Integrated Management of Childhood illness (IMNCI)
Control of Diarrheal Diseases

MODULE 4
REPRODUCTION AND POPULATION MEDICINE
Preventive aspects of childcare-
LGIS-II
Department of community Medicine

Dr Khola Noreen Assoc prof, Dr Imrana Saeed APMO

1

2

Vision & Mission of RMU

Vision
Highly recognized and accredited center of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Mission Statement
To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

3

Prof Umar's Integration Model

4

Sequence of the Session

1. Statement of learning outcomes (01 slide)
2. Order & Components of the session
   a. Core subject (contains throughout relevant clinical contents) (30 slides)
   b. Vertical Integration (12 slides)
   c. Research pertinent to enhance understanding o the subjects (02 slides)
   d. Bioethics : pertinent discussion (01 slides)
   e. End of the session relevant assessments (01 slides)
   f. Suggested additional readings (01 slide)

5

Learning Objectives

After this session students will be able to

- Classify diarrhea according to Integrated Management of Childhood Illness
- Classify degree of Diarrhea according to IMNCI
- Assess degree of dehydration and mange according to guiding principles of IMCNI strategy
- Prepare home-made ORS
- Suggest preventive measures in different case scenarios pertaining to diarrheal diseases

6

Core Content

WHAT IS DIARRHEA

- Diarrhea is the passage of 3 or more loose or liquid stools per day, or more frequently than is normal for the individual.(WHO)

7

7

Core Content

KEY FACTS(WHO)

- Diarrhoeal disease is the second leading cause of death in children under five years old. It is both preventable and treatable
- Each year diarrhoea kills around 525 000 children under five
- A significant proportion of diarrhoeal disease can be prevented through safe drinking-water and adequate sanitation and hygiene
- Globally, there are nearly 1.7 billion cases of childhood diarrhoeal disease every year
- Diarrhoea is a leading cause of malnutrition in children under five years old.

8

8

Vertical integration

Clinical Types of Diarrhea

- **Acute watery diarrhea** – lasts several hours or days, and includes cholera;
- **Acute bloody diarrhea** – also called dysentery; and
- **Persistent diarrhea** – lasts 14 days or longer.

9

9

Core Content

TRIAGE

- Triage is the process of rapidly screening sick children soon after their arrival in hospital in order to identify:
- those with **emergency signs, who require immediate emergency** treatment;
- those with **priority signs, who should be given priority while waiting in** the queue so that they can be assessed and treated without delay;
- **non-urgent cases, who have neither emergency nor priority signs.**

10

10

Vertical integration

HOW TO CLASSIFY DIARRHEA

- ***ASSESS AND CLASSIFY***
- When classifying diarrhea:
  - all children with diarrhea are classified for dehydration
  - if the child has had diarrhea for 14 days or more, classify the child for persistent diarrhea
  - if the child has blood in the stool, classify the child for dysentery

11

11

Vertical integration

IMNCI Case Management Process

Classification based on a colour-coded triage

Red	- urgent pre-referral treatments and referral
Yellow	- specific medical treatment and advice
Green	- simple advice on home management

There are three possible classifications for dehydration in a child with diarrhea:

