

**SCHOOL OF SCIENCE AND TECHNOLOGY**

**PRACTICAL MATERNAL AND CHILD  
HEALTH NURSING**

**BSN 4818P**



**BANGLADESH OPEN UNIVERSITY**

# SCHOOL OF SCIENCE AND TECHNOLOGY

## PRACTICAL MATERNAL AND CHILD HEALTH NURSING

### BSN 4818P

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# PRACTICAL MATERNAL AND CHILD HEALTH NURSING

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## Contents

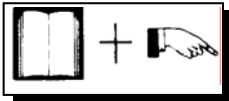
### Practical Maternal and Child Health Nursing

|               |   |           |
|---------------|---|-----------|
| <b>Unit 1</b> | <b>: Assessment of Ante-Natal. Mother Planned Health Education on Ante-Natal Care, Advices</b>    |           |
| Assignment 1  | : Ante-Natal Care .....   | 1         |
| Assignment 2  | : Assessment of Ante-Natal Mother .....   | 4         |
| Assignment 3  | : Planned Health Education .....  | 7         |
| Assignment 4  | : Advices on Ante-Natal Care .....  | 10        |
| <b>Unit 2</b> | <b>: Organizing and Participating in Health Education, Family Planning and Immunization Camps</b> | <b>13</b> |
| Assignment 1  | : Organizing a Health Education Program on Family Planning .....                                  | 15        |
| Assignment 2  | : Organizing an Immunization Camp .....   | 21        |
| <b>Unit 3</b> | <b>: Growth and Development</b>   |           |
| Assignment 1  | : Growth and Development Monitoring .....   | 29        |
| <b>Unit 4</b> | <b>: Planned Health Talks on Infant Feeding</b>   |           |
| Assignment 1  | : Brest Feeding .....   | 41        |
| Assignment 2  | : Artificial Feeding .....  | 44        |
| Assignment 3  | : Weaning .....   | 46        |
| Assignment 4  | : Maintenance and Promotion of Health of Mothers and Children                                     | 49        |

# **Unit 1: Assessment of Ante-Natal. Mother Planned Health Education on Ante-Natal Care, Advices**

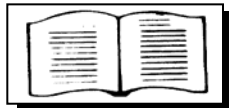
## **Assignment 1: Ante-Natal Care**

### **1.1. Learning Objective**



On completion of this assignment you will be able to -

- know about antenatal care.



### **1.2. Ante-Natal Care**

Ante-natal care is the clinical assessment of mother and fetus during pregnancy, for the purpose of obtaining the best possible out come for both the mother and the child.

### **1.3. Ante-Natal Team**

Ante-natal care is provided by a team which includes -

- General practitioner
- Nurse mid-wives
- Obstetricians
- Neonatologists
- Other medical specialists
- Health visitors
- Social workers
- Health advocates.

### **1.4. Types**

There are usually three schemes of care -

- a. Community care-supervised predominantly by the mid-wife
- b. Shared care-among the woman's general practitioner, mid-wife and obstetrician

Assessment of Ante-Natal. Mother Planned Health Education on Ante-Natal Care, Advices

- c. Hospital care-only cares in cases where there is increased risk of either the mother, the fetus or both.

### **1.5. Things To Be Done**

To achieve these objectives, the following things are to be done -

- **Careful history taking or writing**
  - Social history
  - Menstrual history
  - Obstetric history
  - Medical history
  - Family history.
- **Examination**
  - Physical examination
  - Abdominal examination.

### **1.6. Abdominal Point in Assignment 2**

Risk factors arising during pregnancy -

- Fetal movement pattern changed
- Haemoglobin lower than 10 g/dl
- Weight loss, poor weight gain
- Proteinuria, glycosuria, bacilturia
- B.P systolic above 155 and diastolic above 90 mm Hg
- Uterus large or small for dates
- Excess or decrease liquor
- Malpresentation
- Any vaginal bleeding.
- Premature labour
- Vaginal infection.

### 1.7. Risk approach

The risk approach is a managerial tool for improved MCH care. Its purpose is to provide better services for all, but with special attention to those who need them most.

The central purpose of antenatal care is to identify “high risk” cases (as early as possible) from a large group of antenatal mothers and arranged for them skilled care.

These cases comprise the following:

1. Elderly primi (30 years and over)
2. Short statured primi (140 cm and below)
3. Malpresentation, viz breach transverse lie, etc
4. Antepartum haemorrhage
5. Preeclampsia and eclampsia
6. Anaemia
7. Twins, hydramniotic
8. Previous still birth, intrauterine death manual removal of placenta
9. Prolonged pregnancy (14 days-after expected date of delivery)
10. History of previous caesarean or instrumental delivery
11. Pregnancy associated with general diseases cardiovascular disease.
  - Kidney disease
  - Diabetes
  - Tuberculosis
  - Liver disease etc.

### 1.8. Activity

A patient named Mrs. Amena Begum, of 20 years age; she is working in a garments factory, missed her period in the month of August 2004. Two years back, she had an incomplete abortion followed by washing. She has vomiting for 2 to 3 days.



### 1.9. Exercise

With the help of the above description, look for the problems of Mrs. Amena and make an antenatal care plan for her.

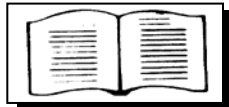
## Assignment 2: Assessment of Ante-Natal Mother

### 2.1. Learning Objective



On completion of this assignment you will be able to –

- develop skill
- assess antenatal mother.



### 2.2. Plan

Her general practitioner as soon as possible following the first missed period sees the Pregnant woman and an initial assessment is referred to the hospital for her first (booking) hospital visit.

