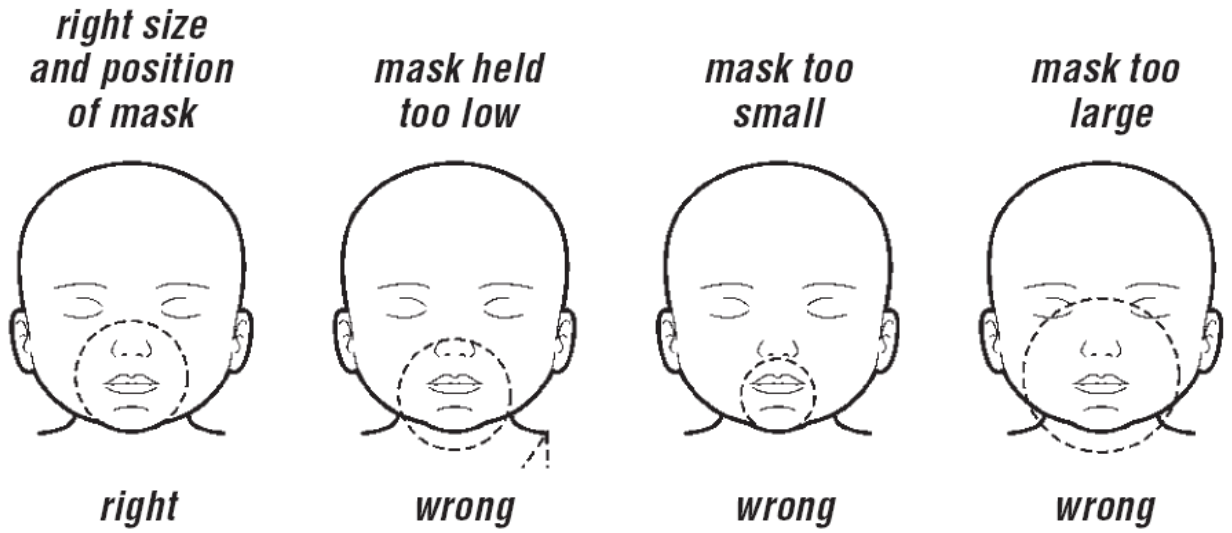
# 2. Signs that point to Inadequate Breathing

- **<u>These include:-</u>**
- Central Cyanosis and  Respiratory rate:
- – Very Fast or Very Slow Respiratory rates for age
- **<u>Increased respiratory Effort</u>**
- – Grunting?
- – Head nodding / bobbing?
- – Lower chest wall indrawing?
- – Deep / acidotic breathing?
- – Symmetrical movement?
- **<u>Wheezing or crackles</u>**
- – Oxygen Saturation Pulse oximetry reading of < 90%
- Amongst these, some signs indicate severe respiratory distress and may be signs of impending respiratory failure. These include *central cyanosis*, *deep acidotic breathing*, *grunting and head nodding*.

# Cont.

- Presence of one or a combination of any of these signs indicates that the child may be *hypoxemic* and therefore needs treatment with oxygen.
- Using pulse oximetry will actually allow you to measure the blood oxygen saturation and is the best way to make decisions on using oxygen as well as monitor whether the treatment is effective.
- Immediate bronchodilator therapy may also be required when wheezing is noted when it is accompanied by respiratory distress.

# Choosing the right size of Bag and Mask



# Resuscitation B – Giving Rescue Breaths

Open / Clear the AIRWAY:

**Look / Listen / Feel for** BREATHING

**Child IS NOT breathing Or only gasping**

5 rescue breaths with Bag and Mask device

1 second inspiration, 1 second expiration

Watch and make sure the chest rises

Attach oxygen to BVM device as soon as possible

**The chest must rise <u>well</u> at least twice.**

### 3. Signs of Inadequate Circulation:

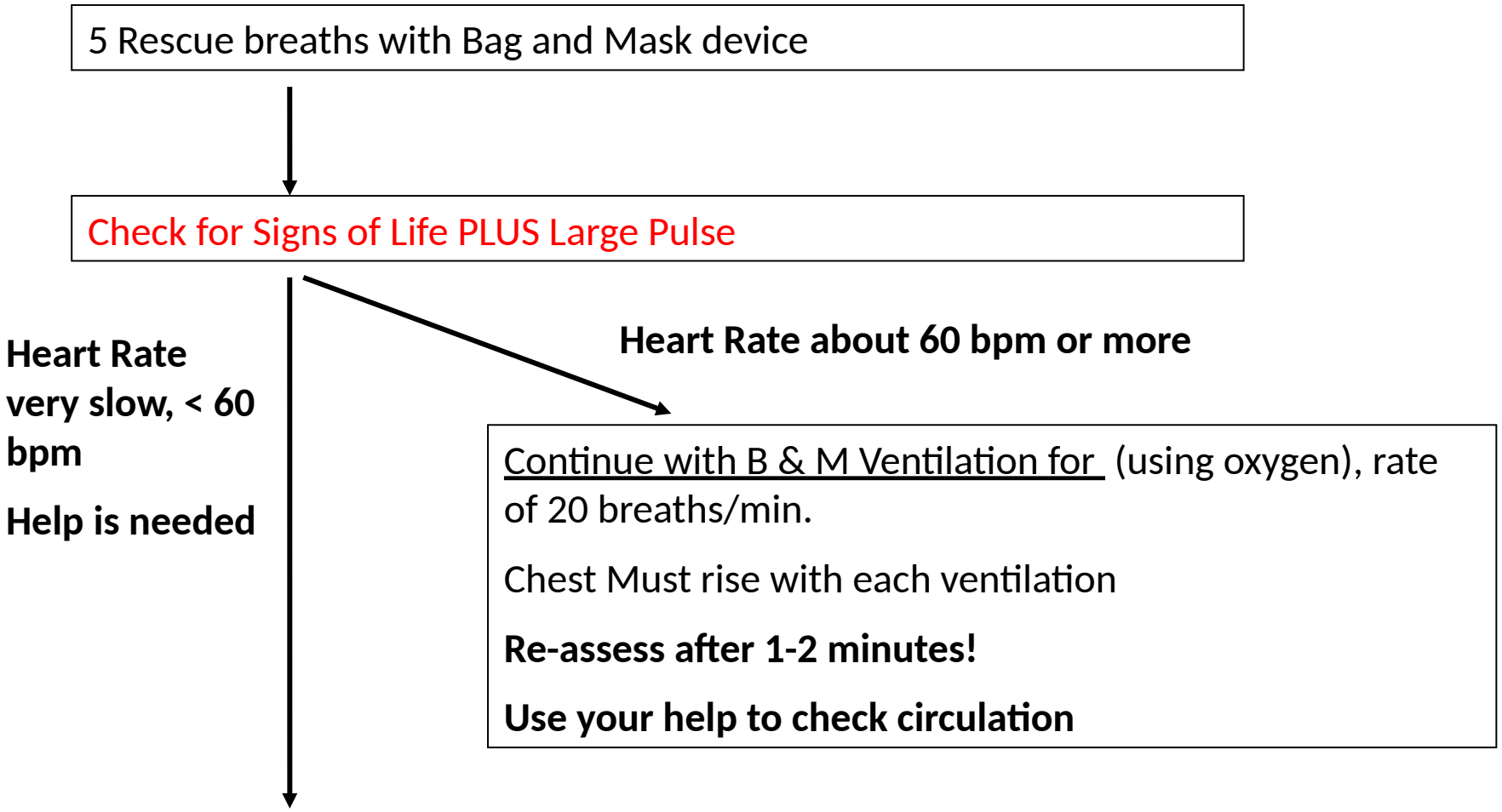
- Simple clinical signs can be very helpful in rapidly assessing the circulatory system.
- ***One should look out for the following signs that indicate an inadequate circulation:***
- Cold hands and feet (taking into account environmental or ambient temperatures) The temperature gradient of the extremities (how far the coldness of the upper limbs and lower limbs extends upward to the elbow/knee or shoulder/hip)
- The presence / absence and character of the central pulse (brachial or carotid pulse)
- The presence and strength of the peripheral pulse should also be assessed to determine if it is weak, absent or strong.
- Pulse rate- to determine if it is too fast (>180/min in a child less than 1 year, and >160/min in a child more than one year) or too slow (<60 /minute)

- Capillary refill time to determine if the refilling is prolonged >3 sec when the child is in a warm environment. Note it is best to count and record the actual refilling time in seconds as this can help you see if a child is getting better or worse.
- Blood pressure should also be measured – although this is not commonly done in many of our facilities in children it should be done, and done accurately in seriously ill children.
- In the ETAT+ guidelines and practical we do not refer to blood pressure – but this is for practical reasons not because it is unimportant!
- ***Presence of any one of these signs suggests an inadequate circulation. If any one of these signs is present, remember to also assess for:***
- a) Skin turgor to determine if it takes longer than 2 seconds.
- b) Ability to drink (should be demonstrated as a sign by the health care worker – involves actually visualizing the child drinking or breastfeeding)
- c) Sunken eyes (Are the eyes sunken according to the mother?)

## What are the most common causes of ‘collapse / arrest’ in children?

- Respiratory failure
  - Pneumonia
- Circulatory failure
  - Severe anaemia
  - Dehydration
  - Septic shock.
  - (Pump failure – adults and children with CHD)

# Resuscitation C – Check for signs of life



# Resuscitation C – Give Chest Compressions

5 Inflation breaths with Bag and Mask device

↓

Check for Signs of Life and the Large Pulse

↓

**No Signs of Life and Absent pulse or Heart Rate, < 60 bpm**

Chest compressions

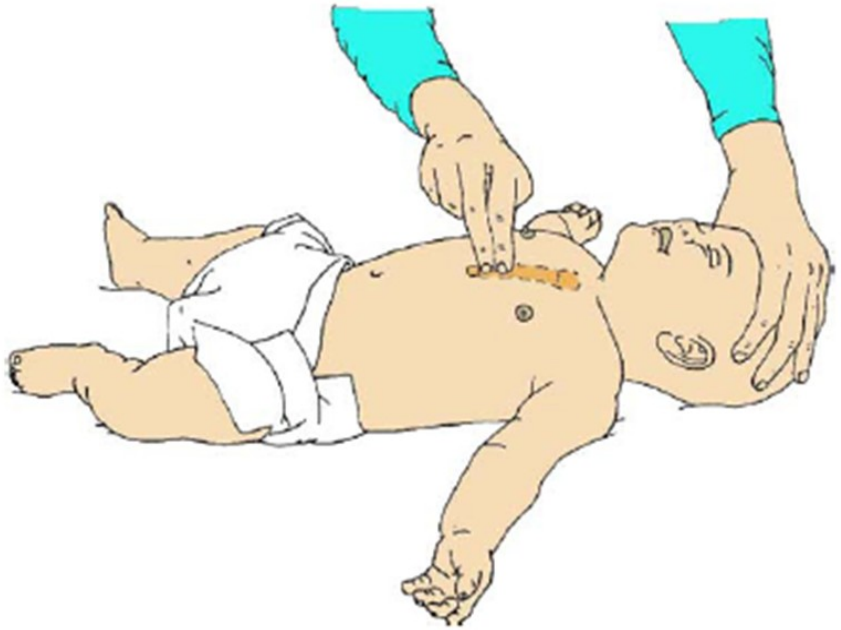
15 compressions to every <u>two</u> B & M breaths

Aim for 6 – 7 cycles of 15:2 per minute

# Giving Effective CPR

- Lower ½ of sternum, one finger breadth above xiphisternum
- Compress the chest by 1/3rd its depth & allow for chest recoil
- Aim at a rate of 100-120 chest compressions/min
- Give 15 chest compressions:2breaths for I minute
- Reassess ABC after one minute

# Chest Compressions in an Infant



**2-finger technique (1 rescuer)**

**2-thumb encircling technique (2 rescuers)**

# Chest Compressions in an Older Child

**One–hand technique**

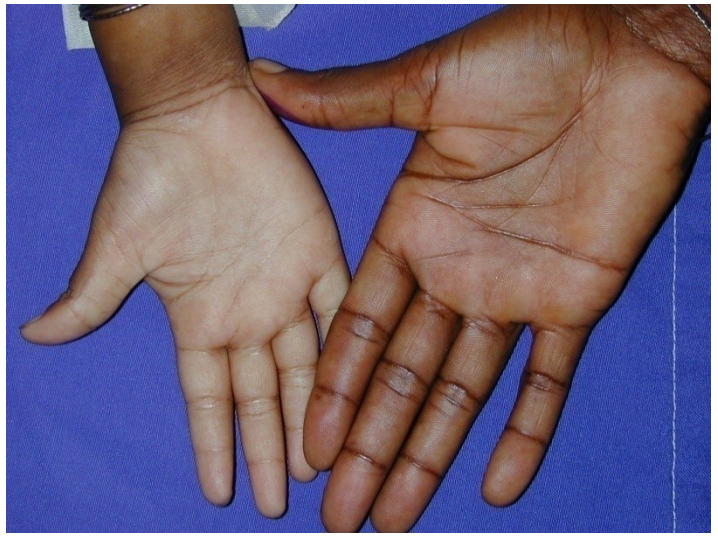
**Two–hands technique**

# Improving circulation to prevent collapse:

The most common causes of circulatory failure in Africa?