- SEVERE DEHYDRATION
- SOME DEHYDRATION and
- NO DEHYDRATION

12

12

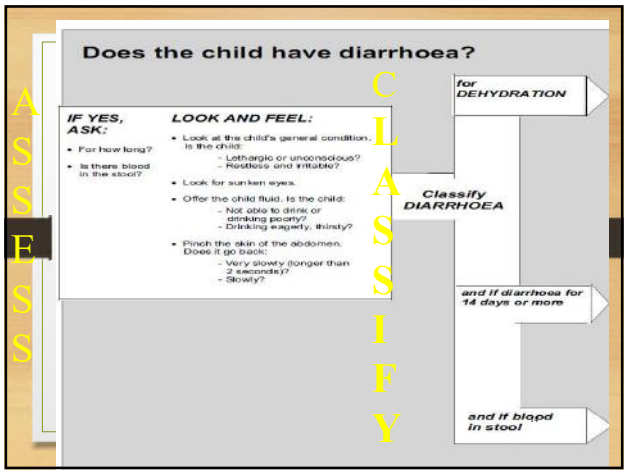
Vertical integration

Classify Dehydration

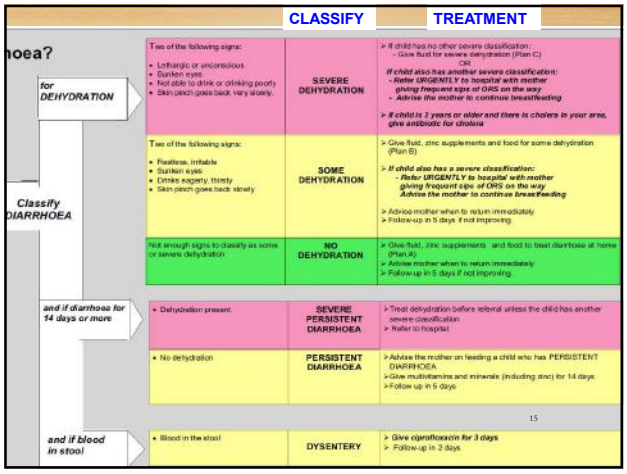
AGE 2 MONTHS UPTO 5 YEARS

13

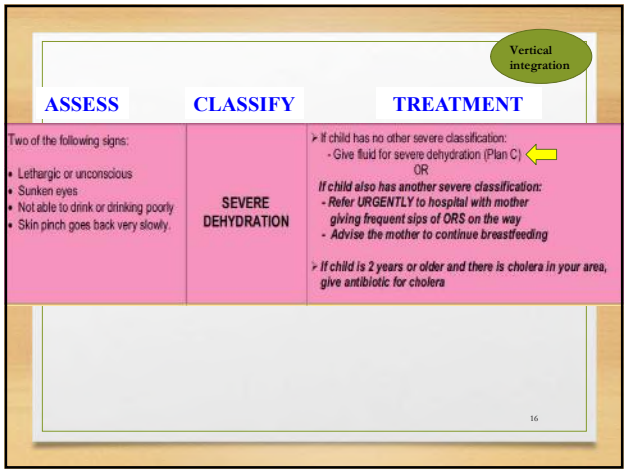
13



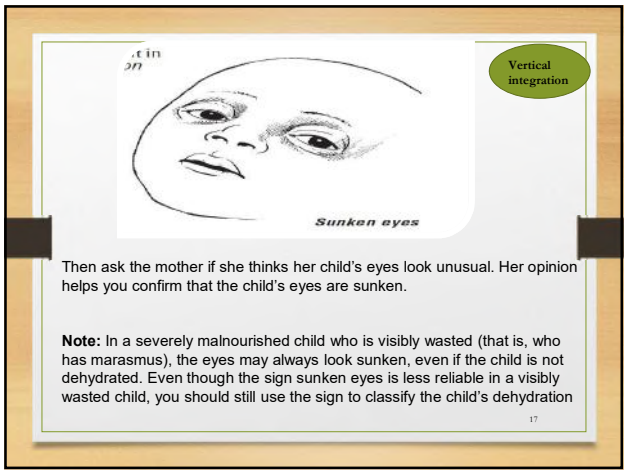
14



15



16

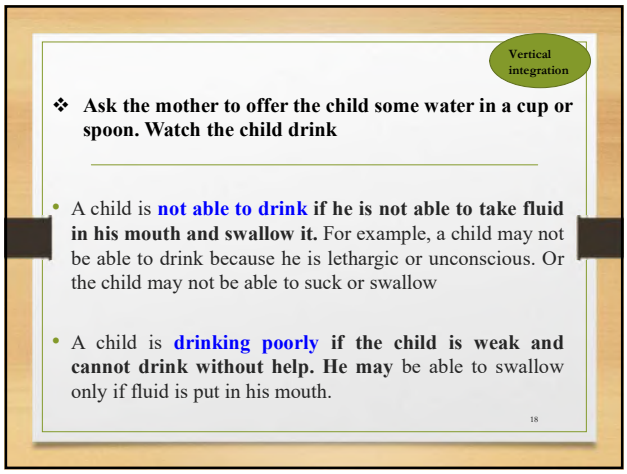


Then ask the mother if she thinks her child's eyes look unusual. Her opinion helps you confirm that the child's eyes are sunken.

Note: In a severely malnourished child who is visibly wasted (that is, who has marasmus), the eyes may always look sunken, even if the child is not dehydrated. Even though the sign sunken eyes is less reliable in a visibly wasted child, you should still use the sign to classify the child's dehydration

17

17



❖ **Ask the mother to offer the child some water in a cup or spoon. Watch the child drink**

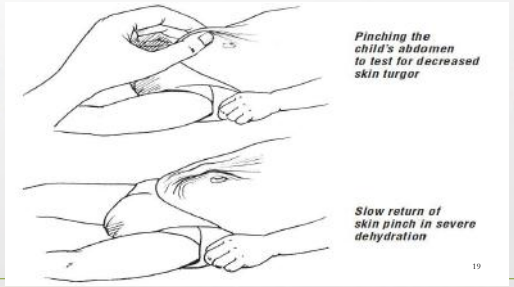
- A child is **not able to drink if he is not able to take fluid in his mouth and swallow it.** For example, a child may not be able to drink because he is lethargic or unconscious. Or the child may not be able to suck or swallow
- A child is **drinking poorly if the child is weak and cannot drink without help. He may** be able to swallow only if fluid is put in his mouth.

18

18

Vertical integration

PINCH THE SKIN OF THE ABDOMEN



19

19

Vertical integration

PINCH THE SKIN OF THE ABDOMEN

- Locate the area on the child's abdomen halfway between the umbilicus and the side of the abdomen. To do the skin pinch, use your thumb and first finger
- Place your hand so that when you pinch the skin, the fold of skin will be in a line up and down the child's body and not across the child's body.

