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TRAINING MANUAL *for*

**CLINICAL COBES POSTINGS
(MATERNAL & CHILD HEALTH)
(ICT & ENTREPRENEURSHIP)**

Prepared by

**W.H.O. COLLABORATING CENTRE ON COMMUNITY
BASED EDUCATIONAL PROGRAMMES**

and

**COMMUNITY BASED
EXPERIENCE AND SERVICES (COBES) UNIT
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF ILORIN, ILORIN, NIGERIA**

Edited by

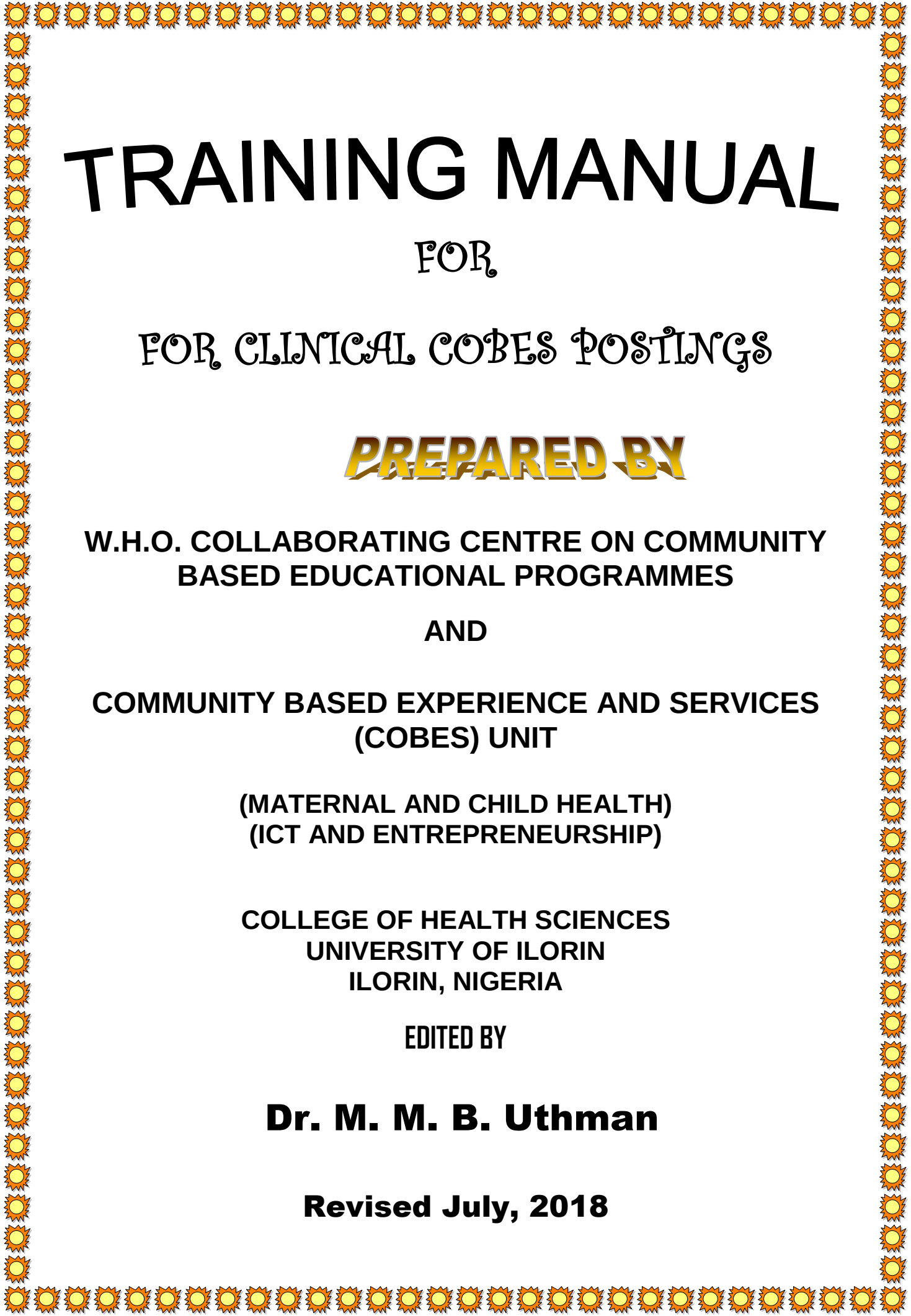
Dr. M. M. B. Uthman

Revised July, 2018



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TRAINING MANUAL

FOR

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COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF ILORIN
ILORIN, NIGERIA

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FOREWORD

The College of Health Sciences, University of Ilorin was designated in 1987 a WHO Collaborating Centre for Innovative Medical Education and Manpower Development. Although the College, which then was a Faculty, has retained this prestigious status ever since it was first designated, the training activities of the Centre remained low. This was mainly due to funding difficulties. However, early in 2003, the Centre in the College received a grant from WHO to train COBES site supervisors. The grant made it possible to prepare this document.

The first edition of this document is the product of a workshop in August 2003. The College is grateful to the COBES Academic Planning Committee, the team of dedicated College staff including the past COBES Coordinators for this document and other efforts at making COBES a relevant posting and fulcrum of the College philosophy. The document traced the history of COBES programme from the early humble beginning in 1977. It is comprehensive enough to provide information on the mission of the founding fathers, the constraints, the achievements, the way forward and many more. It is our hope that this document will guide students during the COBES posting. I am optimistic that this document will be of enormous benefit to new converts to the COBES programme outside our College.

Finally, this publication will not only enrich our COBES library, it will be an important resource material for sister institutions within Nigeria and overseas.

Prof. W.B.R. Johnson

Provost, College of Health Sciences

INTRODUCTION

COBES means Community Based Experience and Services. It is a programme designed to introduce students to the community at the very earliest phase of their medical education with the view to sensitizing them to the community health needs. This exposure presents health problems through which the students can learn actively.

The programme over the last forty years has passed through the formative stages to maturity. However, the burning vision to document all relevant information about the programme, other identified experts input that will strengthen it, any relevant on-job experiences that will enrich its implementation and to present this document as a training module for students and our site supervisors only received a boost with a technical services agreement with WHO to fund the project in 2003.

The ever increasing recognition of this innovative medical education programme world-wide, the need to adequately train new academic staff members of this College that did not have previous experience of similar programme and the need to assist up-coming medical schools wishing to adopt this training programme form the basis for this document.

The College of Health Sciences, University of Ilorin being a WHO collaborating Centre on Community Based Educational programmes through her COBES Unit organised a three – day workshop between 19th and 22nd of August 2003 that midwifed the first edition of this document. Modules on NUTRITION, and Maternal and Child Health were updated. This edition incorporated ICT and Entrepreneurship aspect of the posting into the training manual. Three resource materials from ICT and Entrepreneurship were added to this manual. Also, included are the 500 Level and 600 Level postings timetables. In addition, this manual has been revised to follow the College status. It is my sincere belief that proper usage of this training module will

guide the students during their COBES postings, enhance the effectiveness of our site supervisors and at the same time make a valuable document available for other sister institutions.

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(MODULE ON MATERNAL & CHILD HEALTH)

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INTRODUCTION

The Community Based Experience and Services (COBES) posting at the 500 level is designed to expose the student to basic primary health care at the community level. Primary Health Care is essential health care made universally available, affordable, and acceptable to the community and with community participation.

Primary Health Care addresses the preventive, promotive, curative and rehabilitation services. Such services include: basic sanitation, adequate water supply, immunization against the communicable diseases, maternal and child health care, prevention of injuries and provision of essential drugs.

Part of the components of the programme at this level is the Maternal and Child Health.

This posting therefore aims at equipping the student with the knowledge and skill to manage common maternal and childhood medical conditions that are common in the community.

At the end of the posting, the student should be conversant with the management of the child both in good health and during ill health.

During the posting, the student will participate in all clinical activities relating to the care of children. Instructions will be given through attendance at clinical ward rounds, Outpatient / Well Baby clinics, nutritional demonstration sessions, etc.

CHILD HEALTH

Child Health care involves the care of both the well and the sick child. A health of a child is a product of the interaction between his genetic predisposition and his environment. A child is therefore managed in the context of his environmental exposure, and the community in which he develops as well as his genetic endowment. A child should be approached **HOLISTICALLY**. for example, a child presenting with diarrhea should not only be treated for the diarrhea disease, but he should be assessed for the nutritional status, immunization status etc. That single contact should be utilized to the fullest, since such an opportunity might not present itself again for a thorough assessment of the child. A brief assessment of maternal health is also advised particularly for HIV infection and malnutrition as this is known to impact greatly on the child's health. This is the basis for the introduction of Integrated Maternal Newborn and Child health strategy of the Nigerian government in the last 5 years. This strategy ensures a holistic continuum of care at the PHC level and a strategy that can help accelerate progress towards the 2015 targets of MDG. All mothers/caregivers **MUST BE COUNSELED** on breastfeeding, complementary feeding, immunization, HIV, family planning, child abuse and other issues as necessary.

Definition of terms:

Child	–	a child is anybody aged from birth till the age of 18 years
Neonate	–	a baby aged from birth till 28 days
Infant	–	a baby aged from one month to one year
Toddler	–	a child aged between one to three years
School age	–	a child aged between three and twelve years
Teenager	–	a child aged between twelve and sixteen years
Adolescent	–	a person between 10 and 19 years

WELL BABY CLINIC

The Well Baby Clinics carry out activities that are geared towards the Child Survival Strategies. Such activities include: Growth monitoring, Oral Rehydration therapy, Breast Feeding, Immunisation, Family Planning, Female Education and Food Supplementation (GOBI-FFF).

Growth Monitoring: This is a systematic approach to the monitoring of the growth of a child using a standard growth chart that is appropriate for the environment of that child. Such a chart is developed for children in that community. At every visit at the clinic, the child is weighed and his growth charted against the appropriate age. The child is growing well as long as it follows its normal pattern on the growth chart. The growth pattern of each child is therefore individualized. Also the growth chart serves as a home based record for the child. Events such as the name, sex, date of birth, name and occupation of the parents, immunizations taken, diseases that afflicted the child etc are charted on the chart and kept at home. Such a record is therefore readily available for the health worker to peruse at any time it is required.

Oral Rehydration Therapy: Diarrhoea diseases are very common in childhood. It ranks amongst the top ten causes of morbidity and mortality in childhood. The most common cause of death is DEHYDRATION.

Oral rehydration therapy (ORT) is:

- Simple
- Cheap
- Efficient
- Appropriate
- Affordable
- Accessible
- Readily available
- Appropriate technology for the correction of dehydration in children with diarrhoeal disease.

In the clinic set up, the “Diarrhoea Case Management Chart” is available for the assessment, and management of the child who has diarrhea disease. The student has to avail himself of the opportunity to use this chart on all patients presenting with diarrhea disease. The chart is very comprehensive as it addresses other issues such as the 3 management principles of diarrhoeal management i.e. fluid therapy, feeding and follow up. The chart also specifies when there is need for referral in cases of diarrhea disease in children. All students must be familiar with the chart as it is contained

Breast Feeding: Breast milk is the most well adapted food for the newborn. It is cheap, readily available, affordable, accessible, acceptable and uniquely well adapted to the gut of the baby. A baby should be EXCLUSIVELY breast fed for the first 6 months of life. By exclusive breast feeding, we mean breast milk alone with no other food or water except prescribed drugs given to the child. Every hospital / clinic that takes care of children should have a breast feeding policy that spells out the steps to successful breastfeeding in infants as stipulated in Baby Friendly Hospital Initiative (BFHI). Exclusive breastfeeding has been found to reduce the incidence of diarrhoeal diseases, acute respiratory infections especially pneumonia as allergy related disorders. In women who have confirmed HIV infection, appropriate advice on infant feeding must be given to the mother in order to reduce the chances of HIV transmission through breast milk to the infant. Adequate information on affordable, accessible, sustainable and safe options to breast milk must be given. In all HIV positive women, mixed infant feeding must be discouraged as it has the highest chance for HIV transmission to the infant.

Immunization: This is the most cost-effective public health intervention known to date as it has reduced mortality and morbidity from the common childhood diseases in many developed and developing countries. . There is a National Programme on Immunisation (NPI) schedule for the proper immunization of children in this country, however there is a need for the health systems to be

strengthened in order to deliver the vaccines to all Nigerian children. The schedule is made in such a way that the mother maximizes the opportunity that is available to her to obtain the appropriate vaccine with minimal number of visits to the health centre. The immunization programme in Nigeria is under review and more vaccines are likely to be added in the nearest future.

The immunization is given as follows:

At birth	BCG + OPV ⁰ + HB ¹
6 weeks	OPV ¹ + DPT ¹ + HB ²
10 weeks	OPV ² + DPT ²
14 week	OPV ³ + DPT ³
6 months	HB ³
9 months	Measles + YF

key: BCG – Bacillus Calmette Guerin, OPV – Oral Polio Vaccine, DPT – Diphtheria, Pertussis, Tetanus, HB – Hepatitis B, YF – Yellow Fever.

Booster doses for DPT is recommended at preschool age of 15-18 months and again at school entry at about 5 years. A second dose of measles vaccination is also being advocated for general use at school entry. In those children who are known to be HIV positive, many of the vaccines are safe and advisable as natural diseases present higher risks

Nigeria has not introduced vaccination against Hib and pneumococcal diseases though these are now seriously being considered. Adolescent immunization programme has never been introduced in Nigeria but it is highly desirable especially for HPV and MMR vaccines.

Family Planning: There is the need for mothers to space their children. The mothers are introduced to family planning techniques that are available and beneficial to them. The advantages and disadvantages of the different methods

are explained to the mothers. See the chapter on family planning.

Female Education: Women need empowerment to be able to cope with the care of their children. An educated mother will be well informed to be able to take adequate care of her child. There is ample evidence on the improved survival of children born to educated mothers.

Food Supplementation: Children require adequate nutrition for their growth and development. There is therefore the need to provide these nutrients by supplementing the food of the children. Adequate nutritional education and advice including food demonstration is carried out in the Well Baby Clinic.

CHILDHOOD EMERGENCIES

Resuscitation: Children present with conditions in which cardiorespiratory resuscitation is required. The steps to take in an attempt to resuscitate the patient include (ABCDE of resuscitation):

- **A** for Airway – clear the airway by oropharyngeal suctioning
- **B** for Breathing – ensure the patient is breathing / ventilate the patient
- **C** for Circulation – ensure the heart is beating and the circulation is maintained
- **D** for Drugs – such emergency drugs include Adrenaline, Hydrocortisone, 50% glucose solution, 10% Calcium Gluconate, 8.4% Sodium Bicarbonate
- **E** for Examination – examine the patient for the identification of the possible cause of the problem and treat the condition appropriately
- **F** for Follow up – the need to continue to monitor the patient even after successful resuscitation
- **Prompt referral may be necessary. Avoid delays!!!**

FEBRILE CONVULSION

This is a common emergency condition in childhood that tasks the skill of the health care giver in a primary health care setting.

Febrile convulsion is defined as fever with convulsion in a child aged 6 months up to 6 years in whom an intracranial infection has been ruled out. Any febrile condition in children can lead to febrile seizures. Such conditions include: Malaria, Upper Respiratory Tract infections, Urinary Tract infections, Pneumonia etc.

Management: This is one condition in childhood in which treatment is commenced before a full history is taken. This is an emergency, and it should be treated as such

- Admit the patient
- Suction the oropharynx and clear the airway of secretions using a suction machine
- Give an anticonvulsant such as IM Peraldehyde 0.1ml/Kg or 1 ml / year of life up to a maximum of 5 mls. Rectal Diazepam could be given if available. IM phenobarbitone could be given at a dose of 10 mg/Kg loading dose, then 5 mg/Kg in two to three divided doses. Ensure a clear airway by constantly suctioning the patient.
- Ask for the history of administration of native drugs either orally or locally on the skin. If yes, pass a nasogastric tube and aspirate the gastric content / clean the child's skin.
- Tepid sponge the child and expose to fan to reduce the body temperature
- A proper history and examination is now taken to identify the cause of the fever. Such history will try to establish such ailments as Malaria, Urinary Tract Infection, Acute Respiratory Tract Infection, etc.
- The identified cause of fever is treated as appropriate: Malaria – ACT,, Infection – appropriate antibiotics.
- The patient is subsequently followed up.

ACUTE RESPIRATORY INFECTION (ARI)

Acute respiratory infection ranks amongst the top ten common diseases seen in childhood, and it's a common cause of fever in childhood. ARI contributes to the high morbidity and mortality amongst children in the rural and urban settings in this environment. Over 30% of deaths in children are due to ARI or its complications.

An infant would have between 3-8 episodes of ARI in a year.

Risk factors for ARI include malnutrition, inadequate breast-feeding, air pollution, overcrowding and low socioeconomic status.

ARI could be Upper respiratory tract infection or Lower Respiratory tract infection.

The common respiratory infections include: Pharyngitis, Tonsillitis, Otitis media (middle ear infection), epiglottitis, laryngitis, tracheitis, laryngotracheobronchitis, and lower respiratory tract infections e.g; bronchiolitis, pneumonia.

The common organisms causing ARI in childhood include Viruses (Respiratory syncytial virus, adenoviruses, rhinoviruses, Parainfluenza type I, Coxsackie viruses etc), Bacteria (Pneumococcus, Haemophilus influenza, Klebsiella, Staphylococcus).

- Acute bronchiolitis – caused by Respiratory Syncytial virus, adenovirus and parainfluenza virus. Superinfections do occur due to *H. influenzae*, *S.pneumoniae* and Staphylococcus. Commonly seen in 2 to 6 months infants and presents with runny nose, cough, fast breathing, low grade fever, chest wall recessions and wheezing.

Treatment is symptomatic. Keep the baby warm, give oxygen, increase fluid intake, increase feeding, antibiotic (Ampiclox, Amoxycillin) for super infection.

- Acute Epiglottitis – This is a medical emergency that requires a prompt and highly skilled attention of an experienced Paediatrician. Refer the child immediately

The causative organism is *Haemophilus influenza*. It is seen commonly in 2 to 6 years old, fever, cough, rapid progression of the disease with respiratory distress and stridor. There's marked neck retraction. The throat of the patient should not be examined because the patient could develop laryngeal spasm and die. The epiglottis is swollen and cherry red.

Treatment include admission, endotracheal intubation by the Anaesthetist, antibiotic (chloramphenicol / Amoxycillin / Ampicillin). Aspiration is very common, hence, feed cautiously.

- Pneumonia – Infants are at a higher risk of developing pneumonia than the older child. Common agents of pneumonia include: Viral agents as listed above, *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Chlamydia* in the young children, and gram-negative organisms.

There's cough, fever, fast breathing, retractions and some might be grunting. A respiratory rate > 50 per minute in those children < one year is tachypnoea, whilst it is RR > 40 per minute in those older than one year.

Steps for ARI case management as recommended by WHO:

Cough or difficulty in breathing	→	Yes	→	Very severe disease
Inability to drink, Convulsion				Refer (antibiotics, oxygen)
↓↓No				
Chest indrawing	→	Yes	→	
↓No				
Fast breathing	→	Yes	→	Pneumonia
(antibiotic)				
↓				
Cough / running nose	→	Yes	→	Cough or cold (home care)

Treatment include: adequate fluid intake, breast feeding, increased feeding, appropriate antibiotic (Amoxycillin / erythromycin, if gram negative organism is suspected add gentamycin injection).

DIARRHOEA DISEASE

Diarrhoea disease rank amongst the top ten causes of childhood morbidity and mortality. Over one billion episode of diarrhea occur yearly in children below the age of 2 years. Cause of death is usually DEHYDRATION and ELECTROLYTE imbalance. Malnutrition is a long term complication.

The advent of oral rehydration therapy has reduced the incidence of diarrhea.

Diarrhoea is a change in the consistency and increase in the frequency of stooling.

There are 3 types of diarrhea:

- i) **ACUTE** – diarrhea of acute onset lasting less than 14 days
- ii) **BLOODY** – Presence of blood in stool
- iii) **PERSISTENT** – diarrhea of acute onset lasting more than 14 days.

Causative agents of childhood diarrhea include:

Viruses – Rotavirus (most common accounting for 60% of the cases), Adenoviruses, Norwalk agent

Bacteria – Shigella, Enterotoxigenic Escherichia coli (ETEC), Enteroinvasive E. Coli (ETEC), Salmonella, Yersinia enterocolitica

Protozoa – Entamoeba histolytica, Giardia lamblia, Cryptosporidium (in immunocompromised patients).

Treatment: The main principles of treatment of diarrhea are:

- **prevention of dehydration,**
- **rehydration**
- **Feeding**
- **Follow up.**

Drugs are rarely indicated in the management of childhood diarrhea. The prevention of dehydration is achieved by the mothers starting oral rehydration

therapy (ORT) at home.

ORT is cheap, effective, efficient, readily available, affordable, acceptable and an appropriate technology that uses a normal physiologic process to correct a pathological situation. Normally Glucose is absorbed coupled with Sodium in the small intestine under an efficient active process, which is energy dependent, and water follows passively. The inflamed gut is still very efficient at carrying out this process, hence, the use of Salt / Sugar Solution in the correction of dehydration based on the basic principle enumerated above. The content of the ORS is such that the electrolyte that is lost is being replaced as appropriate. The ORS is isotonic with plasma, hence, it is suitable for the correction of all the different types of dehydration (isotonic, hypertonic, and hypotonic).

Home Based Fluids: these are fluids that are readily available and could be prepared at home and used for rehydrating the child as soon as diarrhoea commences at home. Such fluids include: SALT SUGAR SOLUTION (SSS), Plain Water, Gari water, Coconut water (green fresh coconut), Rice water etc. The child should continue to feed.

Rehydration: When the child presents at the health facility, the state of hydration is assessed using the “Case Management Chart” which is available in the centre. The level of dehydration is classified as

1. No signs of dehydration
2. Some Dehydration and
3. Severe Dehydration.

Those with No signs of dehydration are due for management at home using the Home Based Fluids whilst the mother is encouraged to continue to breast feed (if still breast feeding) or the child should continue to eat his usual food. The mother is also advised to bring the baby for follow up.

Those with Some signs of dehydration are to be managed in the ORT unit with oral rehydration solution prepared by the Nurse in charge of the unit. The ORS solution is made from commercially prepared oral rehydration salt

and the mother under the supervision of the health worker gives such to the child in the unit. The amount required is calculated using 75ml/Kg given over a period of 4 hours, thereafter, the child is reviewed and the hydration state will determine the next line of action (see the Diarrhoea Management Chart) Appendix...

Severe Dehydration: Those children with severe dehydration will require intravenous fluid therapy because ORT might not be able to meet up with the fluid requirements of the patient. IVF therapy is more expensive, requires a lot of skill and is time consuming. The caregiver would have to stay with the patient, thus losing useful man-hour. In severe dehydration, the patient has lost > 15% of his body weight as water. The patient therefore needs rapid replacement therapy to prevent the complications of Shock / Renal failure. See the Diarrhoea Management Chart (DMC) for the steps to take in achieving adequate rehydration of the patient. Normal saline or Ringers Lactate solution is the fluid of choice, and its given at 20ml/Kg over 1 – 2 hours. The patient is then reassessed to determine the degree of dehydration and appropriate step taken using the DMC.

The patient should be **referred** to a higher level of health care if the facilities for the care at this level are inadequate.

The use of antidiarrhoea drugs, antiemetic and antibiotics are discouraged. Antibiotic is indicated only when there is blood in the stool or there is laboratory evidence of a bacterial infection.

MALARIA

Malaria accounts for a high morbidity and mortality in childhood. It ranks among the top three diseases of childhood that kills the children. Malaria is caused by infection with the malaria parasite *Plasmodium falciparum*, *P vivax*, *P ovale* and *P malariae*. The most common specie of *Plasmodium* causing disease in this environment is *P falciparum*. The parasite is injected into the body through the bite of a female *Anopheles* mosquito. Other rare mode of

acquisition are; transplacental, and through blood transfusion. Malaria is classified as:

- Uncomplicated malaria
- Severe malaria

Clinical manifestations: Uncomplicated malaria is characterized by fever, body pains, headache, sweating, vomiting, cough, abdominal pain, diarrhea, loss of appetite, rigors and weakness.

Treatment of uncomplicated malaria include: ACT, Paracetamol at 10mg / Kg 8 hourly, tepid sponging if the child is febrile and axillary T >39°C, encourage feeding. The parenteral route (subcutaneous) could be used if the patient is vomiting and cannot tolerate orally.

If the patient is not responding to treatment, REFER to the next level of care.

Severe malaria include:

- Cerebral malaria – unarousable coma with asexual parasitaemia with exclusion of other encephalopathies
- Hyperparasitaemia – asexual forms of P falciparum in excess of 5% of erythrocytes
- Severe Anaemia – Haemoglobin < 7mg/dL
- Shock – low blood pressure with fast thready pulse
- Renal failure
- Hypoglycaemia < Random sugar level below 2.5mmol/L
- Coagulation disturbances – bleeding tendencies

All diagnosed cases of severe malaria should be referred to the next level of care. Such cases are however to be given initial management for malaria including the provision of Glucose before referring the patient and administer the first dose of IM Arthemeter. Urgent referral is needed for the patient to reach a centre where IV artesunate can be given.

MALNUTRITION

Balanced diet is one that contains carbohydrate, protein, fat, vitamin, minerals and trace elements in the appropriate quantities and densities. Children require more calories and the nutrients compared to adults because of their increased activity and the fact that they are actively growing.

Daily requirements of the nutrients are:

- Calories: 80 -120 kcal/Kg per day
- Protein: 1 – 2gm/Kg per day

Fat is an energy dense substrate that contribute 20 to 40% of the energy requirements, whilst carbohydrates constitute a larger proportion of the bulk of the food.

Assessment of nutritional status

This could be done using anthropometric measurements, clinical signs, and biochemical studies.

Anthropometric measurements include: Weight, Height, Head / Chest circumference ratio, Mid Upper Arm circumference (MUAC), Ponderal index.

Clinical signs: such features of malnutrition and vitamin deficiencies

Biochemical studies: Assessment of Protein levels especially Albumin, Vitamin levels, Trace elements.

Classification of Malnutrition: Malnutrition is classified using the WELLCOME classification.

Weight	Oedema	Diagnosis
60-80% of expected	present	Kwashiokor
< 60% of expected	present	Marasmic
Kwashiokor		
< 60% of expected	absent	Marasmus
60 – 80%	absent	Underweight

Clinical features of Kwashiokor: pedal oedema, brown brittle sparse straight hairs, moon face, anorexia, not interested in the environment, hepatomegally,

hypothermia and hypoglycaemia

Marasmus: wasted, dry wrinkled skin. Sparse fluffy hair, thin limbs, hungry looking, no hepatomegaly

Marasmic Kwashiorkor: combination of the features.

Treatment of malnutrition: Three factors are usually at play in malnutrition i.e. IGNORANCE, POVERTY and DISEASE. Efforts should be made to identify the factors contributing to malnutrition in the child.

The main management principles are: RESUSCITATION, CONSOLIDATION and **REHABILITATION**.

Resuscitation: At presentation, the patient is usually very sick and may be dehydrated and in shock. The initial management therefore include:

Rehydration: Correct the fluid loss by giving Normal saline at 20mls/Kg body weight intravenously.

Correct electrolyte imbalance: Acidosis – give Sodium bicarbonate at 1-2 Meq/Kg (half double diluted given IV, and the remaining added to the total fluid over 24 hours). Hypokalaemia – add Potassium chloride to the drip at 1-2Meq/Kg given over 24 hours.

Hypothermia is a serious problem – keep warm

Correct hypoglycaemia by giving 10% glucose infusion.

Consolidation: The patient is investigated by taking a good history, examination and investigated. Such investigations include a Full blood count, urine, stool and blood culture, and a Chest X-ray. This is to identify the cause(s) of malnutrition and the complications of the condition. The identified problems are then treated: infections – appropriate antibiotic, nutritional deficiencies – supplement, ignorance – educate the mother.

Rehabilitation: This is achieved through 1. Nutritional education - the mothers / parents are educated on the type of food to give the child, how to source it, how to prepare it, and how to give it, 2. Nutritional demonstration: The mothers are taught how to use the locally available foodstuffs to prepare highly enriched

and nutritious meals. The mothers participate fully in the preparation of the food and they are actively involved in the serving of the food and active feeding of their babies. Also, the forum serves as an opportunity for the mother to interact with the health giver concerning the nutritional needs of the baby.

NB. Severe cases of malnutrition need referral to specialist centres in order to reduce deaths,

MEASLES

This is a major cause of morbidity and mortality in the tropics. It accounts for over 840,000 deaths in childhood each year globally. The virus belongs to the paramyxovirus group, and the infection is spread by droplet inhalation. The infectious stage is the catarrhal stage through 3 days after the appearance of the rash.

Clinical manifestations include: Most cases are seen in children below the age of 5 years with the peak between 18 to 24 months, though, recent reports show it occurring in the older children. Incubation period is 10-14 days. Fever and running nose precede the appearance of the rash. Cough, loss of appetite and conjunctivitis may occur. Koplik's spots (grayish whitish spots with reddish areolar seen opposite the lower molars) precede the rash by 2-3 days. The rash is maculopapular erupting behind the ears and spreading to the face, cheek and the abdomen.

Complications of Measles;

- Respiratory – Pharyngitis, Laryngitis, Croup, Bronchopneumonia, Pneumothorax, Subcutaneous emphysema, exacerbation of Tuberculosis
- Eye – Conjunctivitis, keratitis, corneal opacity
- Gastrointestinal – Diarrhoea, malnutrition, Vitamin deficiency, oral thrush
- Central Nervous system – Encephalitis, Subacute Sclerosing Pan Encephalitis (SSPE) which is a late complication.

Treatment is symptomatic. Vitamin A given orally or parenterally has been found to be useful in the management of patients with Measles. Ensure adequate hydration, give appropriate antibiotics, give adequate calories, 1% Chloramphenicol eye drop for conjunctivitis.

All mothers who have children with measles must receive counselling on immunization, nutrition and prevention of common illnesses such as diarrhea.

Anaemia

Check all children for clinical pallor by examining the conjunctiva and palms and soles. Always look at the lips and buccal mucous membrane for pallor. If the child is pale, the child should be referred for investigation and further management.

Adolescent care

All adolescents presenting at the clinic should be assessed for acute illness, but also evaluated for health risk behaviour such as unprotected sex, drug abuse and eating disorders. Early intervention and referrals may be beneficial in curbing adult related problems and diseases.

MATERNAL HEALTH COMPONENT

Revised by

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INTRODUCTION

This manual is written as a guide for 500 level medical students on their COBES posting. The COBES posting at 500 level focuses on maternal and child health. The posting is expected to serve as a foundation for the acquisition of knowledge and skills with respect to maternal and newborn health.

Pregnancy is a normal physiological process and The Maternal Health component of this manual aims to provide information on best practice for clinical care of the pregnant woman throughout the period of pregnancy. It also highlights some common obstetric and gynaecological pregnancy related emergencies and how to manage them.

Aim

To expose students to rural obstetric and gynaecologic practice

To provide basic knowledge on care of the pregnant woman

To build on the knowledge and skills acquired during the 1st and 2nd Ob-Gyn postings.

To apply the theoretical knowledge and practical skills previously gained during the Obstetrics and Gynaecology postings (1 and 2) to the community at large

To enable students recognize Obstetric and Gynaecologic emergencies and how to deal with them

Coverage/scope of posting

Students are expected to participate in

1. The provision of antenatal care services
2. The provision of Essential obstetric care
3. The provision of intrapartum and postnatal care

Management of emergency Obstetric and Gynaecological conditions such as antepartum haemorrhage, postpartum haemorrhage, pre-eclampsia/eclampsia, cord prolapse, shoulder dystocia, complicated labour and delivery, ruptured ectopic pregnancy, miscarriage etc.