- Dehydration

- Severe Anaemia



# To make decisions on use of fluids and blood we need to know:

1. How severe is the circulatory problem?
2. **Is the problem likely to be caused by diarrhoea?**
3. Is there severe malnutrition?
4. Is there severe anaemia?

*Also note that trauma, burns, and anaphylaxis must be identified and that care may be different in a child with chronic heart disease etc*

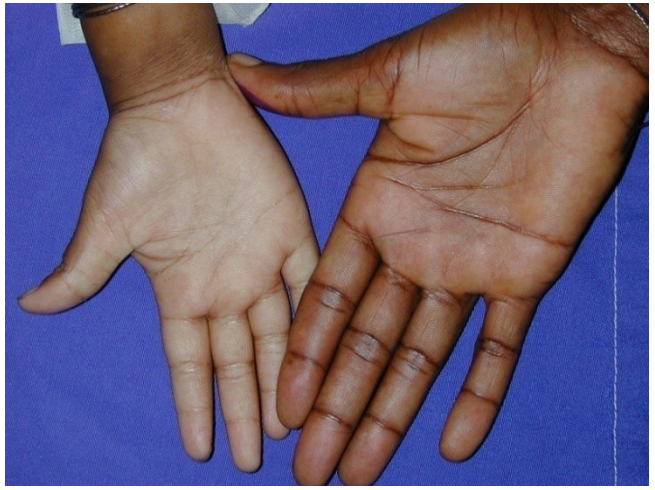
# Diarrhoea with severely impaired circulation: Hypovolaemic Shock

**All of the features:**

- AVPU < A
- Weak / absent peripheral pulse
- Coldness of skin
- Cap Refill >3 secs
- Sunken eyes & skin pinch ≥2s

20 mls/kg Ringer's Lactate over 15 mins

# Severe anaemia, respiratory distress and impaired circulation



***If there is severe pallor and:***

- *Acidotic breathing*
- *Respiratory distress*

**10 mls/kg Packed Cells (or 20mls/kg Whole Blood)**
**start urgently, transfuse over 3-4 hours**

*Even if there is severely impaired circulation do not give bolus fluids, give maintenance fluids only* ***before*** *blood*

Severely impaired circulation, no diarrhoea, no severe anaemia and with or without severe malnutrition

If infant / child has **all of these:**

- AVPU < A
- Weak / absent peripheral pulse
- Coldness of skin
- Cap Refill >3 secs

20 mls/kg Ringer's Lactate **slowly**
(over 2 hours – fast boluses may do harm)
*Use Ringers/5% Dextrose in severe malnutrition*

# Fluid summary – no trauma etc

- Fast bolus of 20mls/kg Ringers in 15 minutes is **only used** in diarrhoea complicated by severely impaired circulation (shock)
- Severely impaired circulation in other febrile children or in severe malnutrition is treated with 20mls/kg Ringers **over 2 hours** *(Ringers/5% dextrose in SAM)*
- **Blood** is urgently requried for severe anaemia with acidotic breathing / respiratory distress
- Even if signs suggest **impaired circulation (not severe)** in febrile illness just give maintenance fluids

# Summary –No trauma

Impaired circulation, no diarrhoea, no severe anaemia and with or without severe malnutrition

maintenance fluids

## 4. Disability and the AVPU Scale

- In order to determine neurological disability in relation to the child's illness, use of a simplified scale to assess the level of consciousness is recommended.
- There are various scales which have been used to assess the level of consciousness in children
- including:
- i. Paediatric Glasgow Coma Scale
- ii. Blantyre Scale
- iii. AVPU Scale

# CONT.

- In this unit, we will discuss the use of the AVPU scale in assessing the level of consciousness of sick children by looking at its various components:
- **A** = **A**lert and responsive. This score is given to an infant or child aware of the surrounding environment. The easiest way to confirm this is to check the infant/child can make eye contact –clearly look at you or its carer and often track any movements.
- **V** = (response to) voice or verbal instructions or sound. This score is given to a child who is not alert but responds to **V**oice or **V**erbal instructions, e.g. turns head to mother's call.
- **P** = (response to pain) this score is given to a child who is not alert, not responding appropriately to voice but responds to **P**ain appropriately. It is important to assess the response to pain carefully.
- **U** = failure of an infant or child to elicit any of the responses described above is deemed as **U**nresponsive or **U**nconscious and scored as **U**.

# Rapid Assessment of the seriously sick Non Collapsed Child

- Approach to the non-collapsed child involves:

i. Quickly observing your safety and the safety of the child while at the same time observing if the child is alert by looking for eye contact/directed eye movements

ii. Placing the child in the optimal setting to carry out the assessment

iii. Shouting for help, when the child is identified as not being alert or having a serious problem.

<u>iv. Quickly and sequentially assess:-</u>

- Airway for patency and position;
- Breathing for its adequacy and the need for oxygen therapy;
- Circulation for its adequacy and immediate treatment for severely impaired circulation (shock) if present;
- Disability using AVPU scale and possible treatment with 10% dextrose if not alert. .

# Severe Malnutrition 1 – Recognition And Early Treatment

- Mortality is often above 30%


KEMRI | Wellcome Trust

saving children's lives
ETAT+
Emergency Triage Assessement and Treatment plus admission

University of Nairobi

KENYA PAEDIATRIC ASSOCIATION

# RECOGNITION OF SEVERE ACUTE MALNUTRITION

- Definition of severe acute malnutrition:-Severe acute malnutrition (SAM). is the presence of severe wasting (weight-for-height/length <-3SD or mid upper arm circumference < 11.5 cm) or oedema of both feet (Kwashiorkor with or without severe wasting.
- *The main features of SAM are:*
- Weight-for-height/length <-3SD, or
- Mid upper arm circumference (MUAC) <11.5cm or
- The presence of pitting oedema of both feet

# Classification of acute malnutrition

| | MUAC IN CM | WHZ |
|---|---|---|
| NONE<br>(Green colour) | Greater than 13.5 | Greater than -1 |
| AT RISK<br>(Green colour) | 12.5 to 13.4 | -2 to -1 |
| MODERATE<br>(Yellow colour) | 11.5 to 12.4 | -3 to less than -2 |
| SEVERE<br>(Red colour) | 11.4 and below | Less than -3 |
| | Or Oedema of both feet | |

# Advantages of MUAC over WHZscore

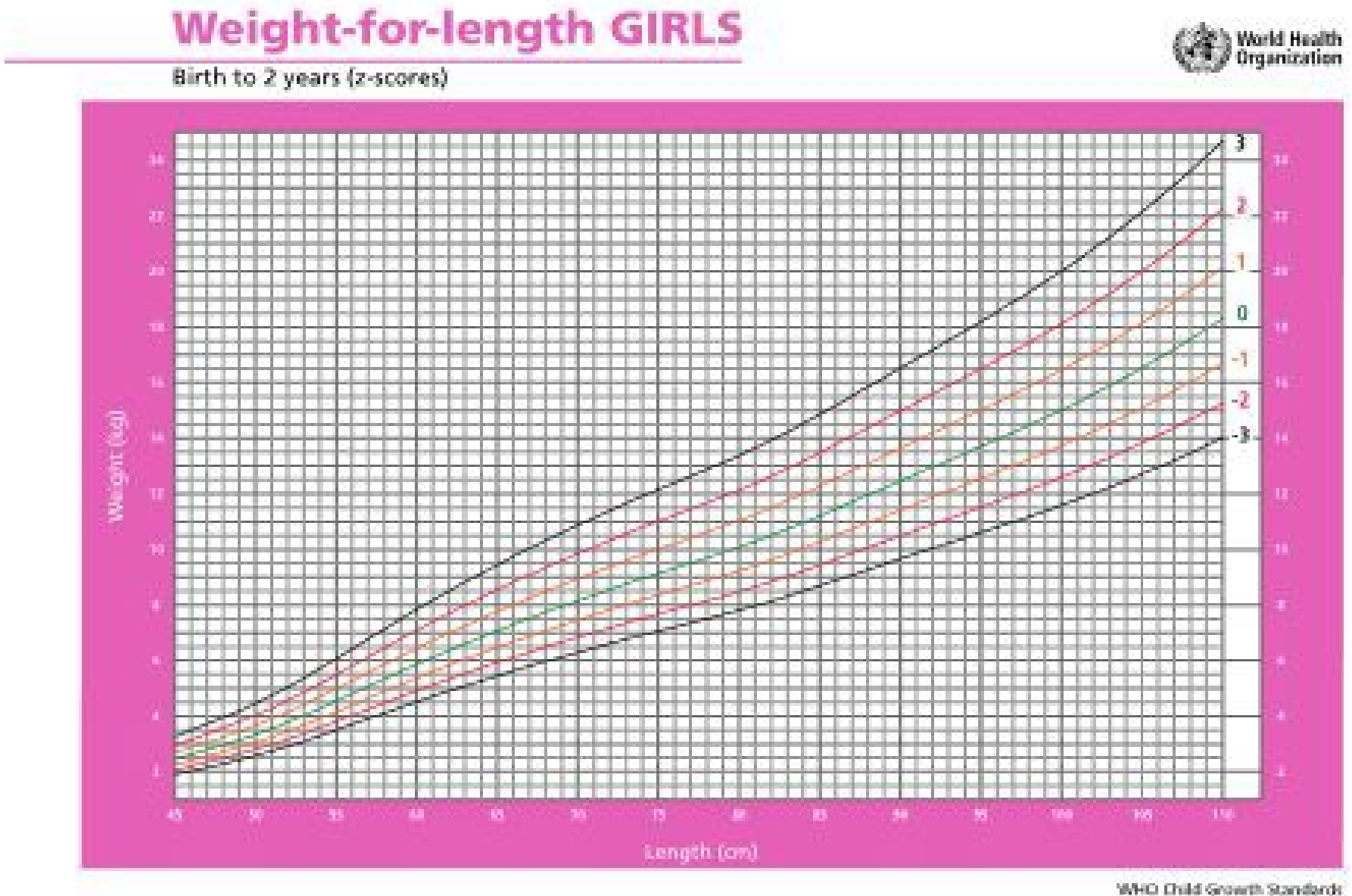
- More (in screening) acceptable to children compared to height or weight
- Can be done by one person
- No reference table required, single cut off applied independent of age, sex, height
- Colour-coded tapes
- Not affected by condition that affect weight e. g oedema, dehydration

WEIGHT-FOR-LENGTH FROM BIRTH TO 2 YEARS: BOYS

| Length (cm) | –3 SD | –2 SD | –1 SD | Median | 1 SD | 2 SD | 3 SD |
|---|---|---|---|---|---|---|---|
| 64.5 | 5.6 | 6.1 | 6.6 | 7.1 | 7.8 | 8.5 | 9.3 |
| 65.0 | 5.7 | 6.2 | 6.7 | 7.3 | 7.9 | 8.6 | 9.4 |
| 65.5 | 5.8 | 6.3 | 6.8 | 7.4 | 8.0 | 8.7 | 9.6 |
| 66.0 | 5.9 | 6.4 | 6.9 | 7.5 | 8.2 | 8.9 | 9.7 |
| 66.5 | 6.0 | 6.5 | 7.0 | 7.6 | 8.3 | 9.0 | 9.9 |
| 67.0 | 6.1 | 6.6 | 7.1 | 7.7 | 8.4 | 9.2 | 10.0 |
| 67.5 | 6.2 | 6.7 | 7.2 | 7.9 | 8.5 | 9.3 | 10.2 |
| 68.0 | 6.3 | 6.8 | 7.3 | 8.0 | 8.7 | 9.4 | 10.3 |
| 68.5 | 6.4 | 6.9 | 7.5 | 8.1 | 8.8 | 9.6 | 10.5 |

# WHO-WHZ FOR BOYS 0-2YEARS

# WHO-WHZ FOR BOYS 0-5 YEARS



## Key Points to note

- MUAC is preferred for age 6-59 months.
- Oedema is used to differentiate two classes of severe acute malnutrition (marasmus and kwashiorkor.)
- MUAC is a single linear measurement that does not require arithmetic, table lookup or plotting data on growth charts.
- The colour coded MUAC tapes are simple to use and allow instant classification of nutritional status.
- Neither MUAC nor WHZ is ideal for predicting mortality; however MUAC appears to show consistently better predictive power.
- Thus MUAC is the best anthropometric predictor of mortality currently available.
- Weight for age may not accurately identify wasting and therefore, the preference for use of MUAC (or weight for height or length Z scores)
- Visible severe wasting is very insensitive for identifying severe malnutrition. It identifies only severe cases of SAM. It is better to use MUAC.