20

20

Vertical integration

PINCH THE SKIN OF THE ABDOMEN

Firmly pick up all of the layers of skin and the tissue under them. Pinch the skin for one second and then release it. When you release the skin, look to see if the skin pinch goes back:

- very slowly (**longer than 2 seconds**)
- slowly (**skin stays up even for a brief instant**)
- immediately

21

21

Vertical integration

PINCH THE SKIN OF THE ABDOMEN

Note: In a child with marasmus (severe malnutrition), the skin may go back slowly even if the child is not dehydrated. In an overweight child, or a child with edema, 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's dehydration

22

22

Vertical integration

ASSESS	CLASSIFY	TREATMENT
Two of the following signs: • Restless, Irritable • Sunken eyes • Drinks eagerly, thirsty • Skin pinch goes back slowly	SOME DEHYDRATION	➤ Give fluid and food for some dehydration (Plan B). ➤ If child also has a severe classification: — Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding ➤ Advise mother when to return immediately. ➤ Follow-up in 5 days if not improving.

23

23

Vertical integration

- A child has the sign **restless and irritable if the child is restless and irritable all the** time or every time he is touched or handled. If an infant or child is calm when breastfeeding but again restless and irritable when he stops breastfeeding, he has the sign "restless and irritable"

24

24

Vertical integration

- A child has the sign **drinking eagerly, thirsty if it is clear that the child wants to drink**
- Look to see if the child reaches out for the cup or spoon when you offer him water. When the water is taken away, see if the child is unhappy because he wants to drink more.