### 2.3. The Structure

Antenatal examinations are performed at regular intervals, and the recommended timing for visits is -

- Monthly visits for the first 28 weeks
- Two times in a month visits from 28 to 36 weeks
- Weekly visits for the remaining weeks.

### 2.4. The Programme

Schedule of key antenatal visits-

Preconception clinic visit

8-14 week visit

20-24 week visit

36-38 week visit

41-42 week visit.

#### ▪ **Preconception Visit**

The ideal first ante-natal visit is at a preconception clinic.

The first trimester remains a critical period in determining the outcome of a pregnancy.

- Booking visit (8-14 weeks)



The main purpose of the booking visit is to obtain -

- A comprehensive history
- Establish the gestational age
- Identify maternal and fetal risk factors.
- The mid-trimester risk assessment visit (20-24 weeks).

The results of test performed at the first trimester visit are reviewed with the mother. The results of the ultrasound scan are also reviewed. Further care is then planned in line with the risk assessment based on the ultrasound scan and other findings.

- ◆ Ante-natal visits in the second half of pregnancy.

Assessment of maternal health and fetal growth and well-being are pursued through these visits. Any incidental maternal symptoms are dealt with in this period. This period is also important in ensuring the education of the woman regarding the rest of pregnancy and her delivery.

## **2.5. Investigations**

The typical schedule of antenatal investigations is as follows-

- Booking (8-14 weeks)
  - i. Blood tests
    - Hemoglobin and full blood count
    - Blood grouping and Rh-typing
    - Atypical antibodies
    - Microbiological-
      - Hepatitis B
      - Syphilis status
      - Rubella and
      - HIV.
  - ii. Urine tests
    - Dip for-
      - Glucose
      - Ketones
      - Protein.

Assessment of Ante-Natal. Mother Planned Health Education on Ante-Natal Care, Advices

If proteinuria or suspicion of UTI, to send for microcopy, culture and sensitivities.

iii. Vaginal speculum examination-to perform only if indicated

iv. Ultrasound

A routine scan between 16 and 22 weeks is practiced.

A routine two-pregnancy scan-policy is also recommended.

- Mid-trimester visit (20-24 weeks)
  - a. Blood tests
    - Hemoglobin and atypical antibodies
    - Blood glucose measurement
  - b. Urine tests
    - To dop for glucose, ketones and protein
  - c. Ultrasound.

This scan is performed tranabdominally and usually takes about 20 minutes. It provides the most detailed survey of the fetus and uterine contents.

In 36-38 week visit-

- i. Blood tests
  - Hemoglobin and atypical antibodies
- ii. Urine tests
  - To dip for glucose, ketones and protein
- iii. Ultrasound.

Not performed routinely unless an indication. A management plan is then drawn up for the pregnancy, based upon the risk assessment.

## 2.6. Activity

A patient named Mrs. Rahima Begum, of 25 years of age, housewife, missed her period for two months. She had family history of Diabetes Mellitus. She complains of frequents micturition.

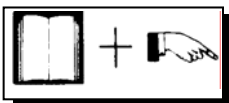


## 2.7. Exercise

With the help of the above exercise, make an assessment of maternal health and fetal well-being and make plan for her antenatal visit and investigations.

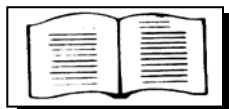
## Assessment 3: Planned Health Education

### 3.1. Learning Objective



On completion of this assignment you will be able to -

- know health education on antenatal care.



### 3.2. Purpose

An important part of antenatal care is the preparation for childbirth and the subsequent care of the child.

Antenatal education should continue throughout pregnancy and the puerperium. Mother should be informed of the changes, she can observe during pregnancy and of the nature of labour and delivery.

### 3.3. Planning Health Education

In order to plan health education for antenatal mother, history writing should be taken into consideration. A good obstetric history is invaluable for the initial and on going assessment of the mother and fetus during antenatal care.

History to be taken according to following orders-

- Maternal disease, such as- HTN, DM
- Family, such as- DM, HTN, Tuberculosis.

Multiple pregnancy or birth of a congenitally abnormal baby.

- Last normal menstrual period.

The assessment of gestational age depends on the estimated date of delivery. Estimated date of delivery can be predicated from last normal menstrual with gestational age can be done by ultrasound measurement.

Calculation of Expected Date of Delivery (EDD)

|  |                               |
|--|-------------------------------|
| 1. To take date of first day of last normal menstrual pregnancy. | Example-<br>21 September 2003 |
| 2. To go back 3 months and then to add a year.                   | 21 June 2004                  |
| 3. To add 7 days   |                               |
| 4. This is the EDD   | 28 June 2004                  |
| Not to be use if;  |                               |

## Assessment of Ante-Natal. Mother Planned Health Education on Ante-Natal Care, Advices

- Dates uncertain
- Cycles not regular (i.e. outside range of 24-35 days)
- Been on oral contraception within 2 months.

- Past obstetric history

This involves listing all the pregnancies in chronological order together with the following details -

- Deliveries
- Miscarriages.

All therapeutic abortions, their reason, gestation and method

- Drug history
- Allergic history
- Social history
- Woman's habit
- Woman's marital status, her occupation and that of her partner
- Living condition of antenatal mother.

### **3.4. Examination**

Following examination to be done for antenatal mother-

- At booking
- Height and weight
- Blood pressure
- Dentition
- Heart sounds
- Breasts/ nipples
- Abdominal palpation-for any scars and masses
- Legs-for varicose vein
- Urinalysis.

Pelvic examination-in the absence of relevant history and with the routine use of ultrasound, there is little need to examine the pregnant woman's pelvis.