# SIGNS TO LOOK FOR WHEN EXAMINING A CHILD FOR SAM

- Signs of some or severe circulation impairment, These include cold hands, slow capillary refill, weak and rapid pulse
- Severe palmer pallor
- Bilateral pitting oedema,
- Eyes signs of Vitamin A deficiency

1. Dry conjunctiva or corneal, Bitots spots
2. Cornea ulceration
3. Keratomalacia

- Vitamin A deficiency may cause photophobia and the children tend to keep their eyes closed.

# What other problems do these children commonly have?

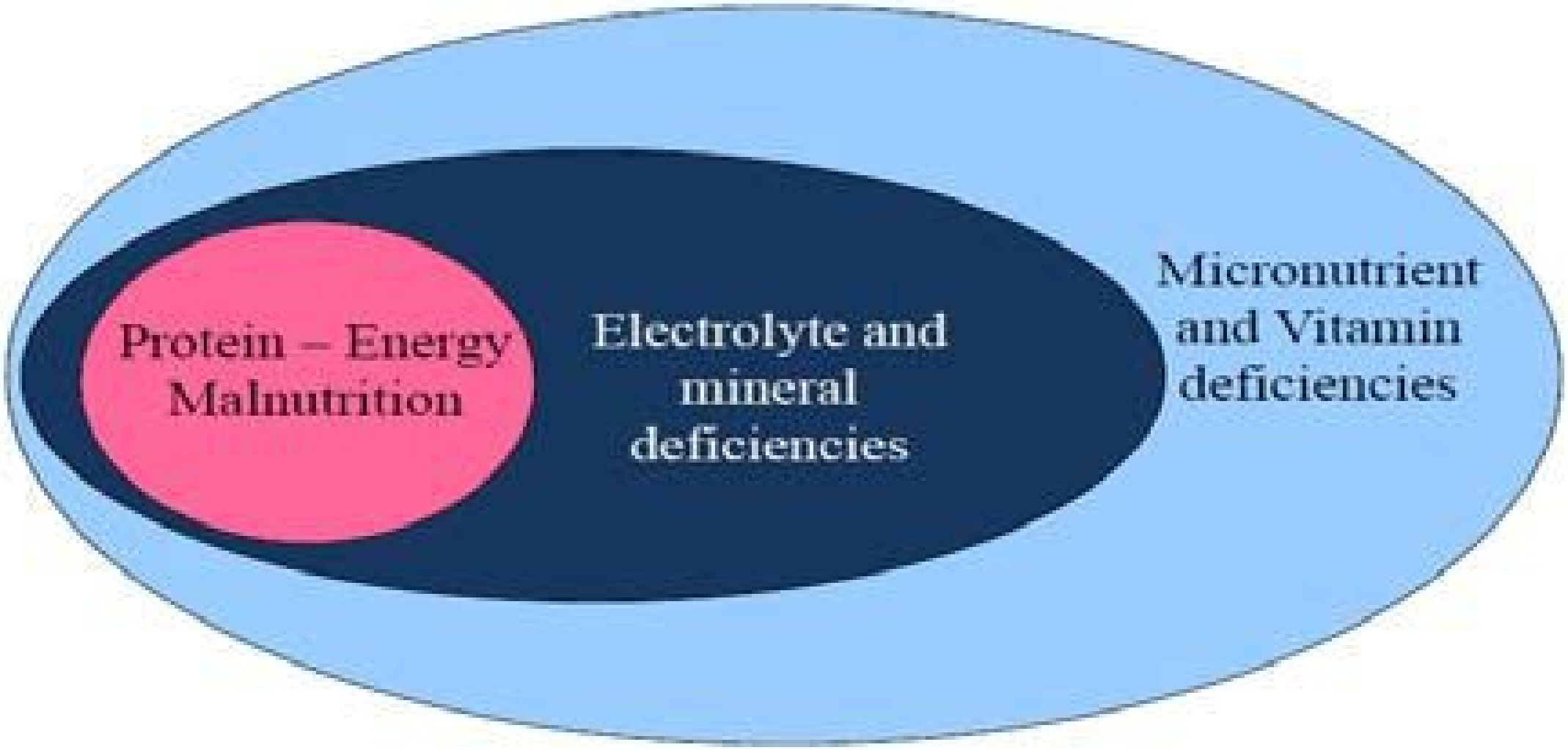
# KEY NUTRITIONAL PROBLEMS IN KENYA

- ✓ **Growth Faltering**
- ✓ **Micronutrient deficiencies (Iodine, Iron, Vitamin A)**
- ✓ **Sub-optimal Breastfeeding**

# Physiology of SAM

- *Reductive adaptation*
- **Definition**
- **It is a physiological response through which the body conserves energy. This is**
- **achieved through;**
- Reducing physical ac\vity and growth
- Reducing basal metabolism by:
- Slowing protein turnover
- Reducing func\onal reserve of organs
- *slowing and reducing na+/K+ pumps
- Reducing inflammatory and immune responses
- N/B The basic physiology of severe acute malnutrition is protein and energy deficiency.
- This is the core problem but it is often accompanied by other deficiencies such as those of electrolytes, minerals, micronutrients and vitamins.
- As depicted in the below pie chart

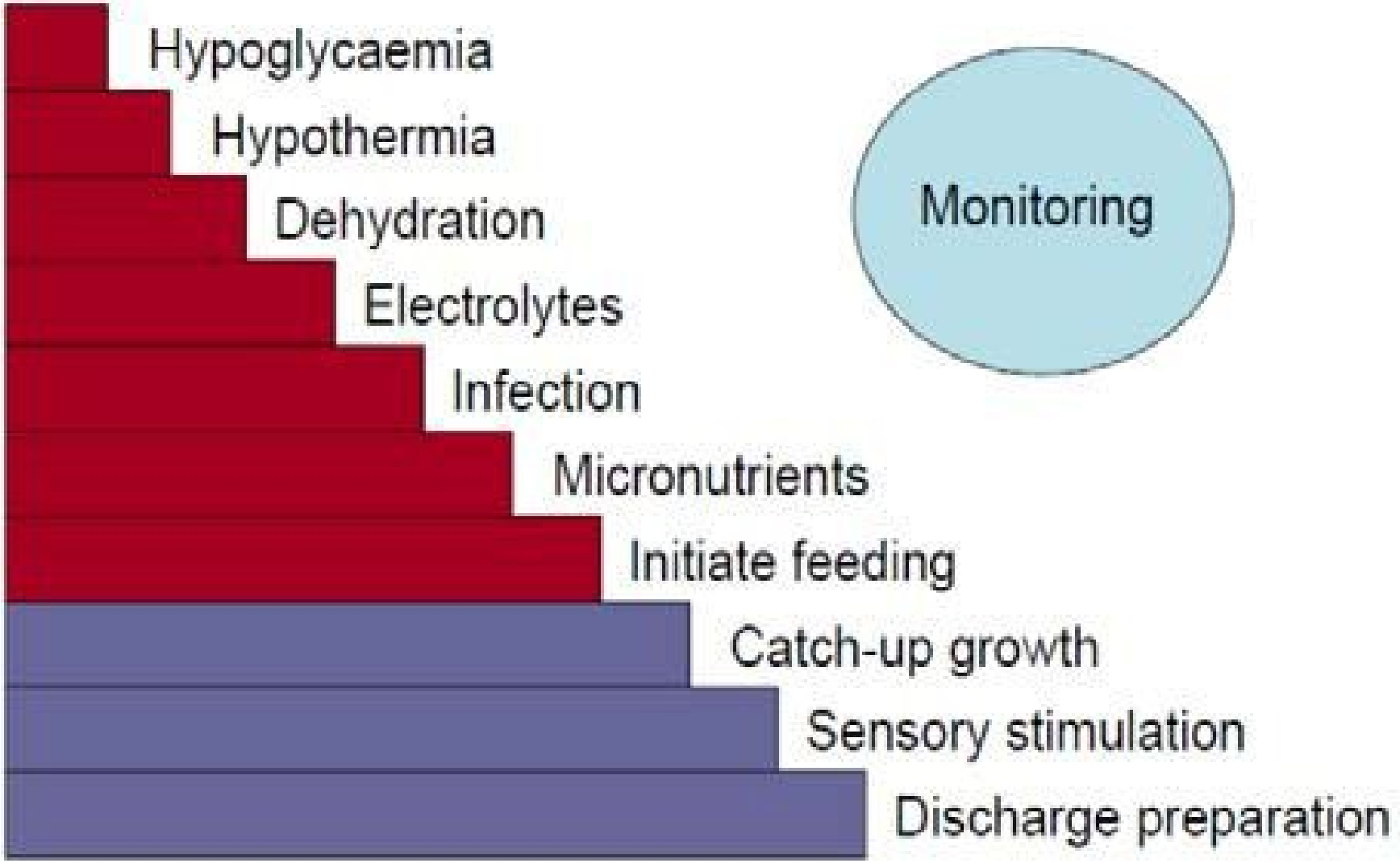
# Deficiencies in severe acute malnutrition



# Cont. on physiology of SAM

- Apart from the various nutrient deficiencies, the child also has increased risk of **developing infections** due to an impaired immune response.
- These children lack **subcutaneous fat** and therefore they are prone to hypothermia.
- Changes in liver function, the endocrine system and hypothermia make them prone to **hypoglycaemia.**
- Many of these children also have a **poor cardiac function** that may lead to congestive cardiac failure especially if given intravenous fluid or blood transfusion without caution.
- At the intestinal level, there is poor motility of the intestine and also poor absorption.
- They also tend to have high sodium and low potassium levels in the body
- With all these derangements, a systematic approach is required to make sure that nothing is missed in the identification of problems and in managing them. This is the rationale for the 10 step approach

# 10-Step Approach to the management of the child with severe acute malnutrition



## *W.H.O recommends the 10 step approach of management of a child with severe acute*

- Good! Having looked at the graph now let us try to substantiate each step for better understanding.
- ***Hey remember this always!***
- ***That:-***
- The first seven steps are called the **rescue phase.** The interventions in this phase are initiated at the point of admission.
- The last 3 steps are the **recovery phase,** which occur after the child is stable.
- Throughout this management there should be **constant monitoring.**

## *Rescue phase*
## Step 1- Hypoglycaemia

- All severely malnourished children are at risk of hypoglycaemia.
- Blood sugar should be measured immediately but if this is not possible it should be assumed that all children with severe malnutrition have hypoglycaemia.
- A blood sugar less than 3mmol/l is hypoglycaemia in a child with SAM.
- They should be given a feed that is F-75 or 10% glucose or sucrose immediately upon admission. Frequent feeding thereafter is important.

## Step 2 -Hypothermia

- Hypothermia is very common in malnourished children and often indicates coexisting hypoglycaemia or serious infection.
- If the axillary temperature is <35°C or does not register on a normal thermometer, assume hypothermia.
- Where a low-reading thermometer is available, take the rectal temperature. A reading <35.5°C confirms hypothermia.
- Make sure the child is clothed (including the head), cover with a warmed blanket and place a heater (not pointing directly at the child) or lamp nearby.
- Alternatively put the child on the mother's bare chest or abdomen (skin-to-skin) and cover them with a warmed blanket and/or warm clothing
- Ensure that the child is covered at all times, especially at night.
- Keep the head covered, preferably with a warm bonnet to reduce heat loss.
- Monitor the temperature two hourly.

**Good! You should include the following measures**

- Feed the child 2-hourly, starting immediately after the diagnosis is made.
- Always give feeds throughout the night and day.
- Place the bed in a warm, draught-free part of the ward and keep the child covered.
- Change wet nappies, clothes and bedding to keep the child and the bed dry.
- Avoid exposing the child to cold (e.g. after bathing, or during medical examinations).
- Let the child sleep with the mother for warmth in the night.

# Step3-Dehydration

- It is difficult to estimate dehydration status accurately in the severely malnourished child using clinical signs alone.
- Assume that all children with watery diarrhoea may have some dehydration.
- Severely impaired circulation (Shock) is diagnosed in these children using the
- same core signs as in those without malnutrition:

➢ Reduced level of consciousness,

➢Absent or weak (low volume) peripheral.

- Severely impaired circulation (Shock) is treated with special fluid plans using Ringer's lactate solution (Hartmann's solution).
- Administer the fluid as a slow bolus at a rate of **20mls/kg** given over **two** hours.
- At the end of the two hour, continue with oral (or NG) fluids.
- Repeat boluses are not recommended even if the child still has features of severely impaired circulation.

# Cont.

- Give ReSoMal (rehydration solution for malnutrition) at 10mls/kg/hour per oral or using NG for the first two hours.
- Then give fluids at 5-10mls/kg.hr for the next 4-10 hours; alternate the ReSoMal with same volume of F75.
- The volume to give will depend on how much the child wants, volume of stools and whether child is vomiting. The Basic Paediatric Protocols provides guidance with assumption that you will give ReSoMal at 10ml/kg/hr.
- After the rehydration therapy, give F75 at the appropriate volume every 3hours.
- If the child has severe palmer pallor transfuse 10mls/kg whole blood over 3 hours as soon as it is available and then continue with appropriate volume of F75 every 3 hours.
- After the IV fluid bolus for management of severely impaired circulation, if it not possible to give NG fluids (child in un-arousable coma or acute abdomen) give maintenance fluids – Half Strength Darrow's (HSD) in 5% Dextrose at 100mls/kg/day (4mls/kg/hr) until it is possible to use NG route.
- Continue breast feeding throughout. Check the respiratory rate, pulse rate, urine frequency, frequency of stools and vomit.
- If you find signs of over hydration (increasing respiratory rate by 5/min and pulse rate by 15/min), stop ReSoMal immediately and reassess after 1 hour.