Provision of Family Planning Services.

Students Distribution

Students will be divided into groups to cover the entire scope of obstetric and gynaecologic services provided at their posting sites. These will include antenatal clinic, family planning clinic, Ob-Gyn emergency duty, antenatal and postnatal wards, labour ward and immunization clinic.

Each student is expected to participate actively under the supervision of the clinical staff at the posting site, and their COBES Supervisor.

ANTENATAL CARE SERVICES

Antenatal care is a specialized form of care organized for pregnant women to enable them attain and maintain a state of good health throughout pregnancy and to improve their chances of having safe delivery of healthy infants at term.

It involves a thorough initial assessment to determine the level of risk faced by the mother and the fetus, and continuing follow up care right through the duration of pregnancy.

The main objectives of antenatal care are to

- ▶ Promptly detect, modify or manage pre-existing conditions or risk factors that may adversely influence the course and outcome of pregnancy and delivery (eg hypertension, diabetes mellitus, renal disease etc.
- ▶ Prevent, detect, alleviate, or manage health problems during pregnancy that affect mothers and babies i.e. complications of pregnancy itself e.g. pre-eclampsia/eclampsia, gestational diabetes mellitus etc.
- ▶ Provide health education on the events of pregnancy, labour and puerperium, recognition of danger signs during pregnancy and in the puerperium, birth preparedness and complication readiness
- ▶ Provide immunization and chemoprophylaxis against common diseases that may influence maternal or fetal wellbeing and pregnancy outcome

The main objectives of the Antenatal care service being provided are to

1. Provide high quality and safe antenatal care for all women
2. Ensure all women have a risk assessment and are thus categorized into risk groups in order to attempt to quantify the potential level of risk faced by the woman in going through the pregnancy and possibly determine the appropriate place of birth.
3. To provide clear guidance on risk assessment in order to identify women with risk factors who may need additional care and possible referral to a higher level of care. It is important to note that this is just a guide as complications may occur in so called “low-risk women” and women categorized as ‘high risk’ may go through pregnancy without experiencing any complications.

Note: Risk assessment is a continuous process. Women with known risk factors at booking or those who develop risk factors during pregnancy may require additional care. ^[1]_{SEP}

4. To ensure complication readiness and emergency preparedness in order for the pregnant woman to be prepared to deal with complications of pregnancy or other emergencies that may ensue during the course of the pregnancy
5. To outline a birth plan

The medical students should participate in categorizing the antenatal patients into low-risk and high-risk patients using the checklist below:

High risk patients

- Bio-demographic risk factors e.g. age < 18 or > 35 years
- Physical risk factors e.g. short stature, pelvic deformities, obesity
- Risk factors in current pregnancy e.g. Grandmultiparity, primiparity, multiple gestation, breech presentation, rupture of membranes, preterm contractions, prolonged pregnancy, antepartum haemorrhage, reduced fetal movements, gestational diabetes mellitus, hypertensive disorders in pregnancy, small for dates uterus
- Risk factors in past pregnancies e.g. Previous intrauterine fetal demise, previous still birth or neonatal death, recurrent miscarriage, Rhesus negative mother, prior Caesarean section,
- Previous myomectomy
- Risk factors in medical history i.e. coexisting chronic medical disorders (e.g. renal disease, cardiac disease, seizure disorders, sickle cell disease, pre-existing diabetes mellitus),
- Note: All high risk patients should be referred to a center with facilities to provide appropriate care for the mother and newborn.

ANTENATAL VISITS

The booking visit is the first contact between a pregnant woman and her health care provider. At this visit, the health care provider takes a detailed history, examines the pregnant woman and requests for certain investigations. Health talks should also be given to pregnant women at the booking visit and also at each subsequent visits. These helps to educate the pregnant woman about pregnancy, labour and delivery as well as care of the newborn. It is also an avenue to dispel some myths that may be associated with pregnancy. The medical student should find out the local taboos or myths surrounding pregnancy in the community of his COBES posting.

History

A detailed personal data is obtained. This should include the woman's age, occupation, religion, marital status and address. History of index pregnancy is also obtained. This should include the first day of the woman's last menstrual period (LMP). This is used to calculate her Expected date of delivery and the estimated gestational age. It is important to enquire about the course of the pregnancy so far including any illnesses, medications used, and investigations performed.

The past obstetric history should include the history of all previous pregnancies, including the course of pregnancy and delivery, any complications that occurred during the period as well as the information regarding the baby, including sex, birth weight and whether alive or dead. Gynaecologic history should include age at menarche, menstrual cycle, contraceptive use and any other relevant gynaecologic information.

A general medical history should include history of chronic medical illnesses (e.g. hypertension, diabetes, sickle cell disease etc.), previous surgery as well as

any medications she is currently using. A family and social history are also obtained.

At each subsequent visit, enquiries should be made about the pregnant woman's general health and wellbeing and also to find out if she has any concerns or complains. Also enquire about use of routine antenatal medications, and if she is experiencing fetal kicks.

Physical examination

This should be performed after obtaining a comprehensive history. It should include a general examination, an abdominal examination as well as any other systemic examination that may be indicated based on the history. General examination should include the woman's height and weight. Blood pressure should be measured at each visit.

Symphysiofundal height should be measured at each visit and determine its compatibility or otherwise with the woman's gestational age. If a difference of >2cm exists between the symphysiofundal height measurement and the woman's estimated gestational age, she will benefit from further evaluation and should be referred for an ultrasound to determine the cause of the discrepancy.

In advanced pregnancy, the fetal lie and presentation should be determined. If any doubts exist about the lie or presentation, the woman should be referred for an ultrasound.

Investigations

Routine antenatal investigations should be performed for all women at the booking visit. These include the packed cell volume/haemogram, haemoglobin genotype, blood group & Rhesus typing, Venereal Disease Research Laboratory test and urinalysis. An abdominopelvic ultrasound should be performed if

available. Patients should also be offered counselling and testing for HIV and Hepatitis B and C. Any woman who tests positive to any of these viral infections should receive post-test counselling and referral for antiretroviral drugs for Prevention of mother to child transmission (PMTCT) of HIV, if HIV positive or counselling on the need for the baby to receive hepatitis B immunoglobulin at birth, and hepatitis B virus vaccination if Hepatitis B positive. At subsequent antenatal visits, investigations may be requested for as deemed necessary.

Medications/immunizations

All pregnant women should be placed on routine prophylactic haematinics. Commonly used is 200mg of ferrous sulphate and 5 mg of folic acid daily. This should be continued until 6 weeks postpartum.

All pregnant women should be given Intermittent Preventive Therapy (IPT) for malaria using 3 tablets of sulphadoxine-pyrimethamine. Two courses of this should be given. The first course should be commenced after she has experienced quickening and the second course given not less than 4 weeks afterwards. It should be noted that Sulphadoxine–pyrimethamine is contraindicated in the first trimester as well as during the last 4 weeks of pregnancy. HIV positive patients should receive 3 courses of IPT also commenced after quickening and excluding the last 4 weeks of pregnancy.

Patients with Sickle cell disease can continue using daily paludrine tablets instead of IPT with sulphadoxine pyrimethamine.

Other drugs may be prescribed as deemed necessary. It is important to ensure that drugs that are prescribed for pregnant women are safe for use during pregnancy. The pregnant woman should also be counselled against indiscriminate use of drugs.

All pregnant women should receive tetanus immunization. The schedule for tetanus immunization is as follows:

TT1 (1st dose): given at first contact preferably after 16 weeks of pregnancy

TT2 (2nd dose): given 4 weeks after TT1

TT3 (3rd dose): given 6 months after TT2

TT4 (4th dose): given 1 year after TT3

TT5 (5th dose): given 1 year after TT4

Visit Schedule:

Low risk patients should be seen every 4 weeks until the 28th week, fortnightly until the 36th week, and weekly until the onset of labour. High risk pregnant women should be seen more frequently.

If complications arise, these should be assessed and managed or referred as appropriate.

For patients being referred, it is imperative to always write a detailed referral letter stating the patient's history, examination findings and the care that had been given prior to referral.

At each subsequent follow up visit, Health education, physical examination and basic investigations should be provided.

MANAGEMENT OF SOME COMMON OBSTETRIC CONDITIONS

Common Obstetric conditions in our environment are highlighted below. It takes into cognisance the environment the students will be training i.e. primary or secondary health facilities with little or no laboratory back up.

Post-term and Prolonged pregnancy

A pregnancy is said to be term when it is between 37-42 weeks of gestation. As pregnancy advances beyond the expected date of delivery, the risk of perinatal morbidity and mortality increases. Post term pregnancy is a pregnancy that lasts 42 weeks or more from the first day of the last menstrual period.

The commonest cause of prolonged pregnancy is wrong dates hence it is important to be ensure the pregnancy is properly dated. In women unsure of their last menstrual period, a 1st or 2nd trimester ultrasound can be used to date the pregnancy.

Ideally, a pregnancy should not be allowed to go beyond 42 weeks gestation. Thus, induction of labour is usually offered to women after the 41st week of gestation but before 42 weeks (>41 - <42 weeks gestation). Induction of labour should be performed in a facility that is equipped to perform a Caeseran delivery hence if there is no facility or manpower for Caesarean delivery, women with prolonged pregnancy should be referred to a higher level facility.

PRE-ECLAMPSIA

A clinical condition characterized by hypertension and proteinuria with or without oedema occurring after 20 weeks of pregnancy

Diagnosis: This occurs after 20 weeks of gestation

1. Hypertension

- BP $\geq$ 140/90 mmHg on two occasions 4-6 hours apart
- Systolic BP 160 mmHg single reading
- Diastolic BP 110 mmHg single reading
- Rise in DBP by $\geq$ 15 mmHg
- Rise in systolic BP by $\geq$ 30 mmHg

2. Proteinuria ++ or more
3. With or without oedema

Mild Pre-eclampsia (Diastolic BP < 110 mmHg)

Severe Pre-eclampsia DBP $\geq$ 110 mmHg

Management

Principles of management of pre-eclampsia are

- Control hypertension
- Prevent fits
- Deliver the baby by the safest and fastest route.

In Mild pre-eclampsia, refer immediately.

In Severe pre-eclampsia, before referring, perform the following actions

- Obtain an intravenous access
 - Give the following to lower the blood pressure if available
 - Intravenous hydralazine 10mg slowly over 10 minutes
 - To prevent convulsion, give either of the following if available
 - Magnesium sulphate; loading dose of 10g intramuscularly; (5g into each buttock OR
 - Intravenous diazepam 10mg stat
- Note: Do not give Magnesium sulphate in the following situations
- Absent knee jerk reflex
 - Urinary output < 25ml/hr
 - Respiratory rate < 16 breaths /minute

Always evaluate properly prior to referral. If delivery is imminent, it may be expeditious to take the delivery so the woman does not deliver while on transit to the referral health facility.

IMMINENT ECLAMPSIA

Clinical Presentation:

Throbbing frontal headache, tightening of the chest, epigastric pain, oliguria & diplopia in addition to diagnostic criteria for pre-eclampsia.

Management – As in eclampsia

ECLAMPSIA

Generalised convulsion in a pre-eclamptic patient that has no previous neurological problem

Management

Apply the ABCD approach

- Assess the **A**irway; clear secretions by suction if necessary, introduce an oropharyngeal airway; place in recovery/ left lateral position
- Assess **B**reathing; give oxygen if available
- Assess **C**irculation: Pulse, blood pressure, level of consciousness.
 - Set an intravenous line
- **D**rugs
 - Give loading dose of Magnesium sulphate 4g in 100 mls of normal saline given slowly over 10-15 minutes followed by maintenance dose in the form of either

5g into each buttock intramuscularly or 10g in 1 liter of intravenous fluid and allow to run at 30 drops per minute.

- If Magnesium sulphate is not available, give i/v Diazepam 10mg slowly

➤ Note: Do not give Magnesium sulphate in the following situations

- Absent knee jerk reflex
- Urinary output < 25ml/hr
- Respiratory rate < 16 breaths /minute

- Assess whether vaginal delivery is likely to proceed quickly, if not, refer immediately

Note:

- Remember to write a detailed referral note indicating what intervention has been performed including any drugs administered.
- In view of toxicity to Magnesium sulphate, remember the rule of 10's i.e. give intravenous 10 mls of 10% calcium gluconate over 10 minutes.

PRETERM LABOUR

Labour occurring after the age of viability (28 weeks in this environment) but before 37th complete week of gestation

Diagnosis

- Uterine contractions (abdominal pain)
- Cervical effacement & dilatation
- Show
- Sometimes symptoms of the predisposing factor such as fever, dysuria (malaria and urinary tract infection are some of the factors that can predispose to preterm labour.

Management

- Refer all cases of preterm labour

Footnote: All preterm babies should be referred to neonatal intensive care unit.

What to do in advanced preterm labour

If patient presents in advanced preterm labour and delivery is imminent, proceed to take the delivery then transfer mother with the baby placed in Kangaroo position (skin to skin with mother and wrapped up warmly) to a facility with a neonatal intensive care unit.

PREMATURE RUPTURE OF MEMBRANES

This is said to occur when there is rupture of membranes (liquor drainage) occurring before the onset of labour

Confirmation:

Pass a sterile speculum and observe for egress of fluid from the cervix, pooling of fluid in the posterior fornix

Management

Commence antibiotics (erythromycin tablets) and refer immediately if less than 37 weeks. If pregnancy is term, consider stimulation of labour.

CAUSES OF ABDOMINAL PAIN IN PREGNANCY

Causes unrelated to the pregnancy

- Acute appendicitis
- Pyelonephritis
- Lobar pneumonia (lower lobe)
- Urinary Tract Infection
- Renal Stones
- Peptic ulcer disease
- Cholecystitis
- Abdominal pain in Sickle Cell Disease
- Intestinal obstruction

Uterine/Foeto-placenta Causes

- Preterm labour
- Abruption placenta
- Complicated fibroid (Red degeneration, torsion)
- Painful Braxton – Hicks contractions

Management...depends on cause

Refer immediately to next referral centre

ANTEPARTUM HAEMORRHAGE

Bleeding per vaginam occurring at any time after 28th week of pregnancy and before the birth of the child.

ABRUPTIO PLACENTA (accidental haemorrhage) is uterine bleeding occurring as a result of premature separation of a normally sited placenta. This may cause revealed or concealed haemorrhage. It is an obstetric emergency and a threat to the life of the mother and fetus.

Clinical Presentation: usually depends on the degree of haemorrhage

- Vaginal bleeding (revealed in 2/3rd of patients and concealed in 1/3rd)
- Abdominal pain
- Palor
- Signs of hypotension
- Woody hard and tender uterus
- Difficulty in feeling the foetal parts
- Foetal distress/foetal death may occur
- Vaginal examination should be avoided by students

Management

Treatment is immediate delivery. Route of delivery is determined by condition of the fetus and the mother. Note that patient is at high risk for postpartum haemorrhage

Ensure intravenous access with wide bore cannula and commence normal saline if available before referring

PLACENTA PRAEVIA

Is said to occur when the placenta is partially or wholly attached to the lower uterine segment

Clinical Presentation

Painless vaginal bleeding that is usually preceded by warning haemorrhage

(small quantities of haemorrhage at earlier gestational age)

Abdominal examination findings include

soft and non-tender uterus,

abnormal lie,

- foetal parts are palpable,
- foetal head is usually floating (not engaged)

and foetal heart sounds are present.

Vaginal examination should be avoided so as not to provoke haemorrhage.

Management

Refer all cases of vaginal bleeding in pregnancy.

ANAEMIA IN PREGNANCY

Packed cell volume of 30% or less.

Management

Management depends on gestational age and severity

■Mild anaemia: PCV 25 – 29 % - Give double dose haematinics (Fersolate tablets 200mg b.d. and folic acid tablets 5mg daily). If the PCV remains less than 30% - after 2 – 4 weeks of treatment, then refer.

■Moderate anaemia: PCV 19-24

■Severe anaemia: PCV $\leq$ 18

Attempt to identify the cause of anaemia;

- FBC + peripheral blood smear
- Genotype
- Blood film for malaria parasite/ Rapid diagnostic test for malaria
- Stool microscopy for ova of parasite

Treat any identified cause as appropriate.

Refer all cases of moderate or severe anaemia.

Normal LABOUR

- Diagnosis
- Drainage of liquor
- Show
- Regular uterine contraction which manifests as regular, rhythmic abdominal pain of increasing intensity and duration
- Cervical effacement and dilatation.

Management

Ensure all women in labour are monitored with the aid of a Partograph

The Partograph helps to assist/guide the students in the management of labour for early identification of delay in labour, prompt intervention and referral of complicated cases

Students should be familiar with active management of third stage of labour

Medical students should not use Oxytocin infusion on parturient without the knowledge/consent of the medical officer in charge

Placenta should be delivered by control cord traction.

Active management of third stage of labour (AMTSL) consists of interventions designed to facilitate the delivery of the placenta and prevent postpartum haemorrhage from uterine atony.

Components of AMTSL

- Administration of uterotonics within 1 minute of delivery after ruling out the presence of another baby (10 iu oxytocin)
- Clamp and cut the cord
- Delivery of the placenta by controlled cord traction

- Massage the uterus every 15 minutes for 2 hours

OBSTRUCTED LABOUR

Inability to achieve vaginal delivery despite adequate uterine contraction due to a mechanical factor and delivery is impossible without assistance

Clinical Presentation

- Difficult/prolonged labour
- Offensive liquor drainage.
- Tiredness, fever
- Examination: Pyrexia, Dehydration, Tachycardia
- Abdominal Examination
 - In primigravida, the uterus is tense.
 - Cessation of contraction in multigravida suggests uterine rupture.
 - The cause of obstruction may be detected during abdominal examination such as abnormal lie and macrosomic foetus.
 - The foetal heart may be normal or abnormal (foetal tachycardia FHR > 160b/min, bradycardia FHR < 120b/min or absent).

Vaginal Examination

- Offensive vaginal discharge/liquor
- Vulva oedema, cervical oedema
- Severe caput and moulding
- Contracted pelvis will be revealed

Management

- Initial resuscitation - commence IV fluid (normal saline)
- Nil per oris
- Commence IV antibiotics

- Refer.

RUPTURED UTERUS

Life threatening emergency

Clinical Presentation:

Sudden severe abdominal pain, vaginal bleeding, dizziness

Severe palor, features of cardiovascular collapse

Grossly distended abdomen

Cessation of uterine contraction

Foetal distress/demise and foetal parts are easily felt per abdomen

Management

- Set up IV line, then refer if there are no facilities/manpower for surgery at the health care facility

PRIMARY POSTPARTUM HAEMORRHAGE

Bleeding per vaginam of 500mls or more occurring within 24 hours of vaginal delivery, or bleeding of 1000 mls or more occurring after a Caesarean delivery

Prevention of PPH can be achieved with active management of the third stage of labour which involves the following steps

Give 10iu oxytocin within 1 minute of delivery of the baby

Clamp and cut the umbilical cord

Deliver the placenta by controlled cord traction

Institute uterine massage

Causes of Post-Partum Haemorrhage (4T's)

- Tonus; Uterine atony is the commonest cause
- Tissue (retained placental tissue)
- Trauma (genital tract laceration)

- Thrombin (Disseminated intravascular coagulopathy)

Management

- PCV, Blood Grouping and Cross matching of blood
- Set up intravenous normal saline with a wide bore cannula
- Massage the uterus
- Repeat 10 iu oxytocin bolus intravenously
- Add 40units of Oxytocin to 500mls of intravenous fluid to run at 30 DPM
- Pass indwelling urethral catheter to empty the bladder
- Pass 800 micrograms of Misoprostol into the rectum
- Examine the placenta for completeness.
- If bleeding persists, examine the genital tract for laceration (perineal or cervical)
- If bleeding continues, perform a bimanual compression, and apply a balloon tamponade
- If bleeding continues, despite the above, patient will benefit from Examination under anaesthesia and any of the below measures as indicated
- evacuation of retained placental tissue
- Repair of perineal or cervical lacerations if present
 - Uterine packing
- If bleeding persist after 15 – 30 minutes of performing above measures, refer patient to the next referral centre.

RETAINED PLACENTA

A placenta is said to be retained if after 30mins of delivery of the child, the placenta is not delivered.

Management

Set up 20 units of oxytocin in 500 ml of fluid

Refer

Footnote: Students are advised to follow up all referred patients and participate in their management

ECTOPIC PREGNANCY

Implantation of a fertilized ovum at a site other than the uterine endometrium

Clinical Presentation

History of

- amenorrhea
- Severe lower abdominal pain
- vaginal bleeding; usually minimal
- syncope

Examination findings

- Palor,
- Increased pulse rate and decreased blood pressure (dependent on extent of intra-abdominal haemorrhage)
- abdominal tenderness, guarding and rebound tenderness
- Tender adnexal mass and cervical excitation tenderness may be present.

Management

Set up normal saline infusion

Refer

FAMILY PLANNING SERVICES

Students should participate in rendering family planning services especially counselling, insertion and removal of intrauterine device (IUCD) and implants under the supervision of the medical officer or Nurse/Midwife. Patients should be properly evaluated before placing them on contraceptives.

Some methods of contraception that may be available at this level of health care are.

Male Condom

The latex rubber sheath is rolled onto the erect penis

It also protects against STI and HIV transmission.

Female condom

Protects against pregnancy and STI

Is inserted into the vagina prior to coitus

Combined Oral Contraceptive (Combined pill)

It is a reliable contraceptive method when taken regularly.

It contains both oestrogen and Progestogen

Each pack contains 21 active pills and 7 inactive pills

A pill is taken each day for 28 days

Side effects include nausea, headache, weight increase, discomfort in the breast

Continuous Oral Progestogens (Mini pills)

It contains a small dose of one variety of progestogen.

The side effect is irregular vaginal bleeding.

Injectable

Long acting progestogen preparations e.g. Depo provera (Medroxyprogesterone acetate). 150mg is administered intramuscularly every 3 months.

Norethisterone oenanthate 200mg intramuscularly every 2 months.

Cyclofem is a combined monthly injectible contraceptive.

The side effects include irregular vaginal bleeding and amenorrhea.

Intrauterine Contraceptive Device (IUCD)

Copper T is common and readily available.

Technique of Insertion:

Time of insertion: During menstruation

Complications: Menorrhagia, expulsion, infection, translocation, uterine perforation.

Contraindications: Existing pelvic inflammatory disease (PID), abnormal uterine bleeding and Pregnancy. Cardiac lesion that carries a risk of bacterial endocarditis is a relative contraindication.

Emergency Contraception

These are aimed at preventing implantation in women who have been exposed to unprotected intercourse during the fertile time of the cycle.

2 tabs containing 0.05mg Ethinylloestradiol and 0.5mg Dinorgestrel taken within 72 hrs of exposure and repeated in 12hrs (Eugynon or Ovran)

Copper containing IUD inserted within 5 days of intercourse

Footnotes: Patients with diabetes, hypertension, obesity and liver disease should be referred

CERVICAL SCREENING TEST

Should be offered to all women

Patients with vaginal discharge

Patients for contraception should be counselled for the test

Options include a Pap smear or Visual inspection with acetic acid (VIA), Visual inspection with Lugol's iodine (VILI).

Facilities for Pap smear are unlikely to be available at peripheral centres hence VIA or VILI can be performed and suspicious cases referred

EARLY PREGNANCY BLEEDING

THREATENED ABORTION

Diagnosis

- Amenorrhea
- Vaginal bleeding
- Closed cervix

Management

- Set up IV fluid
- Refer

INEVITABLE ABORTION

Diagnosis

- Amenorrhea
- Vaginal bleeding
- Cervical os $\geq$ 3cm dilated Or
- Liquor drainage

Management

- Set up IV fluid
- Perform manual vacuum aspiration if facilities and skilled personnel are available
- If not, Refer

INCOMPLETE ABORTION

Diagnosis

- Amenorrhea
- Vaginal bleeding
- Some products of conception have been expelled
- Cervix is dilated on vaginal examination

Management

Set up IV fluid

Perform manual vacuum aspiration if facilities and skilled personnel are available

If not, refer

SEPTIC ABORTION

Diagnosis

May follow induced or spontaneous abortion

Lower abdominal pain

Vaginal discharge (foul smelling)

Fever

Cervical excitation tenderness

Management

Commence intravenous antibiotics and Refer immediately

(MODULE ON NUTRITION)

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INTRODUCTION

What is Nutrition?

“Nutrition is the science that studies foods and how food nourishes our bodies and influences our health.”

In a country where the classical nutritional deficiency syndromes are still very common, we cannot afford to overlook or ignore the subject or nutrition issues that are of primary public health concern. Thus, Public Health Nutrition is that applied branch of human nutrition, which tends to bring about a change in the eating habits of people living within a community, with a view to bringing about the prevention and cure of nutritional diseases. Therefore, this text will focus on the various forms of malnutrition, risk factors, clinical presentation, management as well as prevention.

What is Food?

Food is any substance (solid or liquid) which when ingested, provides the necessary raw materials for the structure and functions of life, thus enabling the body to carry out its life's functions. Foods are the complex substances that make a variety of nutritive contributions to the diet of an individual and should be evaluated in terms of their total composition and not only for single nutrients for which they may be outstanding. On the other hand, no single foodstuff, except perhaps the breast milk in the first few months of life, can provide a complete diet.

Food Groups

The following are the identified food groups

Food groups	Examples
Milk	Breast-milk, Powdered milk, Evaporated/ Condensed milk, Skim milk, Fresh (Cow, Goat) milk, Cheese, Yogurt and Ice cream.
“Meat”	(a) Beef, Goat meat, Bush meat, pork etc (b) Poultry products (c) Fish and other sea foods (d) Edible insects (e) Legumes and nuts
* Cereal	Maize, Guinea-corn, Millets, Wheat, Rice etc.
Fruit/Vegetable	(a) Mango, Orange, Pawpaw, Cashew, Pineapples, Tomatoes etc (b) Spinach and Cabbage, Carrots, lettuce.
Tuber/Fleshy fruit	(a) Yam, Cassava, Coco-yam, Sweet potatoes (b) Plantains, Bread fruits etc
* Notes: This constitutes about 50% of the proteins and valuable amounts of micronutrients	

Food Groups



Table 1: Proximate Composition of Some Popular African Foodstuffs*

Food Item (100 g)	Proteins (g)	Carbo. (g)	Fats (g)	Ca (mg)	Fe (mg)	Ribo. (mg)	Niacin (mg)
Human Milk	1.1	9.1	3.1	30	0.2	0.04	0.2
Con. Milk	7.0	10.0	8.0	260	0.2	0.32	0.21
Egg (Hen)	11.8	0.6	9.6	45	2.6	0.35	0.3
Beef (mod. fat)	18.2	0.0	17.7	11	3.6	0.15	4.5
Pork (lean)	14.0	0.0	35.0	10	2.0	0.20	4.0
Goat Meat	16.0	Trace	9.0	11	2.5	0.35	5.0
Chicken	19.0	Trace	7.0	15	1.5	0.15	9.0
Fish (Mackerel)	19.0	Trace	10.0	30	1.5	0.20	7.0
Fish (dried)	63.0	Trace	6.3	3000	8.5	0.20	6.0
Snail	12.0	4.0	2.0	1500	8.0	0.05	1.3
Crab	18.0	1.5	1.5	100	5.0	0.10	2.5
Termites	10.0	Trace	12.0	12	1.0	5.97	5.8
Dried Caterpillars	52.9	16.9	15.4	185	2.3	1.30	6.0
G'Nuts (toasted)	23.2	23.0	44.8	49	3.8	0.14	15.5
Cowpeas	22.5	61.0	1.4	104	7.6	0.09	4.0
Ferm. Loc. Beans	32.8	23.6	26.4	274	33.0	0.61	2.4
Soya Beans (raw)	33.7	33.9	17.9	183	6.1	0.25	2.0
Melon Seed	25.8	15.1	49.7	53	7.4	0.12	1.4
Bread (white)	8.6	50.4	3.3	83.9	1.7	0.06	1.0
Wheat Flour	12.7	71.8	1.8	60	7.6	0.12	3.6
Millet	7.4	77.7	1.3	397	17.1	0.11	0.8
Guinea Corn	11.1	74.1	3.2	26	10.2	0.28	3.7
Rice (parboiled)	7.0	79.8	0.6	6	2.4	0.03	5.4
Maize (yellow)	10.0	73.6	4.8	13	4.9	0.12	1.7
Maize (white)	9.4	73.6	4.2	16	3.6	0.10	2.2
Peppers (dried)	12.5	61.5	11.5	187	16.7	0.68	7.2
Mushrooms	2.5	-	0.3	20	1.0	0.50	5.8
Coco-yams	1.8	23.8	0.1	51	1.2	0.03	0.8
Bananas	1.5	20.6	0.1	9.0	1.4	0.03	6.0
Plantains	1.2	32.1	0.3	8.0	1.3	0.04	0.6
Yams, fresh	1.9	27.8	0.2	52	0.8	0.02	0.3
Yams, flour	3.4	80.0	0.4	20	1.1	0.08	1.1
Cassava, Gari	1.1	88.2	1.1	84	1.6	0.03	1.0

Nutrients

Nutrients are the constituents of foods, which must be supplied to the body in suitable amounts.

They include **carbohydrates, fats/oils, proteins, vitamins, minerals** and **water**. Carbohydrates, fats, proteins and water can be referred to as **macronutrients** as they are required in relatively large amounts **while vitamins, minerals are referred to as micronutrients** as they are required in small quantity.

Nutrients can be said to function in three major ways:

Firstly, by providing the body with fuel for the release of energy;

Secondly, by providing the building materials for growth and upkeep of the body;

Thirdly, by providing the materials necessary for the regulation of body processes, so that the body can use these to synthesize its own regulatory substances.

On this basis, the above-named nutrients can be divided into three groups:

- (a) Energy-giving nutrients, which are the proteins, the fats and oils and the carbo-hydrates;
- (b) the body-building nutrients, which include the proteins, fats, carbohydrates, minerals and water; and
- (c) the body processes regulatory substances, which include the proteins, fats and oils, carbohydrates, minerals, vitamins and water.

Carbohydrates are the macronutrients needed in the highest amount. They are the main source of energy for the body and are converted to glucose to be used as fuel. Carb sources include Vegetables, fruit, rice, maize, grains, potatoes, wheat-products, beans, legumes, milk, yogurt, kefir and other dairy products. Sugar products like fizzy drinks, cookies, and candies are examples of refined carbohydrates.

Protein: is made up of amino acids. Essential amino acids are required in the diet and cannot be made in the body. The essential amino acids include: Methionine, Tryptophan, Histidine, Isoleucine, Leucine, Lysine, Valine, Phenylalanine. Average protein requirement is 1-2gm/Kg/day.

Fats: Fat is essential for transport of fat-soluble vitamins (A,D,E,K). The essential fatty acids are: Linoleic, linolenic, and Arachidonic acid.

Minerals: Calcium, Iron, Potassium, Sodium, Magnesium, Chloride, Fluoride, Copper, Zinc etc

Vitamins: are organic compounds required in minute amounts to catalyse cellular metabolism, essential for growth or maintenance of the organisms.

Nutritional Requirements

Water: is essential for life. It constitutes a large percentage of the body weight in infants. The daily water requirement decreases with increasing age. Body water is derived from ingested water and endogenous catabolism of carbohydrate.

Food energy: is measured in Kilocaloric (Kcal) and 1Kcal = 100 calories.