- At each antenatal visit
  - To check history of recent events and to ensure that the baby is moving
  - To take mother's blood pressure
  - To listen to mother's heart
  - To check for edema: fingers pretibial
  - Symphysis: fundal height presentation
  - Lie
  - Engagement
  - Fetal heart auscultation
  - To test urine for protein and glucose
- From 32 weeks on wards at all visits to check lie and presentation of the fetus
- Additionally at 36 weeks to check hemoglobin level if the mother is Rh-negative, to check for the presence of antibodies
- Between 41 and 42 weeks to examine the cervix.

### 3.5. Objectives

The common objectives of these formal educational sessions include-

- The promotion of good health and habits allaying anxiety
- Increasing the mother's feelings of control and satisfaction with the pregnancy and delivery
- Infant feeding
- Subsequent contraception.

### 3.6. Activity

A patient named Mrs. Parveen Begum, of 35 years of age, working in a Private Bank. She has family history of high blood pressure. She has history of two miscarriages before. She missed her menstrual period for the last one month.



### 3.7. Exercise

According to the above description and patient's problem, try to plan antenatal care and health education for her.

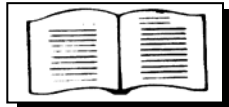
## Assignment 4: Advices on Ante-Natal Care

### 4.1. Learning Objective



On completion of this assignment you will be able to –

- know about advices on antenatal care.



### 4.2. General Advices for Healthy Pregnancy are as follows

- i. To establish a relationship between the woman and the antenatal clinic staff
- ii. To make arrangements for the medical and social worker to see the woman if there are any difficulties such as care of the other children or housing
- iii. To discuss the social welfare benefits available
- iv. To advise a visit to the dentist, if there is any need
- v. To give dietary advice
- vi. To advise the woman to be careful about her food item
- vii. To take iron supplement
- viii. To take vitamin supplement
- ix. About inter course-no restriction to intercourses during pregnancy unless the woman bleeds from the vagina
- x. Rest and exercise-sensible exercise, such as walking and swimming many be allowed in pregnancy.

At least nine hours in bed at night should be recommended.

- xi. Travel-the woman should only travel over distances which are comfortable to her
- xii. Clothes-women should be advised to wear comfortable one
- xiii. Bathing-constipation which is common during pregnancy is best over come by increasing fluid intake, fresh fruit and by the use of foods rich in fibre.

### 4.3. Parentcraft Class

Parentcraft classes should be included in education programme of antenatal mother.

The classes are held at hospital prenatal clinics, health centres and local clinics. Talks should be made to meet the special needs of the participants. The following topics are usually included -

- i. A simple explanation of the growth of the fetus in uterus and the placental function
- ii. The physical and emotional changes in pregnancy
- iii. Diet and the value and function of various foods
- iv. Maternity wear
- v. Stages of labor
- vi. Baby care, including bathing and handling a baby
- vii. Infant feeding, including breast-feeding and care of the breasts and nipples. Bottle-feeding and how to prepare feeds
- viii. Immunization
- ix. The puerperium
- x. Birth spacing and family planning
- xi. Transfer to home
- xii. Follow up.

This should be extended to both parents. Fathers should be encouraged to be present during labor and at vaginal delivery.

#### **4.4. Key Points**

Antenatal care traditionally involves a number of 'routine' visits for assessment to a variety of health care professionals, on a regular basis throughout the pregnancy.

The following are key points

- Antenatal care improves pregnancy outcome
- The integration of care and education is necessary
- We must continue to find ways of ensuring that those in most needs are included in the process of antenatal care.

#### **4.5. Success of Ante-Natal Care**

It is unfortunate that rates of under-utilization of antenatal care are greatest among high-risk groups, such as single unsupported mothers and particularly those with unplanned and unwanted pregnancies.

## Assessment of Ante-Natal. Mother Planned Health Education on Ante-Natal Care, Advices

Special efforts should therefore be directed towards helps such groups of women.

### **4.6. Activity**

A patient named, Mrs. Asia Khatun, of 18 years age, wife of a Rickshaw puller, has a boy of one year and seven months. She has missed her menstrual period for the last three months. She is pale looking, thin and underweight.



### **4.7. Exercise**

With the above description of the patient list the advices to be given to this mother and her husband.

Write the general advice to be given to this mother about further contraception.



## **Unit 2: Organizing and Participating in Health Education, Family Planning and Immunization Camps**

The aim of the unit is to develop knowledge and skills in organizing and conducting a health education program/session on family planning and immunization for the individual or group in both hospital and community setting. For this purpose each student is going to be placed to a maternal and child health (MCH) centre or well baby clinic to gain real life knowledge and experience.

Health Education is an integral part of all maternal and child health activities. When the health worker (either nurse, doctor or any designated person who can provide health education) tells a pregnant mother or postnatal mother what to eat, gives advice on immunisation, personal hygiene, she is carrying out health education in one form or another. An educational approach to maternal and child health is particularly necessary in nutrition, for improving child rearing practices, family planning, environmental sanitation. Because the aim of health education is to produce a change in people's behaviour.

In order to organise a health education program, the following things should be taken into consideration.

- i. Set the aims and objectives of the program
- ii. Select the hospital or community
- iii. Prepare the community and target group to provide education and motivate them to participate and inform them the date and time and venue of the program
- iv. Arrange the resources required for health education
- v. Prepare and arrange the required materials based on educational needs
- vi. Prepare a detail action plan for health education session with the involvement of people
- vii. Implement the program
- viii. Evaluate the session and program.

Illustration: In organising a health education programme, following steps are essential.