- Pre-packaged formulations F75, F100 and RUTF used in SAM contain adequate electrolytes to meet the needs of these children.

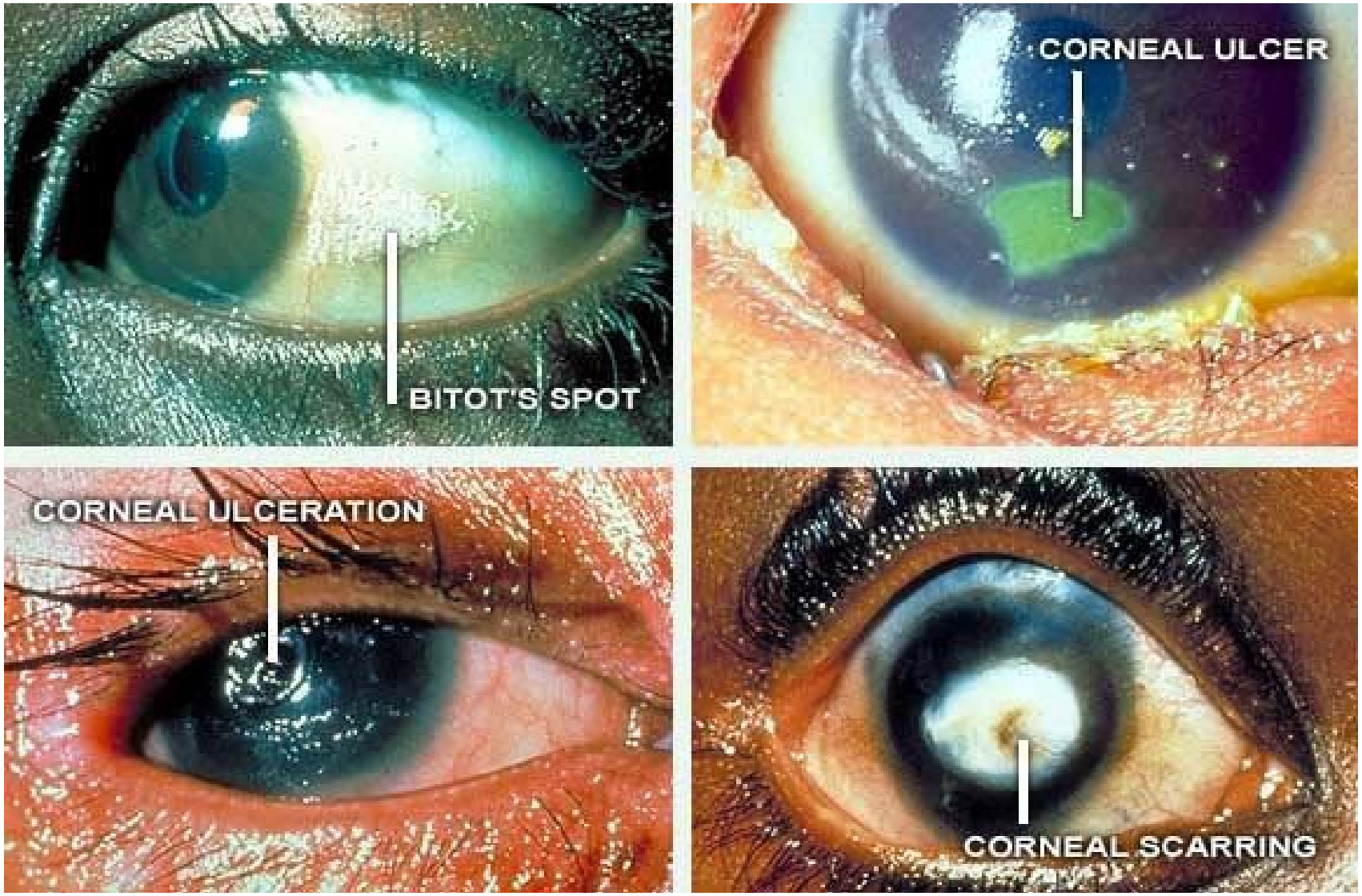
## Step 5 Infection

- Children with SAM often do not develop fever and most times the white cell count is not elevated even when there is confirmed infection.
- Assume that all children with SAM have an infection on their arrival in hospital and treat with appropriate antibiotics straightaway.

# Cont.

- **All** sick children with severe acute malnutrition in hospital should be started on:
- Crystalline Penicillin (or Ampicillin) for two days then high dose oral amoxicillin for 5 days.
- AND IV/IM Gentamicin 7.5mg/kg for 7 days.
- In addition they also receive:
- Nystatin / Clotrimazole for oral thrush,
- Mebendazole after 7 days treatment. (deworming),
- Tetracycline eye ointment (+ atropine drops) for pus / ulceration in the eye.
- Hello! You are doing well so far. It is now time to look at micronutrient deficiencies.

# Step 6 Micronutrient deficiencies (Look for Vit. A Eye signs



## To correct micronutrient deficiencies give:

- High dose Vitamin A to children with eye signs: 200,000 iu on admission, on Day 2 and on Day 14 (100,000 iu if aged < 12 months).
- The pre-packaged F75/F100 had adequate micronutrients, if given at the right dosage, to correct micronutrient deficiencies.
- These micronutrients include Vitamin A and other vitamins, folic acid, zinc and copper. However, should be prescribed be given if pre-packaged F75/100 are not available.
- Start iron ONLY when the child is gaining weight.

# Step 7 Initiate Feeding

- Essential features of initial feeding are:
- Frequent small feeds of low osmolality and low lactose
- Oral or nasogastric feeds (never parenteral preparations) should be used.
- Vomiting is NOT a contraindication to feeding. If the child is breastfed, continue with this, but make ensure the prescribed amounts of feeds are given.
- Feeds are the 'drug' to cure malnutrition; they are a priority (after correction of dehydration if required).
- The preferred starter formula is called **F-75;** it provides 75 Kcal and 0.9 grams of protein/100ml. This is a pre-packed formula.
- If it is not available, you can make F75 from water, skimmed milk, oil and sugar. [Refer to the WHO Pocket Book for Hospital Care of Children for preparation formula]

# Cont.

- *F-75 is used as follows;*
- 130 ml/kg/day in a child without oedema (or has mild/moderate)
- 100 ml/kg/day in a child with severe oedema.
- This starter feed is maintained at this volume until when the child's appetite improves.
- At this point the child is ready receive F100 or ready to use therapeutic feed (RUFT).
- The starter feeds should be given 3 hourly (8 feeds per day). This means at night too!
- The very sick children may be feed every 2 hours, if staffing allows, but graduate to 3 hourly feeds as the child improves.
- During this period that lasts 2 - 7 days, you should monitor and record the following
- Amounts of feed offered and left over
- Vomiting
- Stool frequency and consistency
- Daily body weight

# Step 8-Catch up Growth (Recovery Phase)

- **Appetite and activity level**, not weight change, denotes recovery in the first week.
- F-75 feeding is usually **not** associated with weight gain.
- Weight loss may even occur in children whose oedema is improving so **Do not panic!**
- Ensure at least 100 mls/kg/day of F75 has been given.
- Changing to F-100 from F-75: Change to F-100 at same volume as F-75 and maintain that volume for two days while monitoring the child.
- F-100 has more calories and protein per volume compared with F-75

As illustrated in the table below

# Contents of selected components of F-75 and F-100

| Contents per 100ml | F-75 | F-100 |
|---|---|---|
| Energy (Kcal) | 75 | 100 |
| Protein(grams) | 0.9 | 2.9 |
| Potassium (mmol) | 4.0 | 6.3 |
| Sodium (mmol) | 0.6 | 1.9 |
| Magnesium (mmol) | 0.43 | 0.73 |

# Cont.

- By giving the volume of F-100 as F-75 given in the initial period, the child receives higher energy while the protein and sodium content is more than tripled.
- It is therefore important to have gradual translation to F-100.
- On the third day, after changing to F-100, increase each successful feed by 10ml until some feed remains uneaten.
- At this point the child should be able to feed using cup (with or without a spoon).
- A sachet of 92gm of **RUTF** provides 500kcal. The amount of RUTF should provide 200kcal/kg/day.
- Unlike F100, RUTF contains iron in addition to other minerals and vitamins and thus it is not necessary to give iron during the recovery phase.
- Encourage the child to eat as often as possible.
- A child on RUTF should drink plenty of clean water, from a cup, as the child eats the RUTF.
- If child still breastfeeding, the child should breastfeed before every RUTF feed.

# A child in the catch up growth phase (recovery phase)

# When to change from F75 ?

- Appetite test
  - If the child is clearly very hungry then use RTUF immediately – ***does this child need to be in hospital?***
- Return of appetite after starting on F75:
  - Usually between 2 – 7 days
  - Transition to F100 or RTUF if available
- Oedema:
  - You <u>do not</u> have to wait for resolution of oedema before changing if the child has a good appetite.
- Feed with cup / cup and spoon

# Step 9-Sensory stimulation plus rehabilitation and monitoring

- At this point solid food can be introduced slowly, increasing to 5 meals a day.
- Make sure the caregiver is aware what kinds of foods the child should be taking.
- Pure maize porridge is inadequate.
- Let the child feed in between the main meals. Continue breast feeding throughout.
- One week after admission, if the child is feeding well iron and mebendazole can be introduced.
- The child should by now be much more lively and interactive (normal!). This should be encouraged ideally by providing toys and an environment in which the child can play.
- As the child is showing signs of recovery it is also very important to educate the mother about nutritional care of children and begin the process of preparation for discharge.
- The process of monitoring is crucial during the recovery phase. This includes clinical symptoms and weight.

# Cont.

- Please remember that feed intake must be monitored throughout.
- If there is concern for heart failure due to overfeeding (increased pulse rate and respiratory rate),
- Then you should reduce the feed amount / volumes to 100ml/kg for 24 hours after which it can be increased gradually to 115ml/kg after 24 hours and to 130ml/kg after 48 hours.
- Progress at this stage is measured by weight gain. Calculate and record the weight gain every 3 days as g/kg per day.

# 10. When to discharge

- You should be comfortable to discharge, if the patient has:
- Completed antibiotics
- Good appetite and gaining weight
- Lost any oedema
- Appropriate support in the community or home You should discharge on RUTF and ensure the Mother / carer:
- Is Available
- Understands child's needs
- Is able to supply needs
- ***Well done! for having through SAM.***
- ***Hey test yourself with the following questions!***

## Test your I.Q by Review of this Questions

1. Define severe acute malnutrition
2. Describe the clinical criteria for diagnosis of severe acute malnutrition
3. List the 10 steps of management of severe acute malnutrition
4. Which is the preferred starter formula for children with severe acute malnutrition?
5. What is the starting volume of the first feed for a child with no oedema?
6. When do you change from the F-75 to F-100?
7. When do you prescribe RUTF to patients?
8. Which parameters should be monitored during the recovery phase?
9. List the requirement for discharge of a child with severe acute malnutrition.