25

25

Vertical integration

ASSESS	CLASSIFY	TREATMENT
Not enough signs to classify as some or severe dehydration	NO DEHYDRATION	➢ Give fluid, zinc supplements and food to treat diarrhoea at home (Plan A) ⇦ ➢ Advise mother when to return immediately ➢ Follow-up in 5 days if not improving.

26

26

Vertical integration

Classify Persistent Diarrhea

EXAMPLE 7: CLASSIFICATION TABLE FOR PERSISTENT DIARRHOEA

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT (Urgent pre-referral treatments are in bold print.)
• Dehydration present	SEVERE PERSISTENT DIARRHOEA	➢ Treat dehydration before referral unless the child has another severe classification. ➢ Refer to hospital.
• No dehydration	PERSISTENT DIARRHOEA	➢ Advise the mother on feeding a child who has PERSISTENT DIARRHOEA. ➢ Follow-up in 5 days.

If a child has had diarrhea for 14 days or more *and also has some or severe dehydration,* classify the child's illness as SEVERE PERSISTENT DIARRHOEA.

27

27

Vertical integration

Classify Dysentery

EXAMPLE 8: CLASSIFICATION TABLE FOR DYSENTERY

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT (Urgent pre-referral treatments are in bold print.)
• Blood in the stool	DYSENTERY	➢ *Treat for 5 days with an oral antibiotic recommended for Shigella in your area.* ➢ Follow-up in 2 days.

A child with dysentery should be treated for dehydration. You should also give an antibiotic recommended for *Shigella in your area.*

28

28

Vertical integration

CASE 1

- **Fatima is 18 months old. She weighs 11.5 kg. Her temperature is 37.5 °C.** The health worker asked, "Does the child have diarrhea?" The mother said, "Yes, for 3 days." There was no blood in the stool. Fatima's eyes looked sunken. The health worker asked, "Do you notice anything different about Fatima's eyes?" The mother said, "Yes." He gave the mother some clean water in a cup and asked her to offer it to Fatima. When offered the cup, Fatima would not drink. When pinched, the skin of Fatima's abdomen went back slowly.

29

29

ASSESS	CLASSIFY	TREATMENT
Two of the following signs: • Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin pinch goes back very slowly.	SEVERE DEHYDRATION	➢ If child has no other severe classification: - Give fluid for severe dehydration (Plan C) ⇦ OR ***If child also has another severe classification:*** ***- Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way*** ***- Advise the mother to continue breastfeeding*** ➢ ***If child is 2 years or older and there is cholera in your area, give antibiotic for cholera***

30

30

Vertical integration

YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS

31

31

Vertical integration

YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS

- The assessment is similar to the assessment of diarrhea for an older infant or young child, but fewer signs are checked. Thirst is not assessed. So drinking poorly is not used as a sign for the classification of dehydration
- All young infants with persistent diarrhea or blood in stool should be referred to the hospital.

** What is diarrhoea in a young infant?*

A young infant has diarrhoea if the stools have changed from usual pattern and are many and watery (more water than fecal matter).

The normally frequent or semi-solid stools of a breastfed baby are not diarrhoea.

32

32

Vertical integration

Classification	Signs or symptoms
Severe dehydration	■ lethargy/unconsciousness ■ sunken eyes ■ unable to drink or drinks poorly ■ skin pinch goes back very slowly (≥2 seconds)
Some dehydration	*Two* or more of the following ■ restlessness, irritability ■ sunken eyes ■ drinks eagerly, thirsty ■ skin pinch goes back slowly
No dehydration	Not enough signs to classify as some or severe dehydration

33

33

Vertical integration

IDENTIFY TREATMENT

- **"Refer URGENTLY to hospital".** This instruction means to refer the child immediately after giving any necessary pre-referral treatments. Do not give treatments that would unnecessarily delay referral
- **"Refer to hospital."** This means that referral is needed, but not as urgently. There is time to identify treatments and give all of the treatments before referral.