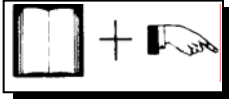
1. Establishment of objectives

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

- a) What specific information the public should be given?
  - b) What misconceptions need to be corrected?
  - c) What specific attitudes to be developed?
  - d) What actions of the people are desired as individual or group?
2. Collection of baseline data and information (about problem and community)
    - i. Vital and social statistics of the problem.
    - ii. Status of health knowledge, attitude and behaviour.
    - iii. Available health facilities and acceptability of the program.
    - iv. Administrative and social structure of the community.
    - v. Local customs, culture, beliefs, habits, superstitions.
    - vi. Language and channel of communication.
    - vii. Demographic structure.
    - viii. Local leaders or opinion makers, influential person.
  3. Development of a detail action plan.
    - a) Target groups to be reached.
    - b) Contents to be taught.
    - c) Methods to be used.
    - d) Materials to be collected and prepared.
    - e) Involving leaders and support groups and agencies.
    - f) Date, time and venue to be fixed.
    - g) Techniques for evaluation to be determined.
  4. Implementation of the plan
  5. Evaluation of health education program.
    - a) Evaluation of structure
    - b) Evaluation of the process
    - c) Evaluation of the result.

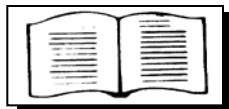
## **Assessment 1: Organising a Health Education Program on Family Planning**

### **1.1. Learning Objective**



On completion of this assignment you will be able to –

- organize a health education program of family planning either in hospital or in community and
- conduct a health education session on family planning to cover the following objectives.
  - a) Define family planning
  - b) Describe the importance of family planning
  - c) List the methods of family planning
  - d) Discuss the advantages of family planning methods.



### **Organise a Health Education Program**

#### **1.2. Conduct a Health Education Session**

Adult teaching learning principles are important to follow during conducting a health education session. Following steps are essential.

- Start with greetings and introduce yourself and topic
- State the session objectives
- Identify the existing knowledge of the participants
- Start from known to unknown (organise the content in such way)
- Explain and express the message clearly and sequentially
- Word and language- easy, specific and as much as possible to the spoken word and language of the locality
- Have a suitable manner and way of speaking
- Involve participant in the discussion
- Appreciate for participation
- Provide stimulating materials
- Present visual material- clear and interesting
- Emphasis given on important points.
- Address when participant gets bored with in attentive
- Clear pronunciation and audible voice with intonation

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

- Smiling face with direct eye contact whenever require and possible
- Not to look at the hand notes during talking
- Feedback
- Relationship- relaxed and non-authoritarian
- Summarise the content
- Alert about time keeping
- Set example from real life
- Close the session in such a way that they could understand the session is completed.

### 1.2.1. Family Planning

#### Definition

An expert committee of WHO defined and described family planning as follows: “Family planning refers to practices that help individuals or couples to attain certain objectives -

- a) To avoid unwanted births
- b) To bring about wanted births
- c) To regulate the intervals between pregnancies
- d) To control the time at which births occur in relation to the ages of the parents and
- e) To determine the number of children in the family.

### 1.2.2. Importance of Family Planning

Family planning has come to play a prominent role in the national health plans of many countries for many reasons. Family planning and health have a two-way relationship. The health aspects of family planning include women’s health, foetal health and infant and child health. It is important for each family and nation. Planning is a multi-purpose broad-based comprehensive program dealing with

- Proper spacing and limitation of births,
- Child spacing leads to healthier children and healthier mothers
- Reduction of world population growth
- Advice on infertility and sterility
- Education for parenthood
- Sex education

- Screening for pathological conditions related to the reproductive system
- Genetic counselling
- Marriage counselling
- Premarital consultation and examination
- Carrying out pregnancy tests, and
- Preparation of couples for the arrival of first child.

### **1.2.3. Family Planning Methods**

Family planning methods are usually known as contraceptive methods. Contraceptive methods are preventive methods to help women avoid unwanted pregnancies. The term contraceptives include all temporary and permanent measures designed to prevent pregnancy resulting from coitus.

The contraceptive methods may be classified into two broad groups -

- i. Spacing methods or temporary methods
- ii. Terminal methods or permanent methods.

#### **A. Barrier methods**

- i. Condom
- ii. Vaginal diaphragm
- iii. Cervical cap
- iv. Vaginal sponge.

#### **B. Chemical methods**

- i. Foams
- ii. Creams, jellies and pastes
- iii. Suppositories
- iv. Soluble films
- v. Spermicidal gels.

#### **2. Intra-uterine contraceptive devices (IUCDs)**

#### **3. Hormonal methods**

##### **a) Oral pills**

- i. Combined pill- oestrogen and progesteron

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

- ii. Minipill-progesteron only pill (POP)
- iii. Sequential pill- 2 weeks oestrogen only and then in 3<sup>rd</sup> weeks both oestrogen and progesterone
- iv. Post-coital pill.

### b) Depot (slow releasing) preparations

- i. Injectable: Depot provera
- ii. Subcutaneous implants: Norplant
- iii. Vaginal rings.

### 4. Post- conceptional methods (termination of pregnancy)

- i. Menstrual regulation (MR)
- ii. Menstrual induction (MI)
- iii. Abortion.

### 5. Behavioural/ Traditional Methods

- i. Sexual abstinence
- ii. Incomplete coitus
- iii. Safe period breast feeding
- iv. Withdrawal of penis before ejaculation.