The energy value per gram of carbohydrate is 4.5 Kcal, fat is 9Kcal and protein is 4 Kcal. Total calories generated from carbohydrate is about 45-55%, 10-15% from protein and 35-45% from fat.

The energy requirement for survival is obtained from food in the form of calories. Each individual needs calories to promote and maintain growth, basal body metabolism, physical activity and for energy of specific dynamic action. The average energy requirement reduces by 10 Kilo calorie / Kg / 3 years of age.

Neonate	-	120Kcal/Kg/day
3 years	-	110 Kcal /Kg /day
6 years	-	100 Kcal /Kg/day
9 years	-	90 Kcal /Kg/day

Growth requires energy and it has been estimated that 5Kcal is needed for each gram of body weight gained. The very high growth rate noted in infancy is reflected in the high energy requirement it is estimated that between one quarter and one third of the total energy intake in the first few months of life is utilized for growth.

Daily energy expenditure is estimated as follows:

Basal metabolic rate	-	50%
Physical Growth	-	12%
Physical activity	-	25%
Fecal loss	-	8%

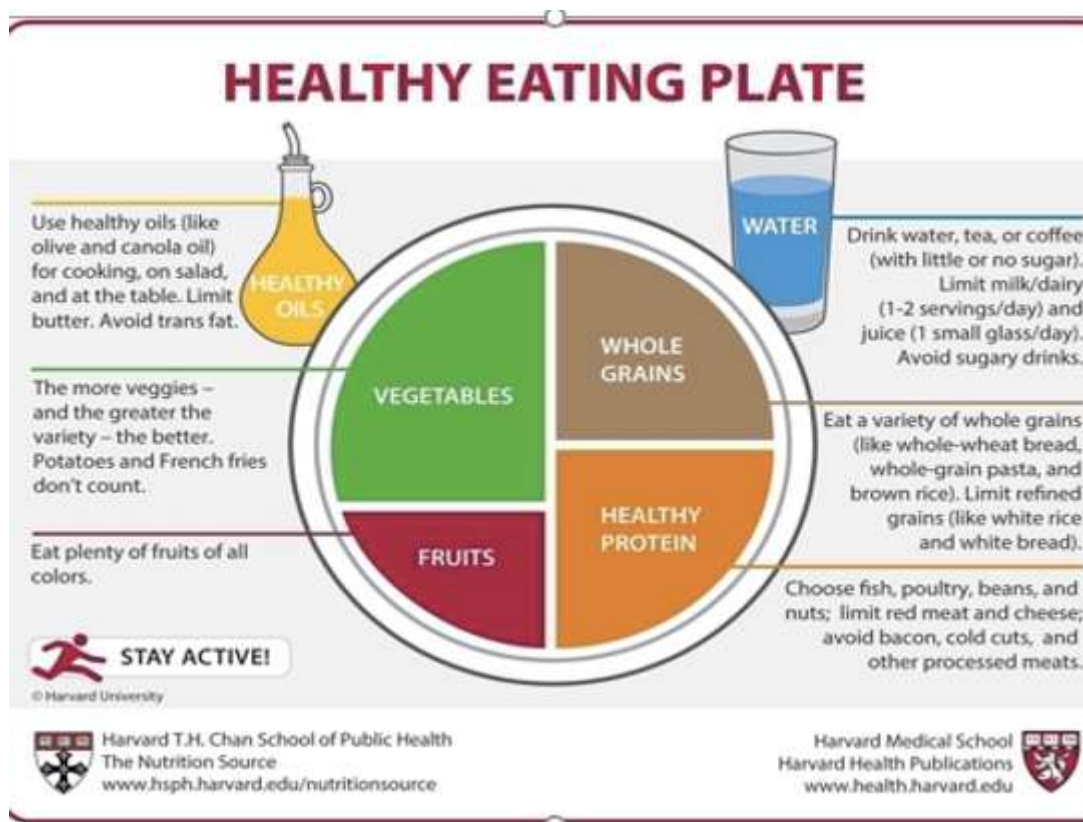
RECOMMENDED INTAKE OF NUTRIENTS (WHO,).

Energy	Age								
	1-6mth	6-12mth	<1yr	1-3yrs	4-6yrs	7-9yrs	10-12yrs	13-15yrs	16-19yrs
Kcal/kg	117	108							
Kcal/day			820	1320	1860	2190	2600	2900	3070
Protein (G/Kg)	2.2	2.0	14	16	20	25	30	37	38
Thiamin (Mg)	0.3	0.5	0.3	0.5	0.7	0.9	1.0	1.2	1.2
Riboflavin (Mg)	0.4	0.6	0.5	0.8	1.1	1.3	1.6	1.7	1.8
Niacin (Mg)	5.0	8.0	5.4	9.0	12.1	14.5	17.2	19.1	20.3
Folic acid (Ng)	50	50	60	100	100	100	100	200	200
Vitamin C (Mg)	35	35	20	20	20	20	20	30	30
Vitamin A (Mg)	420	400	300	250	300	400	575	725	750
Vitamin D (Mg)	10	10	10	10	10	2.5	2.5	2.5	2.5
Zinc (Mg)	3	5	5	10	10	10	15	15	15

Meal Planning

A *'healthy eating plate'* is a concept that can help to guide better food choices and servings. A healthy eating plate should consist of;

- Half of the plate vegetables and fruits
- Quarter of the plate grains
- Quarter of the plate protein
- Healthy fats & oils + drink water



A *'healthy eating plate'* is a concept that can help to guide better food choices and servings. **NUTRITIONAL DISEASE-MALNUTRITION**

What is Malnutrition?

“Malnutrition occurs when nutrient and energy intake does not meet or exceeds an individual’s requirements to maintain growth, immunity and organ function. It is a general term and covers both undernutrition and over nutrition.”

A Primary nutritional deficiency is caused by an inadequate or imbalance in the intake of food. It is usually a result of many environmental factors as illustrated in the diagram below. A Secondary or Conditioned nutritional deficiency, on the other hand, is caused by consuming a diet that meets the Recommended Dietary Allowance (RDA), but on account of disease, physiological state or medication, the actual requirement is increased.

Forms of Malnutrition

Undernutrition; is the consequence of an insufficient intake of energy, macronutrients and/or micronutrients, poor absorption or loss of nutrients due to illness or increased energy requirements.

Overnutrition; is the consumption of excess energy or excess intake of a specific nutrient. It can result in impaired body functions, chronic diseases, as well as, overweight and/or obesity.

Forms of Undernutrition

Undernutrition can manifest as:

- Acute malnutrition
- Chronic malnutrition

Acute Malnutrition: This is usually a result of acute or short-term insufficient food intake often combined with frequent illness. It usually manifests with an acute loss of weight as a consequence of loss of fat and muscle. The two important clinical forms are:

- Moderate Acute Malnutrition (MAM)
- Severe Acute Malnutrition (SAM)

Chronic Malnutrition

Inadequate nutrition over a long period of time can possibly lead to failure of linear growth or **stunting**. Maternal undernutrition can also manifest as stunting in children.

The Double Burden of Malnutrition.

It is defined as the coexistence of both undernutrition and over nutrition in the same population across the life course. “Across the life course” refers to the phenomenon that undernutrition early in life contributes to an increased propensity for over nutrition in adulthood.

Classification of Malnutrition

Anthropometric indicators of nutritional status (weight-for-age, height-for-age, and weight-for-height) usually form the basis for the determination of the extent and severity of the nutritional deprivation and when combined with certain clinical signs that are of high prognostic significance, for example nutritional edema further allows differentiation into various types of severe forms.

Clinical Classification for clinical purpose is based on the presence or absence of edema, and are the severe forms. These severe forms of PEM are

- **Marasmus,**
- **Kwashiorkor**
- **Marasmic Kwashiorkor.**

The Wellcome Classification of PEM

- | • Weight for age (%) | Edema | <i>Edema Absent</i> |
|-----------------------------|----------------------|----------------------------|
| • 60-80 | Kwashiorkor | Underweight |
| • <60 | Marasmic-kwashiorkor | Marasmus |

Modified Wellcome Classification of PEM

- | • Weight for age (%) | Edema Present | Edema Absent |
|-----------------------------|-------------------------|---------------------|
| • >80 | Kwashiorkor | Normal nutrition |
| • 60-80 | Underweight-kwashiorkor | Underweight |
| • <60 | Marasmic-kwashiorkor | Marasmus |

Community survey classifications

These are based on deficit in weight for age and weight for height and height for age to assess the magnitude of the problem in the community.

Most community surveys used 80% of weight for age as level below which malnutrition is defined and 90% height for age as a level below which stunting is defined.

Community classification commonly utilize include;

- 1 Gomez classification. (Percentile of weight for age)
- 2 Waterlow classification. (z score of weight for height)
- 3 WHO classification (z score)

Assessment of SAM: Weight, Height, W-for-H Z-scores

- Determine Weight for height Z –Scores using unisex table

Z-scores	Indicators
$< -3z$	Severe acute malnutrition
$< -2z$ to and $-3z$	Moderate acute malnutrition
$\geq -2z$	Normal nutrition

WEIGHT CATEGORY IN RELATION TO BMI PERCENTILE

Weight Status Category	Percentile Range
Underweight	Less than the 5th percentile
Healthy weight	5th percentile to less than the 85th percentile
Overweight	85th to less than the 95th percentile
Obese	Equal to or greater than the 95th percentile

The height-for-age =
$$\frac{\text{Patients height (cm)}}{\text{Expected height-for-age (cm)}} \times 100\%$$

A low height-for-age value is an indication of chronic malnutrition.

The weight-for-height deficit is calculated as follows:

$$\frac{\text{Patients' weight (kg)}}{\text{Expected weight-for-height (kg)}} \times 100\%$$

It is an indicator of acute malnutrition.

Grading of nutritional status

	Height-for-age (Chronic malnutrition)	Weight-for-height (Acute malnutrition)
Grade I	< 95%	< 90%
II	< 90%	< 80%
III	< 85%	< 70%

Other anthropometric measurements include:

- i. Triceps skinfold thickness measurement –a parameter that correlated with total body fat.
- ii. Mid-upper arm circumference.

Obesity, as characterized by an excess accumulation of body fat, has become a major health concern of the modern man. When an individual's energy intake consistently exceeds expenditure, weight gain occurs and this ultimately results in obesity. Thus,

$$\text{Obesity} = E_i - E_o$$

Where E_i = Energy intake and E_o = Energy output

Obesity can also be measured using Body Mass Index (BMI)

$$\text{BMI} = \frac{Wt(Kg)}{H^2(m)}$$

If BMI is 25 – 29.9 is regarded as overweight

If BMI is ≥ 30 it is regarded as obesity

Risk Factors /Causes of Malnutrition

1. Diet

- **Insufficient food Intake**—Anorexia due to illness, eating disorders, dietary practices or beliefs
- **Insufficient food availability** -Civil war, political instability, limited agricultural development
- **Impaired nutrient absorption or excessive Losses**-Malabsorption syndromes, Primary or secondary gastrointestinal diseases, short gut syndrome

2. **Infections** such as diarrhea, measles and acute respiratory tract infection have been known to be associated with increased incidence of PEM. Mechanism

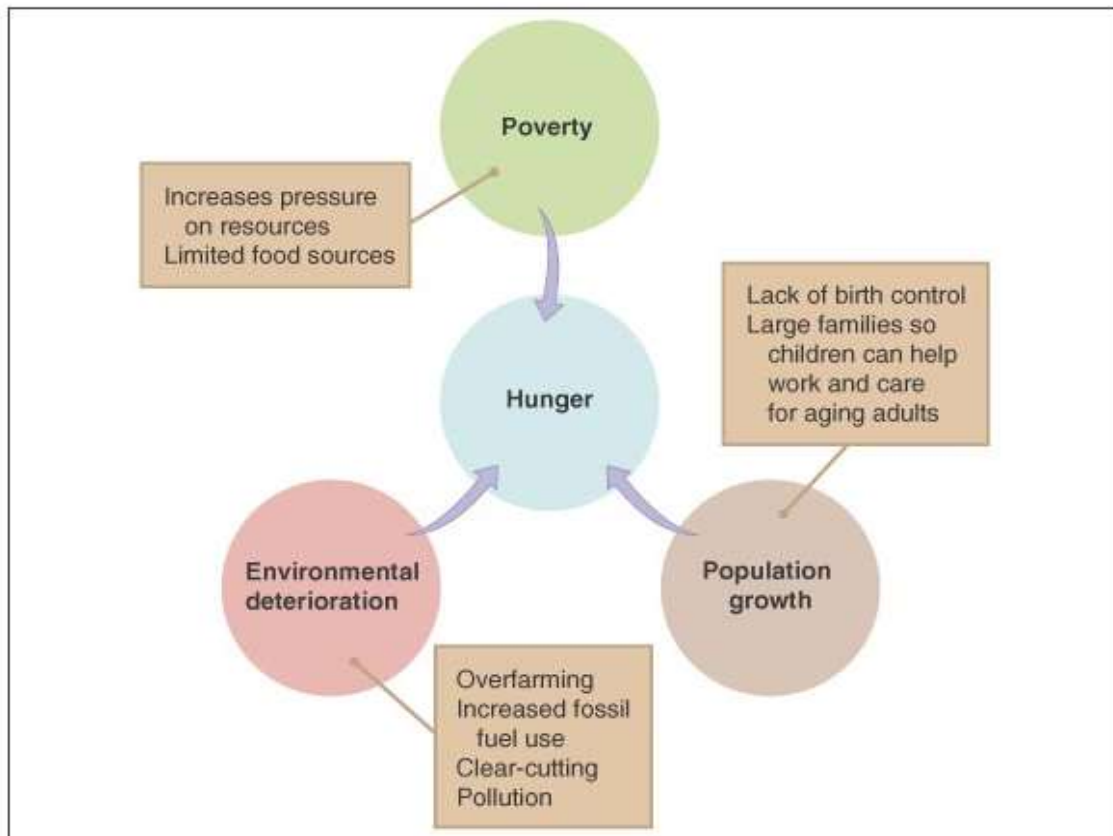
by which infection leads to malnutrition include, reduced food intake, malabsorption of nutrient and metabolic losses during infection.

3. Socioeconomic Risk Factors for PEM

- Several socioeconomic factors have been implicated in the etiology of PEM. Poverty, infection and malnutrition are related by a vicious cycle. Insufficient house hold food security, inappropriate care for mother and child and inadequate health care services provision by the government are some of the numerous causes of PEM in the developing world. Cultural belief, superstition and taboos about food belief also influence nutrient intake.

4 **Age;** Certain age groups are at risk for malnutrition. These age groups include;

- Infants
- Children under 5.
- School age group.
- Adolescent(especially females)
- Pregnant women and lactating mother.
- Elderly
- Chronic illness.



ASSESSMENT OF NUTRITIONAL STATUS.

Nutritional status is the health status of the body in relation to a nutrient or group of nutrients/ the body's response to nutrient and subsequent outcome. It is often the result of many inter related factors and adequate nutritional status is an essential requirement for growth and development especially in children.

Assessing the nutritional status of a group of individual (nutritional assessment) is an essential part of ensuring a healthy community.

Nutritional assessment can thus be defined as ***“the interpretation of information obtained from anthropometric, biochemical, clinical and dietary studies.”***

Nutritional assessment has several goals: the detection of malnutrition, the assessment of specific nutritional deficits, and the provision of guidelines for short-term and long-term therapy and intervention.

A comprehensive nutritional assessment involves clinical examination, anthropometric measurements, biochemical evaluation and measurement of dietary intake. Nutritional measures employed in the assessment reflect changes in body size, composition, and/or function. As infection is commonly associated with malnutrition, assessment of immune function and screening for infections are included in the nutritional assessment of a Paediatric patient.

Nutritional assessment of a community can also be done by indirect method utilizing agricultural, demographic, economic, anthropometric, social and cultural data as well as vital statistics.



Clinical

Assessment;

Physical examination and identification of symptoms associated with malnutrition and vitamin deficiencies. Simplest and most practical assessment method.

What to look for – signs of malnutrition

Undernutrition

Several clinical abnormalities seen in nutritional deficiencies are of wide range and are nonspecific and may be due to multiple deficiencies. They often serve as useful indices of nutritional status. These include, change in hair texture and

colour, oedema, dermatosis, muscular atrophy, ocular changes (ranging from conjunctival xerosis to keratomalacia), hepatomegaly and anaemia.

Clinical features of Marasmus

- Wasted
- Prominent bony points
- Hanging skin folds
- Head disproportionally large for the body
- Buccal pad of fat may persist longer (its absence indicates poor prognosis)
- Abdomen scaphoid or distended with rectal prolapse due to loss of the supporting tissue around the rectum and loss of rectal sphincter tone.
- Usually unhappy and irritable but respond normally to attention and feeds eagerly.

Clinical features of Kwashiorkor

(a) Those that are always present

1. Oedema
2. Growth failure
3. Some muscle wasting with retention of subcutaneous fat
4. Apathy/misery.

(b) Those that are usually present

1. Hair changes
2. Light coloured skin
3. Loose stools
4. Moderate anaemia
5. Moon face

(c) Occasionally present

1. 'Flaky paint' rash
2. Ulcers and cracks

3. signs of associated vitamin deficiencies (eg angular stomatitis)
4. hepatomegaly
5. Infection

Clinical features of Marasmic-Kwashiorkor

These consist of a combination of some of the features of marasmus and kwashiorkor.

Anthropometric measurement: a child's growth pattern is a simple but effective means of assessing nutritional status. Weight-for-age is a valuable screening procedure for determining the overall nutritional status of a pediatric patient. The welcome classification of PEM based on weight-for-age and the presence or absence of oedema is the most popular. (See table below).

Anthropometry

Anthropometry is the single most universally applicable, inexpensive, and non-invasive method available to assess the size, proportions, and composition of the human body.”

Anthropometric status of an individual can be assessed with the following information and measurements:

Age; All measurements are compared to an age-specific reference standard.

Sex; Boys and girls grow differently, therefore, gender of the individual is an essential indicator.

Anthropometry Measurements include;

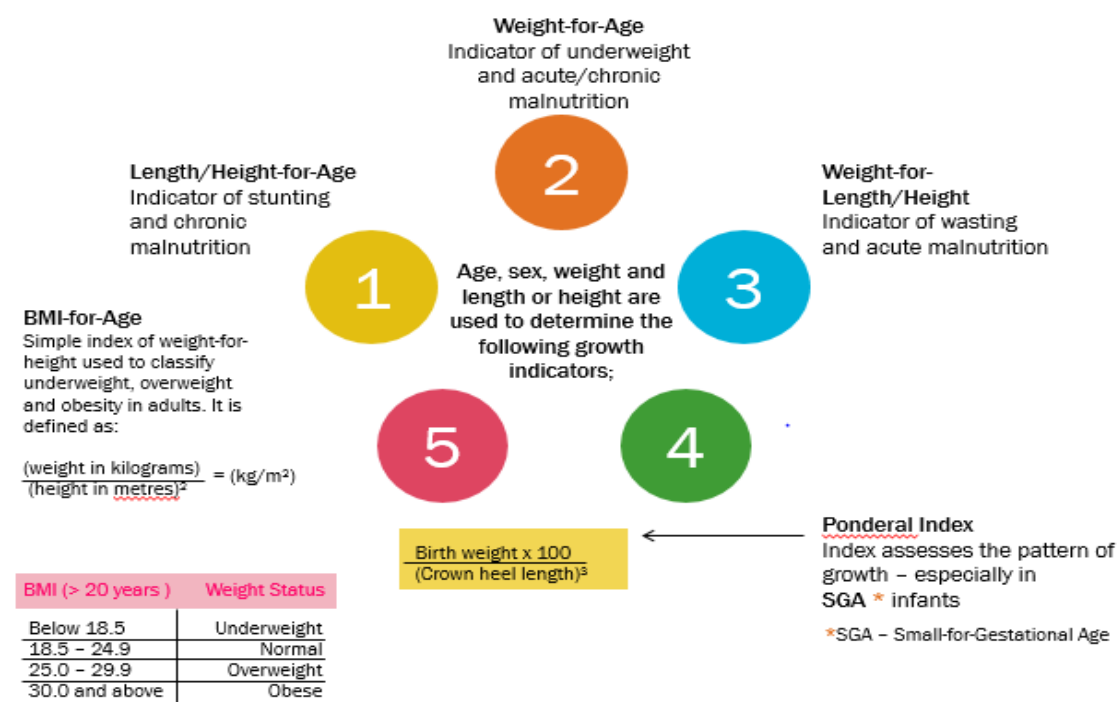
- Weight
- Length/Height
- Mid-Upper Arm Circumference (MUAC)
- Head Circumference
- Triceps skinfold thickness/Subscapular skinfold thickness.

Anthropometric indices

An isolated value of weight has no meaning except it is related to the child age and height.

Anthropometric indices are combinations of measurements and they include;

- 1 Weight for height (Wasting)
- 2 Height for age (Stunting)
- 3 Weight for age (Underweight)
- 4 Z score
- 5 Percentile/ Percent median



Biochemical evaluation:

Biochemical assessment is useful in identifying those children with clinical or sub clinical under nutrition. The biochemical abnormalities usually precede clinical signs of under nutrition. Abnormal biochemical values alone do not constitute adequate proof for the existence of malnutrition because the results may reflect transient effects of diet, infection, and/or metabolism. Biochemical assessment is therefore used to compliment anthropometric measurements and clinical findings.

Body fluid samples collected for biochemical assessment include blood, plasma, and urine. Tests done include determination of plasma concentration of nutrients (e.g. proteins, vitamin A, amino acid-the ratio of valine to glycine is markedly disturbed in kwashiorkor).

Reduction in transport proteins e.g. transferrin is also a well-established finding in kwashiorkor. Biochemical changes related to body composition are reflected by measurements of urea, creatinine and hydroxyproline excretions, which are related to growth or body mass.

Laboratory Investigations

Blood Tests

The following tests can be performed to assess nutritional status of children and adults:

- Hemoglobin Levels: Most important index of the overall state of nutrition and an indicator of anemia (most commonly iron deficiency)
- Serum albumin
- Vitamin levels
 - Vitamin B6
 - Folic Acid
 - Vitamin B12
 - Vitamin A (Serum retinol, Serum retinol binding protein)
 - Vitamin D (25-hydroxyvitamin D)
- Trace Elements
 - Iron (Serum Ferritin, Serum Transferrin)
 - Iodine

Urine Tests

Urine examination for albumin and sugar are also part of detailed nutritional assessments. Urine can also be examined for levels of zinc and iodine.

Other Tests

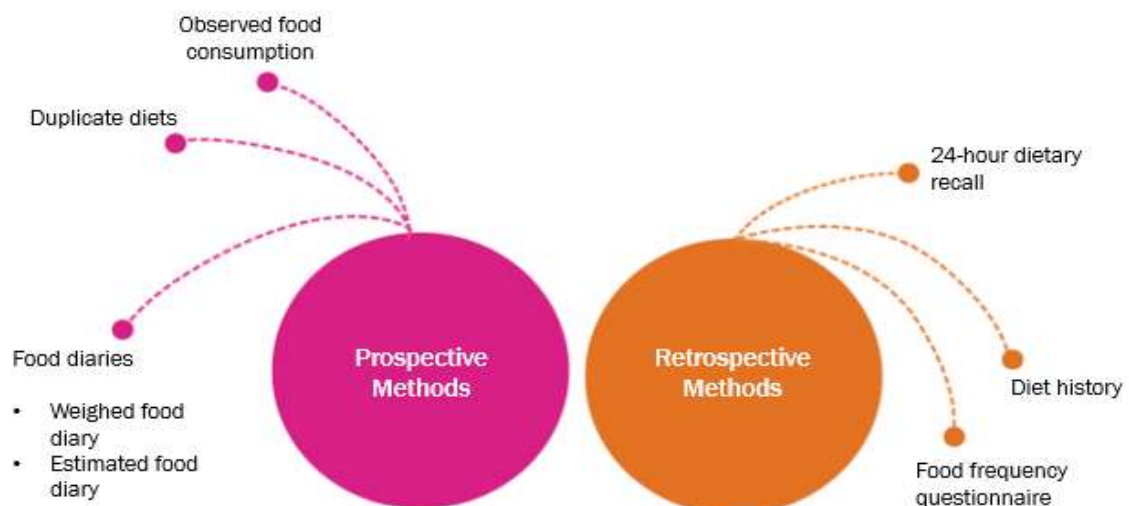
Other examples of tests that can be performed to assess nutrient and mineral levels are hair zinc concentration and hair and nail content of selenium.

Assessment of immunological status: Children with PEM show depressed in-vivo and in-vitro cell-mediated immunity. Although circulating immunoglobulin levels are elevated, the ability of the malnourished child to respond to certain antigenic stimuli is compromised by the child's nutritional

status. Complement proteins are also significantly depressed. As a result of these depressed immune responses, the malnourished child is at a greater risk of developing recurrent, overwhelming infection.

Dietary Evaluation of nutritional status: Analysis of patient's diets provides a direct estimate of the intake of nutrients. Three methods commonly employed are 24-hour dietary recall, food frequency and 3-day food diary. The patient's intake is compared with the recommended Daily Dietary Allowances. This method of nutritional evaluation has been widely employed to judge nutritional adequacy of diets and to provide supportive evidence for the occurrence of malnutrition.

Dietary Assessment Methods



Clinical Manifestation of Malnutrition

Under nutrition

Marasmus	Kwashiorkor
• Infancy (< 2 yrs) • severe deprivation • develops slowly • severe weight loss • severe muscle wasting • low growth (<60%) • no edema, no fatty liver • anxiety, apathy • possible good appetite • hair thin,dry; skin dry	• Older infants (1-3 y.o.) • low protein, infections • rapid onset • some weight loss • some muscle wasting • growth: 60-80% • edema; enlarged fatty liver • apathy, misery, irritable • loss of appetite • hair dry; skin lesions

Pathophysiology of Complications of PEM

COMPLICATION	PATHOPHYSIOLOGY	EFFECTS
• Diarrhoea + Dehydration	• Villous atrophy • Disaccharidase deficiency • Depressed immunity	• Frequent watery stools • Unconscious • ↓ Urine volume
• Electrolytes Imbalance (a) Hypokalemia	• Persistent diarrhea • Loss of K⁺ - rich tissue • Inadequate intake • Loss of intracellular K⁺	• Oedema • Hypotonia • ↓ Bowel sounds • ECG changes • Arrhythmias
(b) Hyponatraemia with Total Body sodium ↓	• Na – K⁺ pump disorder • Loss intracellular K⁺ • Na enters cells • ↑ ECF volume	• Bad prognostic sign
© Magnesium ↓	• Inadequate intake • ↑ Losses in stool. • Impaired absorption	• Neuro-muscular excitability • ↑ Twitching, • Convulsions • ECG changes
(d) ↓ Calcium Hypocalcaemia	• ↓ serum albumin • ↓ Mg deficiency	• Tetany
• Hypoglycaemia	• ↓ Intake • Fatty liver • ↓ catcholamines	• seizure, circulatory collapse infections, Hypothermia

• Hypothermia/ Hyperthermia	• ↓ Subcut fat-impaired thermogenesis	• ↓ Cardiac output • ↓ BMR • ↓ Oedema
• Anaemia	• Nutritional – intake • Recurrent infection – malaria, helminthiasis	• Poor weight gain
• Infections Septicaemia, resp. infection, UTI, Otitis media, measles meningitis etc	• Thymic atrophy • ↓ CMI	• Poor weight gain, convulsion
• CCF	• Chronic anaemia • Atrophic myocardium • Fluid overload	• Oedema
• Micronutrient deficiency: Vit.A Zinc, selenium, Copper	• ↓ Intake • ↓ Body stores • ↓ Albumin • ↓ Impaired absorption	• Skin lesion • Eye changes

Causes of Death in Severe PEM

- Dehydration and electrolyte imbalance
- Hypothermia
- Severe Anaemia
- Undiagnosed and untreated Infections
- Hypoglycaemia
- Over treatment with in fluid/ cardiac failure
- Liver Failure (Massive the Hepatomegaly and Jaundice).

Obesity

The definition of obesity is body mass index (BMI) which exceeds the age-gender-specific 95th percentile.

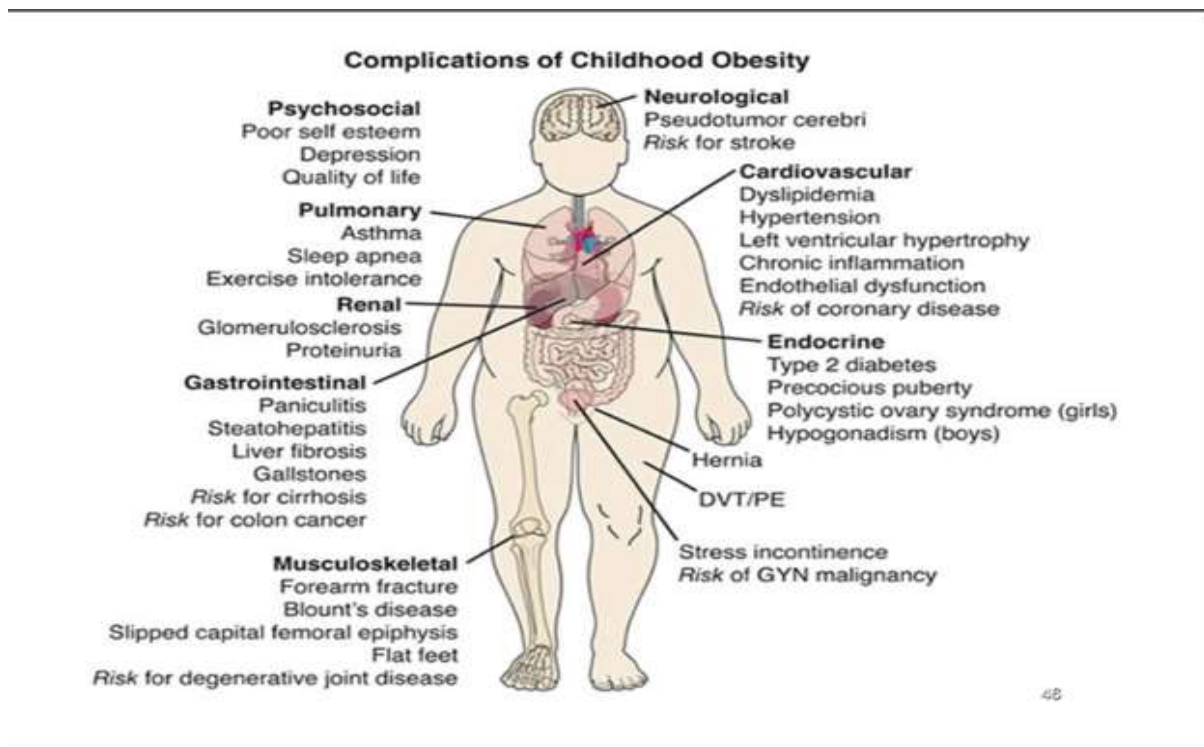
Causes/Predisposing Factors to Obesity

Several factors can contribute to childhood obesity such as:

- Poor infant feeding practices
- Unhealthy diets

- Lack of parental awareness of healthy options
 - Financial constraints; socio economic factors.
 - Cultural norms
 - Sedentary lifestyles; Poor Physical inactivity
 - Genetic factors
 - Secondary causes also occur such as use of steroids in children can result into obesity.