34

34

Table 1: Assessment of diarrhoea patients for dehydration

	A	B	C
LOOK AT: CONDITION[a]	Well, alert	Restless, irritable	Lethargic or unconscious
EYES[b]	Normal	Sunken	Sunken
THIRST	Drinks normally, not thirsty	Thirsty, drinks eagerly	Drinks poorly, or not able to drink
FEEL: SKIN PINCH[c]	Goes back quickly	Goes back slowly	Goes back very slowly
DECIDE	The patient has NO SIGNS OF DEHYDRATION	If the patient has two or more signs in B, there is SOME DEHYDRATION	If the patients has two or more signs in C, there is SEVERE DEHYDRATION
TREAT	Use Treatment Pan A	Weigh the patient, if possible, and use Treatment Plan B	Weigh the patient and use Treatment Plan C URGENTLY

[a] Being lethargic and sleepy are *not* the same. A lethargic child is not simply asleep: the child's mental state is dull and the child cannot be fully awakened; the child may appear to be drifting into unconsciousness.
[b] In some infants and children the eyes normally appear somewhat sunken. It is helpful to ask the mother if the child's eyes are normal or more sunken than usual.
[c] The skin pinch is less useful in infants or children with marasmus or kwashiorkor, or obese children. Other signs that may be altered in children with severe malnutrition are described in section 8.1.

35

Vertical integration

Plan A: Treat diarrhea at home

The 4 Rules of Home Treatment are:

- 1. GIVE EXTRA FLUID (as much as the child will take)
- 2. CONTINUE FEEDING
- 3. WHEN TO RETURN
- 4. GIVE ZINC SUPPLEMENTS (age 2 months upto 5 years)

36

36

Plan B: Treat some dehydration with ORS

- This plan includes an initial treatment period of **4 hours** in the clinic. During the 4 hours, the mother or caretaker slowly gives a recommended amount of ORS solution.

37

37

Table 2: Guidelines for treating children and adults with some dehydration

APPROXIMATE AMOUNT OF ORS SOLUTION TO GIVE IN THE FIRST 4 HOURS

Age[a]	Less than 4 months	4 – 11 months	12 – 23 months	2 – 4 years	5 – 14 years	15 years or older
Weight	Less than 5 kg	5–7.9 kg	8-10.9 kg	11-15.9kg	16-29.9kg	30 kg or more
In ml	200-400	400-600	600-800	800-1200	1200-2200	2200-4000
in local measure						

[a] Use the patient's age only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the patient's weight in kg by 75.

- If the patient wants more ORS than shown, give more.
- Encourage the mother to continue breastfeeding her child.
- For infants under 6 months who are not breastfed, if using the old WHO ORS solution containing 90 mmol/L of sodium, also give 100-200ml clean water during this period. However, if using the new reduced (low) osmolarity ORS solution containing 75mmol/L of sodium, this is not necessary.

38

NOTE: During the initial stages of therapy, while still dehydrated, adults can consume up to 750 ml per hour, if necessary, and children up to 20 ml per kg body weight per hour.

38

Show the mother how to give ORS solution

- Give frequent small sips from a cup or spoon. Use a spoon to give fluid to a young child.
- If the child vomits, wait 10 minutes before giving more fluid. Then resume giving the fluid, but more slowly.
- Encourage the mother to pause to breastfeed whenever the child wants to.

39

39

After 4 hours

- After 4 hours of treatment on **Plan B**, reassess the child using the *ASSESS AND CLASSIFY chart. Classify the dehydration. Choose the appropriate plan to continue* treatment
- ***Note: If the child's eyes are puffy, it is a sign of over hydration.*** It is not a danger sign or a sign of hypernatraemia. It is simply a sign that the child has been rehydrated and does not need any more ORS solution at this time. The child should be given clean water or breast milk. The mother should give ORS solution according to Plan A when the puffiness is gone.