### 6. Contraceptive immunisation- birth control vaccine

- i. Vasectomy- male sterilization
- ii. Tubal hgation or tubectomy- female sterilisation

### 1.2.4. Advantages and disadvantages of family planning methods

| Method                  | How  | Advantages                      | Disadvantages  | Who for?  |
|-------------------------|--|---------------------------------|--|---|
| Natural (rhythm)        | No SI from 4 days before to 4 days after ovulation | 1. No supplies<br>2. No expense | 1. High failure rate<br>2. Needs personal motivation<br>3. Difficult for those with irregular periods<br>4. Partner must be co-operative | 1. Anyone well motivated<br>2. Useful for those unwilling to use other methods<br>3. Those with moral objections to other methods |
| Combined o/c pill (COC) | Take pill daily without missing                    | 1. Very safe it regular         | 1. Easy to forget<br>2. Reduces breast   | Any healthy women under   |

## Practical Maternal and Child Health Nursing

|                               |  |  |  |   |
|-------------------------------|--|--|--|---|
|                               |  | 2. SI at any time<br>3. Regular periods<br>4. Comparatively few side-effects   | milk<br>3. Less safe in women who smoke  | 40 able to remember and not breastfeeding a baby 6 months or less   |
| Minipill                      | Take pill daily without missing                              | As above but periods may be less regular and slightly less safe than COC       | 1. Easy to forget  | Women breastfeeding a child 6 months of age or less   |
| Injectable contraceptives     | Injection every 2 or 3 months                                | 1. Simple and safe<br>2. SI any time   | 1. P may be irregular<br>2. Some governments disapprove<br>3. May be harder to conceive after finishing    | Any woman with 3 or more children   |
| Condoms                       | Rubber sheath placed on erect penis                          | 1. SI at any time<br>2. Some protection against AIDS and STD if used with care | 1. Not reliable<br>2. Some couples dislike using them  | 1. Those who won't use more reliable methods<br>2. Those only having SI casually or occasionally e.g. couples living apart for employment reasons<br>3. Those in areas where AIDS is common |
| Vaginal form                  | Foam placed in vagina which kills sperm                      | 1. No side effects<br>2. Easy to use<br>3. SI at any time                      | Not very safe if used alone  | Any woman not willing or able to use other more reliable methods<br>Any woman uncertain if she is pregnant  |
| IUD, coil, Copper T, Copper 7 | Loop or coil inserted into vagina and left for up to 5 years | 1. SI at any time<br>2. Quite effective  | 1. P may be heavy and painful<br>2. May cause anaemia<br>3. Unsuitable for women who have not had children | Women with 1 to 4 children who want to delay having more  |
| Vasectomy                     | Cutting of male tubes (vas)                                  | 1. SI at any time<br>2. Effective, permanent                                   | 1. Occasional post-operative infection and psychological after-effects                                     | Stable couples with 3 or more children who don't want any more  |

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

|  |                          |  |                          |  |
|--|--------------------------|--|--------------------------|--|
|  |                          |  | 2. Many men resistant    |  |
| Tubectomy or tubal ligation  | Cutting of woman's tubes | 1. SI any time<br>2. Effective permanent | 1. As 1, under vasectomy | Any woman with 3 or more children who doesn't want any more. |
| SI = sexual intercourse<br>P = periods (menses)<br>STP = sexually transmitted disease (VD) |                          |  |                          |  |

Source: Lankester T, Campbell ID and Rader AD (1992) setting up community health programmes. Macmillan, London.

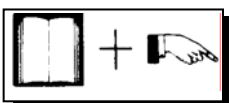
### 1.3. Exercise

1. Organize a health education program.
2. What family planning. Describe the importance of family planning.
3. Classify family planning method.
4. Classify family planning method. Describe advantages and disadvantages of different family planning methods.



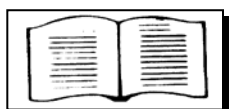
## Assignment 2: Organising an Immunisation Camp

### 2.1. Learning Objective



On completion of this assignment you will be able to –

- explain why immunisation is important for children and mothers
- understand the facts about the vaccines that are used for immunisation
- state the immunisation schedule
- explain the importance of maintaining cold chain and
- organize an immunisation camp.



### 2.2. Importance of Immunisation

Immunisation is a mass means of protecting the greatest number of people. It is a technique by which immunising agents are introduced into the body for the production of antibody to prevent diseases.

It has been seen that every year many more children die from diseases, which could easily be prevent by immunisation. Many million suffer from serious illnesses or become disabled for life from these same diseases. Thus it helps to-

- a) Reduce morbidity and mortality from six preventable diseases- Diphtheria, Whooping cough, Tetanus, Measles, Polio and Tuberculosis
- b) Reduce disability from poliomyelitis
- c) Reduce infant and maternal mortality.

2.2. Facts about the vaccines that are used in immunisation facts sheet enclosed

#### Details of common immunisations

| Type of vaccine   | Who should have it?                         | How is it given?   | How many doses are needed?  |
|---|---|--|---|
| 1. DPT (Triple) against: Diphtheria, Pertussis, Tetanus | Children from 6 weeks to 5 years            | 0.5 ml subcutaneously into thigh   | 3 doses at intervals of 4 weeks or more   |
| 2. OPV (or TOPV) (oral polio vaccine)                   | Children from birth to 5 years or more*     | 2 drops by mouth   | 3 or 4 doses at intervals of 4 weeks or more  |
| 3. Measles  | Children for 6-9 months to 5 years or more* | Add diluent to powder and shake. 0.5 ml subcutaneously into upper arm or thigh | 1 only if given at 9 months or later. Where very prevalent: 1 dose at 6 months, 2 <sup>nd</sup> at 9 months |