Presentation and Complications of Obesity



Assessment of Obesity

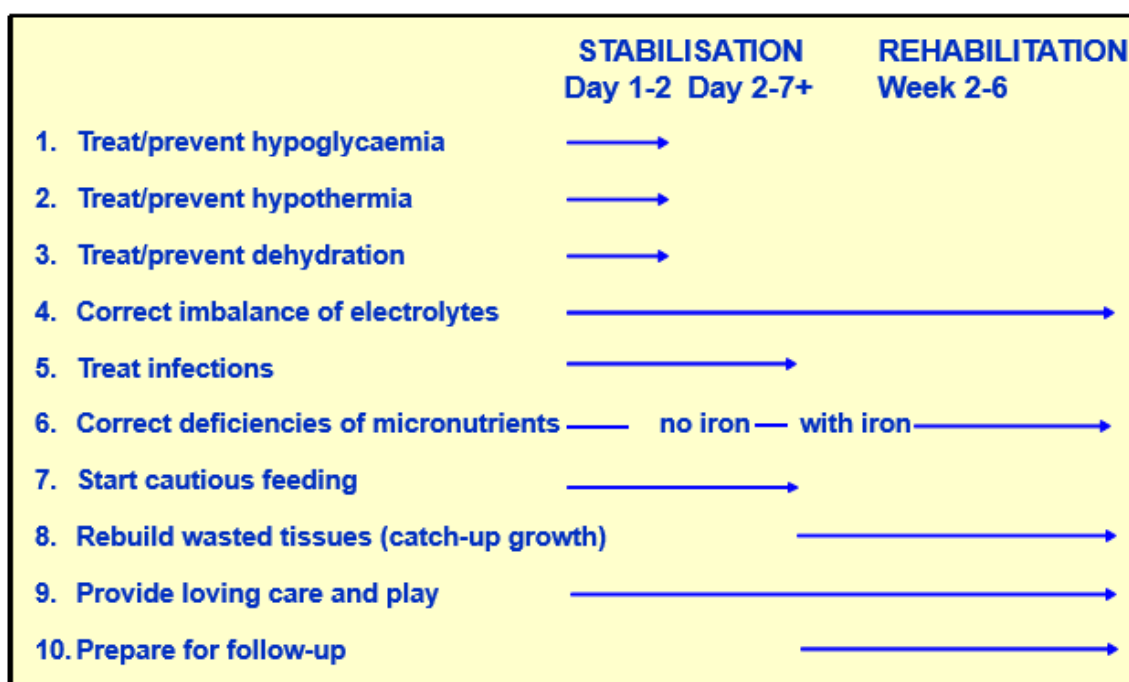
- Early recognition of at risk for overweight or overweight children is essential because family counselling and treatment interventions are more likely to be successful before obesity becomes severe.
- History should explore possible predisposing factors, associated co morbidity as well complications.

- Dietary and physical activity history. Assess patterns and potential areas for change.
- **Physical examination;** Anthropometric data, including weight, height, and calculation of BMI.
- Data should be plotted on age-appropriate and gender-appropriate growth charts and assessed for weight gain trends and upward crossing of percentiles.
- Assess blood pressure, adiposity distribution (central versus generalized).
- **Laboratory studies.** These are generally reserved for children who are overweight (BMI >95th percentile) or who have evidence of co morbidities or both.
- Useful laboratory tests may include; Fasting lipid profile, Fasting insulin and glucose levels, Liver function tests, and Thyroid function tests (if evidence of plateau in linear growth).

Management of Malnutrition

Undernutrition (Protein Energy Malnutrition)

10 Steps in the Management of severe acute malnutrition



10 Steps in the Management of Severe Malnutrition

1 Hypoglycaemia

Blood sugar <2.2mmol/l (40mg/dl)

Assume all severely malnourished children are hypoglycaemic at presentation.

Why

-Decrease intake, decrease gluconeogenesis 2⁰ to fatty liver,

Features

- Hypothermia
- Severe infection
- Signs of circulatory collapse

- Convulsions
- Decreasing level of consciousness

Investigation

- Finger/heel prick –dextrostix check
- Blood glucose <2.2mmol/L (40mg/dl)

Treatment

At presentation ± Blood sugar result give 50ml of 10% glucose/dextrose solution –ORALLY or via NG Tube.

Or 1 TSP sugar to 3½ TSP of water.

- Feed as soon as possible after this.
- Give whole feed 2hrly and throughout the night x 24hr
- If unconscious give i/v 10% dextrose

Monitoring

Observe for drowsiness, decrease level of consciousness, hypothermia
If blood sugar is low –monitor every 30 minutes and correct till stable.

Prevention of hypoglycaemia

- Feed 2hrly soon after presentation
- Feed through the night.

2 Hypothermia

Body temperature < 35°C (axilla), < 35.5°C (rectal)

Why

- Decrease subcut. Fat, impaired thermogenesis
- Existing Hypoglycaemia
- Gram negative septicaemia

Features

- Low temperature reading
- Existing hypoglycaemia

Treatment

- Feed child immediately, rehydrate if necessary,

- Warm clothing + head cover, blanket
- Heater or lamp on nearby
- Skin to skin contact with mothers
- Use hot water bottles to warm clothing/blanket
- Treat co-existing infection

Monitor

- 2hrly rectal temperature till $>36.5^{\circ}\text{C}$
- Keep child covered at all times
- **Check** for Hypoglycaemia

Prevention of hypothermia

- 2hrly feed from presentation
- Feed through the night
- Nurse in warm, draught free part of the ward
- Change wet nappies/clothes after bed wet.
- Avoid exposure to cold during procedures
- Reduce bathing to minimum cleansing
- Allow to sleep with mother esp. at night

3 Dehydration:

Assume all children with watery diarrhea have some dehydration

Why

2⁰ to diarrhoea and vomiting

Presentation

Estimates from clinical signs unreliable

Over diagnosis is common

Severe dehydration may coexist with oedema in marasmic-kwashiokor

Signs of severe dehydration in severe PEM

- ❖ Limp, apathetic, unconscious child
- ❖ Rapid weak pulse
- ❖ Pale, cold skin, decrease turgor

- ❖ Sunken eyes/fontanelle
- ❖ Dry mucosae,
- ❖ Absence of tears
- ❖ Decrease Urine volume

Treatment

- ❖ Avoid i/v route except in severe Dehydration or shock
- ❖ If using i/v–D/C as soon as possible to prevent CCF.
- ❖ Watch out for signs of overload viz.
 - ❖ Increase RR-earliest sign
 - ❖ Increase Pulse rate
- ❖ Signs of good rehydration
 - ❖ Decrease RR, PR,
 - ❖ Child begins to pass urine
 - ❖ Return of tears, moist mouth
 - ❖ Improved skin turgor, less sunken eyes/fontanelle.

Replacement therapy:

IV Fluid for shock

1st 24 hrs

1-2 hrs 1litre 1/5th N/S +50g/L Dextrose
 2-12hrs 10ml/kg/hr
 12-24hrs 5ml/kg/hr

@ 24hrs

Give maintenance 73ml/kg/day

After child made urine add KCl to infusion

- ❖ Unless diarrhea is severe, rehydration should be complete in 24hrs

Orally or via NG Tube:

Not ORS (High Na+ low K.)

ResoMal rehydration fluid. Slowly

1-2hrs 5ml every 30mins

4-10hrs 5-10ml/kg/hr

Reassess $\frac{1}{2}$ hrly for 1st 2hrs, then hrly for the next 6-12hrs.

By 6-10hrs Give feeds-ie stater F-75 instead of ReSoMal at same vol. At the end of Rehydration, continue stater F-75.

Prevention:

- ❖ With ongoing diarrhea, give ReSoMal at 50-100mls per watery stool
- ❖ Cont breast feeding
- ❖ Initiate starter F-75

4 Electrolyte Imbalance

All severe PEM children have potassium and magnesium deficiency.

Rehydration solutions/electrolyte –mineral solution

a. ReSoMal

<u>Ingredient</u>	<u>Quantity</u>
Water	2 litres
WHO-ORS	1 litre packet
Sucrose/Dextrose	50g
Electrolyte/mineral solution	40ml

OR

10% stock KCl solution 45ml

ReSoMal/ORS Content/litre

ReSoMal	ORS
Na 45mmol	90mmol
K 40mmol	20mmol
Mg 3mmol	None

- b. 10% stock KCl solution –100g of KCl in 1 litre water
- c. Electrolyte –mineral solution:-

Solution	Grams	Mol/20ml
Potassium chloride	224	24mmol
Tripotassium citrate	81	2mmol
Magnesium chloride	76	3mmol
Zinc acetate	8.2	300umol
Copper sulphate	1.4	45umol
Water to make up	2500ml	

If available add: 0.028g of sodium selenium and 0.012g of potassium iodine per 2500ml.

All severe PEM children have **potassium and magnesium deficiency**.

- Potassium and magnesium should be added to rehydration solution in the absence of clinical signs
- Correction may take 2wks or more
- Oedema is 2^o to these deficiencies
- Do not treat oedema with diuretics
- Body sodium is high in the face of low plasma sodium. Do not give High sodium loads.
- Calcium deficiency. Is not common, but may occur 2^o to magnesium deficiency.

Why:

- ↓ • Intake
- ↑ • Loss in stool
- Inadequate fluid therapy

Signs:

- Oedema
- Hypotonia, Hypoactive bowel sound
- Twitching, convulsions, Tetany

Investigation:

- Serial Serum Electrolytes and Urea,
- ECG

Treatment

- Add potassium to IVF or rehydration solution
- Give Potassium 3-4meq/kg/day
Magnesium 0.4-0.6meq/kg/day

OR

Add 20ml of combined electrolyte/mineral solution to 1 litre of feed

Give low ReSoMal

Prepare food without adding salt. Standard K^+ correction: 1-2meq/kg/day

–not exceed 40meq/day (15% KCl –1ml =2meq) Slow K tabs 1 tab =600mg. Stop supplement during rehabilitation phase when E/U are normal.

Anaemia; Severe anaemia (Hb< 5g/dl)

Why:

- ❖ Dysentery
- ❖ Malaria
- ❖ Helminthiasis
- ❖ Folic acid deficiency

Severe malnourished children tolerate anaemia very well because demand for O_2 is low.

Blood transfusion should be a last resort.

Transfuse if:

Hb <5g/dl

Hb 5 –6g/dl with respiratory distress, severe illness, no response to treatment.

How:

Whole blood 10ml/kg slowly over 3-4hrs

Fruzemide 1mg/kg before transfusion

Monitor:

HR and RR every 15mins. During transfusion

If either RR increases by 5c/min or HR by 25b/min, transfuse slowly.

Hb still low after transfusion, wait 4 days before repeating transfusion.

5 Infections

- ❖ Chest infections - B/pneumonia, TB
- ❖ Septicaemia - Pneumococcus, hemophilus, Proteus, Klebsiella, Salmonella, Streptococci, Staphylococci
- ❖ UTI
- ❖ Skin Infections
- ❖ Otitis media
- ❖ Meningitis/Encephalitis
- ❖ Malaria

6 Correct Micronutrient Deficiencies

Give:

- Vitamin A orally on Day 1 (for age >12 months, give 200,000 IU; for age 6-12 months, give 100,000 IU; for age 0-5 months, give 50,000 IU) unless there is definite evidence that a dose has been given in the last month

Give daily for at least 2 weeks:

- Multivitamin supplement
- Folic acid 1 mg/d (give 5 mg on Day 1)
- Zinc 2 mg/kg/d
- Copper 0.3 mg/kg/d
- Iron 3 mg/kg/d but only when gaining weight

7 Cautious Feeding

- **Stabilisation phase**

Target is: 100 kcal/kg/day 1g protein/kg/day

Give F75 (75 kcal and 0.9g protein/100ml)

- **Rehabilitation phase (catch-up growth)**

Target is: 150-220 kcal/kg/day

4-6 g protein/kg/day

Give F100 (100 kcal and 2.9g protein/100ml)

or RUTF (ready-to-use therapeutic food)

or modified family foods .

8 Achieve catch-up growth

- In the rehabilitation phase a vigorous approach to feeding is required to achieve very high intakes and rapid weight gain of >10 g gain/kg/d.
- The recommended milk-based F-100 contains 100 kcal and 2.9 g protein/100 ml.
- Modified porridges or modified family foods can be used provided they have comparable energy and protein concentrations.
- *Readiness to enter the rehabilitation phase* is signalled by a return of appetite, usually about one week after admission.
- A gradual transition is recommended to avoid the risk of heart failure which can occur if children suddenly consume huge amounts

9 Provide Sensory Stimulation And Emotional Support.

- In severe malnutrition there is delayed mental and behavioural development.

Provide:

- tender loving care
- a cheerful, stimulating environment structured play therapy 15-30 min/d .
- physical activity as soon as the child is well enough
- maternal involvement when possible (e.g. comforting, feeding, bathing, play).

10 Prepare For Follow-Up after Recovery

Advise parent or carer to:

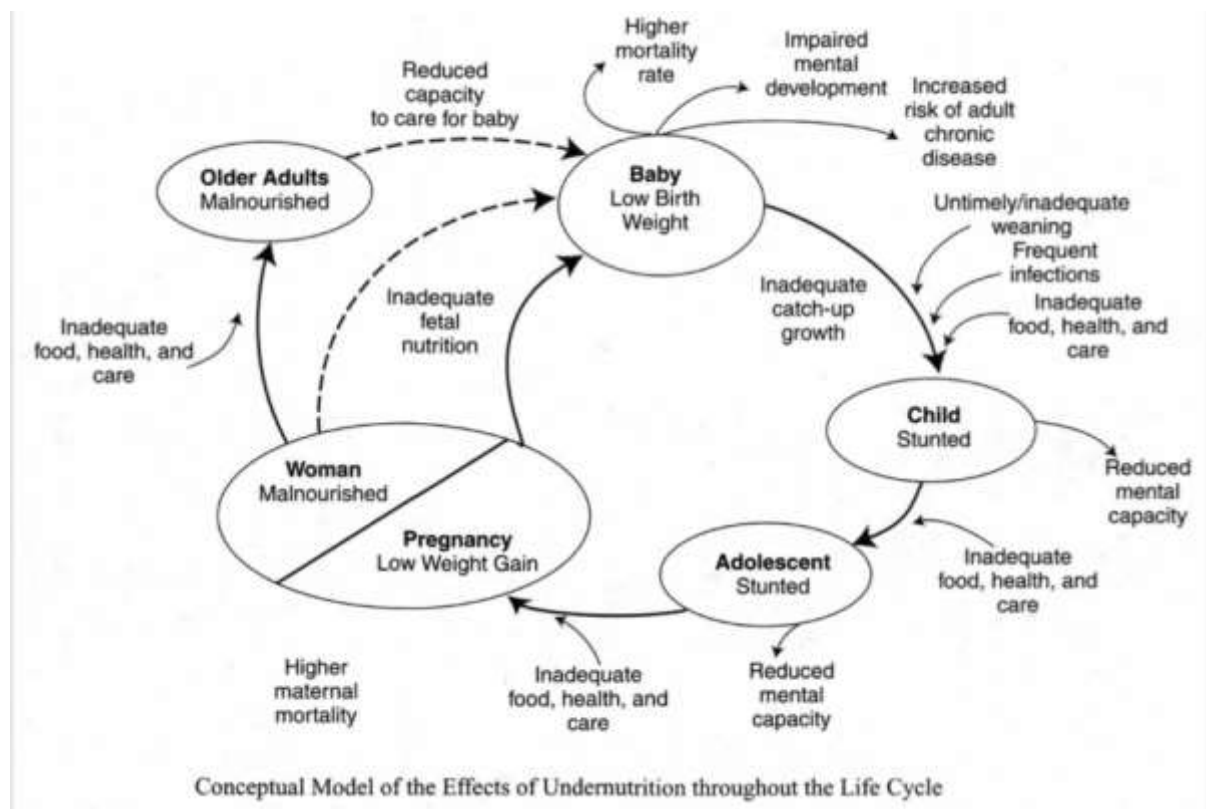
- • bring child back for regular follow-up checks
- • ensure booster immunizations are given

- ensure vitamin A is given every six months

Management of obesity

- Promotion of optimal infant and young child feeding practices
- Discourage formula feeding
- Avoid sugar-sweetened milk and fruit juices
- Avoid calorie-rich, nutrient-poor ready-to-eat foods.

Impact of Malnutrition



Prevention of Malnutrition

Primary Prevention

- Health education about good nutrition and food hygiene.
- Appropriate infant and young child feeding practices; Practice of exclusive breast feeding and complementary feeding practice.
- Growth monitoring in children.
- Immunization of children.

Secondary prevention

- Screening of population at risk.
- Food fortification and supplementation
- Community management of acute malnutrition.

Tertiary prevention

- Nutritional rehabilitation
- Nutritional Counselling
- Supplementary feeding

Breast Feeding

All nursing mothers should be encouraged to practice exclusive breast-feeding during the first 6 months after delivery. Exclusive breastfeeding is when an infant receives only breast milk from the mother, or expressed breast milk, and no other liquids or solids, not even water, with the exception of oral rehydration solution or medicines in the form of drops or syrups.

The information regarding this should be passed to all pregnant women.

Benefits of Breastfeeding

Benefits of BREASTFEEDING



Child

- Improved growth and nutrition status
- Decreased mortality
- Increases immunity
- Increased bonding
- Lower risk of chronic diseases (diabetes, heart disease, asthma, some cancers)
- Lower risk of being overweight or obese
- Improved cognitive and motor development

Mother

- Less postpartum depression
- Less likely to become pregnant in early months
- Lower risk of maternal cancers:
 - Ovarian
 - Breast
- Faster maternal recovery and weight loss postpartum

PRINCIPALS OF BREASTFEEDING

Principles of Breastfeeding

Breast milk is a unique food – it cannot be duplicated. Composed of a perfect balance of nutrients, it is ideally suited for infants and it changes to meet the changing needs of the child.

Although it is a natural process, breastfeeding is a technique defined by certain principles.

1

Place infant skin-to-skin with mother immediately after birth

2

Initiate breastfeeding within first hour of birth

3

Exclusively breastfeed from 0-6 months

4

Breastfeed frequently (day and night)

5

Breastfeed on demand every time the baby asks to be breastfed)

6

Let infant finish one breast and come off by him/herself before switching to other breast

7

Good positioning and attachment

10 steps to successful breastfeeding based on Baby-Friendly Hospital Initiative (BFHI). Ten Steps to successful Breastfeeding.

- Have a written breastfeeding policy that routinely communicated to all health care staff.
- Train all health care staff in skills necessary to implement this policy.
- Inform all pregnant women about the benefits and management of breastfeeding.
- Help mothers initiate breastfeeding immediately after birth.
- Show mothers how to breastfeed and how to maintain lactation.
- Give newborn infants no food or drink other than breast milk, unless medically indicated.
- Practice room-in, allow mothers and infants to remain together 24 hours a day.
- Encourage breastfeeding on demand.
- Give no artificial teats or pacifiers (dummy) to breastfeeding infants.
- Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or the clinics.

Complementary Feeding

Complementary feeding is defined as the process starting when breast milk is no longer sufficient to meet the nutritional requirements of infants and other foods and liquids are needed, along with breast milk. Introduction of complementary feeding can be initiated at 6 months of age and continued through to 23 months, even though breastfeeding may continue during this time and beyond two years.

Principles of COMPLEMENTARY FEEDING of the **BREASTFED** CHILD

- 1** Exclusive breastfeeding from birth to 6 months of age. Introduce complementary foods at 6 months of age while continuing to breastfeed.
- 2** Frequent on-demand breastfeeding until 2 years of age or beyond.
- 3** Responsive feeding – avoid force feeding.
- 4** Good hygiene and proper handling of food.
- 5** Start at 6 months of age with small amounts of food and increase the quantity as the child gets older.
- 6** Gradually increase food consistency and variety as the infant grows older.
- 7** Increase the number of times the child is fed complementary foods as the child gets older.
- 8** Feed a variety of nutrient-rich foods
- 9** Use fortified complementary foods or vitamin-mineral supplements for the infant, as needed.
- 10** Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft foods.

COMPLEMENTARY FEEDING

What Foods To Give (and why)

BREAST MILK
provides energy and high quality nutrients for up to 23 months

MILK PRODUCTS
provide high quality protein, heme (iron), zinc, vitamins
Examples: milk, yogurt, curds, cheese



STAPLE FOODS
provide energy, some protein (cereals only) and vitamins
Examples: wheat, rice, maize



ANIMAL-SOURCE FOODS
provide high quality protein heme (iron), zinc, vitamins
Examples: liver, fish, eggs, red meat, chicken



GREEN LEAFY/ ORANGE VEGETABLES
provide vitamins A, C and folate
Examples: spinach, carrots, broccoli





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(MODULE ON MANAGEMENT OF MALARIA)

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INTRODUCTION

This manual has been designed as teach-yourself manual to provide pre-service training for medical students, and strengthen malaria control efforts. It covers essential information on the malaria drug policy, epidemiology, diagnosis (clinical and laboratory) and management of uncomplicated and severe malaria. Other topics addressed include health education and prevention of malaria. Clinical exercises have been incorporated to allow for a continuous appraisal of the various lessons.

LEARNING OBJECTIVES

At the end of training with this manual, you are expected to:

- Understand the epidemiology of malaria.
- Know how to take a history and do a clinical examination to recognize, investigate and treat uncomplicated and severe malaria.
- Know how to mount Health education on malaria home treatment and prevention.

INTRODUCTION

WHAT IS MALARIA?

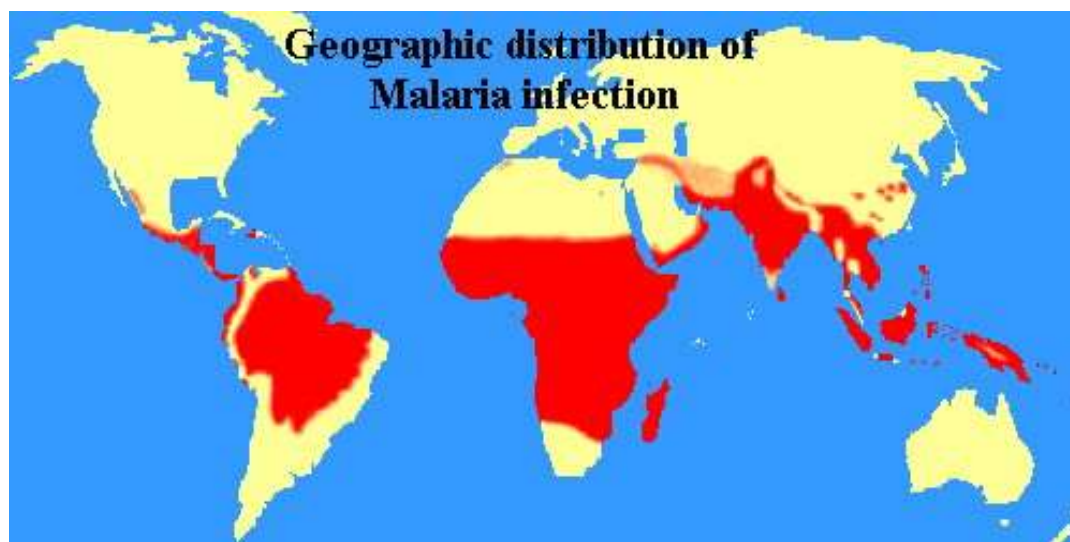
- Malaria is a human infectious disease caused by parasites of the genus *Plasmodium* of which there are four identified species namely, *Plasmodium falciparum*, *P. vivax*, *P. ovale* and *P. malariae*.
- In Nigeria 98% of all cases of malaria is due to *Plasmodium falciparum* and this is the specie that is responsible for the severe form of the disease that leads to death.

TRANSMISSION OF MALARIA

The principal mode of transmission of malaria is through bites of infected female anopheles mosquito, which are mostly at night time. Other uncommon modes of transmission are from blood transfusion and mother to child transmission

OCCURRENCE AND DISTRIBUTION

The shaded area in the map below shows areas of the world where malaria is endemic. People from areas where malaria is endemic develop partial immunity, but they may also still have severe malaria.



CLASSIFICATION OF MALARIA

Failure to recognize severe malaria can be fatal. Malaria is often classified as uncomplicated and severe malaria based on clinical presentation and risk of mortality.

a. Uncomplicated malaria:

This is malaria without life threatening manifestations.

b. Severe malaria:

This is malaria caused by *P. falciparum* with life threatening complications identified by the presence of any of the following features:

Clinical manifestations	Frequency ^a	
	Children	Adults
• Impaired consciousness or unrousable coma	+++	++
• Prostration, i.e. Generalized weakness so that the patient is unable walk or sit up without assistance	+++	+++
• Failure to feed	+++	++
• Multiple convulsions – more than two episodes in	+++	+

24 h		
• Deep breathing, respiratory distress (acidotic breathing)	+++	+
• Circulatory collapse or shock, systolic blood pressure < 70 mm Hg in adults and < 50 mm Hg in children	+	+
• Clinical jaundice plus evidence of other vital organ dysfunction	+	+++
• Haemoglobinuria(dark coloured urine)	+/-	+
• Abnormal spontaneous bleeding	+/-	+
• Pulmonary oedema (radiological)	+/-	+

^a on a scale from + to +++; +/- indicates infrequent occurrence

Laboratory findings	Frequency ^a	
	Children	Adults
• Severe normocytic anaemia (Hb < 5 g/dl, packed cell volume < 15%)	+++	+
• Hyperparasitaemia: Density of asexual forms of P. Falciparum in the peripheral smear exceeding 5% of erythrocytes (more than 250,000 parasites per µl at normal red cell counts)	+++	+
• Renal failure (Urine output of less than 400 ml in 24 hours or <12ml/kg per 24 hours in children and a serum creatinine of more than 265 µ mol/l (> 3.0 mg/dl), failing to improve after rehydration) (<1ml/kg/hour or <0.5ml/kg/hour in children).	+	+++
• Hypoglycaemia (blood glucose < 2.2 mmol/l or < 40 mg/dl)	+++	++
• Metabolic acidosis (plasma bicarbonate < 15 mmol/l)	+++	++
• Haemoglobinuria	+/-	+
• Hyperlactataemia (lactate > 5 mmol/l)	+++	++

^a on a scale from + to +++; +/- indicates infrequent occurrence.

EXPLANATORY NOTES ON COMMON FEATURES OF SEVERE MALARIA

Anaemia:

This is the commonest complication of malaria. It occurs as a result of destruction of parasitised red blood cell by the spleen, TNF mediated depression of erythropoiesis and immune mediated haemolysis. It is defined as PCV <15% or Hb<5g/dl.

Cerebral Malaria:

For the diagnosis, the following criteria are required:

- i. Deep, unarousable coma: Motor response to noxious stimuli is non-localising or absent. However management should be instituted once there is an altered consciousness.
- ii. Exclusion of other encephalopathies
- iii. Confirmation of *P. falciparum* infection by microscopy or malaria rapid diagnostic test (RDT).

Multiple convulsions:

Convulsions may be as a result of very high temperature, hypoglycaemia, hypoxaemia severe anaemia or the effect of herbal concoction.

Hypoglycaemia:

This may be due to decrease intake, increased glucose utilization, glycogen depletion or impaired gluconeogenesis, or antimalarial (esp. quinine) mediated reduction in blood glucose.

Acidosis:

This result from elevated lactic acid levels secondary to anaerobic glycolysis, particularly in skeletal muscles.

Breathing Difficulties:

Breathing difficulties in severe malaria may result from any of the following:

- Heart failure secondary to severe anaemia.
- Pulmonary oedema (following administration of excessive fluids) usually there is frothing from the mouth and marked respiratory distress.
- Acidosis.
- Aspiration of feeds or herbal concoctions

Renal Failure:

Renal failure develops due to low blood pressure as a result of dehydration or shock. It may also result from tubular damage from haemoglobinuria.

Haemoglobinuria:

This occurs from rapid and excessive intravascular breakdown of red blood cells by parasites or drugs like sulphonamides and primaquine.

UNCOMPLICATED MALARIA

The main manifestation of malaria is FEVER. The clinical features of malaria vary from the asymptomatic to mild to severe disease.

History

This should include:

- General information such as age, place of residence and recent history of travel within or outside the country.
- Enquiry about the following symptoms:-
 - Fever
 - Chills (feeling cold) and rigors (shaking of the body)
 - Headache
 - Joint weakness or tiredness

- Exclude other common diseases such as:
 - Pneumonia: Cough, fever, respiratory distress, chest pain
 - Diarrhoeal disease: Low fever, vomiting, diarrhoea
 - Ear pain and skin rashes in the last three months and photophobia

Signs

- Increased body temperature $> 37.5^{\circ}\text{C}$.
- Enlarged spleen or liver, especially in children.
- Pallor (children/pregnant women)
- Exclude signs of severe disease.

MAKING A DIAGNOSIS

Prompt and accurate diagnosis of malaria is part of effective disease management. The diagnosis of malaria is based on clinical suspicion **AND** on the detection of parasites in the blood (parasitological or confirmatory diagnosis).

CLINICAL DIAGNOSIS

Criteria for diagnosis in stable malaria areas;

- Fever
- Unexplained pallor (children < 5 years and pregnant women)

Women are more prone to severe malaria when pregnant, than when not pregnant. This is particularly true for primigravidas in whom there is high rate of placental infection and chronic anaemia.

Laboratory Diagnosis

It is strongly recommended that **ALL** patients with a clinical suspicion of malaria should have a parasitological confirmation. However, in settings where parasitological diagnosis is not possible, antimalarial treatment may be given

based on a strong suspicion of the illness being malaria. A parasitological diagnosis is made based on identification of the malaria parasite on a blood film or a positive malaria rapid diagnostic test.

Note: A diagnosis of malaria can still be made even if there are no malaria parasites seen on the blood slide, if the clinical findings are highly suggestive and there is no other detectable cause of fever.

TREATMENT OF UNCOMPLICATED MALARIA

The treatment of choice for uncomplicated malaria is Artemisinin Based Combination Therapy (ACT). Antimalarial combination therapy refers to simultaneous use of two or more blood schizonticidal drugs with independent modes of action and different biochemical targets in the parasite: (fixed-dose formulations or co-administered therapy). For artemisinin based combination therapy, this consists of the use of an artemisinin derivative and another antimalarial. The following combinations may be used:

- Artemether + Lumefantrine
- Artesunate + amodiaquine
- Artesunate + Mefloquine

This is the treatment of choice in pregnancy EXCEPT in first trimester.

Chloroquine and Sulfadoxine-pyrimethamine are no longer recommended in the treatment of malaria

.

Artemether-Lumefantrine (20mg/120mg) dosage guide: The ratio of artemether to lumefantrine is 1:6.

Age group (weight)	Number of tablets / dose
– 5-14kg (6mths-3yrs)	1 tab twice dly x 3 days
– 15-24kg (4-8yrs)	2 tabs twice dly x 3 days
– 25-34kg (9-14yrs)	3 tabs twice dly x 3 days
– >35kg (>14yrs)	4 tabs twice dly x 3 days
<i>2nd dose should be 8 hrs of 1st dose</i>	

Artesunate-amodiaquine (50mg/153mg) dosage guide:

Age(weight)		First day of treatment	Second day of treatment	Third day of treatment
6mths-1yr (<10kg)	Artesunate	½ tablet	½ tablet	½ tablet
	Amodiaquine	½ tablet	½ tablet	½ tablet
1-7yrs (11-20kg)	Artesunate	1 tablet	1 tablet	1 tablet
	Amodiaquine	1 tablet	1 tablet	1 tablet
7-13yrs (21-40kg)	Artesunate	2 tablets	2 tablets	2 tablets
	Amodiaquine	2 tablets	2 tablets	2 tablets
>13yrs(>40kg)	Artesunate	4 tablets	4 tablets	4 tablets
	Amodiaquine	4 tablets	4 tablets	4 tablets

TREATMENT IN PREGNANCY

Due to increased risk of severe disease in pregnancy, uncomplicated malaria is an emergency and requires a very effective treatment with lowest possible clinical failure. ACTs are used in the second and third trimesters, however in the first trimester, oral quinine should be used at 10mg/kg every 8 hours for 7 days.