40

40

If the mother must leave before completing treatment

- In such situations, you will need to:
  - — Show the mother how to prepare ORS solution at home.
  - — Show her how much ORS solution to give to complete the 4-hour treatment at home.
  - — Give her enough packets to complete rehydration. Also give her 2 more packets as recommended in Plan A.
  - — Explain the 4 Rules of Home Treatment: 1. Give Extra Fluid, 2. Continue Feeding, 3. When to Return and 4. Give Zinc

41

41

PLAN C

1. If you can give intravenous (IV) treatment

If you can give IV treatment and you have acceptable solutions such as Ringer's Lactate or Normal Saline at your clinic, give the solution intravenously to the severely dehydrated child.[1]

[1] This annex will not teach how to give intravenous treatment.

The sections of Plan C below describe the steps to rehydrate a child intravenously. It includes the amounts of IV fluid that should be given according to the age and weight of the child. Study the sections carefully.

- Start IV fluid immediately. If the child can drink, give ORS by mouth while the drip is set up. Give 100ml/kg Ringer's Lactate Solution (or, if not available, normal saline), divided as follows:

AGE	First give 30 ml/kg in:	Then give 70 ml/kg in:
Infants (under 12 months)	1 hour*	5 hours
Children (12 months up to 5 years)	30 minutes*	2 ½ hours

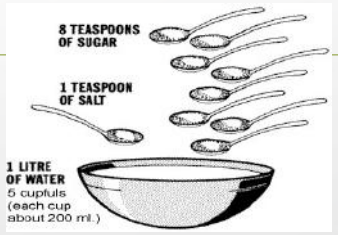
* Repeat once if radial pulse is still very weak or not detectable.

- Reassess the child every 1-2 hours. If hydration status is not improving, give the IV drip more rapidly.
- Also give ORS (about 5 ml/kg/hour) as soon as the child can drink, usually after 3-4 hours (infants) or 1-2 hours (children).
- Reassess an infant after 6 hours and a child after 3 hours. Classify dehydration. Then choose the appropriate plan (A,B, or C) to continue treatment.

42

42

HOME MADE ORS



Ingredients:

- **one level teaspoon of salt**
- **eight level teaspoons of sugar**
- **one litre of clean drinking or boiled water and then cooled**

5 cupfuls (each cup about 200 ml.)

43

43

Table A: Composition by weight and molar concentrations of reduced (low) osmolarity ORS solution.

Reduced osmolarity ORS	grams/litre	Reduced osmolarity ORS	mmol/litre
Sodium chloride	2.6	Sodium	75
Glucose, anhydrous	13.5	Chloride	65
Potassium chloride	1.5	Glucose, anhydrous	75
Trisodium citrate, dihydrate	2.9	Potassium	20
		Citrate	10
		Total Osmolarity	245

44

44

Child - Growth & Development- Monitoring (Growth chart)

An important function of Maternal & Child Healthcare Services

45

45

Preventive Aspects of

Growth & Development of Child

- Child growth & development(G&D) . MCHS are concerned with process of growth & development of child which is foundation of child's physical & intellectual health in life.
- **Determinants of child G&D.**
  - **Genetic inheritance**
  - **Nutrition**
  - **Age & Sex.**
  - **Physical & Psychological Surroundings.**
  - **Infections & Parasitosis**
    - Maternally transferred infections (Rubella, Syphilis, Hep-B & C …)
    - Diarrhea, Measles etc
    - Worm infestations
  - **Economic factor**

46

46

Surveillance of Growth & Development of Child

- A specific function of MCH – Services & routine anticipatory care of child.
- **Its purpose is :**
  - To identify children not growing normally.
  - To assess effectiveness of other components of childcare like nutrition, sanitation & control of infection etc
  - Timely institute measures where G&D faltering
- Components of G&D Surveillance
  - weight for age (best single indicator of physical growth) Need serial measurements. Ideally monthly during 1st year.
  - Height for age. Suitable for age 2Y & above. Standing position,
    - Nutritional Stunting:
      - low height for age. Reflects chronic malnutrition .
      - According to "Water low" classification: 2SD below the median reference is cut off point.
  - Weight for height
  - Head & chest circumference