# IMNCI

***WELCOME! TO***

***INTEGRATED MANAGEMENT OF NEWBORN AND CHILDHOOD ILLNESS***

***(1MNCI)***

# Definition of IMNCI

- **It is  integrated case management process** used by doctors, nurses and other health professionals who see sick newborns and children **up to five years** of age
- It is a case management process for a first-level facility such as a clinic, a health centre or an outpatient department of a hospital.
- Integrated case management relies on case detection using ***simple clinical signs and empirical treatment.***

## Trends in Childhood Mortality according to KDHS

- *Deaths per 1000 live births*
- According to Kenya demographic Health survey (KDHS):-
- In 2003 KDHS  shows neonatal mortality stood at 38/1000 LB opposed to 119/1000 LB under five mortality
- in 2008-09 KDHS neonatal mortality was still 38/1000 LB as compared to 78/1000 under five mortality
- In 2014 KDHS, Neonatal mortality was 20/1000 LB as compared to 50/1000 LB under five mortality
- Later after the introduction of SDG, neonatal mortality dropped to 10/1000 LB as opposed to 21/1000 LB under five mortality

## ***Background***

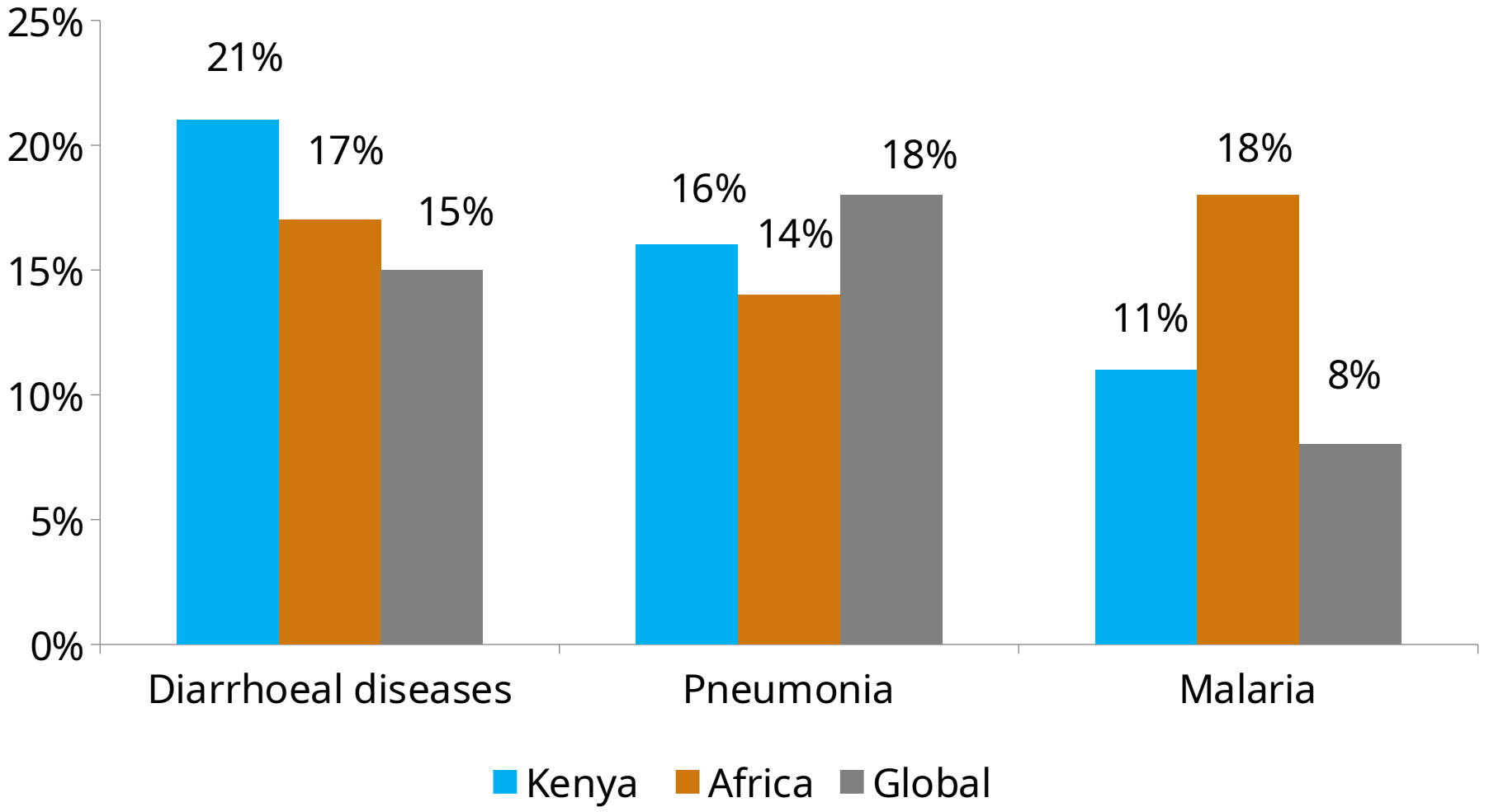
- In Kenya, 52 out of every 1000 children born do not live to be five years of age (KDHS 2014)
- 70% of all deaths are attributed to easily preventable and treatable diseases namely;-*Acute respiratory infections (mostly Pneumonia),Diarrhoea ,Measles, Malaria ,Malnutrition &Anaemia and HIV*
- Often children succumb to a combination of these conditions-with children presenting in H/Fs with the combined s & s of more than one of these Diseases

- Evidence has shown that many of these children are not comprehensively assessed ,treated and given appropriate adviceWHO and UNICEF saw the need to improve the care given to children and they developed the IMNCIstrategy.
- Kenya adopted this strategy in 2000 and it forms a critical part of the KEPH
- IMNCIcase Mnx approach offers simple and effective methods to comprehensively prevent and manage the leading causes of serious illness and Mortality in children below 5 years
- With IMNCI,sick children are not only treated for the s & s they present with in the H/F , but are also assessed for other conditions they maybe suffering from

# IMNCIis based on these principles

- All children aged upto 5 years are examined for **general danger signs** and all young infants are assessed for signs of very severe disease-These signs indicate the need for immediate referral or admission to hospital
- Children and infants are assessed for main symptoms.
- **For older children**, the symptoms include: *Cough/Difficult in breathing ,diarrhoea ,fever ,HIV ,ear infection ,Anaemia,Measles and Malnutrition*
- A combination of individual signs then lead to the **Child's Classification** within one or more **symptom groups**.
- **Essential drugs** are then used to treat the children
- Lastly , **counseling of care** givers regarding home care, appropriate feeding and fluids and **when to return to facility-immediate** or follow up is done

# Kenya, Regional & Global picture on Diarrhoea, Pneumonia & Malaria Mortality




***Source: World Health Statistics 2011, WHO***

# MAJOR CAUSES OF CHILDHOOD MORBIDITY AND MORTALITY (WHO,2015 up to date )

- ***Top ten conditions***

1) Birth asyphyxia and birth trauma it accounts for 15%
2) ARI-14%
3) Prematurity 13%
4) Congenital anomalies 9%
5) Perinatal and nutritional conditions
6) Diarrhoea 7%
7) Sepsis 7%
8) Injuries 7%
9) HIVAIDS 6%
10) Malaria 5%

# SIGNIFICANCE/PURPOSE/AIMS OF IMNCI IN REDUCING <5 MORBIDITY AND MORTALITY

1) To describe how to care for a child who is brought to a clinic with an illness, or for a scheduled follow up visit to check the child's progress.
2) How to routinely assess a child **for general danger signs** (or possible bacterial infection in a young infant), common illnesses, malnutrition and anaemia, and to look for other problems.
3) In addition to treatment, the guidelines incorporate basic activities for illness prevention.

# IMCI components and intervention areas

## Improve health worker skills

- Case management standards & guidelines
- Training of facility-based public health care providers
- IMCI roles for private providers
- Maintenance of competence among trained health workers

## Improve health systems

- District planning and management
- Availability of IMCI drugs
- Quality improvement and supervision at health facilities
- Referral pathways and services
- Health information system

## Improve family & community practices

- Appropriate careseeking
- Nutrition/ Infant feeding
- Home case management & adherence to recommended treatment
- Community involvement in health services planning & monitoring

# IMNC LAYOUT

- THREE ROWS with distinct colours for quickly identifying if:
- The child has a serious illness.
- The child needs urgent attention.
- The child needs treatment/intervention with drugs
- ***Application of the IMNCI Booklet guidelines***

*COLOUR CODING:*

- **Pink** = Severe Classification needing admission or referral
- **Yellow** = A classification needing treatment/ intervention
- **Green** = Not serious, and in most cases no drugs are needed

# IMNCI Case Management Process/steps

1. Assessment
2. Classification
3. Identify treatment
4. Treat the child
5. Counsel the mother
6. Follow up care

## 1.Assessment

- A sick child is often brought to clinic due to a particular problem/ symptom
- However, the illness may be due to more than one disease condition

The assessment process therefore should not be limited to the presenting problem alone

This must be performed when assessing all sick children

1. Ask what the child's problem is
2. Check for the 5 **General Danger signs**
3. Assess for the **4 main symptoms**
4. Check for **malnutrition and anaemia**
5. Check for **HIV Exposure and infection**
6. Check for **immunization, Vitamin A & Deworming status**
7. Assess if the child has any other problems

# 1. **Ask about the child's problem**

- Greet the caregiver, make her/ him feel comfortable
- Ask the caregiver what the child's problems are and record them as the caregiver tells you
- Take the child's bio data and basic vital signs
- Remember to use good communication skills i.e.
  - Use words the mother understands
  - Give mother time to answer questions
  - Listen carefully to what the mother says
  - Ask additional questions / probe if answers not clear

## 2. Check for the 5 General Danger signs

- Not able to drink or breastfeed
- Vomits everything
- History of convulsions in the current illness
- Lethargic or unconscious
- Convulsing now

**Child with any General Danger sign needs URGENT**

**attention: complete assessment , give any pre referral treatment immediately and refer.**

# General danger signs in IMCI

***1.ASK: IS THE CHILD ABLE TO DRINK OR BREASTFEED?***

- A child has the sign “not able to drink or breastfeed” if the child is not able to suck or swallow when offered a drink or breastmilk.
- When you ask the mother if the child is able to drink, make sure that she understands the question. If she says that the child is not able to drink or breastfeed, ask her to describe what happens when she offers the child something to drink. For example, is the child able to take fluid into his mouth and swallow it?
- If you are not sure about the mother’s answer, ask her to offer the child a drink of clean water or breastmilk.
- Look to see if the child is swallowing the water or breastmilk.
- A child who is breastfed may have difficulty sucking when his nose is blocked. If the child’s nose is blocked, clear it. If the child can breastfeed after the nose is cleared, the child does not have the danger sign, “not able to drink or breastfeed.”

# 2.ASK: DOES THE CHILD VOMIT EVERYTHING?

- A child who is not able to hold anything down at all has the sign “vomits everything.”
- What goes down comes back up. A child who vomits everything will not be able to hold down food, fluids or oral drugs.
- A child who vomits several times but can hold down some fluids does not have this general danger sign.
- ask the mother how often the child vomits.
- Also ask if each time the child swallows food or fluids, does the child vomit? If you are not sure of the mother’s answers, ask her to offer the child a drink. See if the child vomits.

# 3.*HAS THE CHILD HAD CONVULSIONS?*

- During a convulsion, the child's arms and legs stiffen because the muscles are contracting.
- The child may lose consciousness or not be able to respond to spoken directions.
- Ask the mother if the child has had convulsions ***during this current illness.***
- ***Use*** words the mother understands. For example, the mother may know convulsions as "fits"or "spasms."

# *4.LOOK TO SEE IF THE CHILD IS LETHARGIC OR UNCONSCIOUS.*

- A lethargic child is not awake and alert when she should be.
- The child is drowsy and does not show interest in what is happening around him. Often the lethargic child does not look at his mother or watch your face when you talk.
- The child may stare blankly and appear not to notice what is going on around him.
- An unconscious child cannot be wakened. He does not respond when he is touched, shaken or spoken to.
- Ask the mother if the child seems unusually sleepy or if she cannot wake the child.
- Look to see if the child wakens when the mother talks or shakes the child or when you clap your hands.

**Child with any General Danger sign needs URGENT**

**attention: complete assessment , give any pre referral treatment immediately and refer.**

# 3. Four main symptoms

The health worker attending to a sick child

**MUST** ask about all the four main symptoms

below.

- Cough or difficult breathing
- Diarrhoea
- Fever
- Ear problem

When a symptom is present, assess further on that symptom.

# MAIN SYMPTOMS IN IMNCI

**1.Cough or difficult breathing**

**2.Diarrhoea**

**3.Dehydration**

**4.Fever**

**5.Ear problem**

**6.Malnutrition and Anaemia**

**7.HIV exposure**

**8. Assessment of child developmental milestones**

**Other problems**

**9. Assess for interaction, communication and responsiveness**

**10. Assess child immunization status**

# MAIN SYMPTOMS IN IMNCI

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Other problems

9. Assess for interaction, communication and responsiveness

10. Assess child immunization status

## 2. Classify

- Classify a child’s illnesses using a **colour-coded triage system**. Because many children have more than one condition, each illness is classified according to whether it requires:
- — urgent pre-referral treatment and referral (**red)**, or
- — specific medical treatment and advice (yellow), or
- — simple advice on home management (green).

# 3.Identify treatment

- **identify** specific treatments for the child.
- If a child requires urgent referral, give essential treatment before the patient is transferred.
- If achild needs treatment at home, develop an integrated treatment plan for the child and give the first dose of drugs in the clinic.
- If a child should be immunized, give immunizations
- **N/B** When a child has more than one classification, you must look at more than one table to find the appropriate treatments.

## 4. Treatment

- Provide practical **treatment** instructions, including teaching the caretaker how to give oral drugs, how to feed and give fluids during illness, and how to treat local infections at home.
- Ask the caretaker to return for follow-up on a specific date, and teach her how to recognize signs that indicate the child should return immediately to the health facility.

# 5.counsel the mother

- Assess feeding, including assessment of breastfeeding practices, and **counsel to solve** any feeding problems found.
- Then counsel the mother about her own health.

## •6 .Follow-up care

When a child is brought back to the clinic as requested, **give follow-up care and, if** necessary, reassess the child for new problems.

# Important to note…..

- **The core interventions is integrated management of five most important causes of death, namely:**
  1. Acute Respiratory Infections
  2. Diarrhoea
  3. Measles
  4. Malaria
  5. Malnutrition and Anemia, HIV
  6. Young infant infection
  - **IMNCI also addresses the common signs/symptoms that make the mother to bring the child to hospital**

# Exercise A ( General Danger signs)

**Case 1: Salina**

Salina is 15 months old. She weighs 8.5 kg. Her temperature is 38.5°C.