Supportive Treatment

- High temperature $> 38.5^{\circ}\text{C}$, wipe the body with wet towel fan and avoid over clothing. Also give Paracetamol 10 mg/kg in children or 500-1000 mg in adults 4 times daily.

FOLLOW-UP

- Tell the patient to return:
 - If Fever persists for two days after commencement of treatment
 - Immediately, if condition gets worse or develops signs of severe disease.
- When patient returns:
 - Check that they complied with the treatment as advised
 - Repeat or do blood smear for malaria parasites.
 - Do a complete assessment to exclude other possible causes of fever.

KEY MESSAGES FOR ORAL DRUGS AT HOME

- ◆ Determine the appropriate drug and dosage according to weight and age.
- ◆ Tell the patient or the child's caregiver the reason for giving the drug.
- ◆ Demonstrate how to take or give the correct dose.
- ◆ Watch the patient taking the drug.
- ◆ Explain that the tablets must be used to finish the course of treatment even if the patient feels well.
- ◆ Advise them on when to return.
- ◆ Check that the patient or caregiver has understood the instructions before leaving the clinic.

SEVERE MALARIA

WHO ARE THE PEOPLE AT RISK FOR SEVERE MALARIA?

- Children < 5 years
- Pregnant women
- People returning or coming to Nigeria after living in a malaria free areas
- Sickle cell anaemia individuals
- People who have had splenectomy

HISTORY

In addition to the general history as in uncomplicated malaria, ask about:-

- **Extreme weakness** (Prostration) i.e. inability to eat and drink or do anything without support. **Progressive weakness is a warning sign that severe malaria may be developing.**
- **Abnormal behaviour or altered consciousness**- Ask relatives to tell you any observed changes in the patients' behaviour since the illness started or when the unresponsiveness started.
- **Convulsions**; - Ask about the number of episodes, part of the body involved, previous history and time onset of last episode. Focal or multiple convulsions over a period of 24 hours is indicative of severe disease.
- **Time of last drink or food** since the onset of the illness.
- **Fast breathing** which may occur due to pulmonary oedema or acidosis.
- **Reduced urinary output** (time patient last passed urine).
- **Colour of urine** whether dark or Coca-Cola coloured (this may suggest excessive breakdown of red blood cells or dehydration).
- **Pregnancy.**

Ask history to exclude other severe diseases

DRUG HISTORY:

Ask about antimalarial drugs, salicylates and herbal concoctions that may influence treatment or cause some of the symptoms.

PREVIOUS ILLNESSES:

Ask about any history of recent febrile illness and treatment which may suggest treatment failure or relapse (consider typhoid, malaria and other infections).

PHYSICAL EXAMINATION:

Physical examination should aim at:

1. Assessing for the presence of signs of severe malaria.
2. Exclude other possible causes of disease.

Central nervous system

Assess using the AVPU scale:

A = alertness (is the patient alert)

V = response to voice command (does the patient respond to his name)

P = response to pain (does the patient feel pain or cry if a child)

U = unresponsive. (Patient does not respond at all)

The Blantyre coma scale may also be used, as below.

Parameter	Score
Best motor response:	
– localizes painful stimulus	2
– withdraws limb from pain	1
– nonspecific or absent response	0
Verbal response:	
– appropriate cry	2
– moan or inappropriate cry	1
– none	0
Eye movements:	
– directed (e.g. follows mother's face)	1
– not directed	0
Total 0–5	

Other rating scales like Glasgow coma scale may also be used.

Respiratory system

- Check for respiratory distress (fast, deep or laboured breathing)
- Listen to the chest for rales or other added sounds.

Cardiovascular

- Examine the rate, rhythm and volume of the pulse.
- Cold extremities or poor capillary refill at the tips of the fingers (delay for >3 seconds).
- Check blood pressure

Abdomen

- Feel for enlarged spleen and/or liver

DIFFERENTIAL DIAGNOSIS:

- Meningitis- patient may have a stiff neck.
- Encephalopathy- Repeated convulsions or deep coma.

- Diabetes Mellitus- Patient may be dehydrated, acidotic or in coma.
- Septicaemia- Usually very ill and toxic with warm extremities.
- Epilepsy- usually afebrile and with past history of seizure disorder or convulsions before.

LABORATORY INVESTIGATIONS

- Aimed at confirming diagnosis, and assess severity of disease by blood smear.
- Exclude other causes of severe disease.

Recommended tests include:

- Blood smear for malarial parasites
- Rapid diagnostic test for *Plasmodium falciparum*
- Haematocrit (PCV)/Haemoglobin
- Blood sugar level
- Lumbar puncture in unconscious patients.
- Urinalysis for:-
 - Sugar (to exclude diabetes)
 - Proteins (exclude pregnancy-induced hypertension)

Notes about diagnosis of severe malaria:

- High index of suspicion in patients with fever and any of the features discussed above.
- Absence of fever does not exclude a diagnosis of severe malaria.
- Microscopic diagnosis should not delay antimalarial treatment if there is a clinical suspicion of severe malaria, withholding treatment may be fatal.
- Patients' progress should be monitored and management adjusted as necessary.
- A negative blood film does not exclude a diagnosis of severe malaria.

TREATMENT

Deaths from severe malaria results either from direct effect of the disease or the complications. Therefore, first attend to the immediate threats to life.

Urgent Treatment

1. Coma or unconscious patient

- Ensure airway is patent; gentle suction of nostrils and the oro- pharynx.
- Make sure the patient is breathing.
- Nurse the patient lying on the side or with the head sideways.
- Insert a naso-gastric tube (NGT).
- Establish an intravenous line. It will be necessary for giving drugs and fluids.
- Correct hypoglycaemia:

Children: 0.5 ml/kg of 50% dextrose diluted to 10-15%.

Adults: 25 ml of 50% dextrose.

-Where intravenous access is not possible, give dextrose or any sugar solution through the naso-gastric tube.

1. Convulsions

- Ensure patent airway and that the patient is breathing.
- Correct hypoglycaemia or control temperature.
- In children give rectal diazepam 0.5 mg/kg or IM paraldehyde 0.1 ml/kg or 1ml/year up to a maximum of 5ml. If convulsions continue, give IM phenobarbitone 10-15 mg/kg.
- In adults give 10 mg diazepam IV.

2. Severe dehydration or shock

- Give 20-30 ml/kg of normal saline and reassess the patient within 30 minutes to decide on the next fluid requirement according to the degree of dehydration.

- After correction of the fluid deficit, reduce the maintenance fluid to two thirds of the required volume as soon as the patient is well hydrated.

3. Severe Anaemia

- Give urgent blood transfusion to patients with **severe pallor/anaemia** in heart failure. **The blood must be screened to ensure that it is HIV, Hepatitis B and C negative.**
- Use packed cells (10 ml/kg in children) or whole blood (plus frusemide).
- Where blood is not available, give pre-referral treatment and **refer urgently** to a health facility with blood transfusion services.

Specific Antimalarial Treatment for Severe Malaria

Artemisinin derivatives or Quinine given parenterally is choice of treatment for severe malaria. Artesunate is preferred to quinine in adults and children.

Artemisinin Derivatives:

These are efficacious in the treatment of severe malaria.

Dosages:

Artesunate:- It may be given intramuscularly or intravenously. 2.4 mg/kg IV bolus, repeat 1.2 mg/kg after 12 hours and at 24 hours, and then 1.2 mg/kg daily until the patient can take orally.

Artemether:- It is given intramuscularly. 3.2 mg/kg IM on the first day and then 1.6 mg/kg twice daily for a maximum of 3 days until the patient can take oral treatment. In children use of a 1-ml tuberculin/insulin syringe is advisable, since injection volumes may be small.

Quinine:

Recommended dosage (Intravenous quinine)

Children:

Give 20 mg/kg of Quinine dihydrochloride **salt** as loading dose diluted in 10 ml/kg of 4.3% dextrose in 0.18% saline or 5% dextrose over a period of 4 hours. Then 12 hours after the start of the loading dose, give 10 mg **salt** /kg infusion over 2 hours every 12 hours until when patient is able to take orally. Then follow treatment with an ACT.

Adults:

Quinine dihydrochloride 20 mg/kg of **salt** (loading dose) diluted in 10ml/kg isotonic fluid by intravenous infusion over 4 hours then, 8 hours after the start of the loading dose, give 10mg/kg **salt** over 4 hours every 8hours patient is able to take orally. Then follow treatment with an ACT.

NOTE:

- **If intravenous quinine is required for over 48 hours, reduce the dose to 5-7mg/kg to avoid toxicity.**
- **If there is a history of prior administration do not use loading dose.**
- **Quinine is rapidly degraded when exposed to light. It should keep from light by keeping it in a dark place.**

Recommended dosage (Intramuscular Quinine)

Where IV access is not possible give quinine dihydrochloride at a dosage of 20 mg/kg **salt** (loading dose), diluted to 60-100mg/ml intramuscularly (divided sites), then 8hours after the start of the loading dose give 10mg/kg 8hourly until patient is able take orally. Then follow treatment with an ACT.

NOTE: Intramuscular injections should be given with maximum sterile precautions into the anterior thigh, NOT THE BUTTOCK.

SEVERE MALARIA IN PREGNANCY:

This can be treated by parenteral artemisinin derivative or Quinine except in the first trimester where Quinine is the drug of choice.

Supportive Treatment

High temperature

- Give paracetamol (oral/rectal) if temperature is $> 38.5^{\circ}\text{C}$, wipe the body with wet towel and fan the patient to lower the temperature.

Pulmonary oedema

- Prop up the patient, give oxygen and furosemide 2-4 mg/kg IV and exclude anaemia as the cause of the heart failure.

Renal failure

- If patient is dehydrated, give 20 ml/kg of normal saline and challenge with furosemide 1-2 mg/kg.
- Pass a urinary catheter to monitor urinary output.
- If patient does not pass urine within 24 hours, refer for peritoneal or haemodialysis.

Profuse bleeding

- Transfuse with screened fresh whole blood, give pre-referral treatment and refer urgently.

Other possible treatments:-

- If meningitis is suspected and you cannot exclude it immediately by a lumbar puncture, give appropriate antibiotics.
- Other severe diseases should be treated accordingly.

Treatments not recommended:

The following drugs have no role, and may be harmful, in the treatment of severe malaria.

- Corticosteroids and other anti-inflammatory agents
- Agents used for cerebral oedema e.g. Urea

- Adrenaline
- Heparin

NURSING AND QUALITY OF CARE

Severe malaria is a serious condition and the clinicians and nurses should closely monitor patients. Nursing and supportive care is critical in the management of severe malaria. Nursing care should include all of the following:-

1. Monitor vital signs

1. Pulse
2. Temperature
3. Respiratory rate
4. Blood pressure

These should be monitored at least 6 hourly but may be more frequent at the initial stages.

2. Monitor input and output

A strict 24-hour input /output chart should be kept in all patients with severe malaria. Examine regularly for signs of dehydration or fluid overload.

3. Monitoring unconscious patient

Unconscious or comatose patients need close monitoring of all vital signs more regularly to assess their progress. Monitor the level of consciousness at least 6 hourly. Patients should be frequently turned in bed to avoid bedsores.

4. Drug chart

A clear drug chart where all drugs given are recorded should be kept and should include dose given, time given and number of times a day.

5. Pregnant women

These should be closely monitored to ensure foetal well-being and avoid

maternal hypoglycaemia. Watch out for severe anaemia and pulmonary oedema.

Laboratory Monitoring

6. Monitor the parasitaemia by daily blood smear.

If high after 2-3 days, review adequacy of the drug dose.

7. Monitor blood glucose

Do blood glucose or maintain dextrose containing infusion

8. Monitor Haemoglobin/haematocrit

PRE-REFERRAL TREATMENT

Initial (pre-referral) treatment

The risk of death from malaria is greatest in the first 24 hours of the severe manifestations. Where facilities and expertise for care of severe malaria are not present, the patient should be referred, however should receive pre-referral treatment to reduce the risk of mortality. Rectal artesunate is the preferred drug for pre-referral treatment. 10mg/kg body weight single dose of artesunate suppository should be administered rectally as soon as the presumptive diagnosis of severe malaria is made. In the event that an artesunate suppository is expelled from the rectum within 30 min of insertion, a second suppository should be inserted and, especially in young children, the buttocks should be held together for 10 min to ensure retention of the rectal dose of artesunate. Alternatives include intramuscular artesunate, artemether or quinine.

FOLLOW UP

When the patient recovers assess for possible residual problems of the disease or treatment.

- Assess the ability of the patient to do what he/she was able to do before the illness.

- Assess vision and hearing by asking whether they can see or hear; for children use objects or noisy rattles.
- Organize the follow up for those treated for severe malaria.

HEALTH EDUCATION AND PREVENTION

Health education should focus on

- The importance of early diagnosis and prompt treatment.
- Seeking early treatment and taking appropriate antimalarials promptly, in adequate doses, when they have fever.
- Counsel patients about their illness and treatment.
- Prevention and personal protection
 - Mosquito screening devices in the design of houses and protective dressing.
 - Use of insecticide treated nets (ITN)/materials should be encouraged.
 - Use of insecticides and mosquito repellants.
 - Environmental management especially reducing mosquito breeding sites by clearing gutters, bushes, proper refuse disposal, etc.
- Community mobilization for malaria control
 - Use community health workers to follow up the patients
 - Work with existing community development committees and other community organizations and leaders.
 - Work with people from other sectors (like partners and stakeholders) that are concerned with social and economic development of the community.

Exercise 1

1. (a) What is the main symptom of malaria?_____ .
 (b). List some of the clinical features of uncomplicated malaria.
 - i. _____
 - ii. _____

- iii. _____
- iv. _____
- v. _____
- vi. _____
- vii. _____

(c) When will you make a clinical diagnosis of malaria?

2. (a) Do you need a laboratory to make a diagnosis of uncomplicated malaria?_

Why?_____

(b) If you had a laboratory when will you do a blood slide for malaria parasites?

- i. _____
- ii. _____
- iii. _____

3. List the other causes of fever you would think about in a child with a fever apart from malaria?

- i. _____
- ii. _____
- iii. _____
- iv. _____

4.

(a). Who should receive antimalarial treatment?_____

(b). What antimalarial drug(s) would you give a patient with a diagnosis of malaria?_____

(c). What antimalarial drug(s) would you give a pregnant woman in the first

trimester? _____

5.

(a). Write down four key messages you would give a patient about taking drugs at home.

i. _____

ii. _____

iii. _____

iv. _____

(b). What would you do for a 2 year old who returns with persistent symptoms 3 or more days after initial treatment.

CASE HISTORIES FOR CLINICAL EXERCISES

PATIENT A:

A five-year old boy is brought to your hospital's outpatient department. The mother says he was well until this morning when he woke up and said he was feeling tired and refused his breakfast. When the mother touched him, he felt hot and she gave him $\frac{1}{2}$ a tablet of paracetamol.

When you examine, you find a well-nourished 15-kg child, not pale, alert and with axillary temperature of 38.5°C. The rest of the examination is normal.

4. What is your diagnosis? _____

5. What treatment will you give the child? _____

6. At what dose? _____

7. By which route? _____

What will you tell the mother?

i. _____

ii. _____

iii. _____

iv. _____

PATIENT B

A 36-month old girl is brought to you with a history of fever for 2 days and ear pain of 1 day. On examination you find that she is in a fair general condition, weighs 12 kg, temperature is 39.2°C with discharge of pus from the left ear. Other systems are normal. A blood slide reveals ++ malarial parasites.

1. What diagnosis would you make?
8. What treatment would you give?.....
9. What have you learnt from this patient concerning malaria?
.....
4.
 - (a). If the malaria slide were negative, would you give antimalarial drugs
 - (b). If yes, why?_____
 - (c). If no, why?_____

Patient C:

A 2 year old girl from an area with stable malaria develops fever and soon has brief convulsion. They live in a remote community away from the city. Initially the mother gave a teaspoonful of herbal concoction. Later, on the evening of the same day, the child's speech became less comprehensible and shortly afterwards was no longer responding to any call. It took the mother 4-hours to get to the nearest hospital and the child remained unconscious when they got there. In addition to the loss of consciousness she was found on examination to be severely pale with a temperature of 38.5°C.

Questions:

10. What key information is provided in this history?

11. What signs of severe disease can you identify?

12. How should this child's illness be classified?

13. What urgent treatments are needed?

14. Mention four important laboratory tests to be done.

15. What specific treatments are needed?

Patient D:

The place: a rural clinic in a hyperendemic *P. falciparum* area. Various antimalarial drugs are available, but intravenous infusions cannot be given.

A child aged 20 months became feverish two days ago and has vomited several times today. One hour ago the child had a convulsion, described by the mother as a repetitive twitching of limbs and mouth, followed by unresponsiveness for a few minutes. The child is now febrile (39°C), conscious, withdraws promptly from any painful stimulus. A thick blood film shows *P. falciparum* rings “++++”. The child repeatedly vomits any antimalarial drug given by mouth.

Questions:

16.a. Does the child have cerebral malaria? Why?

b. What should you do about the convulsion?

17. What treatment will you give? (State the dosage and route of administration)

3. By the second day of treatment he was brought back to the clinic; there had been little change; the child was still febrile, and the parasitaemia was similar to that of the previous day:

Does this suggest that the child has drug resistant malaria? (Explain)

Patient E:

The place: a country where *P. falciparum* is hyperendemic.

The patient, a 28-year old economist, was born and brought up locally, but attended university in Northern Europe for five years. He returned home last month.

One week ago he developed fever. He decided this could not be malaria because he had grown up in a malarious area and believed he was therefore immune. Two days ago he became confused, especially at night. He stayed in bed and was attended by a servant who today called the doctor because the patient was increasingly confused. The last urine he passed was a small volume of very dark fluid 24 hours ago.

On examination, the patient was a well-nourished adult. He was afebrile (rectal temperature 36.5°C). He was restless but could make brief appropriate answers to questions, and could localize the site of a painful stimulus. There was some bleeding from the gums, and there were a few retinal haemorrhages in the eyes.

Questions:

18. a. What are the differential diagnoses?

- b. Was the patient right to think he was immune to malaria? (Justify your answer)

The thick blood film shows *P. falciparum* “++++” and thin blood film shows

that 26% of red cells are parasitized.

a. What else would you look for in the thin blood film?

b. What test would you do to investigate the bleeding tendency?

c. What treatment is needed for the bleeding?

19. The patient has not passed urine for 24 hours.

What kind of investigations and actions are appropriate?

20. Fifteen ml of dark brown urine was obtained by catheter. The urine “stix” tests revealed albumin “++”, blood “+++”, conjugated bilirubin “++”, urobilinogen “++”. Microscopy of the urine showed no cells and a few casts. How do you interpret the results of the urine test?

21. Acute renal failure is confirmed. Is it possible that the kidneys may recover?

6. How should quinine be given considering the renal failure?

(MODULE ON HIV - AIDS)

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MODULE 1.1: WHAT IS HIV/AIDS

PREAMBLE:

HIV-AIDS is an all-important public health problem both nationally and internationally. It does not respect geographical, racial, or gender barriers. To that extent, the United Nations has declared the combating of HIV-AIDS as one of the Millennium Development goals. Nigeria, being the most populous country in Africa with projected population of 158 million and a current prevalence rate of 4.1% (2010) is particularly vulnerable to HIV-AIDS epidemics. It is therefore mandatory for medical students of the College of health sciences, University of Ilorin who will become Doctors and Health team leaders to be proficient in the basic aspects of HIV-AIDS.

OBJECTIVES OF THE MODULE

At the end of the study of this module, the students should be able to do the following:

1. Answer questions on the Epidemiology, particularly, aetiology, distribution, transmission, risk factors of HIV/AIDS, clinical features, laboratory investigations, treatment and prevention of the disease.
2. Give appropriate health education on HIV-AIDS, facilitate home based care of people living with HIV/AIDS (PLWHA) and contact tracing of patients in the community.
3. Conduct voluntary counselling and testing of individuals for HIV-AIDS, conduct individual, couple and group adherence counselling for PLWHA who are on antiretroviral therapy.
4. Coordinate community awareness campaign and assist associations of PLWHA to organize periodic group or community meetings to share ideas or solve common problems.

5. Initiate basic adult and paediatric ARV care as well as PMTCT care for PLWHA at community health centres.
6. Initiate management of common opportunistic infections.
7. Facilitate specimen collection and laboratory testing for diagnosis of HIV-AIDS.
8. Recognize features of complications of AIDS and make appropriate referral.
9. Identify other networks and governmental and non-governmental agencies/resources for AIDs management and prevention.
10. Link-up such agencies and resources with the community for control of HIV-AIDS.

EPIDEMIOLOGY

Human Immunodeficiency Virus (HIV) is the causative organism for Acquired Immunodeficiency Syndrome (AIDS). AIDS was first recognized in 1981 in the United States of America and it was first reported in Nigeria in 1986. The first few cases in Nigeria were seen amongst the commercial sex workers.

Pandemic: AIDS occurs as a pandemic; as at 1992, about 168 countries and territories around the world had reported cases of AIDS.

Prevalence: The results of sentinel surveys done since 1991 in Nigeria showed a growing epidemic with an HIV prevalence of 1.8 % in 1991; 3.8 % in 1993; and 4.5 % in 1996. The median in 1999 was 5.4 % with a range of 0.5-21.0 % and 5.8 % with a range of 1.0-15.0 % in 2001. It was 5.0% in 2003, 4.4% in 2005 and 3.6% in 2008. The prevalence for 2010 was 4.1%. A current estimate by the Federal Ministry of Health (FMOH) indicates that 2.98 million people are living with HIV/AIDS in Nigeria in 2009 with a total AIDS death of 192,000 that year.

Despite national prevalence of 4.6%, there are several variations by state and local government area. At the zonal level, prevalence is lowest in the South West (2.0%) and highest in the South-South (7.0%). Age group specific prevalence is highest in the age group 25-29 years (5.6%) and lowest in the 40-44years age group (2.9%).-

Rural/Urban: HIV infection affects both urban and rural communities, with increasing cases now been reported from rural areas

Gender: Both men and women are vulnerable to infection and disease but women are more vulnerable than men.

Age: HIV infection occurs at any age group, and it is particularly rampant among people aged 15 – 29 years, which is the most sexually active age group.

Population Sub-group: Some sub-groups in the population are more vulnerable than others; for instance, commercial sex workers, those with STDs and some other occupational groups.

Deaths from HIV/AIDS: Several Nigerians (an estimate of 2.99 million: male 1.38 million; female 1.61 million as at the end of 2009) have died of AIDS, and the scourge leaves many children orphaned about 2.12 millions of them as at 2010.

PATHOGENESIS

This aspect of HIV has been widely studied but for the purpose of this manual it suffices to know that the primary receptor for HIV is the CD4 molecule, a protein that is expressed on a wide variety of cell types including T lymphocytes.

The hallmark of infection with HIV is progressive depletion of CD4⁺ T cells with resultant defects in the immune function of the body cell types.

TRANSMISSION

Four important modes of transmission have been identified.

- i. **Sexual contact:** Sexual contact is the major mode of HIV transmission throughout the world. Though homosexual contact was the first recognized route of transmission particularly in America, heterosexual contact is the major mode of transmission in Africa.
- ii. **Blood and other tissues contact:** Transfusion of infected blood or blood products places recipients at high risk for HIV infection. HIV has been transmitted through receipt of infected whole blood, blood cellular components, plasma and clotting factors. Though saliva contains low level of the virus, it has not been found to be a significant vehicle of HIV transmission.
- iii. **Infected Sharp Objects contact:** HIV may be transmitted among parental drug users by use of contaminated needles and other injection equipment. Contaminated hair clippers and other instruments for body piercing, circumcision, tattooing, tribal marks, traditional-medicinal scarification and other traditional surgical practices, may be a vehicle for transmission of the virus.
- iv. **Vertical Transmission:** Transmission from an HIV sero-positive woman to her infant can occur during intrauterine gestation, during delivery or in the postpartum period through breast-feeding. This is described as Vertical Transmission. Not all babies born to sero-positive women may be infected in this way. For instance, some studies have shown transmission rates ranging from 13 – 40%.

“It is important to note that mosquitoes do not carry or transmit HIV-AIDS”

HOW HIV INFECTION IS NOT TRANSMITTED

HIV is a pathogen found in blood and some other body fluids and body cells. The virus is extremely vulnerable outside the human body and will not survive for long unless contained in blood or blood products. HIV cannot be contracted through an intact skin unless an abrasion or open wound exists for passage of the virus into the internal tissues of the body of an individual. Therefore, ordinary shaking of hands with an HIV-seropositive patient, sharing of utensils, toilets and clothing materials do not transmit the infection.

MODULE 1.2: WHO IS AT HIGH RISK OF HIV INFECTION?

By virtue of social-cultural or biological situation, some individuals are at higher risk of contracting HIV infection than others, as outlined below:

SEXUAL BEHAVIOUR

Multiplicity of Partners: People who have sex with multiple partners are at high risk because their likelihood of meeting infected partners is increased.

Commercial Sex Workers: The trade places them at high risk.

Homosexuality: The risk of HIV infection through homosexuality is high. This sexual orientation inflicts much trauma on the practitioners thereby exposing them to HIV infection.

OCCUPATION AND HIV/AIDS

People who are quite mobile or who leave their spouses for long periods are at high risk of contracting HIV infection. These include Long Distance Transport

Workers, the military, miners and itinerant workers.

Health Care Workers and HIV/AIDS: Health care workers can become infected with HIV through accidental needle pricks and cuts, which introduce HIV from infected patients. The risk varies with the level of exposure to such techniques that involve handling of blood or carrying out procedures as it occurs in surgical operations.

INTRAVENOUS DRUG ABUSERS

Intravenous drug abusers tend to share needles used to inject the drugs thereby exposing themselves to the risk of HIV infection through the use of contaminated needles.

STD and HIV /AIDS

People who have other sexually transmitted infections; particularly those with ulcerative lesions have increased risk of HIV infection.

MODULE 1.3: CLINICAL MANIFESTATIONS OF AIDS

Clinical manifestation of HIV infection begins when the population of T lymphocytes drops significantly as a result of virus replication. The spectrum of HIV infection ranges from asymptomatic state to severe immunodeficiency and associated serious secondary infections, malignancy and other conditions. Initial infection with HIV may be followed by an acute mononucleosis-like illness. This condition may manifest with sweats, myalgia, arthralgia, rash, malaise, lethargy, sore throat, anorexia, nausea, headache, photophobia, mucocutaneous ulcers and lymphadenopathy.

The risk of disease progression increases with the duration of infection. The disease caused by HIV-induced immunosuppression is called AIDS. 5 per cent of HIV-infected adults develop AIDS within 2 years of infection; 20-25 per

cent develop AIDS within 6 years and 50 per cent within 10 years after the infection. Progression from HIV infection to AIDS is more rapid in children than in adults. Differences in the rate of progression is attributed to factors such as route of infection, size of viral inoculum, pathogenicity of the infecting viral strain and immunological status of the host

CLINICAL FEATURES OF PROGRESSION TO AIDS

These Include:

1. Progressive weight loss, for instance up to 8-10% of body weight within about 3 months in the absence of other debilitating disease.
2. Intermittent or Persistent diarrhoea of more than one month.
3. Cough persisting beyond one month.
4. Fever, which is persistent or intermittent for more than one month
5. Opportunistic infections such as oral/oesophageal candidiasis, herpes zoster, pulmonary and extrapulmonary tuberculosis, some forms of skin rash e.g. pityriasis rosae, pruritic papular eruption, pneumocystis carinii.
6. Other systemic diseases such as HIV wasting syndrome, lymphoproliferative disorders, Kaposi sarcoma, HIV-associated nephropathy, HIV-associated cardiomyopathy, HIV encephalopathy, AIDS dementia complex, and organic brain psychosis and others.

LABORATORY DIAGNOSIS OF HIV INFECTION

The diagnosis of HIV infection could be accomplished by

1. Detection of HIV antibodies in blood and body fluids
2. Direct detection of HIV antigens in blood
3. Cultivation of virus in cell culture and
4. Use of polymerase chain reaction (PCR) assay to detect genomic viral DNA or RNA.

Antigen and antibody detection assays are serologic tests. The commonest of

serologic assay for HIV-1/2 detection is enzyme-linked immunosorbent assay (EIA).

EIAs are usually performed with patient's serum or plasma as the source of anti-HIV antibodies. HIV infection is diagnosed where the patient's sample is positive by two different EIA systems or when an EIA positive test is confirmed by a Western blot test (WB)

HIV Western Blot (WB) Result Interpretation

The WB assay procedure is superior to EIA in that it allows identification of HIV specific antibodies on a platform of many separated viral antigens.

Other antibody-based confirmatory assays:

- Indirect Immunofluorescence assay
- Radioimmunoprecipitation assay
- Latex agglutination
- Dot-Blot immunobinding assay

HIV ANTIGEN DETECTION

HIV antigen detection assay is used in conjunction with an antibody assay. It may be used for confirmation of EIA test or in paediatric cases where EIA and / or positivity may be caused by passive transfer of maternal antibodies.

RAPID SCREENING TESTS FOR HIV

Rapid or quick diagnostic kits for HIV are available in the market and useful for screening in rural setting. They may be based on EIA or latex agglutination principles. For valid diagnosis however, rapid kit tests need to be confirmed by another rapid kit test or conventional EIA testing.

Surrogate Markers of HIV-1 Infection

- I CD4+ T cell count (T-helper cells)
- ii CD8+ T cell (suppressor T cells)

The percentage value of CD4+ T cells, absolute number of CD4+ T cells and the ratio of CD4 to CD8 cells have been used clinically to determine the progression of immuno-suppression of patients in HIV infection. Alterations in each of these parameters correlate with advancing HIV infection. A decrease in each of these measures correlates with advancing HIV-1 infection. A rising CD8 and a decreasing CD4 or CD4 – CD8 ratio correlates with advancing HIV infection

- iii Neopterin test: this compound is a metabolite of guanosine triphosphate produced by activate macrophages.
 - iv B-2 microglobulin: it is the light chain common to the three major class I HLA (human leukocyte antigen) histocompatibility antigens. It is increased with monocyte activation and may be used to monitor antiretroviral therapy. It is progressively elevated during HIV infection.
- V. Soluble interleukin-2 receptor. It is elevated non-specifically during HIV infection.

VOLUNTARY HIV COUNSELING AND TESTING

A) Pre-test Counselling

- Provide information to the individual about the
 - i. technical aspects of the test and
 - ii. implications of test result interpretation in order to
 - iii. prepare them for the challenges and necessary changes in risk behaviour and to sustain the quality of life

- Assess and discuss the ability of the client to cope with the test result.

B) Post-test counselling

- Discuss results and help client to fully understand the meaning.
- * Obtain information concerning the individual's perception and feelings.
- Help client plan for actions to be taken such as, informing the partner.

Both HIV-negative and HIV-positive individuals require counselling:

HIV-negative: Counselling is to strengthen and reinforce safe sexual practices. It should be emphasized that negative result is not a license to risky behaviour and the client could still be in the window period. The test should be repeated within six months by high risk but initially HIV-negative clients {alcoholics, multiple sexual partners and migrant workers as well as sex workers}.

HIV-positive: counselling is for support to help to improve their quality of life. The support includes helping them to live positively with HIV, and linking them with treatment support groups and other sources of help. There is need for them to limit the risk of transmission to others. Special attention should be paid to clients who are:

- Unmarried – what are the plans for marriage?
- * married – is there desire for more children? When and how will the partner be notified? How can transmission to the partner be prevented?