47

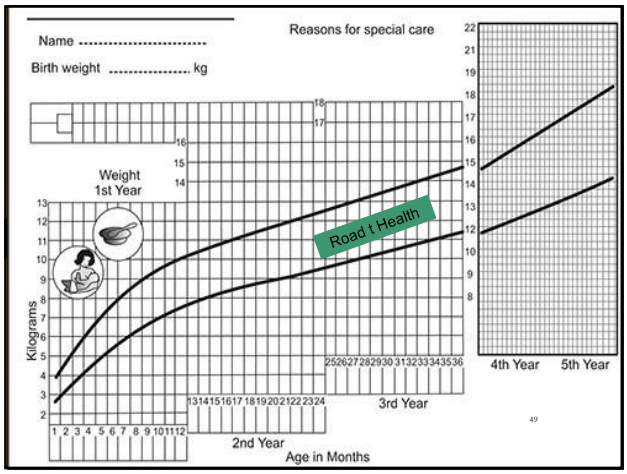
47

Growth Chart (Road to Health)

1. Frist designed by David Morley, modified by WHO.
2. Is visible display of child physical growth & development
3. Designed to following longitudinally follow the child growth so deficiencies could be timely interrupted.
4. Only weight for age is used-being most sensitive measure of child and any deviation can easily b detected by comparing with normal /reference curves.
5. Simple & inexpensive tool
6. Growth chart specific to male & female are also available.
7. Used for 0-60 Months

48

48



49

Uses of growth chart

1. Growth monitoring
2. Diagnostic tool. Like malnutrition can be identified earlier before clinically becomes apparent.
3. Tool for planning & policy making. As cumulative data analysis for action.
4. An educational tool. Mother can be educated in childcare.
5. Tool for action. As per indication
6. Tool for evaluation of child health related programs in the area.
7. Tool for teaching: to mothers like infant diet, immunization, sanitation etc

50

Research

- **https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease**

51

51

Bioethics

- Martin F. McKneally, Bernard M. Dickens, Eric M. Meslin, et al., "Bioethics for clinicians:
- Resource allocation, "Canadian Medical Association Journal, vol. 157, no. 2 (1997): 163-167.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1227741/pdf/cmaj_157_2_163.pdf
- "Priority to the Worst Off in Health Care Resource Prioritization." In Medicine and Social Justice, ed. M. Battin, R. Rhodes, and A. Silvers. New York: Oxford University Press.
- "Ethical Issues in the Use of Cost Effectiveness Analysis for the Prioritization of Health Care
- Resources." In Making Choices in Health: WHO Guide to Cost-Effectiveness Analysis, ed. T. Tan-Torres
- Edejer, R. Baltussen, T. Adam, R. Hutubessy, A. Acharya, D. B. Evans, and C. J. L. Murray. Geneva: World Health Organization

52

52

End of Lecture Assessment

- 4. A 3-year-old child has fever and diarrhoea. The child has history of diarrhoea for 2 weeks and there is no blood in stool. He has no danger signs The child is restless and irritable, but is not drinking eagerly. His eyes are not sunken. A skin pinch goes back slowly. According to IMNCI classification, child dehydration would be classified as:
- a.no dehydration
- b. mild dehydration
- c.some dehydration
- d. moderate dehydration
- e.severe dehydration

Key : c

53

53

Additional reading

- https://www.youtube.com/results?search_query=imnci+pneumonia+cases+pneumonia+severe+pneumonia
- https://www.youtube.com/watch?v=fdWSS6H1q8Y&t=416s&pp=ygUYaW1uY2kgZGlhcnJoZWEgdHJlYXRtZW50

54

54