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

|                             |   |  |  |
|-----------------------------|---|--|--|
| 4. BCG against Tuberculosis | Children from birth upwards<br>Upper age limit varies: follow national guidelines | Add diluent to dried vaccine. Give intradermally into upper arm (or forearm, Africa)<br>Below 1 year 0.05 ml<br>Over 1 year 0.1 ml using BCG syringe | Usually one only. Some programmes give 2 <sup>nd</sup> at school entry |
|-----------------------------|---|--|--|

| Side-effects  | Contraindications   | Storage   | Comments   |
|---|---|---|--|
| Pain, Swelling and redness at site of injection. Fever for 24 hours Very occasionally fits      | Any child with high fever or seriously ill                                  | Between 2 and 8°C<br>It is destroyed by freezing  | To check if spoiled: shake bottle. If uniformly cloudy use-if white flecks appear throw away.  |
| Usually none  | None  | Under 8°C.<br>Unharmful by freezing   | *Common cut-off points 5 years or 12 years   |
| Fever and sometimes mild rash at 7-10 days  | Any child with high fever or seriously ill                                  | Under 8°C.<br>Unharmful by freezing. Any unused reconstituted vaccine should be discarded | *Variable cut-off points between 5 and 12 years. Follow national guidelines or local advice  |
| 0-2 weeks: red, tender nodule<br>2-4 weeks: small ulcer<br>4-6 weeks: scar appears and persists | Any child known to have active TB or AIDS, or seriously ill with high fever | Under 8°C.<br>Unharmful by freezing. Any unused reconstituted vaccine should be discarded | If no nodule, ulcer or scar develops repeat. If nodule appears at once, ulcer is 2 cm or more or glands develop in axilla, report to health centre |

### 2.3. Immunisation Schedule

| Name of the Disease                | Name of the vaccine | Quantity for each dose | Interval between doses  |
|------------------------------------|---------------------|------------------------|---|
| Tuberculosis                       | BCG                 | 0.05 ml                | -   |
| Diphtheria<br>Pertussis<br>Tetanus | DPT                 | 0.5 ml                 | 4 weeks   |
| Poliomyelitis                      | OPV                 | 2-3 drops              | 4 weeks   |
| Measles                            | Measles             | 0.5 ml                 | -   |
| Tetanus                            | TT                  | 0.5 ml                 | 1 = after 15 yrs<br>2 = after 4 weeks<br>3 = after 6 months<br>4 = after 1 year<br>5 = after 1 year |

| Number of doses | Time of starting | Time of completion | Site of vaccination | Route of administration |
|-----------------|------------------|--------------------|---------------------|-------------------------|
| 1               | After birth      | 1 year             | Left arm            | Intradarmal             |
| 3               | 6 week of age    | 1 year             | Thigh               | Intramuscular           |
| 4               | 6 week of age    | 1 year             | Mouth               | By dropper              |
| 1               | After 270 days   | 1 year             | Thigh               | Subcutaneous            |

|   |                |                      |     |               |
|---|----------------|----------------------|-----|---------------|
| 5   | After 15 years | As early as possible | Arm | Intramuscular |
| *Vaccination can be given to 1-2 year child if they come for.<br>**Fourth does of OPV should be given along with measles. |                |                      |     |               |

### 2.4. Importance of Maintaining Cold Chain

Cold chain is a system of storage and transport of vaccines at low temperature maintaining their potency from the manufacturer to the actual vaccination site.

Cold chain is necessary because vaccine failure may occur due to failure to store and transport under strict temperature controls.

### 2.5. Organize an Immunisation Camp

- b) Assess the need for immunisation in camp area. Before starting a program we need to assess -
  - i. Past immunisation coverage in the target (camp) area. Immunisation status of each child and childbearing women (15-49) is recorded on the family folder through community survey.
  - ii. Present programs being carried out by other organisation to avoid duplication.

#### b) Set targets

Work out the total number of children require immunisations and hence the number of vaccines we require.

- c) Encourage all those involved in the program to help set targets and contribute to planning. The team will need to be informed. They need to know-
  - Why each immunisation is needed
  - How each immunisation is given
  - How an immunisation camp organised.

#### d) Prepare the community

The program should be carried out in full participation of the community with responsible members being involved in planning and management.

- e) Make people aware about immunisation camp through campaign, propaganda and other awareness raising activities like Folk song or

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

drama-addressing issues such as fears, objections, beliefs, and suspicions about immunisation.

### f) Carry out the immunisation in the camp

- Place must be selected that is convenient for the mother and the child. It should be within the community where all facilities like, drinking water, toilets, sitting arrangements are made available
- A team of nurse, medical assistant and experienced health worker can carry out this program
- Maintain the register.

### g) Evaluation the program

This could be done with the community and the results will be explained to all community members.

## Assessment of Nutritional Status

The nutritional status of an individual is often the result of many interrelated factors. It is interrelated by the adequacy of food intake both in terms of quantity and quality and also by the physical health of the individual. Assessment of nutritional status of children is done by -

1. History
2. Clinical examination and
3. Anthropometry

### 1. History- During history taking following aspects are to be considered-

- a) Sex- Female baby is more deprived than the male.
- b) Socio-economic status- Poor socio-economic background baby is more vulnerable to malnutrition.
- c) Family number- Number of family member influences on nutrition as more family members exist in the family usually has negative effect on child health.
- d) Residence- Slum dwellers children suffer more than the urban children.
- e) Breast feeding- Well breast-fed baby has less chance of infections diseases in childhood.