CARE OF PEOPLE LIVING WITH HIV/AIDS (PLWHA)

There is yet NO CURE FOR HIV/AIDS. Vaccines are still undergoing development. Infections and symptoms can be treated to make the PLWHA live longer and feel better. Care can be provided at home (community and

home-based care) as well as in the hospital.

Psycho-social Support: The client should be made to realize the challenges, which include, discrimination and stigmatization and fear of death, and be assisted to come to terms with the condition. Counselling and continuous support is essential for the clients. Areas to be addressed include behavioural change to prevent re-infection and transmission of infection to others.

TREATMENT OF HIV-AIDS

HIV-positive patients should be referred to the hospital. Initial treatment may be in hospital or as outpatient depending on severity of illness.

Treatment modalities will include antiretroviral therapy, treatment of opportunistic infections and other health promoting measures.

Treatment of Opportunistic Infections and Symptoms associated with AIDS

The caregiver should avoid direct contact with the body fluids of the patient. Universal safety precautions should be observed.

Diarrhoea: Give ORT

Oral thrush: Mouth wash and application of oral nystatin

Sores and Ulcers: Dress wounds. Swabs should be taken and sent for microscopy, culture and sensitivity as required.

Chronic Cough: Pulmonary tuberculosis (PTB) should be treated appropriately.

Weakness and Weight Loss: Good Nutrition.

AIDS and Nutrition: Special attention should be paid to adequate nutrition of AIDS patients as they are prone to malnutrition.

Referrals: Severe cases should be referred to the hospital.

UNIVERSAL SAFETY PRECAUTIONS

The guidelines issued in 1987 by the Centers for Disease Control, USA, have become known as the Universal Precautions. The guidelines were issued with the intention to warn health care givers that blood-borne pathogens could be transmitted through contact with blood and blood-containing body fluids. They are designed to minimize the risk of transmission of HIV-1 in the health care setting. The recommendations for Universal Precautions include:

- Hand washing should be performed before and after patient contact, immediately if hands are contaminated with blood or other body fluids, and after removing gloves.
- Contaminated needles and other disposable sharp objects should never be bent, clipped or re-capped. Contaminated sharp objects should be discarded immediately after use into a puncture-resistant container designed for this purpose. Needle container should not be overfilled; containers should be sealed and discarded when two-thirds to three-fourths full.
- Health care workers who have open lesions such as dermatitis, Should refrain from direct patient care and from directly handling contaminated equipment.

- Compliance with these precautions is the responsibility of the Health worker

BREAST-FEEDING

Where the mother is known to be seropositive, the baby should be tested for HIV infection. If baby is negative, breastfeeding is not recommended. If baby is confirmed positive, then breastfeeding may continue. Informed choices should be given to the parent.

PEOPLE AFFECTED BY HIV/AIDS (PAHA)

The people affected by HIV/AIDS include spouses of PLWHA, orphans and other family members. This group of people also requires support to understand and cope with the situation. They should be empowered to give care and support to the infected family member while observing the safety precautions. Families and the community should be encouraged to make provisions for the care of orphans.

HOW TO GET HELP

Support can be obtained from the governmental agencies and non-governmental organizations. The latter include religious groups, community-based organizations, PLWHA network and individual volunteers. The availability and accessibility of these groups within the community should be ascertained and clients should be encouraged to link up with them. The Government agencies involved with HIV/AIDS prevention and control include National Action Committee on AIDS (NACA), National AIDS and STD Control Programme (NASCP) and the State AIDS and STD Control Programme. Many International Agencies are also working on HIV/AIDS prevention and control and could be contacted.

MODULE 1.5: HIV/AIDS PREVENTION AND CONTROL

Community groups should be targeted with appropriate information, education and communication for HIV/AIDS prevention and control.

The preventive measures concerning sexual transmission are as follows:

A – Abstinence from sexual intercourse

B – Be faithful to one partner. That is, avoid casual /commercial sex and multiplicity of sex partners.

If however, these important measures cannot be adhered to, then the next one is

C – Consistent and correct use of condom in high-risk situations. This is NOT 100 % SAFE.

D – Voluntary and Confidential counselling and Testing, screening of blood for transfusion, avoiding use of unsterilized instruments, preventing Mother-To-Child-Transmission, eradicating Harmful Traditional Practices, alleviating poverty and empowering women, avoiding discrimination and stigmatization.

MODULE 1.6: RESEARCH

Student projects can be carried out in the area of HIV/AIDS, aimed at documenting different aspect of the condition or improving the prevention and control strategies. This includes identification of risk behaviour, myths and misconceptions, attitudes, beliefs and related cultural practices. Other factors that could promote or militate against preventive and control measures could also be identified and documented.

(MODULE ON HEALTH EDUCATION)

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MODULE ON HEALTH PROMOTION, HEALTH EDUCATION LEADERSHIP AND COMMUNICATION

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STEPS, METHODS AND PRCTICES IN HEALTH PROMOTION AND HEALTH EDUCATION

Introduction

Health Promotion is the process of enabling people to increase control over their health and the determinants and thereby improve their health. This concept is broader than the statutory health education, given its scope and de-limitations. (See fig.1). It involves application of multidisciplinary skills. Health promotion and health education are strategies designed to address the broad determinants of health and to assist individuals, groups and communities to improve their own health through integrated action. The aim is to ensure ownership, hence, key to sustainable health development. These strategies are far from reaching their full potentials in Nigeria.

- Health education: process of influencing voluntary behaviour modification towards improved health status of individuals, groups and

communities Focus is life-styles of people and activities, which are associated with their health status.

- Services Improvement: activities designed to aid and assist the individual, group and community towards realization of the objectives. Application of tools to improve effectiveness of services and reduce the constraints of the users.
- Advocacy: seeking, obtaining and sustaining support from all stakeholders. This is the main assurance for sustainability.

JUSTIFICATION

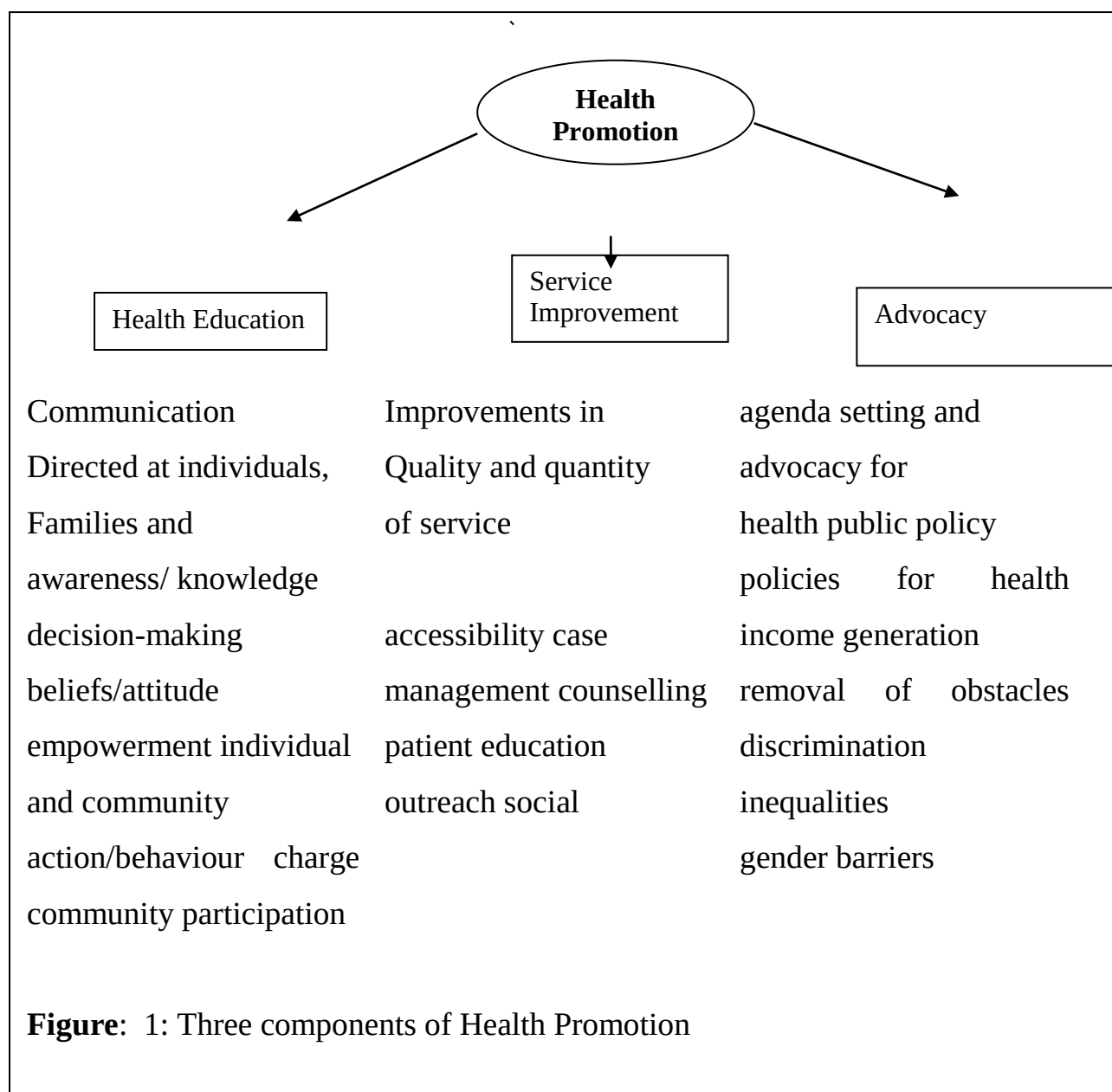
The College COBES Programme is “Community based experiences and learning” and meant to:

- i. Identify, prioritize and manage maternal and child health problems with particular reference to immunization and control of diseases
- ii. Develop team spirit for total cooperation towards provision of both curative and preventive health care at the community level
- iii. Work harmoniously with other health services providers from all professions and sectors of primary health care (PHC).

Criteria for Evaluation: cognitive skills, emotional skills and individual attitude

The Steps Recommended for Health Promotion/Health Education: The following are summary of steps to be adopted for health promotion and education as tools for intervention in clinical practice.

- i. Clinic-based intervention: patient counselling/education
- ii. Community-based intervention: activities towards empowerment of individuals, families, groups and the community.



Source: Health Reform Foundation of Nigeria. www/herfon.org Jan 2007

Health promotion is the process of enabling people to increase control over their health and its determinants and thereby improve their health. It is a core function of public health and contributes to the work of tackling communicable and non- communicable diseases and other threats to health.

Sixth Global Conference on Health promotion, Bangkok, Thailand, August 2005

THE TEN (10) MAJOR STEPS

1. Preparation or planning
2. Unit set-up
3. Pre-intervention assessment
4. Behavioural diagnosis
5. Focal intervention
6. Monitoring
7. Maintenance Activities
8. Post-intervention assessment
9. Re-strategize or exit
10. Reporting

The following conditions must be considered to accomplish each of the above listed 10 steps

AIM OR PURPOSE:

What are the expectations at the end of this STEP?

PRE-CONDITIONS (IF ANY):

What is the scope?

Are there criteria to be used

Are there reference points to be considered?

Any Time limit(s)?

PARTICIPANTS:

Who are the people involved in the STEP?

Are there other resource persons to be contacted?

TASKS:

What is the content of the Agenda for the STEP?

Are they in order of priority for ranking?

METHODOLOGY:

How should these TASK(s) be tackled?

What are the Strategies & Tactics to be applied?

How practicable are the Strategies & Tactics?

What are the options?

DURATION

By what time should this STEP be concluded /suspended?

In what sequence should the timing be placed?

Any final exit (when suspension/deferment occurs)?

DOCUMENTATION:

What types of documentation should be done at this STEP?

REPORTING

STEP: PLANNING

The question to be answered at this preparatory stage should be related to the mandate.

That is what are the goals to be reached and by what time? Health policy guidelines and provisions.

Levels of Implementation

Role of Health Education

Specific Objectives: Health status, Health Services. Health Education Objectives

1. The Health Status Objective, for example, will be”To eradicate polio in Kwara State by the year 2005”.
2. The Health Services Objective. For example, will be ...”To vaccinate (and hence immunize) 90% of children <5 years of age in all the LGAs by the end of the year 2005.
3. The Health Education Objective. For example. Will be”To mobilize 90% of pregnant and nursing mothers for mass vaccination by the end of the year 2004”.

Table: 1 Planning Health Education for Immunization of Women & Children in Kwara State Nigeria 2000 TO 2005.

(a) Aim	(b) Pre- condition	(c) Participants	(d) Tasks	(e) Methods	(f) Duration	(g) Report
Policy Analysis	Political will Time Structures Resources	Intra. And Inter- sectoral Inputs Consultants	Interpret Mandate Set date	Meetings Advocacy Networks	Projects Phases	Policy Documents Minutes & Contacts

STEP 2: UNIT SET UP

There must be a distinct sep-up group that will be responsible for health education. Health Education Unit/Group set up should be located in the Management Structure.

General Objective:

To organize a structure for Health Education Services.

Q: What is the Primary Function?

A: If “...Client ...Oriented”. Place structure within Management

If...Consultative/Facilitative” place within Staff

Q: What is the Communication Strategy?

A: If it is “Diffusion of innovation:

Use: Information. Education and Communication (IEC)

Example: Mass mobilization for Immunization at all levels.

Ask: Who i.e. person/people to implement IEC

Pre-requisite: What special skill(s) is/are needed?

Micro-plan: What is the plan of Action?

Do you need/have a Proposal?

Consider the following IEC Plan of Action

Table: 2 Proposed Plan of Action for IEC in Mass Immunization of Women and Children (under-Fives) In Kwara State: 2000-2005

(a) ICE Objectives	(b) Proposed Activities	(c) By who?	(d) To who	(e) With Whom	(f) Impact assessment	(g) Remarks
Mobilize Clients for Immunization By....	Advocacy Define Pop-at- risk Target pop	Consultants IEC Staff Institution Staff at all levels	Leaders at all levels Client groups	Funds Persons Vehicles Equipments	Coverage.... Leaders % Pop-at- risk % Target Population	Contingency to take care of crisis and emergency

NOTE: an operational budget must be proposed

STEP 3: PRE- INTERVENTION ASSESSMENT AT ALL LEVELS

Recall the “R” - “E” - “P” FACTORS:

- **REINFORCING:** MANPOWER (technical & administrative), mobilizers and stabilizers, collaborating bodies & units/institutions.
- **ENABLING:** time, funds, facilities, equipment vehicles etc.
- **PREDISPOSING:** age, gender, socio-cultural practices, belief, illness behaviour, and health seeking behaviour, other demographic characteristics

Micro-plan for communication strategy should be in place. Perceived advantage &

Limitations should be identified at all levels of the “R” - “E” – “P” factors

STEP 4: BEHAVIOURAL DIAGNOSIS

From the pre-intervention assessment, three (3) baseline information about the patient/client would have been established:

- Illness behaviour
- Health seeking behaviour
- Attitudinal predisposition

NOTE: attitudinal predisposition is major information to be established at the various levels of the care-givers: medical students, health educators, health workers.

THE EXPECTED BEHAVIOURAL OUTCOME WOULD BE MEASURED AS.....

Positive Clinical Attitude in the Medical Student
Motivated Health Workers & Health Educator
Improved Accessibility for Mothers & Children Increased Utilization of Health Services

TEP 5: FOCAL INTERVENTION WITH REFERENCE TO THE TARGET POPULATION

The target population is focus of intervention. If there is influence of socio-cultural practice then target population may include “primary” & “secondary”.

EXAMPLE: Fathers must authorize mothers to submit children for vaccination

STEP 6: MONITORING BEHAVIOURAL CHANGES

Indicators for monitoring behavioural changes.....

See Step 4 For The Expected Behavioural Outcomes:-

1. Positive clinical attitude in medical in medical students
2. Motivated health workers & health educator
3. Improved accessibility for mothers & children
4. Increased utilization of health services

IMPACT ASSESSMENT OF IEC INTERVENTIONS STAGES.....

HI —→ CHANNELS OF COMMUNICATION—→

INDICATORS 1, 2, 3, & 4

&

M

(Health
Info. &
Messages)



STEP7: MAINTENACE ACTIVITIES

- Reinforcement of structures.
- Repositioning of structures e.g. in communication.
- Readjustment of structures e.g. to improve output.
- Resource management.
- Crisis management.
- Other e.g. feedback mechanism for II structure.

STEP8: POST-INTERVENTION ASSESSMENT

*Re-visit structures and functions (see step-2)

*Re-visit indicators for behavioural change (see steps 3, 4, & 6)

*Established guidelines for recommendation-Specific and General as related to each structure & Function.

STEP 9: RE-STRATEGIZE OR EXIT

- Focus on impact assessment of I-E-C intervention (see step 6)
- Identify points(s) to re-strategize on:
 - e.g. – channel of communication not making desired impact
 - Specific feedback from the target audience

STEP 10: REPORTING

“Micro” reports become parts of “Macro” report (refer to the conditions to be met for each step).

Documentations on each step remain valuable for the final independent review of that step.

Salient information from final report must go to the areas of focal need e.g. SEE:

STEP-2:- Primary Functions Communication Strategy

STEP-4:- Behavioural Diagnosis

STEP -6:- Indicators for Behavioural Changes

COMMUNICATION AND LEADERSHIP

Leadership

- The Concept

1, Leader

The Act of coming to terms with responsibilities and achieving the desired

results. The differences between being a head and being a leader.

2. Leadership

... The ability lead, guide direct or influence others for the achievement of set objectives and goals.

3. Characteristics

- i. Somebody who people follow and copy: who guides or directs others
- ii. **By location / proximity**- he / she is in front (a beacon) : as in a race
- iii. **By responsibility** – he / she is in charge of and responsible to others: as in family, group or community.
- iv. **By profession**- he / she conducts others; as in musical group or an editor i/c of a journal,
Magazine or newspaper
- v. **By shared responsibility** – leaders of thought; as in group of elders.

• Types of Leadership

- 1 Autocratic – Will always issue orders and directives (good or bad) and expects compliance without questions or resistance from the subjects.
2. **Democratic** – Will always seek others' opinion before making decision. in this process, the minority will have their say but the majority will have their way. The leader – will always rely on and direct according to the joint decisions and ideas of all. However, the leader takes responsibility for the collective action.
3. **Laisser Faire** – Will always allow others to act according to their wishes and have them take responsibility for such acts. Often gets blamed for the actions but will not accept responsibility.
There is free will to act contrary to orders.

4. **Bureaucratic** – Will lead according to the intricacies and details of the order and insist on compliance in like manner, Will hold all actors responsible.

- **The Guiding Principles**

1. Be Focussed,
2. Be Resourceful and
3. Be Consistent.

- **The Steps**

1. Assess your situation
2. List your resources
3. List your liabilities
4. Take action(s)
5. Assess results

Communication and Leadership

Instructions:

- Use the following for interactive session on Communication
- Answer the questions based on your understanding
- Discuss the answers only after you have answered them alone
- Refer to examples of your personal experiences
- Don't discard the questions and answers

Q. 1 ***what is communications?***

A A way of linkage, of making contact with another person for the purpose of sharing, seeking, inquiring, solving..... for survival.

It is an act, with intension to achieve an outcome, satisfy a need.

Sometimes, it's a means of self-adjustment (as in soliloquizing).

Q.2 ***List four (4) ways / methods by which you communicate.***

- A. 1 Talking, Vocal, i.e. orally or verbal
2. Demonstration, gesture. i.e.. body language / non – verbal
 3. In writing
 4. Display of signs, symbols, etc.

Q.3. ***List four (4) reasons why we communicate.***

- A. 1. Express personal or group feelings/emotions/belief ...etc.
2. request / obtain solution to problems/tasks: seek freedom
 3. teach demonstrate or give instructions to a learner,
 4. provide help to others: give direction ... as in mentoring.
 5. belonging e.g. use of current slang (“...as in ...”)
 6. take a stand: affirm a position on issues.
 7. To promote an idea (usually when not solicited, as in campaigns)

Q4. ***Have you hear of the phrase “Communication break-down” ?***
“Yes” or “No” ?

A. Yes

If “yes, briefly explain what it means.

If “No”, proceed to Q. 5

A. Communication breakdown is used often, to describe blockage in the flow of information transfer or 0065change between two points. It could be person to person, group to group, community to community, population to population or one generation to the other.

It describes a situation where monologue takes the place of dialogue. An

unconventional method may be adopted to get the point across. For example, violent act may be added to verbal communication, resulting in resistance, rejection or reaction.

It is demonstrated through unilateral withdrawal of information, message or actions. This leaves the partner(s) lost, deserted or insulted. For example, an expected respondent refuses to answer a greeting or inquiry while demonstration full consciousness.

Q.5 *List ten (10) reasons for communication break-down*

- A. 1. Inability to comprehend the language e.g. reply of “ I don’t or can’t understand you ! complexities
2. Physical disability, such as a partner being deaf / hard-of –hearing.
 3. When a partner introduces insults in the media.
 4. When there is no answer at when expected.
 5. Security not guaranteed for the respondent.
 6. Where there are obvious socio-cultural barriers.
 7. Where hostilities are introduced and unannounced.
 8. Unresolved or pending issues to which a party insists on solution
 9. Perceived outcome may be life-threatening.
 10. Denial of preceding actions. A party dissociating from the actions.
 11. In acute crisis situation when there is anarchy, pain & anguish.

Q.6 *List four (4) conditions for effective communication.*

- A. 1. Mutual expectations / Joint initiators / co-ownership of assets.
2. Vested interest.
 3. Security
 4. Perceived opportunities.

Pre-requisites to Efficient Communication

- When to find people

Consider their occupation, religion and socio-cultural activities and practices.

- Where to find people

Let them decide the most suitable location where there will be minimum distractions.

- How to involve individuals and groups:

Identify the peculiarities of your clients: age, gender, language, taboos.

- **To achieve desired Results**

i. Listen more while you lead the discussions.

ii. Encourage active participation. It guarantees full involvement.

iii. Evaluate what has been achieved.

iv. Set next agenda: let the client accept responsibilities for future activities, in essence, plan ahead, with and for your clients / patients.

2. Using Mass media

Note: Recall definition of Health Promotion (the 3 components)

Mass media does not mean bit media but....

- Which / what medium is reaching
- which audience and
- how frequently.

2.1 analyze each of the foregoing considering the literacy rate

2.2 concentrate on the media which focus on health coverage

2.3 identify the best methods for information and messages dissemination
pre-test and

role play on how to go about the activities.

2.4 develop a realistic work-plan

2.5 Take action with the principle of “one step at a time”

Conduct in-put (process) evaluation as well as out-put (end point) Evaluation.

3.0 Aids for Communication

- * Recall the definitions of Communication
- * Recall the flow-Chart of ICE

Definition

An aid for communication is any object, structure or means used to compliment and / or supplement the process of transfer of information or message.

Types.

The major types of aids used in communication for health promotion are:

- Audio
- Visual

APPENDIX - A

CHECKLIST FOR SETTING UP FOCUS GROUPS”

1. Determine the Number of Groups Needed

- 1 Are there at least two groups for each relevant variable
2. Are there enough groups to rotate the stimulus materials?
3. Were groups conducted until responses were showing similarities?
4. Are groups needed in different geographical regions?

ii Determine the Composition of Each Group.

1. Are the respondents of the same social class?

2. Are the respondents similar in terms of their “lifestyle” or “experience?” with regards to the topic of investigation?
 3. Can users and non-users/practitioners and non-practitioners be put together without preventing inter and intra-group interaction
 4. Do respondents have similar levels of expertise on complex topics?
 5. Is it important to separate respondents by age and marital status?
 6. Are respondents of similar cultural background?
 7. Can males and females be mixed without inhibiting responses?
- iii Determine the Length of the Group
1. Can the information needs be met in one to two hours?
 2. If not, is another research technique more appropriate or should additional groups be set up.

IV. Determine the Size of the Group

1. Will respondents be able to say all they know in ten minutes?
(consider eight-ten respondents per group)
2. Is the subject complex enough for each respondent to give twenty minutes
of relevant information? (five-seven respondents per group)
3. Does the subject matter require a small, intimate group?

V. Determine the Group Setting

1. Will respondents have sufficient privacy to talk freely?
2. Can all respondents see and hear one another?
3. Is the location accessible to respondents?
4. Will respondents be threatened or intimidated by the location?

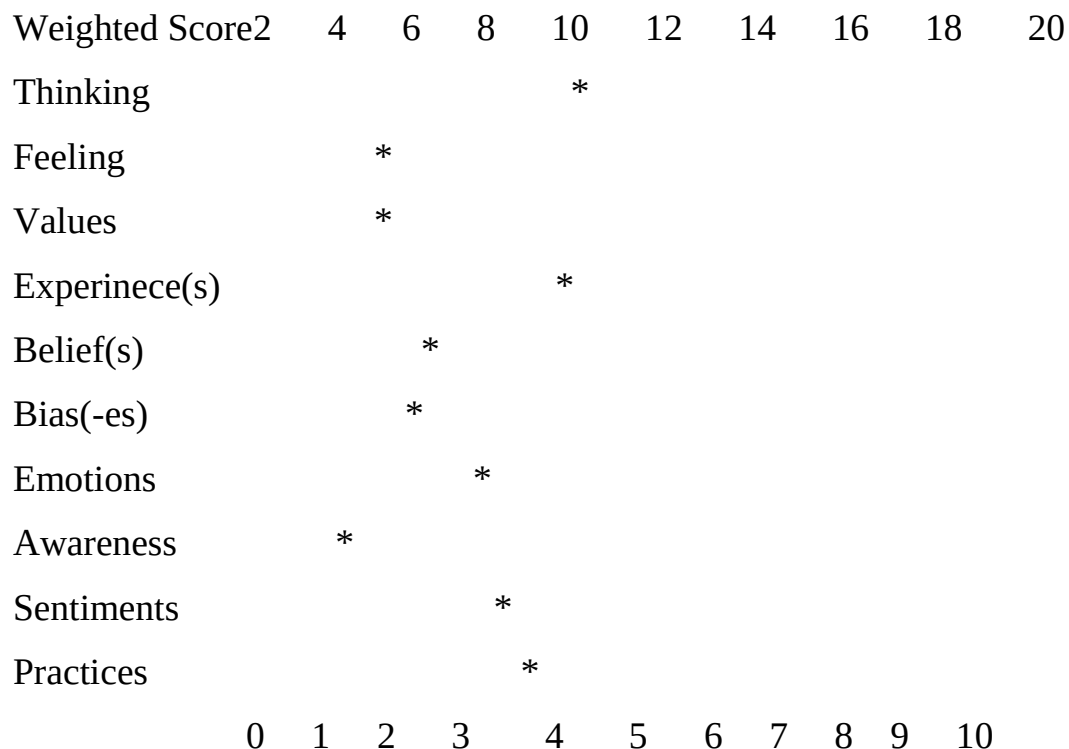
* Source: Debus. M: Handbook for Excellence in Focus Group Research

Table: 3-1: pp. 16. Porter/Noveilli. AEDC Health Com. Washington. DC, USA

APPENDIX - A-1

PROTOTYPE OF CLINIC-BASED ATTITUDINAL DIAGNOSIS

The scatter-graph below was recorded by a resident doctor in one of the State-owned Hospitals in Kwara State during the behavioural diagnosis of a 35 year old woman. She complained of symptoms related to chronic illness known as seasonal affective disorder (a.k.a. SAD) Interpret the records made by the medical officer and answer the following questions



Questions:

- (1) What type of diagnostic tools is this?
- (2) Calculate the total estimated diagnostic score (in %)
- (3a) From this result in (2) above, what is the probability the this patient will keep her next clinic appointment?
- (3-b) Explain, briefly, you predicted probability for clinic attendance
- (4) List the three (3) elements which suggest that this patient may use alternative sources of health care
- (5) Is this patient likely to associate superstitions, myths and magic with her illness state? If so, or not, give reasons briefly.

**TIMETABLE FOR THE 500 LEVEL CLINICAL COBES POSTING
(MATERNAL & CHILD HEALTH; ICT & ENTREPRENEURSHIP
POSTING)**

**Week 1: MATERNAL & CHILD HEALTH; ICT &
ENTREPRENEURSHIP POSTING**

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00A.M.- 1:00P.M.	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2:00 P.M.- 4:00 P.M.	Break	Break	Break	Break	Break
2:00 P.M.- 4:00 P.M.	Human and material resource management in health I	Telemedicine and eHealth	Entrepreneurship: Basic principles and skills	Health Economics	
4:00 P.M.- 6:00 P.M.	Human and material resource management in health II	Hospital Management Software; Managing man- Computer interface	Medical Practice in the 21 st Century: The new frontiers and opportunities	Communication Skills in healthcare	General Office and Healthcare Institution Management

Week 2: CLINIC POSTING 9:00 A.M.-1:00P.M. Monday-Thursday

**TIMETABLE FOR THE 600 LEVEL CLINICAL COBES POSTING
(MATERNAL & CHILD HEALTH; ICT & ENTREPRENEURSHIP
POSTING)**

**Week 1: MATERNAL & CHILD HEALTH; ICT &
ENTREPRENEURSHIP POSTING**

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 A.M.-1:00P.M.	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2:00 P.M.- 4:00 P.M.	Break	Break	Break	Break	Break
2:00 P.M.- 4:00 P.M.	Management Theories; Principles and Practice I	Financial Resource Management I	Healthcare Programming	Establishing Healthcare Business firm	
4:00 P.M.- 6:00 P.M.	Management Theories; Principles and Practice II	Financial Resource Management II	Leadership and Team approach in Healthcare Industry	Marketing of healthcare Products and Services	Project management

Week 2: CLINIC POSTING 9:00 A.M.-1:00P.M. Monday-Thursday

MODULE ON ICT AND ENTREPRENEURSHIP

HEALTH PROGRAMME

Dr. M.J. Saka

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**Dip. in Law& Health Systems (Israel), Cert. Health Economics & RBF
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INTRODUCTION

Health Policies; A health policy is an expression of goals, and the main directions for attaining them. National health strategy usually based on policy is the broad lines of action required for all sections involved to give a effect to a policy. Health programme; is the translation of policies through various stages of planning into strategies to achieve clearly stated objectives and targets if stated.

	Health Programme	Health Project
	Health programme; is the translation of policies through various stages of planning into strategies to achieve clearly stated objectives and targets if stated.	Project;- Planned set of interrelated tasks to be executed over a fixed period and within certain cost and other limitations.
	Project management, then, is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.	More specifically, what is a project? It's a temporary endeavour undertaken to create a unique product, service or result.

What is the Meaning of Health Project?

More specifically, what is a health project? It's a temporary endeavour undertaken to create a unique product, service or result. A project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources.

And a project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal. So a project team often includes people who don't usually work together – sometimes from different organizations and across multiple geographies

- The development of software for an improved business process, the construction of a building or bridge, the relief effort after a natural disaster, the expansion of sales into a new geographic market — all are projects.
- And all must be expertly managed to deliver the on-time, on-budget results, learning and integration that organizations need.