The health worker asked, "What are the child's problems?" The mother said, "Salina has been coughing for 4 days, and she is not eating well." This is Salina's initial visit for this problem.

The health worker checked Salina for general danger signs. He asked, "Is Salina able to drink or breastfeed?" The mother said, "No. Salina does not want to breastfeed." The health worker gave Salina some water. She was too weak to lift her head. She was not able to drink from a cup.

Next he asked the mother, "Is she vomiting?" The mother said, "No." Then he asked, "Has she had convulsions?" The mother said, "No."

The health worker looked to see if Salina was lethargic or unconscious. When the health worker and the mother were talking, Salina watched them and looked around the room. She was not lethargic or unconscious.

Now answer the questions

# Exercise A ( General Danger signs)....

Write Salina's name, age, weight and temperature in the spaces provided on the top line of the form.

b. Write Salina's problem on the line after the question "Ask -- What are the child's problems?"

c. Tick (✓) whether this is the initial or follow-up visit for this problem.

d. Does Salina have a general danger sign? If yes, circle her general danger sign in the box with the question, "Check for general danger signs."

In the top row of the "Classify" column, tick (✓) either "Yes" or "No" after the words, "General danger sign present?"

Exercise A ( General Danger signs)

## Case 2: Justin

Justin is 4 years old. He weighs 10 kg. His temperature is $38^0$C.

The health worker asked about the child's problems. Justin's parents said, "He is coughing and has ear pain." This is his initial visit for this problem.

The health worker asked, "Is your child able to drink or breastfeed?" The parents answered, "Yes." "Does Justin vomit everything?" he asked. The parents said, "No." The health worker asked, "Has he had convulsions?" They said, "No." The health worker looked at Justin. The child was not lethargic or unconscious. He was not convulsing then.

# Exercise A ( General Danger signs)

Write Justin's name, age, weight and temperature in the spaces provided on the top line of the form.

b. Write Justin's problem on the line after the question, "Ask -- What are the child's problems?"

c. Tick (✓) whether this is the initial or follow-up visit.

d. Does Justin have a general danger sign? If yes, circle the sign on the Recording Form. Then tick (✓) "Yes" or "No" after the words, "General danger sign present?"

Tell the facilitator when you have completed this exercise.

# ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

- ***1.ASK: DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING?***
- **Difficult breathing is any unusual pattern of breathing. Mothers describe this in**
- different ways. They may say that their child's breathing is "fast" or "noisy" or "interrupted."
- If the mother answers NO, look to see if *you think the child has cough or difficult breathing*.
- If the child does not have cough or difficult breathing,
- ask about the next main symptom, diarrhoea. Do not assess the child further for signs related to cough or difficult breathing.
- If the mother answers YES, ask the next question

# *ASK: FOR HOW LONG?*

- A child who has had cough or difficult breathing for more than 30 days has a chronic cough. This may be a sign of tuberculosis, asthma, whooping cough or another problem. ***COUNT THE BREATHS IN ONE MINUTE***
- **If the child is :**2 months up to 12 months
- **The child has fast breathing:** 50 breaths per minute or more
- 12 months up to 5 years: 40 breaths per minute or more
- ***Note: The child who is exactly 12 months old has fast breathing if you count 40 breaths per*** *minute or more.*
- Before you look for the next two signs—chest indrawing and stridor—watch the child to determine when the child is breathing IN and when the child is breathing OUT.

# *LOOK FOR CHEST INDRAWING*

- If you did not lift the child's shirt when you counted the child's breaths, ask the mother to lift it now.
- Look for chest indrawing when the child breathes IN. Look at the lower chest wall (lower ribs).
- When chest indrawing is present,the lower chest wall goes IN when the child breathes IN.
- If you only see chest indrawing when the child is crying or feeding, the child does not have chest indrawing.
- If *only the soft tissue between the ribs goes in when the child breathes in (also called* intercostal indrawing or intercostal retractions), the child does *not have chest indrawing*.

# *LOOK AND LISTEN FOR STRIDOR*

- Stridor is a harsh noise made when the child breathes in. A child who has stridor when calm has a dangerous condition. To look and listen for stridor, look to see when the child breathes IN.
- Then listen for stridor. Put your ear near the child's mouth because stridor can be difficult to hear.
- Sometimes you will hear a wet noise if the child's nose is blocked. Clear the nose, and listen again.
- A child who is not very ill may have stridor only when he is crying or upset.
- Be sure to look and listen for stridor when the child is calm.
- You may hear a wheezing noise when the child breathes OUT. This is *not stridor.*

# Classification

- There are three possible classifications for a child with cough or difficult breathing;
- **1. Severe pneumonia or very severe disease** 
- Any general danger sign or 
- Chest indrawing or 
- Stridor in calm child.
- A child with this classification is seriously ill and needs urgent referral to a hospital after giving first dose of injectable antibiotics.
- **2. Pneumonia** 
- Fast breathing
- Treat with oral antibiotic.

- **3. No pneumonia cough or cold**
- No signs of pneumonia or 
- Very severe disease.
- Child does not need an antibiotic, teach the mother how to relieve cough with home remedy e.g. warm tea with sugar.
- When using classification table, start with the top row. If the child has signs from more than one row, always select the more serious classification.

# Assessment of pneumonia according to IMNCI

| SIGNS | CLASSIFY | TREATMENT |
|---|---|---|
| Any general danger sign<br>**OR**<br>• Oxygen saturation less than 90%<br>• Stridor in calm child.<br>• Central Cyanosis<br>• AVPU = V, P or U | **SEVERE PNEUMONIA OR VERY SEVERE DISEASE** | • **If oxygen saturation is less than 90%, start oxygen therapy and refer or admit.**<br>• **Give first dose of Benzyl Penicillin and Gentamicin (see pg 16)**<br>• **Treat for and to prevent low blood sugar. (see pg 17)**<br>• **Keep the child warm.**<br>• **Treat wheeze if present, admit or refer urgently to hospital (see pg 17).**<br>• **Screen for possible TB disease and check for HIV** |
| Chest indrawing in calm child<br>**OR**<br>• Fast breathing<br>**AND**<br>• No signs of severe pneumonia | **PNEUMONIA** | • **Give Amoxicillin Dispersible Tablet (DT). (see pg 13)**<br>• **Give Vitamin A. (see pg 14)**<br>• Treat wheeze if present (see pg 17).<br>• If wheezing, follow-up in 2 days (see pg 22)<br>• Soothe the throat and relieve the cough with a safe remedy.<br>• Screen for possible TB disease and check for HIV.<br>• Review in 2 days, **if not possible, admit OR refer children with chest indrawing** (see pg 22)<br>• Advise mother when to return immediately. |
| No signs of pneumonia or very severe disease. | **NO PNEUMONIA: COUGH OR COLD** | • Treat wheeze if present ( see pg 17)<br>• If wheezing, follow-up in 2 days (see pg 22)<br>• Soothe the throat and relieve the cough with a safe remedy (see pg 15).<br>• Follow-up in 5 days if not improving.<br>• Screen for possible TB disease and check for HIV. |

# CLASSIFICATION TABLES FOR COUGH OR DIFFICULT BREATHING

| **SIGNS** | **CLASSIFY AS** |
|---|---|
| · Any general danger signs<br>**OR**<br>•Chest indrawing in calm child<br>**OR**<br>•Stridor in calm child | SEVERE PNEUMONIA OR VERY SEVERE DISEASE |
| Fast breathing | PNEUMONIA |
| No signs of very severe disease or pneumonia | NO PNEUMONIA: COUGH OR COLD |

# Exercise

- Aziz is 18 months old, he weighs 11.5Kg and has a temperature of 37.5°c. The mother has brought him to hospital because he has a cough and trouble breathing. This is the initial visit forAziz.
- The health worker assessed Aziz for general danger signs; he is able to drink, he does not vomiteverything, no history of convulsion and he is not lethargic or unconscious.
- The mother says Aziz has had a cough for 7 days. The health worker counted 41 breaths per minute, there was no chest indrawing no wheeze or stridor
- a) Classify Aziz's problems;
- b) Explain how you have arrived at the classification;

2. Wambui is 8 months old, she weighs 6Kg and has a temperature of 39°c. The mother has brought her to hospital because of cough and refusal to feed. She is not vomiting nor has she had aconvulsion. She did not look at the health worker or her mother as they were talking.

- The health worker counted 55 breaths per minute, she saw chest indrawing and heard a harsh noise as the child breathed in.

?

- Classify Wambui's problems; ?
- Explain how you have arrived at the classification;

# Diarrrhoea

Diarrhoea is common in children between 6months and 2 years of age. Common in infants below 6 months who are not exclusively breastfed.

**Diarrhoea is three or more watery stools in a 24- hour period.**

Types of diarrhea

- i. **Loose or watery diarrhea** e.g. diarrhea due to cholera.
- ii. **Acute diarrhea** – It is diarrhea lasting less than 14 days. It causes dehydration and contributes to malnutrition.
- iii. **Persistent diarrhea** – It is diarrhea lasting 14 days or more. Up to 20% of diarrhea
- episodes become persistent.
- iv. **Dysentery** – diarrhea with blood in the stool, commonly caused by shigella bacteria.
- Ask the mother if the child has diarrhea, if yes assess child for signs of dehydration, persistent diarrhea and dysentery. If no ask about the next main symptom fever.

# Assess diarrhea

- **Assess the child for:** 
- How long the child has had diarrhea. Diarrhoea lasting 14 days or more is **persistent**
- **diarrhoea.**
- Ask if the child has had two or more episodes of diarrhea lasting 14 days or more, if yes check the child for suspected symptomatic HIV infection (entry sign for suspected symptomatic HIV infection).
- Current episode of diarrhoea lasting 14 days or more is included in the two or more episodes. 
- Ask if there is blood in stool to determine if the child has dysentery. 

**Signs of dehydration.**

i. Look at the child's general condition; is the child lethargic or unconscious? Is the child restless and irritable?

A child who is lethargic or unconscious has a general danger sign.

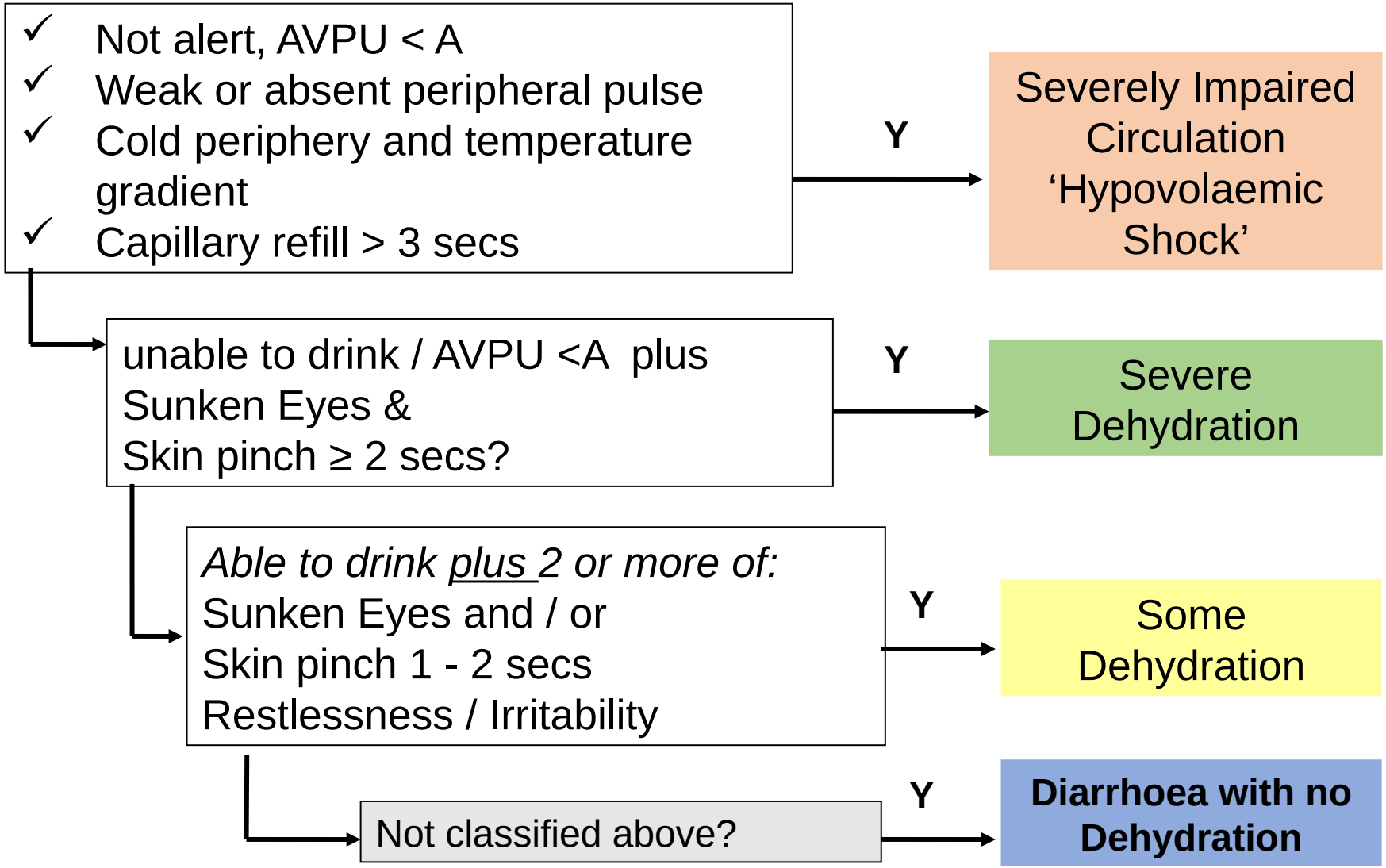
- ii. Look for sunken eyes then ask the mother if she thinks her child's eyes are unusual.
- A child with malnutrition and is visibly wasted has eyes that always look sunken even if the child is not dehydrated.
- Use the sign to classify the child's dehydration.