2. Clinical examination of a child is done from head to feet.

|   |   |   |
|---|---|---|
| 1. Hair   | Lack of lustre<br>Thinness and sparseness<br>Straightness<br>Dyspigmentation<br>Flag sing<br>Easy pluck ability   | Kwashiorkor, less commonly marasmus                                       |
| 2. Face   | Naso labial dyssebacea<br>Moon face   | Riboflavin<br>Kwashiorkor   |
| 3. Eyes   | Pale conjunctiva<br>Bitot's spota<br>Conjunctival xerosis<br>Corneal xerosis<br>Keratomalacia<br>Angular palpebritis  | Vitamin A<br>Riboflavin, Pyridoxine                                       |
| 4. Lips   | Angular stomatitis<br>Angular scars<br>Chellosis  | Riboflavin  |
| 5. Tongue   | Scarlet and raw tongue<br>Magenta tongue  | Nicotnic acid<br>Riboflavin   |
| 6. Teeth  | Motted enamel   | Fluorosis   |
| 7. Gums   | Spongy bleeding gums  | Ascorbic acid   |
| 8. Glands   | Thyroid enlargement<br>Parotid enlargement  | Iodine<br>Starvation  |
| 9. SKin   | Xerosis<br>Perifollicular hyperkeratosis<br>Petechiae<br>Pellagrous dermatosis<br>Flaky paint dermatosis<br>Scrotal and vulval dermatosis   | Vitamin A<br>Ascorbic acid<br>Nicotinic acid<br>Kwashiorkor<br>Riboflavin |
| 10. Nails   | Koilonychia   | Iron  |
| 11. Subcutaneous tissue   | Oedema<br>Fat decreased<br>Fat increased  | Kwashiorkor<br>Starvation, Marasmus<br>Obesity                            |
| 12. Muscular and skeletal systems   | Muscle wasting<br>Craniotabes<br>Frontal and parietal bossing<br>Epiphyseal enlargement<br>Persistently open anterior fontanelle<br>Knock kness or bow legs<br>Thoracic rosary<br>Musculo skeletal haemorrhages | Vitamin D<br><br>Vitamin D, Ascorbic acid                                 |
| 13. Internal systems<br>a. Gastrointestinal<br>b. Nervous<br><br>c. Cardiac | Hepatomegaly<br>Psychomotor changes<br>Sensory loss<br>Motor weakness<br>Loss of position sense<br>Loss of vibration<br>Loss of ankle and knee jerks<br>Calf tenderness<br>Cardiac enlargement<br>Tachycardia   | Kwashiorkor<br>Kwashiorkor<br>Thiamine, nicotinic acid<br><br>Thiamine    |

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

2. Anthropometry: Anthropometric measurements such as height, weight, and head circumference thickness and arm circumference are valuable indicators of nutritional status. If anthropometrics measurements are recorded over a period of time, they reflect the patterns of growth and development.
  - a. Height (cm) and weight (kg)- Weight is judged in relation to age and height, also height is judged in relation to age.
    - i. Weight for age- this is used as an index of malnutrition. But major difficulty is that in most cases the ages to the children are unknown.
    - ii. Height for age- this gives a picture of past nutritional history. But this is also age dependent.
    - iii. Weight for height- this is age independent and is used as an index of current nutritional status.
  - b. MUAC (Mid Upper Arm Circumference) by Sakir's tape: The arm circumference is smaller in thin children and larger in fat children. Between the ages of 1 and 5 years, the muscles of a healthy well-nourished child's arm grow larger, but the fat that the child had as a baby becomes less. So if a child is growing in a healthy way, its arm circumference does not increase very much. However, if a child is growing slowly or losing weight, its muscles do not become larger and the arm circumference is smaller than normal.

How to measure a child's arm circumference with a tape or strip -

1. The parent can hold the child on their lap.
2. Take the child's left arm and hold it straight.
3. Find the midpoint of the upper arm between the point of the shoulder and the point of the elbow.
4. Put the end of the tape or strip with the 'O' mark on the midpoint of the upper arm.
5. Put the tape or strip around the arm so that it fits closely but not so tight that it makes folds in the skin.
6. Note the reading where the 'O' cm mark meets the tape. This is the child's arm circumference.
7. If you are using an insertion tape, read the number, which shows most completely in the wide window.
8. Write down the measurement and decide if it is above or below the cut off point.

**Methods of interpretation:**

Normal: More than 13.5 cm

Borderline: 12.5-13.5 cm

Malnutrition: Less than 12.5

Ratios-

$$\text{Weight for age} = \frac{\text{Weight of subject}}{\text{Weight of a normal child (of same age and sex)}} \times 100$$

$$\text{Height for age} = \frac{\text{Height of subject}}{\text{Height of a normal child (of same age and sex)}} \times 100$$

$$\text{Weight for height} = \frac{\text{Weight of subject}}{\text{Weight of a normal child (of the same height)}} \times 100$$

How to take measurements- Height, Weight and Head Circumference.

Height: For children younger than 2 years, height should be obtained by measuring recumbent length. A measuring board with a stationary headboard and sliding vertical foot piece can be used. If one is not available, a stationary vertical surface (e.g. the wall bordering the examining table) and a yardstick or tape measure may be used. In general the infant or child should lie flat against the centre of the board, with the head against the headboard and the legs extended. The foot piece, tape measure, or yardstick is positioned to the child's heels and the height should be read to the nearest one eighth inch.

For children 2 years and older, standing height is measured with a stadiometer or a graduated ruler or tape attached to a wall with a flat surface placed horizontally on top of the head. The child should wear only socks or be barefoot, with the knees straight and feet flat on the floor. While the child looks straight ahead, the flat surface or movable headboard should be placed on the top of the head, compressing the hair, and the height read and recorded. If height-measuring devices attached to weight scales are used, he should be checked frequently for accuracy.

**Weight**

To improve accuracy, a balance beam or electronic scale should be used to obtain weight. The scale should be checked to ensure that it reads "O" before each use and should be checked periodically. Infants and small children weight wearing only a dry diaper or light underpants. If possible, the same scale should be used for each measurement.

## Organizing and Participating in Health Education, Family Planning and Immunization Camps

### Head Circumference

The maximum head circumference must be measured in all babies. It is an essential part of the routine examination.