What Does Health Project Entails

- It entails a careful analysis of the health problems and the socio economic circumstance with a view to arriving at feasible solution using appropriate technology to deliver in an integrated manner

Basic Requirements for a Programme

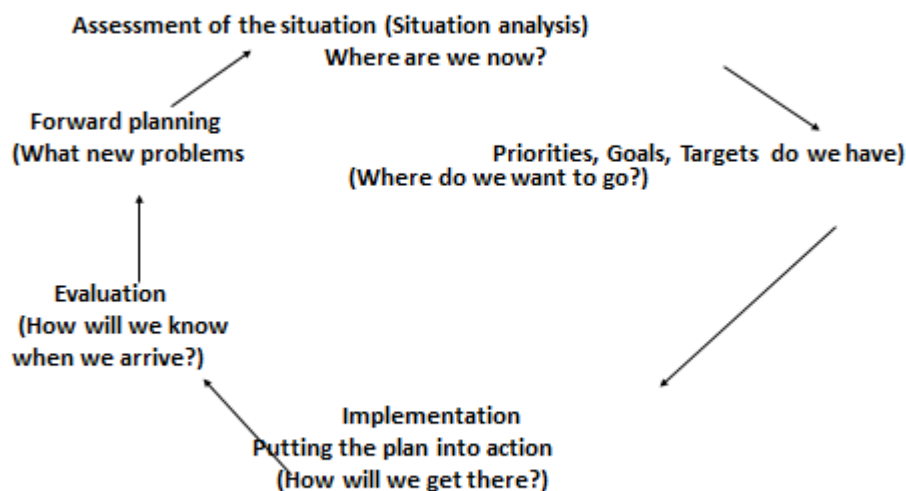
- Decision on specific priorities
- Objectives in relation to priorities
- Resources needed to attain goals.

Factors to be considered before planning a programme

- Political and organizational conditions
- Epidemiological analysis has to prove that the programme is defensible and justifiable

- Economic feasibility and expected benefits
- Social and cultural assessment is require to ascertain acceptability by the community
- Scientific basis should be established to show that there is sound knowledge base supporting the programme.

Health Programme Planning, Implementation. M&E Cycle



HEALTH PROGRAMME CYCLE

- **Priorities, goals** are usually used to formulate policies. Policies are suited to social needs and economic condition of the country.
- **Implementation;** is the translation of detailed programme into action so they can come into operation as an integral part of the system. It is the day to day management of programme.
- **Monitoring:** connotes continuous observation or collection of routine statistics
- **Evaluation:** periodic attempts at answering key questions related to outcomes/impact/performance

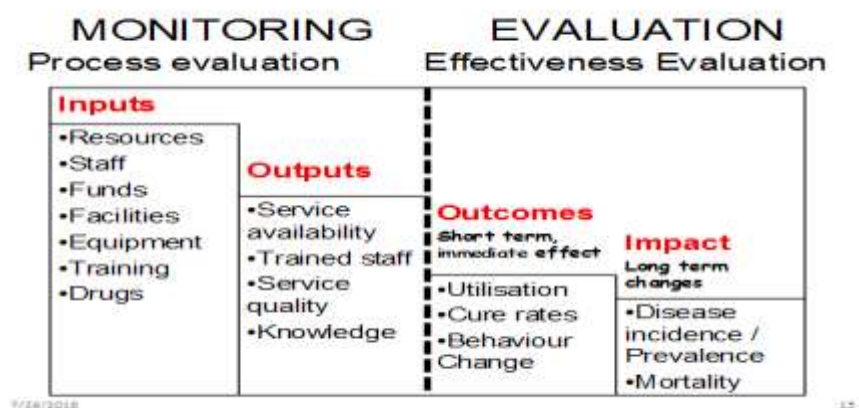
Evaluation of Health programme Cycle

Evaluation

Health programme evaluation can be defined as the collection of information by various methods to determine the relevance, progress, effectiveness and impact of the activities of the programme. (RIPE)

Why monitoring and Evaluation of programme Cycle

There is need for monitoring and evaluation in any programme to find out more about a programme, ensure the programme works, keep track of the activity of the programme, produce a report when the need arises and decision making about the programme e.g. whether to continue, adjust or discontinue.



Types of Health Programmes in Nigeria

Classification of Health Programmes

1. Maternal and Child ; - IMCHI, FP,
2. Mid Wife Service Scheme Health Programme
3. Disease Specific programme; - TB, DM, SCD
4. Prevention Programme; - Immunization,
5. Screening Health Prog. For cancers, etc.
6. Adolescence RH Programme
7. Nutrition Health Programme
8. Rehabilitative Health; - Disables

9. Health Program For the Aged

10. Rural Health Programme

11. School Health Programme

Project management

Project management knowledge draws on ten areas

	Project management knowledge draws on ten areas:	
1	Integration	• Initiating
2	Scope	• Planning
3	Time	• Executing
4	Cost	• Monitoring and Controlling
5	Quality	• Closing
6	Procurement	
7	Human resources	
8	Communications	
9	Risk management	
10	Stakeholder management	

Project Management

All management is concerned with these, of course. But project management brings a unique focus shaped by the goals, resources and schedule of each project. The value of that focus is proved by the rapid, worldwide growth of project management:

RESOURCES FOR HEALTH CARE PROGRAMME DELIVERY

OBJECTIVE:

To identify the various resources for health care delivery including the human, physical material and financial resources in the public and private or modern and traditional health care.

Resources are fundamental to the planning and implementation of health programmes. But the health care delivery systems in most developing countries, including Nigeria, are beset within the problem of resource deficiency which

have impacts on health. Such consequences are mortality and morbidity data of all types and these help in the determination of health needs and demands which are put into planning. The available resources have to be identified in order to determine whether to use them in promotive, preventive, curative or rehabilitative services. Each of the services requires different sets of resources for implementation even though they may overlap.

Resources required for health delivery may range from the highly sophisticated equipment or highly trained specialist to the very minute office stationery. All health resources have conventionally been divided into three broad categories viz.:- human, financial and physical resources. Any of these resources can come from within or outside the health sector.

It is usually helpful to use a work sheet and/or checklist in identifying resources to ensure an appropriate and exhaustive listing of all types of manpower, finance and material resources. A checklist contains a list of sources which can be read off in a corresponding manner; while the work sheet serves as cues to activate an immediate response from knowledgeable and well acquainted people about the possible sources of a specific resource. Thus, the two tools of identification relate resources to source.

1. Human Resources:

It refers to health sector personnel or manpower which vary from high-level modern-technology based trained physician to local community-oriented appropriate-technology-based health workers and traditional practitioners. These include the following:-

- a. **Professionals** such as physicians, dentists, pharmacists, nurse, .midwives, dental and pharmacy technicians/assistants, 'marriage counsellors, psychologists

and environmental. Sanitation personnel who have received some form of specialised training.

b. **Ancillary personnel** include people with first aid certificates, former medical corpsmen, aids, and individuals with special skills to tackle identified problems. The identification of this group is closely related to the specification of tasks (which are usually noncomplex) to be done in solving a problem. Example of this group is the Red Cross and the St. John Ambulance.

c. **Management personnel** perform the tasks of planning, designing, implementing, monitoring and evaluating health programmes and projects within programmes. They are therefore essentially administrators.

d. **Support staff** are the various groups of workers in health care institutions who do not belong to groups (a) and (c) above. Some of them may, have special training in their area of specialty or function. Also their educational qualifications vary according to the requirements needed to enter the training they had. In Nigeria for instance, there are ground-workers who may not have any formal education, clerical staff who are high school leavers, while the technicians working in laboratories receive post high school education. Others include caterers, accounting officers, store keepers and estate officers;

e. **Community Health Workers** function in local communities especially in rural areas. They help to ameliorate critical manpower shortages in rural areas. They perform fundamental tasks of primary health care. In some places one finds volunteers such as Girls Guild and other first -aid personnel also performing these vital primary health care functions at grass root level.

f. **Traditional Practitioners** occupy important position in the health care systems of many developing countries particularly among the rural population. Although there is problem in integrating them into the national (modern) health care system, their vital services are indispensable because they provide supportive roles and are well patronised even where there are modern health care services.

2. Financial Resources:

There are many options to classifying financial resources for purposes of identification, such as voluntary/compulsory mobilization, within/without health sector etc. But the option considered most appropriate is the division along lines of public and private or perhaps in terms of barter.

Public financing of health comes from notional, state or local government levels as well as being at the health sector level or outside it. Essentially, each financial plan complements the allocation to health.

Private Financing of health care comes from individuals, non-governmental organizations including religious bodies, communities and international agencies.

3. Material (Physical) Resources:

Materials come under the main headings of facilities, equipment, supplies, knowledge and technology. Identification of materials needed for use in a programme may be guided by initial ideas, activities to be executed and checklist prepared from past similar programmes. Others still can only be inventoried when actual programmes are proposed and information on them are made available. It is usually helpful to have up-to-date information about availability, distribution and prices and their foreign exchange implications.

Facilities are identified and described according to: (i) whether they are to provide rehabilitative, curative, preventive or promotive services; (ii) type of ownership i.e. government, private or voluntary and (iii) sophistication in relation to the caliber of staff and equipment. These facilities are found in hospitals, clinics, nursing homes, health and health related institutions; laboratories, blood banks, pharmacies, store and all general and grocery shops selling drugs; supporting infrastructures like vehicles, telephone and other communication equipment etc.

Equipment:

When equipment are acquired they must be kept in good working conditions through proper maintenance. It is important to seek assistance from agencies that can donate or give loan because such can free funds for additional services. Types of equipment include:

*Specialised like X-rays, Dental, Cardiographic, Oxygen Tents, Surgical equipment.

*Office and Administrative equipment.

*Data processing like computers.

Some of the above equipment which are usually purchased in bulk are often easily perishable and therefore require special storage and maintenance.

*Drugs constitute an overwhelmingly important health resource for a number of reasons such as:

- the high cost which often involves the use of foreign exchange.
- a constant and timely supply of drugs in adequate amounts and affordable prices.

- drugs have implication for staff morale and clinics perception of health care delivery.
- multinational corporation domination of pharmaceutical trade and their obsession with product differentiation rather than prices resulting in about 60-80% of people in less developed areas, having no access to the most essential drugs (WHO,1978).
- problems associated with public sector provision and utilization of drugs and inefficient distribution system. Other problems are those of theft, stock management, inventory record keeping and supply/ordering delays.

For the above reasons, identification and estimation of requirements as well as their resources are of important consideration.

Segall (1975) identified the separate lists of essential drugs base on efficiency and safety according to the following facilities:

- (1) PHC
- (2) District Health Centres and Hospitals
- (3) Major referral Hospitals.

The estimation of requirements are to be based on: (i) population, (ii) past consumption trend and (iii) demand/morbidity rate.

4. Knowledge and Technology:

Health and medical knowledge and technology can be categorised. as materials because researchers in biomedical sciences are done by research in institutes to find technological approaches to solving health problems. Such research work definitely require the mobilization and inputs of human and physical resources. Research findings are usually presented in journals and books; seminars and workshops as well as in educational exchange programmes, etc.

EXERCISE 1

1. Think of your local government area and list the various resources for health care in the area.
2. Compare the private health care resources with the public health care resources in the local government area.
3. Why do some health care institutions have more resources than others?

ALLOCATION OF RESOURCES IN HEALTH CARE AND PROGRAMME BUDGETING

OBJECTIVE:

To promote understanding of how health care resources are allocated, as well as budgeting principles and practice.

PREREQUISITE:

Students are expected to have mastered sub-module 3 to enable them have better understanding of this sub-module.

Resource Allocation:

The allocation of resources and budgeting for health care programmes is concerned with financial planning which takes place within the overall context of planning. The following elements guide the planning process:

- Reviewing present and past expenditure patterns and financing mechanism.
- Estimating the costs and effects of the proposed changes to determine whether they are worthwhile.
- Determining the preferred pattern of resource allocation against the background of the population groups, geographical areas and services.
- Reviewing ways of raising money to obtain the required resources.

- Translating health priorities and programmes into the budget allocations.
- Monitoring budgets and controlling expenditure.
- Producing financial information for decision makers.

There are many issues surrounding resources devoted to health care delivery in developing and developed economies. One of the issues centres on the share of medical expenses in Gross National Products (GNP). The common trend seems to be for health care to:

- take an increasing proportion of GNP over time;
- take very different proportion of GNP in developing and developed countries. There are several reasons for expecting a rise in the proportion of expenditure in GNP e.g. rapid population growth, inability to control common preventable diseases and the need to cure the large number of sick people in the population in developing countries.

Newhouse (1977) made considerable success in explaining the quantity of resources devoted to health care in developed countries by using one explanatory variable: income per capita. In his study he determined the quantity of resources countries devoted to health care. A simple version of his approach follows, using data he examined from thirteen developed countries; he regressed per capita medical expenditure upon GDP per capita, and obtained:

$$M = -60.72 + 0.0788Y \dots \dots \dots \text{Equation (1.1)}$$

$$(2.57) \quad (11.47) \quad R^2 = 0.92$$

Where: M= Medical care per capita

Y= GDP per capita

and $R^2 = 0.92$

1. Thus, Over 90 percent of the variance in per capita medical expenditure was explained by variation in GDP per capita.

2. As a more rigorous test of hypothesis is done, the result shows that the medical care income elasticity is greater than unity (the conventional economic definition of a luxury good). Newhouse regressed the share of medical care expenditure on the reciprocal of GDP, i.e. effectively dividing the above relationship by GDP per head:

$$\frac{M}{Y} = 8.16 - 6883 \frac{1}{Y}$$

1.....Equation (1.2)

with $R^2 = 0.59$

Implications are drawn from the analysis, one of which is entirely in line with the discussion above: For developed countries at margin, medical care appears to be luxury good i.e. income elasticity is greater than unity. This is also indicated by time series data. Newhouse suggested that if medical care is a luxury rather than a necessity, then the marginal unit of medical care does not produce an improvement in psychological health that will be reflected in mortality and morbidity rates. In view of the above, it seems likely that a reduction in disability, discomfort and dissatisfaction is being achieved. As Newhouse puts it, countries that spend more may buy more caring, but little additional curing (Newhouse, 1977).

The second implication is that, it income can explain a great proportion of the variance in per capita medical expenditures, there is little” Ole for other factors.

Thus the price paid by patient, and the method of Doctor Payment are not significant influences on the national expenditure on medical care. Newhouse explains this in terms of medical care being rational, but not by market mechanism; e.g. National Health Services (NHS) in Britain was pre-determined by British government just as it is in many other countries. A corollary to this is that richer countries can permit the health expenditures to rise and can have a more decentralized method of medical care.

The picture in developing countries may or may not be as markedly different as one might expect. Cullis (1977) constructed a simple frame for thirty-four developing countries for which data was available. He carried out an analysis similar to that of Newhouse. All the selected countries had a GNP (Yl below; Newhouse used GDP) of less than \$100 US dollar. The source of the data was World Bank Report (1975). The data differ from those of Newhouse in that they relate government health expenditure (Ml below) rather to private and government personal medical care expenditure, but are similar in that they relate to the early seventies. Regressing per capita government health expenditure on per capita GNP yields.

$$Ml = -4 + 0.03Yl \text{ -----(1.3)}$$

(with R' = 0.33)

Although this is an inferior economic result relative to equation (1.1), the income elasticity of demand based on this result indicated health care to be a luxury good. I

Newhouse ignored data on developing countries for fear that differences in medical knowledge and type of disease would mask or distort any relationships present. The similarity of Y in the result can be attributed to medical technologies

being the same around the world. Kaplinsky (1973) observed that many developing countries adopt medical care delivery systems that are capital intensive and are curative-based type of care similar to developed nations.

Programme Budgeting:

To define programme budgeting is difficult because it means different things to different people. In addition, programme budgeting has different names like performance budgeting, output budgeting and planning, programming budgeting system (PPBS), which to some people, all mean the same thing while to some others, they are the same.

The important thing about programme budgeting is that it should focus on the general character and relative importance of the service to be provided or work to be done, rather than upon item (e.g. supplies or personnel) to be acquired. The items are only a means to an end. Programme budgeting is therefore primarily concerned with! Performance or the achievement of specific, objectives in terms of health outputs. On the other hand, performance budgeting is concerned primarily with accomplishments or performance specified in terms of physical outputs and unit costs.

Strategies of Health Care Budget:

The elements of programme budgeting include (a) the classification of expenditures by output oriented programmes.

(b) using it as a framework for planning and monitoring progress towards objectives and (c) re-structuring the budget if need be. Programme budgeting provides a framework that links planning and budgeting. Hence WHO suggested an approach to financial planning that falls within the Managerial Process for National Health Development (MPNHD). The MPNHD proposes a

systematic way of formulating and implementing a strategy for achieving health for all community members. The stages are:.

- Formulation of broad policies which comprise the goals, priorities and main directions towards priority goals, that are suited to the social needs and economic conditions of the country and form part of the national social and economic development policies.
- Broad programming is concerned with the translation of these policies through various stages of planning, into strategies to achieve clearly stated objectives and where ever possible, specific targets. \ \ Programme budgeting involving differential allocation of health resources for the implementation of these strategies.
- Master plan of action which results from broad programming and programme budgeting and indicates the strategies to be followed and the main lines of action to be taken in the health and other sectors to implement these strategies.
- Detailed programming which is the conversion of strategies and plans of action into detailed programmes that specify objectives and targets and the technology, manpower, infrastructure, financial resources and time required for their implementation.
- Implementation stage is the translation of detailed programme into action so that they come into operation as integral parts of the health system; the day-to-day management of programmes and the services and institution for delivering them and the continuing follow-up of activities to ensure that they are proceeding as planned and are on schedule.
- Evaluation of developmental health strategies and operational programmes for their implementation, in order progressively to improve their effectiveness and impact and increase their efficiency.

- Reprogramming, as necessary, with a view to improving the master plan of action or some of its components, or preparing new ones as required, as part of a continuous managerial process for national health development.
- support, in the form of relevant and sensitive information, for all these components at all the above stages.

Sections of a budget:

This involves

- (I) a review of the immediate past budget as regards performance based on specified objectives
- (II) an assessment-of present conditions in terms of need and what to budget for, and
- iii a projection into the future by identifying programmes and activities which are prepared in a work plan, on which basis a budget is made.

Sections of any budget are usually decisions which are primarily a matter of political or moral judgment. The following could be considered as sections to be budgeted for:

- (a) Capital and (b) Recurrent, under which the following are considered
 - target groups (their economic background, etc.)
 - client groups (considering their state of health)
 - health service function, such as preventive, curative etc.
 - types of activities, like water, sanitation, immunization, etc.
 - disease categories, e:g. guinea worm and diarrhoeal diseases
 - levels of care, like primary, secondary and tertiary care
 - geographical areas, such as riverine, local governments, etc.

- institutions, e.g. hospitals, health centres.

Types of budget:

There are two main types of budgets which are short-term and long-term. Short-term budget, as the name implies, are for short-period programmes. If a programme covers a long time period, say for several years the budget is usually broken into phases of the programme. This makes monitoring and evaluation to be easy. In the government circle the annual budgets are examples of short-term budgets as well as specific programmes like immunization against an epidemic which may be for a few months and budget for such programmes fall within short-term group. The second type of budget which is less common is, the long-term budget. It covers a time period of a number of years. It is made to cover a rolling plan (e.g. the five development plan) by translating the objectives and activities into financial terms.

A budget could also be categorised as:

Balanced budget

Surplus budget

Deficit budget

In the operation of the budget, the issue of the process and ease of getting out physical cash or cheque vary from one organization to another. Another issue which is important, though varying from one establishment to another, is virement.

WORK PLANNING AND SCHEDULING

OBJECTIVES:

At the end this session student should be able to:

- i. Appreciate the importance of work plan and work schedule in HSR.
- ii. List the contents and characteristics of a good work plan and schedule.
- iii. Prepare a Gantt chart and work schedule of the proposed project.

A Work plan is a schedule, an important documents which should accompany HSR proposal.

WHAT IS A PLAN?

A work plan is a schedule, graph or chart that gives a summary of the various components of the research project and how they are related, in a clear manner.

- Tasks to be performed;
- When the tasks are to be performed;
- The length of time required to carry out tasks;
- Who is to perform what tasks;

The Gantt chart could be used to prepare the work plan. It is important to remember that a work plan:

- Should be simple, realistic, and easily understood by all those using it;
- Must address not only the preparatory and the implementation phases of the project but also data analysis reporting, dissemination of information and utilisation of results;
- Needs to take into account local holiday, festivals, customs, working hours seasonal changes, and work habits in it's preparation.

WHEN SHOULD A WORK PLAN BE PREPARED?

When the project proposal is being prepared, a work plan should be included.. This will help you to discuss project schedule with government, community leaders' institutional authorities and funding agencies.

As the study is carried out, a more detailed work plan may be prepared for each stage of the study.

A work plan can be revised as the project progresses based on assessment of current situation.

WHAT IS A WORK SCHEDULE?

A work schedule usually includes

The tasks to be performed;.

The dates each task should begin and be completed;

Research team, research assistants, and support staff (drivers and typists) assigned to the tasks and Person-days required by research team member, research assistants and support staff. The work schedule will assist in the preparation of budgets for the proposal

EXERCISE FOR REVIEW AND DISCUSSION.

- i. Prepare the work plan for your project, using a Gantt chart.
- ii. Explain the importance of work plans and work schedules.
- iii. What are the expected contents of work plans and schedules?

TABLE 1EXAMPLE OF WORK SCHEDULES: CHILD-SPACING PROGRAMME

	Tasks to be performed	Dates	Personnel Assigned to task	Person days required
1	Finalise research proposal and literature	Weeks 1-3 4-24	Research team (4)	4x3=12days
2	Clearance from national and funding authorities	Week 1-5 4 April-8May	Research Unit Ministry of Health	
3	Clearance and orientation of local authorities.	Week 6 9-15 May	PI(Regional Health officer) Driver	2days 2days
4	Compilation of Child spacing records and interviews of C/S staff	Week 6-9 9 May-5 June	Public Health Nurse driver	10days 10days
5	Analysis of c/s records and sampling study units	Week 10 6-12 June	Research team Secretary	4x2=day 1 day
6	Training or research assistants and field testing questionnaire	Week 11 13-19 June	Research team Research Assistants Facilitator	4x3=12day 5x3=15day 1x4=4day
7	Interviews in community	Week 12-13 20 june-3July	Research team Research Asst.	4x10=40day 5x10=50
8	Preliminary data analysis	Week 19-22 8-28 Aug.	Research Team Research Assts. Facilitator	4x7=28days 5x1=5days 1x2=2days
9	Feedback to local authorities and district health teams	Week 27 3-9 Oct	Research Team Driver	4x1=4days 2 days
10	Feedback to communities	Week 28 10-16 Oct.	Research team driver	X 1-4day 1 day
11	Data analysis and reporting workshop	Week 29-30 17-30 Oct	Research team Research Assistants Facilitator	4x10=40days 1x10=10days
12	Reporting finalization	Week 31-34 31 oct-28 Nov.	Research team Secretary	4x2=8day 1x5=5day
13	Discussion of recommendations/plan of action with local authorities and district health teams	Week 36-37 12-25 Dec.	Research team Secretary Driver	4x3=12 3days 3days
14	Monitoring Research project.	Continuous	Research team	4x1 = 4 day

TABLE 2 EXAMPLE OF WORK SCHEDULES: CHILD-SPACING PROGRAMME

Task to be performed	Responsible person	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Finalise research proposal	Research team									
Clear national authorities	Research unit MOH									
Clear and orient local authorities	PI									
Compile CS records and sample study units	Reg. PH nurse									
Analyse Cs records and sample study units	Research team									
Train research assistants and field-test questionnaire	Research team, facilitator									
Interviews in community	Research team, research assistants									
Preliminary data analysis	Research team, research assistants, facilitator									
Feedback to local authorities and district health teams	Research team									
Feedback to communities	Research team,									
Data analysis and report-writing workshop	Research team, facilitator									
Finalise report	Research team,									
Discuss recommendations/plan of action with local authorities and district authorities and district health teams	Research team,									
Monitor research predictions	Research team,									

EXERCISE 2

Consider your establishment and assess how health care resources are allocated to the various segments through budgeting.

What principles guided the preparation of the budget?

Identify the sections covered in the budget of the department.

Suggest areas of improvement in the budget.

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Health Economic

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1.0 Introduction to Health Economics

Economists are concerned with the wants of human beings. Among other things, human beings want love, recognition, comfort of life and material things. Economists are concerned with our material wants which ultimately is to improve our well-being or make a living. Society's material wants are virtually unlimited and insatiable. Human basic needs include air, water, food, shelter and clothing but we seek much more than this in terms of goods and services that will make us live comfortably or have standard living.

Human wants are several times more than the productive capacity of our limited resources, it is therefore difficult to satisfy our material wants. The means of producing goods and services are limited and scarce. Our desires for goods and services can not be completely satisfied. Over time, wants of man change and multiply and this might be a result of development of new products and extensive promotion of the product or change in circumstances.

In this unit, you will be able to define economics and study basic concepts in Economics. You will also learn about demand and supply and understand economics with a global perspective. This unit prepares you to understand the subject health economics. Economics is about limited resources,, Unlimited "wants" and **Choosing** between which 'wants' we can 'afford' given our resource 'budget'

Misconception on economics to say it concerned with money, the same as accountancy, only practised by economists or objective. Economics is concerned with **costs (resource use)**, benefits, choice, and efficiency while Money is store of value and means of exchange. Accountancy is concerned with monitoring financial transactions. Everyone weighs the relative benefits of each course of action and choose the action which maximises well-being. All decisions are based on subjective value judgements (or judgements of subjective value!). Economics makes these explicit.

Health according to World Health Organisation: Health is a “state of complete physical, mental and social well-being” “***Health Economics***” is often “***Health Care***” Economics, usually “health” in health economic (evaluation) is health *status* according to some measure. Human capital: value of learning, experience and ability embodied in workers which increases productivity and income, asset: accumulates and depreciates. Individual or households can improve their health through use of diet and health care, which is the prevention, treatment, and management of illness and the preservation of mental and physical well-being through the services offered by the medical and allied health professions.

1.1 MEANING OF HEALTH ECONOMICS

Health economics is the branch of economics which applies economic principles using empirical observations in order to solve health services problems in an environment of scarce resources which have alternative uses; It draws from a wide cross section of economic theories like cost-benefit literature, welfare economics, public finance, consumer theory and industrial economics. Health economics as a subject may be grouped with the other new economic literature such as urban economics, which developed in the post-world war-period.

The 1960s and 1970s have witnessed considerable expansion of health economics as a specialized area of economic study. But prior to these decades the production, distribution and consumption of finished goods appeared to be the only area of economics, while the production and distribution of health care were not studied. Non-economists used to see health care as an exclusive area for the health professionals whose functions are to combat and prevent diseases, restore and extend mental and physical fitness, just as they considered prices of physical goods to be the only concern of economists. Economists have carved out health economics as a separate sub-discipline to show how they have

approached and solved health services problems by applying economic principles using empirical data.

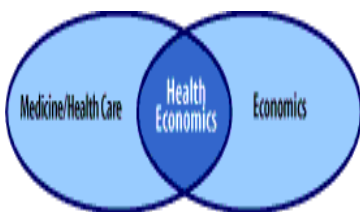
It should be noted that managers in the nation's health services must demonstrate at all times that the amount of public expenditure devoted to health is properly spent, funds are prudently allocated, expenditure strictly controlled, performance critically examined and competing claims for resources judiciously assessed. This therefore means that the economic analysis required to plan and manage health care services must answer the following questions:-

- i. On what is the money spent?
- ii. Who spent the money?
- iii. Where is the money spent?
- iv. Why is the money spent?

Most of the students may not be familiar with basic economic terms and concepts. This sub-module explains the key terms and concepts in Economics.

1.1.2 Interface between Health and Economic

Health Economics lies at the **interface** of economics and medicine and **applies the discipline of economics to the topic of health**



Health economics is the study of how (scarce) resources are allocated to and within the health economy.

1. Production of health care (doctors, specialists, or nurses). How do we distribute health care services across the population?, based on who can pay or who needs it or some combination and How much money should the government spend on health care?

2. Demonstrates the magnitude and importance of the health sector e.g. How fast it might be growing and why
3. What makes it different from other markets and how our analysis may need to adjust
4. Models the determinants of health status and looks and how government policy might improve health status in short and long run

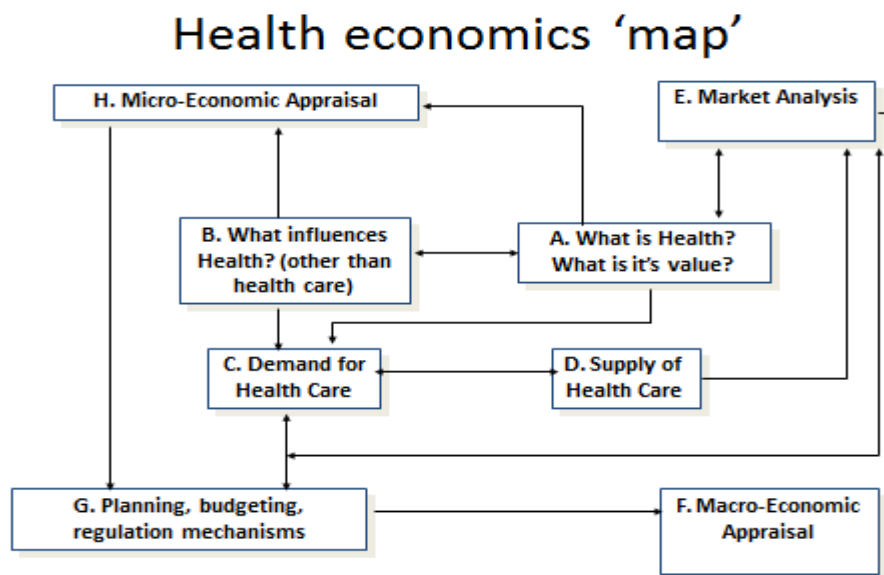


Fig 1 Health Economic Map

Table 1 What is health economics?		
Consumer: - demand for health - production of health - medical care - consumption - demand for health insurance	Producer: - supply of medical care - supply of health insurance - hospitals and physicians - pharmaceutical industry	Government: - equity and efficiency - government intervention - government regulation - comparative health care systems - health system reform

There are several reasons why is it important to look at economics in health?

- Health resources are finite. A choice must be made about which resources to use for which activities.
- By choosing to use resources for one activity, the opportunity of using those resources for alternative activities is given up and
- the benefits associated with the best alternative use of resources is lost. This is called the opportunity cost .

1.1.3 Root of Health Economics

Emerged as a sub discipline of economics in the 1960s with the publication of two important papers:

1. Kenneth Arrow (1963) “Uncertainty and Welfare Economics of Medical Care” *The American Economic Review*.
 2. Mark Pauly (1968) “The Economics of Moral Hazard: Comment” *The American Economic Review*.
- Concerned with the health market not with health or health status.

1.2.0 Basic Concepts in Health Economics

Basic Concept:- Terminology

• Good	• Health Market
• Services	• Demand and Supply
• Scarcity	• Efficiency, Effectiveness
• Opportunity Cost	• Equity and fiscal Policy
• Utility	• Health Insurance
• Economic resources	• Efficiency

You need to understand certain basic concepts in economics to have a clear understanding of health economics. The basic concepts include: wants; Utility, production; wealth; goods, scarcity, opportunity cost, rational choice, economic resources, utility, demand and supply.

- **Economics:** It has various definitions according to the interest of the person defining it. For instance, Alfred Marshall defined economics as the study of mankind in everyday business of life. In relation this definition the following questions may be raised: How do we produce all the things we need? How do we distribute the products to the various segments of the society? What institutions exist and how do they promote the intricate relationships of everyday life? Adam Smith defined economics' as a science of wealth (Le. it studies the production, distribution, exchange and consumption of wealth). The implication of this definition is that a free market economy, where individuals are allowed to use their natural inclination in productive activities would yield the best results for both individuals and the society. It further implies that this will create natural competitive force in the market which in turn encourages hard work in order to be rich. Lord Robbins defines economics as a Science which studies human behaviour as a relationship between "ends" and scarce "means" which have alternative uses. It implies that man's wants are insatiable. Economics can also be considered as VFM meaning Value For Money. Therefore economic could mean spending or consuming as little as feasible to obtain the maximum outcome. In summary, economics is the study of how to utilize scarce resources for meeting unlimited wants. That is, economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses. In economics, we are concerned with the following questions.