iii. Offer child fluid; is the child not able to drink or drinking poorly? Drinking eagerly, thirsty?

iv. Pinch the skin of the abdomen; locate the area on the abdomen halfway between the umbilicus and the side of abdomen and pinch the skin using thumb and first finger. Does it

- go back very slowly (longer than 2 seconds)? Slowly? Immediately?
- In a child with marasmus the skin may go back slowly even if the child is not dehydrated.
- In an overweight child or a child with oedema, the skin may go back immediately even if the child is dehydrated.
- Even though skin pinch is less reliable in these children, still use it to classify the child'sdehydration

# How severe is the dehydration?



# 1. Management of diarrhoea / dehydration with severely impaired circulation = 'hypovolaemic shock'

Observe, SSS, A & B , start oxygen, then if signs of severely impaired circulation & dehydration = Hypovolaemic Shock
Exclude Sever Acute Malnutrition

↓

Establish IV /IO access.
20mls/kg Ringer's bolus (<15min)

↓

Reassess ABCD, give max 2 boluses, then
Plan C step 2

## Classify dehydration

# 2. Severe dehydration

- Two of the following signs; 
- Lethargic or unconscious. 
- Sunken eyes. 
- Not able to drink or drinking poorly. 
- Skin pinch goes back very slowly.
- A child with severe dehydration needs intravenous fluids quickly (plan C)

# Treatment of severe dehydration

| | | |
|---|---|---|
| | Step 1* | 30 mls / kg over 30 mins |
| | Step 2 | 70 mls / kg over 2.5 hours |
| | **NGT rehydration-120ml/kg ORS over 6hours can be used instead of steps 1 and 2**<br>**Re-assess at least hourly and after 3-6hrs, reclassify as severe, some or no dehydration and treat accordingly** | |

.

*Give 5ml/kg of ORS once the child can drink*

* *Go to step 2 if child has received bolus for shock*

- **3. Some dehydration**
- Two of the following signs; 
- Restless, irritable. 
- Sunken eyes. 
- Drinks eagerly, thirsty. 
- Skin pinch goes back slowly.
- The child is treated with ORS solution, in addition the child needs food and should continue breastfeeding (plan B).

# Prescribing ORS-Some Dehydration

- 75 mls / kg of ORS over 4 hours.
- Continue breastfeeding as tolerated
- After 4 hours reassess and reclassify;
  - Severe, Some or no dehydration?

*Counseling the mother / caretaker?*

- What do you tell the mother of an 8kg child?

# ORS in practice.

300 mls

200 mls

# 4. No dehydration

- Not enough signs to classify as some or severe dehydration.
- The child needs home treatment.

<u>The three rules of home treatment are;</u>

- i. Give extra fluid.
- ii. Continue feeding.
- iii. When to return.
- Plan A; treating diarrhoea at home.

# Prescribing ORS to prevent dehydration (Plan A)

- After correction of dehydration
- Give required feeds and fluids
- In addition, ORS 10ml/kg for every loose stool


In a child with diarrhea and NO dehydration give usual foods (appropriate for nutritional status ) and fluids & breastfeeds more frequently PLUS
10ml/kg after every loose stool

# Vomiting and feeding?

- Vomiting is NOT a contra-indication to oral rehydration
- Careful counseling about, slow, steady administration of ORS is helpful.
- Breast feeding and other forms of feeding can and should continue
- There is no evidence of benefit from using half-strength feeds or gradual re-introduction of feeding.

# Role of antibiotics & Zinc.

- Antimicrobials only indicated for bloody diarrhoea or proven amoebiasis or giardiasis
  - Blood diarrhoea– Ciprofloxacin for 3 days
- If a child has another severe illness then treat with appropriate antibiotics eg. If has pneumonia
- Zinc should be given to <u>all children with diarrhoea</u> as it speeds resolution of symptoms:
  - 10mg od (half tab) for 14 days if age <6 months
  - 20mg od (one tab) for 14 days if age >=6 months

# EXERCISE E

In this exercise, you will practice assessing and classifying dehydration in children with diarrhea. Read the following case studies of children with diarrhea. Use the dehydration classification table in the chart.

1. **Pano** has had diarrhea for five days. He has no blood in the stool. He is irritable. His eyes are sunken. His father and mother also think that Pano's eyes are sunken. The health worker offers Pano some water, and the child drinks eagerly. When the health worker pinches the skin on the child's abdomen, it goes back slowly

Record the child's signs and classification for dehydration on the Recording

Form.

2. **Jane** has had diarrhea for 3 days. There was no blood in the stool. The child was not lethargic or unconscious. She was not irritable or restless. Her eyes were sunken. She was able to drink, but she was not thirsty. The skin pinch went back immediately.

Record the signs of dehydration and classify them on the Recording Form

# Exercise

- Gretel 16 months old has had diarrhea for 2 days. She does not have blood in stool, has had 2 episodes of diarrhea lasting 14 days previously and is not irritable or restless. Her eyes are sunken, she is not able to drink and her skin pinch goes back very slowly.
- a) Classify Gretal's problems;

b) Explain how you have arrived at the classification;.

**Jose** has had diarrhea for five days. There is blood in the stool. The health worker assesses the child for dehydration. The child is not lethargic or unconscious. He is not restless and irritable. His eyes look normal and are not sunken. When offered water, the child drinks eagerly. A skin pinch goes back immediately.

- Record the child's signs and classify them on the Recording Form

# EXERCISE F

**Rana** is 14 months old. She weighs 12 kg. Her temperature is 37.5$^{0}$C. Rana's mother said the child has had diarrhoea for 3 weeks.

Rana does not have any general danger signs. She does not have cough or difficult breathing.

The health worker assessed her diarrhoea. He noted she has had diarrhoea for 21 days. He asked if there has been blood in the child's stool. The mother said, "No." The health worker checked Rana for signs of dehydration. The child is irritable throughout the visit. Her eyes are not sunken. She drinks eagerly. The skin pinch goes back immediately.

- Record the child’s signs and classify them on the Recording Form

# 4.Fever

- A child with fever may have **malaria, measles** or another **severe disease**. Or, a child with fever may have a simple cough or cold or other viral infection.
- Fever is the main symptom of malaria. It can be present all the time or go away and return at regular intervals.
- Fever and a generalized rash are the main signs of measles

# 4. Fever

- A child with fever may have malaria, measles or another severe disease. The fever could also bedue to simple cough or cold or other viral infection
- Assess fever
- A child has the main symptom fever if;
- 1. The child has a history of fever or
- 2. The child feels hot (abdomen or underarm) or
- 3. The child has an axillary temperature of 37.50C or above.
- Determine if child has fever, if fever is present assess child for fever if no fever ask about the next main symptom ear problem

- **If the child has fever assess for;** 
- Duration of fever, if fever has been present every day for more than 7 days the child may be having typhoid fever. 
- History of measles in the last 3 months; child could be having fever due to measles complications such as eye infection. 
- Stiff neck; a child with fever and stiff neck may be having meningitis. 
- Runny nose; runny nose in a child with fever mean that the child has a common cold. 
- Signs suggesting measles; generalized rash (cephalocaudal, no vesicles or pustules, does not itch), cough, runny nose or red eyes. 
- If the child has measles now or within the last 3 months, assess for signs of measles
- complications; mouth ulcers – are they deep & extensive, pus draining from the eye
- (sign of conjunctivitis) and clouding of the cornea.

# Classify fever

- 1. **Very severe febrile disease** 
- Any general danger sign or
- Stiff neck.
- Child could be having meningitis, severe malaria or sepsis; he/she needs urgent referral, give pre-referral treatment.
- **2. Malaria**
- To classify and treat children with fever, you must know the malaria risk in your area.
- There is a *high malaria risk in areas* *where more than 5% of the fever cases in children* are due to malaria.
- There is **a *low malaria risk in areas*** *where 5% or less of the fever cases in children are* due to malaria.
- There **is *no malaria risk in areas*** *where no transmission of malaria occurs.*

# ***DECIDE THE MALARIA RISK***

- To classify and treat children with fever, you must know the malaria risk in your area.
- There is a *high malaria risk in areas where more than 5% of the fever cases in children* are due to malaria.
- There is **a *low malaria risk in areas*** *where 5% or less of the fever cases in children are* due to malaria.
- There **is *no malaria risk in areas*** *where no transmission of malaria occurs*.

# *ASK: FOR HOW LONG? IF MORE THAN 7 DAYS, HAS FEVER BEEN PRESENT EVERY DAY?*

- ***ASK: HAS THE CHILD HAD MEASLES WITHIN THE LAST 3 MONTHS?***
- A child with fever and a history of measles within the last 3 months may have an infection, such as an eye infection, due to complications of measles
- ***LOOK OR FEEL FOR STIFF NECK***
- A child with fever and stiff neck may have meningitis. A child with meningitis needs urgent treatment with injectable antibiotics and referral to hospital.
- ***LOOK FOR RUNNY NOSE***
- A runny nose in a child with fever may mean that the child has a common cold
- ***LOOK FOR SIGNS SUGGESTING MEASLES*** a generalized
- rash *and for one of the following signs: cough, runny nose, or red eyes.*

# *LOOK FOR MOUTH ULCERS. ARE THEY DEEP AND EXTENSIVE?*

- Look inside the child's mouth for mouth ulcers. Ulcers are painful open sores on the inside of the mouth and lips or the tongue.
- They may be red or have white coating on them. In severe cases, they are deep and extensive. When present, mouth ulcers make it difficult for the child with measles to drink or eat.
- ***LOOK FOR PUS DRAINING FROM THE EYE***
- Pus draining from t he eye is a sign of conjunctivitis. Conjunctivitis is an infection of the conjunctiva, the inside surface of the eyelid and the white part of the eye. If you do not see pus draining from the eye, look for pus on the conjunctiva or on the eyelids
- ***LOOK FOR CLOUDING OF THE CORNEA***
- The cornea may appear clouded or hazy, such as how a glass of water looks when you add a small amount of milk.

- **Refer to page 6 of the IMNCI chart booklet**

| SIGNS | CLASSIFY AS |
|---|---|
| • Any general danger sign OR<br>• Stiff neck | **VERY SEVERE FEBRILE DISEASE** |
| Malaria test positive* | **MALARIA** |
| • Malaria test NEGATIVE or<br>• Runny nose PRESENT or<br>• Measles PRESENT or<br>• Other cause of fever PRESENT** | **FEVER-NO MALARIA** |

*If malaria test is not available, classify as malaria

** Other possible causes of bacterial infection may include urinary tract infection, typhoid, cellulitis and osteomyelitis.

**Classify Measles-** If signs of MEASLES now or within the last 3 months

| SIGNS | CLASSIFY AS |
|---|---|
| • Generalized rash of measles and one of: Cough, runny nose or red eyes | SUSPECTED MEASLES |
| • Any general danger sign or<br>• Clouding of the cornea or<br>• Deep or extensive mouth ulcers | SEVERE COMPLICATIONS OF MEASLES*** |
| • Pus draining from the eye or<br>• Mouth ulcers | EYE OR MOUTH COMPLICATIONS OF MEASLES*** |
| • No pus draining from the eye and no mouth ulcers | NO EYE OR MOUTH COMPLICATIONS OF MEASLES |

***Other important complications of measles-pneumonia, stridor, diarrhoea, ear infection and malnutrition are classified in other tables

# Exercise K – Classify illness in children with signs of fever

**Case : Atika**

Atika is 5 months old. She weighs 5 kg. Her temperature is 36.5$^{0}$C.The risk of Malaria is high. Her family brought her to the clinic because she feels hot and has had cough for 2 days.
She is able to drink. She has not vomited or had convulsions, and is not lethargic or unconscious.
The health worker said, "I am going to check her cough now." The health worker counted 43 breaths per minute. There was no chest indrawing and no stridor when Atika was calm. Atika did not have diarrhea.