- | | | |
|------|---------------------|--------------|
| i. | What to produce | Production. |
| ii. | How to produce | Technology. |
| iii. | For whom to produce | Distribution |
| iv. | When to produce | Time |

- **Wants:** The concept of wants by human beings is explained in the theory of need satisfaction. The basic needs of human beings include air, food, water and shelter to support life. But as we satisfy the basic wants, other pressing wants

appear. This means that as we meet the basic needs, we become more conscious of higher variety of needs and become more and more sophisticated. The economy also becomes more intricate, which leads to the co-operation at the local, national and international levels to produce raw materials, designs and specialised machinery necessary for producing the commodity that we want, such as an aeroplane or cure for deadly diseases such as AIDS.

- **Utility:** The word utility for an economist does not simply mean usefulness, but means the quality of being wanted and the ability of satisfying human want. Thus the utility of an individual's health means the form the individual wants his health to be.

Therefore utility of anything depends largely upon the individual's interest and choice. For instance, an individual knows that smoking is injurious to health yet he or she smokes. To that individual, smoking has utility.

- **Production:** Production is the process of creating wealth in the form of goods and services that occur when appropriate inputs are combined to yield a given output. Production thus includes provision of services like health and education, manufacture of goods, agricultural products and the distribution of these goods and services. Production can be achieved in the following two ways:

(a) The creation of utilities

(i) Changing the form. of materials (utility of form) i.e. transformation of gifts of nature into the form desired by man; e.g. Iron ore to steel, wood to furniture and herbs to drugs or medicines..

(ii) Changing the place of commodities (utility of place); e.g. transporting cocoa from Nigeria to Britain or surgical instruments from Britain to Nigeria.

(iii) Storing goods until they are required (utility of time). This means the use of resources to obtain goods and services i.e. warehouses and labour of Storekeepers are all included as factors of production.

(iv) Providing a service (utilities of time, place or form). This means that special resources are required, e.g. the medical doctors, the nurse and the pharmacists who provide labour and the premises where the activities take place. A service is consumed as soon as it is produced; here, as a commodity, it is consumed sometime after production. Hence a commodity is defined as a "bundle" of services. Health service is intangible and volatile.

(b) Production as a creation of value. This means that monetary value is attached to resources; hence, each time resources are used, the supplier of such services are paid. Factors of production include all the resources we use in further production of goods and services.

- Capital (property of all kinds put into use for further production e.g. building machines and materials).
- labour (work of any kind including human effort expended to earn an income. An example is the work done by a manager or a cleaner).
- Land (it includes not only land itself but all other gifts of nature e.g. soil and mineral deposits. It is the ultimate source of all materials and natural resources. It also provide space where production can be carried out).

- Entrepreneur (At a time, it was considered to be the fourth factor of production but the position has changed because of rapid technological development and expansion of business enterprises. Entrepreneur has now assumed a separate role of control, management and coordination - in modern economic activities.
- **Wealth:** Wealth is defined as a stock of goods (which possesses utility, supply limit, money value and transferable ownership) existing at any particular time which can be used in the production of further goods and services.
- **Good** is a tangible object that is capable of satisfying human wants. Materials like cars, clothes, food, cookers can be regarded as goods and health can also be considered an economic good.
- **Service** is an intangible action that is capable of satisfying human want – such services include water supply, health care, waste disposal, etc. Services satisfy our wants as much as goods do. Goods such as thermometers, suction machine are used to provide services.
- **Scarcity** is a condition in which it is impossible to satisfy all human wants for goods and services and this forms the central concept in economics. Scarcity is said to occur when we cannot have every good or service that we need or when we want something that we cannot have. No one can have everything that he or she wants and we therefore have to select goods and services we think can give us greatest satisfaction. For example some people who are economically disadvantaged may have to choose between going for health care and using the available money to pay school fees or house rent. Scarcity exists at individual, institutional, community and government levels.

- **Utility** – is the benefit consumers get from the purchase of goods and services. It helps to determine how much the consumer is willing to pay. Marginal utility is the additional utility gained by consuming one more unit.
- **Economic resources** are all natural, human, and manufactured resources which go into the production of goods and services. It is broadly divided into two:
 Property resources – include land (natural resources) or raw materials and capital.
 Human resources – include labour and entrepreneurial ability
Efficiency = maximising benefit for resources used there are categories technical and Allocative Efficiency
 - **Technical** = meeting a given objective **Efficiency** at least cost (resources)
 - **Allocative** = producing the pattern of **Efficiency** output (supply) that matches the pattern of consumer want (demand)
- **Opportunity Cost** is defined as the value of the second-best choice that is given up when a first choice is made. Every choice one makes is a trade-off between the benefits and costs of one's decision. Usually one will want to make a choice that will result in the smallest opportunity cost and the greatest possible benefit. If this is the case then one has made a **rational choice**.
 If a person chose to use little money available to him to buy prescribed drugs for his child as against the other choice of buying alcoholic drink, that choice can be considered rational. From this example one can imagine how well people choose to make rational choice. Rational behaviour means that different people will make different choices because their preferences, circumstances, and available information differ. Rational decisions may change as circumstances change. Try to imagine how our culture makes people spend their money on ceremonies rather than spending such money to take care of them so that they can live well.

Opportunity Cost:

This is the value of the benefit. Foregone because of using money or resources in a specific venture or activity," rather than in another beneficial alternative venture. It means that the cost of using resources on one activity like renovation of hospital buildings, is that the opportunity to use the same resources on some other activity such as buying drugs for hospital patients'-(which might have higher value or benefit) is foregone. -

- The value of forgone benefit which could be obtained from a resource in its next-best alternative use.” Let's look at **opportunity cost**. The aim of economics is to ensure that the **chosen activities have benefits**, which outweigh their opportunity costs, OR the **most beneficial activities** are chosen within the resources available.

Example of OC below:-

Inpatients treated ('000s)	Outpatients treated ('000s)	Opportunity cost of treating inpatients in terms of outpatients foregone
0	50	0
1	45	5
2	42	8
3	20	30
4	15	35
5	0	50

Opportunity cost of treating 5,000 inpatients is 50,000 outpatients.

Implications of opportunity cost

- Deciding to *do* A implies deciding *not* to do B (i.e. value of benefits from A>B).
- Cost can be incurred without financial expenditure.
- Value not necessarily determined by “the market”.

Demand:

This is the quantity of goods or services which the individual is willing and able to pay for at a prevailing market price at a given time. When considering demand, the price of the item must be kept in mind. The individual's demand for any commodity depends on the following factors: the price, number of consumers in the market, their taste for that particular item, their income and availability of other substitutes.

- The quantity demanded of any good is the amount of the good that buyers are willing and able to purchase.
- Law of demand: the claim that the quantity demanded of a good falls when the price of the good rises, other things equal

Determinants of Demand	Estimating Demand for Medical Care
• The Quantity Demanded is determined by the following functions:	Quantity demanded = $f(\dots)$
• Demand = $f(P, Y, P_c, P_s, T, \dots)$	• out-of-pocket price
• Where $f(\dots)$ „means function of“	• real income
• P = price of good	• time costs
• Y = income of consumers	• prices of substitutes and complements
• P_c = price of complementary goods	• tastes and preferences
• P_s = price of substitute goods	• Profile
• T = tastes or preferences	• state of health
•	• quality of care

Supply:

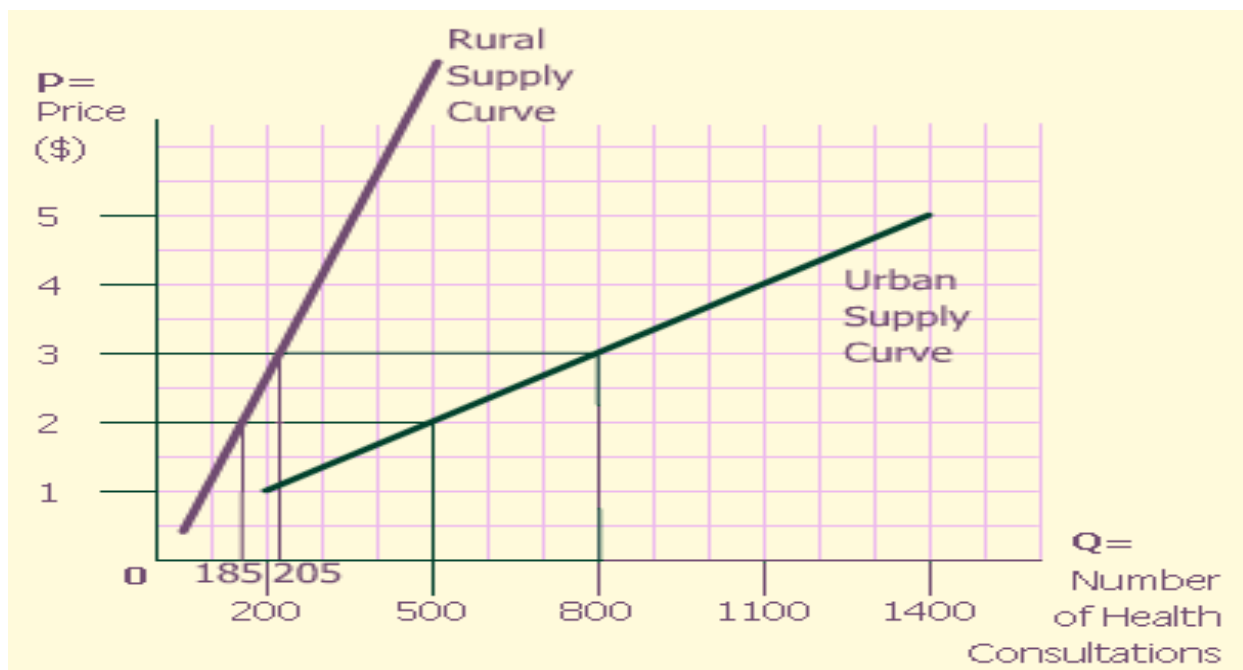
This is the quantity of goods or services which the entrepreneur or seller is

prepared to make available for sale at a prevailing market price within a particular period. Here too, price is vital to Supply. Other factors that affect supply are: cost of production, level of technology, natural climatic/weather conditions and Government policy.

- All suppliers/providers make use of **FIXED INPUTS**—like land and buildings—as well as all **VARIABLE INPUTS**—like labor and materials—to produce a good or service.
- These inputs, combining fixed and variable inputs, are called a **PRODUCTION FUNCTION**

Concept of Supply

- Quantity supplied represents the number of units of a product that a firm would be willing and able to offer for sale at a particular price during a given time period.
- A supply schedule is a table showing how much of a product firms will supply at different prices.



Why is the rural supply curve less elastic?

You can find the proof by calculating the elasticity in both cases, but we can also argue this by just looking at the graph. When the price increases from \$2

to \$3, the number of health consultations in the rural area increases only by about 20 (from 185 to 205), whereas in the urban area they increase by 300 consultations (from 500 to 800). The same increase in price yields a much bigger supply response in the urban area than in the rural area, or we can say:

If you want to Increase the Supply of good or Services

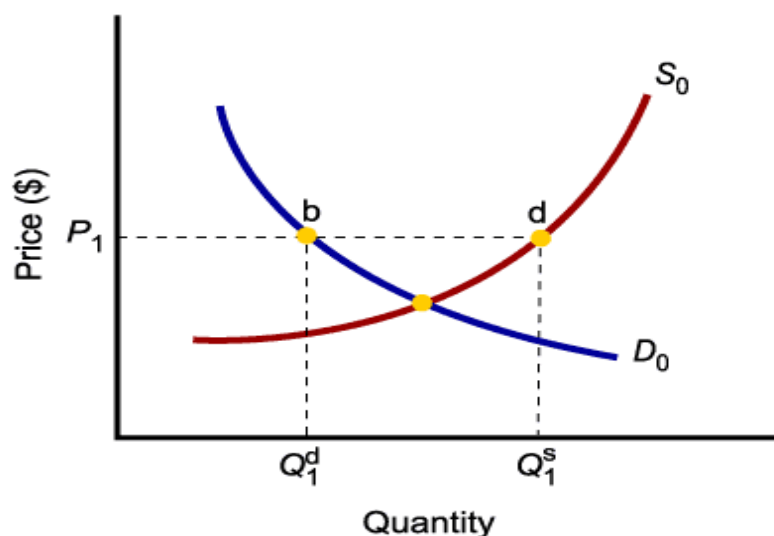
1. Increase its price;
2. Reduce costs of producer inputs;
3. Invent new technologies that yield more output per input

Why is the rural supply curve less elastic?

The supply curve is much more inelastic in the rural area than in the urban area. The steeper the supply curve, the more inelastic the supply will be, therefore, a totally inelastic supply curve will be a vertical line—just like a fully inelastic demand curve.

Market Equilibrium

- The operation of the market depends on the interaction between buyers and sellers.
- An **equilibrium** is the condition that exists when quantity supplied and quantity demanded are equal.
- At equilibrium, there is no tendency for the market price to change.



- Only in equilibrium is quantity supplied equal to quantity demanded. At any

price level other than P_0 , the wishes of buyers and sellers do not coincide.

Elasticity:

It is the degree of responsiveness of something (e.g. supply or demand) to a change in another thing (e.g. price, income). For instance, a person may demand for the same level of medical treatment despite a change in his income (income elasticity) or a change in the amount to pay (Price elasticity). The degree of sensitivity to a price change is affected by availability of substitutes.

EXERCISE

With appropriate examples, explain the following economic terms and concepts: wants, choice, scarcity, utility, production, wealth, demand, supply, elasticity and opportunity cost.

1.3 HEALTH MARKET

For any market to function, you simply need three components:

1. Trading of a good or service;
2. Two independent players— - buyers, - sellers;
3. A 'price' of the good or service that conveys information about its value— - buyers' willingness to pay = **DEMAND**, - sellers' willingness to produce = **SUPPLY**.

A market is simply the result of the interaction of supply and demand.

Nine Conditions for Competitive Market

Buyers /Clients;-	Good or Service;-	Producer and Supplier
1 Able and willing to pay.	5. Homogenous (similar input/similar quality),	7 Many sellers,
2 Informed,	6. Price Known in Advance	8 Free entry
3 Rationale and		9. Free Exit A producer start producing , buying necessary machinery, patent or anything else that are equivalent to
4 Time to Stop		

Applicability of Market Conditions in Health

1. Households, or buyers, tend to be less informed about health consultations and the medical expertise involved than they are about the composition and production of shoes or bottled drinking water;
2. Producers, or sellers, of health consultations are likely to have a harder time 'setting up shop' in remote areas than are producers/sellers of shoes or bottled water;
3. The service—health consultations—can be highly varied in content, whereas shoes and bottled water tend to be much more similar and homogeneous.

How Is The Medical Care Market Different From Other Markets?

1. Presence of Uncertainty

Demand is irregular and uncertain example Accidents, can you deny someone lifesaving care if they don't have the money?

2. Supply—hard to understand the product e.g.

- a. Asymmetric information; - When we are sick we don't understand the treatment we need and must trust our doctor in their diagnosis.
- b. Different doctors may suggest different treatments due to uncertainty of outcome.
- c. Hard to judge quality;-governments establish licensing requirements to ensure minimum level of quality

3. Prominence of Insurance

- People buy insurance to cover themselves against the risk of illness.
- With third party financing most of the cost of medical care, individuals are insulated from the full cost of the care they receive.
- Demand for medical care may rise if you don't pay the full cost.
- Treatment recommendations are adjusted to insurance status.

4. Large role of not-for-profit providers

- Economists usually assume firms maximize profits.
- There are many not-for-profit hospitals (85%). How should economists model their behaviour?

5. Role of equity and need

- Belief that people ought to get health care whether or not they can afford it.
- Economists need to take this feature of the good into consideration.

6. **Externalities for example in** Communicable disease

- A disease that is transmitted through direct contact with an infected individual or indirectly through a vector (e.g. mosquito).
- Significant reduction in their spread account for much of the improvement in health in developed countries e.g. Malaria, TB, vaccine preventable diseases
- Still a significant problem in less developed countries
- Individual behaviours (smoking, over eating)
- Direct impact on health of person and others
- Impacts the cost of health
- premiums –i.e. lung cancer
- Impact on demand for health care

Health Care Market Vs Other Markets	
Unpredictable and irregular demand Medical care is not something you can choose not to purchase. Medical care services are demanded when there is a departure from the normal state (i.e., illness, or in an emotional state). People would like to avoid illness (and hence, participation in the medical care market). But, this is not the case for all medical services. We must consider the type of treatment.	4. Unusual Pricing Practices ➤ There is Extensive price discrimination by income. There are barriers to advertising. ➤ How should we model physician's pricing behaviour?
Supplier is advisor Hard to understand the supply of product due to asymmetric information. When we are sick we don't understand the treatment we need and must trust our doctor in their diagnosis. Different doctors may suggest different treatments due to uncertainty of outcome. It is also hard to judge quality-Uncertainty due to lack of knowledge as to the consequences of purchase. Governments establish licensing requirements to ensure minimum level of quality	5. Barriers to information ➤ When there is a lack of information, buyers and sellers do not have equal information, markets may not work properly. ➤ Insurance against medical care costs. (Problems?) ➤ moral hazard ➤ adverse selection ➤ administrative costs ➤ pooling of unequal risks
3Different supply conditions ➤ Restrictions to the profession by licensing -High costs and limited entry to medical school. ➤ Advertising affects supply of services, drugs. But, should the government be involved in supply of medical care?	

Externalities

Individual behaviours (smoking, over eating), direct impact on health of person and others. Impacts the cost of health, premiums –i.e. lung cancer and impact on demand for health care

Unusual Pricing Practices

There is Extensive price discrimination by income. There are barriers to advertising and how should we model physician's pricing behaviour?

5. Barriers to information

When there is a lack of information, buyers and sellers do not have equal information, markets may not work properly. Insurance against medical care costs. (Problems?)

- moral hazard
- adverse selection
- administrative costs
- pooling of unequal risks

1.3 ECONOMIC EVALUATION

- A full economic evaluation must include information on both costs (inputs) and consequences (outputs).
- A full economic evaluation consists of identifying, measuring, valuing and comparing the costs and consequences of the alternatives being considered.
- There are three major analytic techniques that can be used, as displayed in the table below.

Analytic Techniques of Economic Evaluation

	Analytic Technique	Measure of Cost	Measure of consequences
1	Cost-Effectiveness Analysis (CUA)	Money Units	Physical units (Effects)
2	Cost-Utility Analysis (CUA or equivalent)	Money units	Quality-Adjusted Life Years (QALYs;
3	Cost-Benefit Analysis (CBA)	Money units	Money units
4	Analytic Technique	Measure of Cost	Measure of consequences

Cost-Effectiveness Analysis (CEA)

- The costs, measured in money terms, are compared to the consequences in the physical units of effectiveness that are natural to the program

- *The cost per case of malaria prevented, or Cost per case of malaria cured, or perhaps, the cost per malaria death averted*
- *Compare malaria control programme with MCH programme is not CEA*

To make these broader comparisons, a common 'currency' for measuring consequences is needed

COST-UTILITY ANALYSIS (CUA)

- COST-UTILITY ANALYSIS (CUA) the consequences are measured in QUALITY-ADJUSTED LIFE YEARS (QALYS), which attempt to capture and reflect both the **quantity** of life years added by a health care program and the **quality** of life resulting from treatment.
- A QALY is calculated by multiplying the number of life years added by a program by a **standardized weight between 0 and 1.0** that reflects the health-related quality of life during that time, where 0 is weight given to immediate death and 1.0 is the weight given to perfect health for a defined time period.
- Suppose that a dialysis treatment program extends life by 15 years, but that the quality of life of an individual receiving dialysis suffers both because of the treatment itself and a gradual decline in health over that time.
- If individuals valued the first 10 years at 0.75 on the above 0 - 1.0 scale, and the last 5 years at 0.50 on the same scale, then we would say that dialysis generated 10.0 QALYs ($10 \times 0.75 + 5 \times 0.50$).

CUA (QALY)

- The advantage of the QALY metric is that it captures in a standardized way both the quantity of life years under each program and the quality of those years, allowing programs with diverse effects to be compared
- The quality adjustment weights for QALYs should (1) be preference-based, (2) be interval-scaled, and (3) contain both perfect health and death on the same scale
- The approaches can be divided into two basic groups: direct and indirect measurement of preferences

- Direct methods- measure the preferences of individuals directly using general instruments like the visual analogue scale, the time trade-off method, and the standard gamble technique
- Indirect Such systems consist of a set of attributes of health status (e.g., pain and discomfort, visual acuity, ambulation, cognitive function, etc

Cost-Benefit Analysis (CBA)

- **Cost-Benefit Analysis (CBA)** In the third approach to assessing efficiency, **COST-BENEFIT ANALYSIS (CBA)**, the consequences are measured and valued in monetary units, most commonly by asking relevant individuals how much they would be willing to pay to obtain the consequences: health improvement.
- Hence, for the malaria prevention and treatment program, or the dialysis program, ANC, EOC, MCH programe.
- the analyst would describe to an individual both how many life years the program could be expected to add and what their health would be during those years, and
- then ask the person how much they would be willing to pay to obtain those health benefits.
- In cost-benefit analysis both the costs and the consequences of a program are measured in the same units, i.e. money units, and thus CBA is the only technique that can determine in and of itself whether a program is worth doing (benefits exceed the costs, generating positive net benefit).

Willingness to Pay (WTP)

- Cost-Benefit Analysis converts all costs and effects to their equivalent dollar (or other currency) amounts, and for each program determines a net benefit (benefits minus costs).

- It is now recommended that the **WILLINGNESS-TO-PAY (WTP)** method be used to convert health changes to their equivalent dollar amounts.
- WTP questions can be asked in a number of different ways and these have different implications for the analysis.
- Firstly, WTP questions can be asked regarding only the actual health change achieved.
- Secondly, WTP questions can be asked for the whole program (Global WTP), encompassing how much they are willing to pay to achieve all of the consequences including health effects, savings in the health care and other sectors, and other non-monetary consequences.
- It is important to distinguish which type of WTP question is asked. If it is the former, then any cost savings and the value of other, non-health effects must be added to the WTP for the health effect;
- if it is the latter, the global WTP includes all relevant effects and including any others will result in double-counting.
- Global WTP questions can be asked of at least two different groups.

One group would be those in need of the program. At the point of potential use of the program, how much would they be willing to pay to receive the program? This response suits situations where individuals pay for their own health care at point of use, such as services not covered by health insurance, whether government or private.

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General office and healthcare institution management

Dr. M. M. B. Uthman

(MB,BS, MPA, MPH, FWACP)

Outline

- Meeting
- Record keeping
- Principle of organization of medical school
- Principle of organization of private/group hospital practice
- Principle and organization of a school health care system
- Principle of organization of HMOs

Meeting

- I can still remember arriving early to staff meetings at
- I wanted to make sure to sit where I could look out the window and 'escape' from the meeting
- Unfortunately, because most of the meetings I have attended have fallen into the unbearably unproductive category

Meeting types

- Management meeting
- General meeting
- Committee meeting
- Emergency or regular meeting

Meeting procedures

Meeting procedures are set up to:

- Improve the efficiency in the conduct of the business
- Giving protection to the rights of members present
- Enable every person in the meeting to have an equal right to be heard and to have the opportunity to have their viewpoint considered
- Enable every person present to have an equal right to vote on the issues and to help in the decision making
- Make sure that members are aware of the meeting procedures and kept informed of any changes

Prior to the meeting

- Make arrangements for the meeting place
- Send adequate notice of the meeting to all concerned
- Minutes of the previous meeting should be enclosed if they have not already been sent
- Adequate notice:
(Agenda, venue, date and time)

Notice of meeting

**The first quarter review meeting of
....revolving scheme committee will be held
on:
Wednesday 27 March 2012
at 3.00pm
in the Education Conference Room (CRD03)
If you are unable to attend
please contact John on 08631 3789**

Agenda

- Opening Formalities/Remarks
- Apologies
- Confirmation of Agenda
- Confirmation of Minutes
- Business/Matters Arising from the Minutes
- Correspondence
- Business Arising from the Correspondence
- Report
- A.O.B.
- Date of Next Meeting
- Close of Meeting

At the meeting

For formal meetings, Rules of Debate can be used

Motions

- The Rules of Debate require that all business be put forward as a positive statement of action called a "motion"
- A motion is a formal recommendation put to a meeting for debate and consideration

Understanding Motions

All items of business or issues requiring a decision must be presented to the meeting as motions which if passed, will then become resolutions

- The amendment must be put before voting on the original motion

Chairing meetings

Throughout the meeting the chairperson:

- Notes who wishes to speak, and indicates when a person may speak.
- Is responsible for keeping conversation to the subject
- Decides when discussion should be brought to an end
- Does not usually get involved in the discussion unless their opinion is sought
- Should summarise the issue under discussion to aid in decision making
- If it is apparent that a decision cannot be made - refer the item to a working group for a report at the next meeting

Voting at meetings

General agreement - why put it to the vote

- **Verbal** - the chairperson asks people to say "yes" or "no" and decides which was the louder response
- **Show of Hands** - the chairperson asks people to raise their hand and counts
- **Individual vote** - the chairperson asks each person to turn for their view. it prevents anyone from fence-sitting
- **Secret ballot** - individuals vote on paper. Suitable for elections
- **Proxy** - individuals who are absent can give someone else the power to cast their vote
- **Postal** -

After the meeting

- minutes should be written as soon after the meeting as possible, when the details are still fresh in the mind
- Preferably minutes should be circulated within a week of the meeting being held
- Note points for action (and the person responsible) that need to be chased up between meetings
- Decision extract is a summary of resolution from the meeting

Record Keeping

- A health record can cover a wide range of material:
 - Handwritten medical notes
 - Computerised records
 - Correspondence between health professionals
 - Laboratory reports
 - X-ray films and other imaging records
 - Photographs
 - Videos and other recordings
 - Audio recordings
 - Printouts from monitoring equipment

Characteristics of full & accurate health records

- Authentic
- Reliable
- Complete & unaltered
- Processes & systems have integrity
- Useable
- Transferable
- Structured

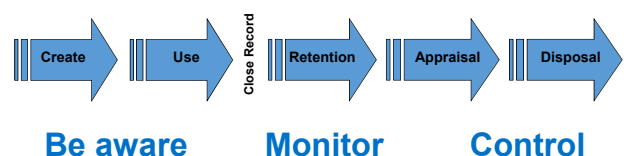
Why do we keep health records?

- Communication between healthcare professionals
- Continuity & evaluation of patient care
- Defence of claims & investigation of complaints
- GMC Requirement (“Good Medical Practice”)
- Risk management
- Clinical Governance
- Resource utilisation
- Research and education
- Historical purposes

The health record should be...

- Available in the right place at the right time to support effective patient/doctor contact and to provide continuity of care
- Availability of the complete record when needed is a key determinant of the performance of Health Record Services

Record Lifecycle Management



Principle of organization of medical school

- University/Institute
- College
- Faculty
- School
- Department
- Unity

Principle of organization of medical school 2

- Basic medical sciences
- Clinical sciences
- Postgraduate programmes
- Local need with international standards
- Regulatory agencies- MDCN, NUC, Professional bodies

Principle of organization of private/group hospital practice

- Sole proprietorship
- General Medical practice
- Specialist clinics/Hospital
- Registered Company-
- Public liability company-EKO hospital Plc

Principle of organization of private/group hospital practice

- Governance
 - Hospital management board
 - CMD
 - MD
 - Director of Admin
 - Finance controller

Principle and organization of a school health care system

Occupational health service

- The child spends a considerable proportion of his formative years in school of one variety or the other
- School exerts a strong influence on the values and outlook of the child
- School is already structured and positioned for learning. Opportunity can be taken to impart useful knowledge both formally and informally

School health care system

- A group of activities that contribute to the understanding maintenance and improvement of the school population including the pupils, teachers and other staff.
- It is multi-sectorial in approach
- The schoolteacher is the pivot of activities

Components of school health care system

- School health services
- Health instruction
- Healthful school environment

School health services

- Geared towards maintenance of the optimal health of the school population.
- Deals with the control of communicable diseases and general supervision of the health of school children and personnel.

School medical examination

- The aim is to identify defects (visual, bearing, speech, dental, skin, nutritional) and to ensure early and continued treatment.
- Every child is entitled to at least three (3) routine examinations - at entry, midpoint and at exit from school

School health clinic

- This operates at two levels
- Clinic for minor ailments: First aid treatment is provided for cuts, bruises, minor skin infections, and slight fever. "Sick bays"
- Specialist clinics: This may be done by retaining specialists or hospitals

School meals and food hygiene

- At least one adequate meal a day
- Inspection of food sold to children in the school premises
- Screening food vendors for diseases like typhoid or tuberculosis
- Guidance of pupils on nutrition-friendly snacks

Control of communicable diseases

- Immunizations: confirm compliance with routine vaccinations
- Identification and isolation of pupils with communicable diseases like mumps, conjunctivitis, varicella and measles.

Play activities

- Good physical, mental and psychological development and for building an attitude of healthy competition
- Youth groups like Boy scouts, Girls' brigade

Health instruction

- Occasion is taken to pass formal health information to children on habits, attitudes, practices and conducts.
- Emphasis is placed on personal hygiene, nutrition education and recognition of simple diseases.

- Safety education, healthy habits, prevention of home, school and road traffic accidents are also dealt with.
- This pre-supposes that the teacher imparting the information is himself/herself well informed. It is therefore imperative that the curricula for institutions of teacher training should prepare the trainees for participation in SHP.

Healthful school environment

- The school environment must be conducive to optimal health in all its ramifications. It must promote satisfactory interactions among pupils and staff.

- Periodic inspection of school premises by trained superintendents – classrooms, assembly halls, living quarters, kitchens and conveniences. This ensures that there is no overcrowding, no noise or waste pollution, good cross ventilation. It should also be geared towards making the environment unfriendly to vectors of disease like mosquitoes or flies

- Good and steady water supply
- Adequate and hygienic human and domestic waste disposal

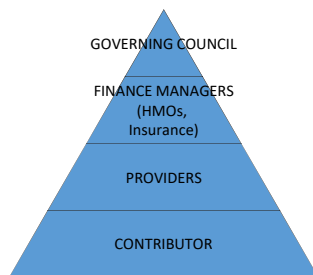
Special mention - sickle cell

- Affects 2% of Nigerians
- Affected children have special needs.
- They may miss school frequently during periods of illness. Thus the individual curricula of affected pupils may have to be adjusted to accommodate difficult times.

Investigating poor school performance

- A good school health program should identify for special attention, pupils who perform poorly in class or who suddenly begin to deteriorate in school performance.

Principle of organization of HMOs



Principle of organization of HMOs

- The 42nd meeting of the National Council on Health (the highest advisory body on health) in Asaba in June 1997 approved the re-packaging of the scheme to ensure full private sector participation, financial probity and effective management. This led to the introduction of HMOs as integral stakeholders in the scheme
- They are limited liability companies solely formed for the purpose of provision of health services
- They shall be registered by the scheme as the financial managers of the scheme. They can be private or public individuals or establishments.

Their functions include:

- Collection of contributions from eligible employers & employees
- Collection of contributions from other contributors
- Payments of healthcare providers for services rendered
- Maintenance of quality assurance in the delivery of healthcare benefits under the scheme

HOW THE SCHEME WORKS HMOs

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HOW THE SCHEME WORKS HMOs Contd.

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