"Now, I will check her fever," said the health worker. Atika lives in an area where many cases of malaria occur all year long (high malaria risk). Her mother said, "Atika has felt hot off and on for 2 days." She has not had measles within the last 3 months. She does not have stiff neck or runny nose.

Atika has a generalized rash. Her eyes are red. She has mouth ulcers. They are not deep and extensive. She does not have pus draining from the eye. She does not have clouding of the cornea.

Record the child's signs and classify them on the Recording Form on this page.

# 5.Ear problem

- For **ALL** sick children ask the mother about the child's problem, check for general danger signs,
- ask about cough or difficult breathing, diarrhoea, fever and then
- **ASK: DOES THE CHILD HAVE AN EAR PROBLEM? If YES**
- Is there ear pain?
- Is there ear discharge
- If yes, for how long?
- ***LOOK AND FEEL***
- Look for pus draining from the ear.
- Feel for tender swelling behind the ear.

# CLASSIFY CHILD EAR PROBLEM

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

# EXERCISE

- Mbira is 3 years old. She weighs 13 Kg and her temperature is 37.5°c. Her mother has brought
- her to hospital because she has felt hot for the last 2 days. She cries at night and complains her
- ear hurts.
- She does not have a general danger sign, no cough or difficult breathing, no diarrhea.
- On assessment of the ear, there is discharge and ear pain and also a tender swelling behind one
- ear.
- a) Classify Mbira’s problems;
- b) Explain how you have arrived at the classification;

# CLASSIFY

# IDENTIFY TREATMENT

| SIGNS | CLASSIFY AS | TREATMENT |
|---|---|---|
| • Tender swelling behind the ear. | **MASTOIDITIS** | • **Give first dose of Ceftriaxone Antibiotic. (See pg 16)**<br>• **Give first dose of paracetamol for pain (see pg 14)**<br>• **Refer URGENTLY to hospital or admit**<br>• **Check for HIV.** |
| • Pus is seen draining from the ear or<br>• Discharge is reported for less than 14 days,or<br>• Ear pain. | **ACUTE EAR INFECTION** | • **Give Amoxicillin dispersible tablet for 5 days. (See pg 13)**<br>• Give paracetamol for pain (see page 14)<br>• Dry the ear by wicking (See pg 15)<br>• Check for HIV infection<br>• Follow-up in 5 days (see pg 23) |
| • Pus is seen draining from the ear or discharge is reported for 14 days or more. | **CHRONIC EAR INFECTION** | • Dry the ear by wicking (See pg 15)<br>• Check for HIV infection<br>• Follow-up in 5 days (see pg 23) |
| • No ear pain and<br>No pus seen or reported draining from the ear. | **NO EAR INFECTION** | • No treatment. |

# 6. Malnutrition and anaemia

- CHECK AND CLASSIFY MALNUTRITION/Anaemia
- After taking height/length and weight, use the tables in IMCI chart booklet pg. 56&57 to determine the z-score.
- Measure MUAC in a child 6 months or older.
- Check for oedema of both feet and any other medical complications (refer to chart booklet pg. 8)
- If no medical complication is present in acute malnutrition and anaemia, conduct the appetite test (Refer to IMNCI chart booklet pg 8) **To perform the test, refer to chart booklet pg 25**
- To classify Anaemia, refer to IMCI chart booklet pg 8

# CLASSIFY NUTRITIONAL STATUS

| SIGNS | CLASSIFY AS |
|---|---|
| For all children:<br>• With visible severe wasting<br>• Oedema of both feet,<br>• <-3 Z Score ( weight for age or weight for height/Length)<br>**For children 6 months upto 59 months: MUAC <11.5 cm** | **SEVERE ACUTE MALNUTRITION** |
| For all age groups:<br>• Static weight or losing weight<br>• 3 to <-2 Z- Score<br>**If age 6 months upto 59 months MUAC 11.5 to 12.5 cms** | **MODERATE ACUTE MALNUTRITION** |
| For all age groups:<br>• Static weight or losing weight<br>• -2 to <-1 Z- Score<br>**If age 6 months upto 59 months MUAC 12.5 to 13.5cms** | **AT RISK OF ACUTE MALNUTRITION** |
| Weight between<br>• -1 to +2 | **NO MALNUTRITION** |

# CLASSIFY ANAEMIA

| SIGNS | CLASSIFY AS |
| --- | --- |
| • Severe palmar pallor | **SEVERE ANAEMIA** |
| • Some palmar pallor | **ANAEMIA** |
| • No palmar pallor | **NO ANAEMIAON** |

# 7. HIV exposure and infection

- **CHECK FOR HIV EXPOSURE AND INFECTION**
- Children may acquire HIV infection from an infected mother through vertical transmission in utero, during delivery or while breastfeeding.
- Without any intervention, 30 – 40% babies born to infected mothers will themselves be infected.
- Most children born with HIV die before they reach their fifth birthday, with most not surviving beyond two years
- Good treatment can make a big difference to children with HIV and their families.
- The child's status may also be the first indicator that their parents are infected tooccccccx v
- **To asses and classify for HIV infection and exposure, refer to chart booklet pg. 9xxxxxxxxxxxxxxxxxx yyyyyyyyyycccrvrv**

# CLASSIFY HIV STATUS

| SIGNS | CLASSIFY AS |
|---|---|
| • Child<18 months and DNA PCR test POSITIVE<br>• Child>18 months and Antibody test POSITIVE | **CONFIRMED HIV INFECTION** |
| **Children <18months**<br>• If mother's HIV status is POSITIVE and no test result for child<br>OR<br>• If Child with antibody test POSITIVE<br>OR<br>• If DNA PCR test is NEGATIVE | **HIV EXPOSED** |
| • No test results for child or mother<br>• 2 or more of the following conditions:<br>• Severe pneumonia<br>• Oral candidiasis/thrush<br>• Severe Sepsis<br>OR<br>• An AIDS defining condition | **SUSPECTED SYMPTOMATIC HIV INFECTION** |
| • If child is <18 months with UNKNOWN mother's HIV status and tests antibody NEGATIVE<br>• If child is >18 months and tests antibody NEGATIVE | **HIV INFECTION UNLIKELY** |

# 8. Assessment of child developmental milestones

- WHAT IS CARE FOR CHILD DEVELOPMENT ?
- Care for child development include play and stimulation interventions in early life to promote the following skills:- physical, social, emotional , language and cognitive development skills
- This is done through responsive interactions between caregiver and the child by talking, playing and providing a stimulating environment
- Care for child development is a more comprehensive approach to early life going beyond existing child survival interventions to also promote thriving.
- **REFER to PAGE 10 for ASESS, CLASSIFY AND IDENTIFY TREATMENT ON**
- **CHARTBOOKLET**
- *** Refer to COUNSEL THE CAREGIVER (Recommendation for Care for child's Development) on Page 28**

# 9. Assess for interaction, communication and responsiveness

- **ASK**
- How do you play with your child? (Ask the caregiver to demonstrate)
- How do you talk with your child? (Ask the caregiver to demonstrate)
- How do you get your child to smile? (Ask the caregiver to demonstrate)
- What makes you think your child is learning? (Ask for 6 months and older)

## CHILD'S SKILL DOMAINS

**1. Physical/Motor skills—**: This involves coordinated movements, Reaching and grabbing, Follows objects with eyes, Turns head towards sound  Sitting, crawling, standing

**2. Cognitive skill**s—This involves changes in child's thought, intelligence, and language

- Seeing, hearing, moving, touching;
- Recognize people, things, and sounds
- Compare sizes and shapes.

**3. Social skills**—This involves changes

- In the child's relationships with other people
- How he/she communicates interests and needs
- Expresses self through verbal and non-verbal skills

**4. Emotional skills**—It involves

- Having appropriate emotional reactions to own efforts and other people
- Being able to receive and express appropriate emotions and affection

# 10. Check the child’s immunization, vitamin a & deworming status

- Ask about immunization status of a child
- Confirm in the mother and child health booklet about immunizations

## CHECK THE CHILD'SIMMUNIZATION, VITAMIN A & DEWORMING STATUS ….

- Remember, Vit A supplementation can;
  - Reduces measles mortality by 50%
  - Reduces diarrhea mortality by 33%
  - Reduces all causes of mortality by 23%

# CHECK THE CHILD'SIMMUNIZATION, VITAMIN A & DEWORMING STATUS

- Immunization is one of the most cost effective health intervention for disease control.
- It targets children under the age of 5 years.
- It needs tremendous inputs and effort to make it happen.
- Immunization coverage can be enhanced through;
  - Routine Immunization
  - Supplemental Immunizations
  - Surveillance of the target diseases
  - Mopping up in high risk areas

# CHECK THE CHILD'SIMMUNIZATION, VITAMIN A & DEWORMING STATUS ….

A child's body require Vitamin A for; Growth and development, Protection against infections & reinforces the body's immunity

Vit A deficiency may result from; Inadequate intake of vitamin A rich foods, Poor absorption of the vitamin A & rapid utilization of vitamin A stores due to illnesses

Vit A deficiency may lead to

- ✓ Increased incidence of illness
- ✓ Delays recovery from infections
- ✓ Leads to eye damage and may even lead to blindness
- ✓ Increases the risk of death in sick children

# CHILD'SIMMUNIZATION – PLEASE NOTE

- ✓ *If BCG not given at birth, it should not be given to children with symptomatic HIV /AIDS
- ✓ **Measles vaccine at 6 months is for HIV exposed/ infected children
- ✓ ***Yellow fever vaccine should not be given to children with symptomatic HIV /AIDS
- ✓ ***Yellow fever vaccine is only offered in ( Koibatek, Baringo, Keiyo, Marakwet ) in Rift valley province
- ✓ ****Rota Virus vaccine should not be given to children over 15 months
- ✓ Pentavalent not given if child had convulsion following previous dose or a child with recurrent convulsions or another active neurological disease
- ✓ PCV10 & Pentavalent not given to Infants with a moderate or severe illness (temperature ≥39°C) until their condition improves.
- ✓ PCV10 &Pentavalent contraindicated if severe allergic reactions or shock to a prior dose or any component of the vaccine.
- ✓ Do not delay referrals of children with severe classifications to administer immunizations

# CHECK CHILD'S VITAMIN A & DEWORMING

| Age | Vitamin A | Deworming |
|---|---|---|
| 6 months | Vitamin A | Deworming |
| 12 months | Vitamin A | Deworming |
| 18months | Vitamin A | Deworming |
| 24months | Vitamin A | Deworming |
| 30months | Vitamin A | Deworming |
| 36months | Vitamin A | Deworming |
| 42months | Vitamin A | Deworming |
| 48months | Vitamin A | Deworming |
| 54months | Vitamin A | Deworming |
| 60months | Vitamin A | Deworming |

# ASSESS OTHER PROBLEMS THE CHILD MIGHT HAVE

It is important to remember that the already discussed IMNCIcase management process ;

- Does not cover all symptoms
- Is not reviewing all pediatric medicine
- Remember to address some complaints the caregiver may have raised, eg
  - she may have said the child has an itchy skin
  - You may have observed another problem the mother didn’t say eg jiggers.
- Treat any other problems according to your training, experience and clinic policy.
- Refer the child for any other problem you cannot manage in clinic.

# Classifications that require urgent referral to hospital

- Severe pneumonia or very severe disease. 
- Severe dehydration. 
- Severe persistent diarrhoea. 
- Very severe febrile disease. 
- Severe complicated measles. 
- Mastoiditis. 
- Severe malnutrition or severe anemia.

# Steps to refer a child to the hospital;

a) Explain to the mother the need for referral and get her agreement to take the child.

b) Calm the mother’s fears and help her resolve any problems.

c) Write a referral note for the mother to take with her to the hospital. It should include;

- name and age of the child, date and time of referral, description of the child’sproblems, the reason for referral, treatment given, any other important information, your name and name of clinic.

d) Give the mother any supplies and instructions needed to care for her child on the way to the hospital. 

- Additional doses of antibiotic. 
- Keeping the child warm. 
- Continue breastfeeding. 
- Give ORS for a child with some or severe dehydration

# Advice the mother to return immediately if the child has any of these signs;

- **1. Any sick chid**
- Not able to drink or breast feed. 
- Becomes sicker. 
- Develops a fever.
- **2. If child has no pneumonia, cough or cold return if;** 
- Fast breathing. 
- Difficult breathing. 
- Wheeze.
- **3. If child has diarrhoea, also return if;** 
- Blood in stool. 
- Drinking poorly. 
- Vomiting everything.

# ASSESS THE MOTHER’S / CAREGIVER'S HEALTH NEEDS

- Nutritional status and anaemia, contraception
- Check the mother's HIV status
- Screen for cancer eg: breast and cervical
- Check the mother's psychosocial support needs
- Check hygienic practices
- Check/assess mental status and SGBV
- (Sexual Gender Based Violence

# ASSIGNMENT

- Read and make short notes on how to:-
- 1. Assess, classify, identify treatment, give treatment, counsel the mother/caregiver and follow up; for a sick young infant age up to 2 months
- (use IMNCI BOOKLET PAGES 34-40)

*WELL DONE!*

***AND***

*THANK YOU !*