The tape measure is passed round his forehead above the eyes and round the occiput at a rather lower level to give the maximum head circumference. The measurement is made twice. Care must be taken to ensure that the tape measure has not stretched and thereby become inaccurate. A metal tape is preferable although it is more difficult to manage than a plastic or woven one.

The head measurement is necessary because the size of the skull reflects the growth and size of the cranial contents. If the brain does not grow properly, as in mental sub-normality, the head circumference is usually small. Measurement of the head circumference is also essential for the early detection of hydrocephalus.



#### Activity

Measure height, weight and head circumference of a child in front of tutor and give your comment on this a measurement following a standard chart.



## Unit 3: Growth and Development

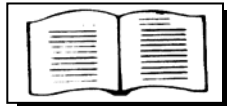
### Assignment 1: Growth and Development Monitoring

#### 3.1. Learning Objective



On completion of this assignment you will be able to -

- Growth and development
- Determinates of growth and development.



#### Growth and Development

Growth implies changes in size of the body as a whole or of its separate organs resulting from multiplication of cells as well as intracellular substance. That is it indicates quantitative or physical maturation of a person where as development means function maturation (qualitative) of a person.

Or

Growth is increase in size. Its progressions are mainly structural and can be measured with some degree of reliability in terms of height, weight, bone-age etc.

Development is increase in complexity. It involves both structure and function. Its numerous simultaneous progressions are closely related but manifest many individual variations.

Or

The word 'growth' refers to increase in the physical size of the body. We measure growth in terms of kilograms and centimetres.

The word 'development' refers to increase in skill and function. Growth and development are considered together because the child grows and develops as a whole.

Growth and development imply not only physical aspects, but also intellectual, emotional and social aspects. Growth and development data constitute a comprehensive and sensitive indicator specific to child health before and after birth.

The parents should keep the growth chart, and bring it whenever the child comes for weighting, treatment, or immunization. This may be at a health centre, an outreach clinic, a village community centre, or at home.

## Growth and Development

### **Determinants of Growth and Development**

Important factors which influence growth and development are-

1. Genetic inheritance- Genetic factors influence growth and development, especially height and weight, mental and social development and personality.
2. Nutrition- Nutrition influences growth and development before as well as after birth. In fact, retardation of growth rate is an indication of malnutrition. When the diet is improved the child begins to grow in height and weight.
3. Age- Growth rate is maximum during foetal life, during the first year of life and then again at puberty. At other periods, growth is slower.

### **Normal weight/height (or length) increment**

1. Birth weight- 2.7-3 kg.
2. First 7-10 days after birth there is 5-10% reduction of weight.
3. Gains 20-30 gm/day from 10<sup>th</sup> day after birth.
4. First 6 months-600 gm/month (5.00 kg at 6 month of age).
5. 6-12 month 500 gm/ month (9-10 in one year age).
6. Then expected weight of children in kgs.
  - a. 1-7 years-  $(\text{age}+4) \times 2$ .
  - b. 7 years above-  $\text{age} \times 3$ .

### **Normal Height**

Birth- 50 cm

6 month- 68 cm

1 year- 75 cm

2 year- 85 cm

3 year- 95 cm

4 year- 100 cm

5 year- 106 cm

### **O.F.C. (occipito frontal circumference)**

Birth- 35 cm

1 year- about 47 cm (about 1 cm/ month)

2 year- 49 cm

2-7 year-  $\frac{1}{2}$  cm/ year

8-12 year-  $\frac{1}{3}$  cm/ year

10 cm for rest of life

4. Sex- About the age of 10 and 11 years female children show a sudden increase in height and weight. This growth spurt corresponds to puberty. In male children, the growth spurt occurs a little later, that is between 12 and 13 years.
5. Physical surroundings- Sunshine, good housing, lighting and ventilation have their effects on growth and development.
6. Psychological factors- Love, tender, care and proper child-parent relationship affect the social, emotional and intellectual development of children.
7. Infections and parasitoses- certain infections of the mother during pregnancy (e.g. rubella, syphilis) affect the intrauterine growth of the foetus. Infection after birth (e.g. diarrhoea, measles) slow down growth and development especially in the malnourished child. The intestinal parasites (e.g. round worms) by consuming considerable quantities of nutrients hamper growth and development.
8. Economic factors- the standard of living of the family is an important factor; children from well-to-do families have better heights and weights. The economic factor is connected with the nutrition and living of the people.
9. Other factors- these comprise the birth order of the child, birth spacing, birth weight in single and multiple pregnancies, education of the parents etc.

### **Growth Monitoring**

One of the basic activities of the under-fives clinic is growth monitoring. It is an operational strategy of regular and sequential measurements for the assessment of growth and development of the child in order to promote optimal health. The strategy recognizes growth to be the result of overall health, nutrition, environment, social, psychic and development factors rather than mere nutrition. It involves mother and health workers.

Growth monitoring is a low cost technology available for reducing infant mortality. All children to be weighed periodically at monthly intervals during the first year, every 2 months during the second year, and every 3 months there after up to the age of 5 to 6 years. Children who are ill, or small, or who are not growing well may need to come more frequently. When the child's

## Growth and Development

weight is plotted on the growth chart against his/her age, it gives what is known as the growth curve. This will help the growth worker to detect early onset of growth failure.

### Signs of growth at the normal rate

It is assumed that a child is growing when it is seen that -

- Becomes taller
- Becomes fatter
- Becomes heavier to carry
- Grows out of their clothes.

To be certain about how a child is growing, it is measured the child regularly. In some situations children's heights or lengths is measured to find out how tall they are. In other situations the thickness of children's arms is measured to find out how fat they are.

But in most situations the best way to find out if a child is growing normally is to weigh her. A child's weight is made up of the height and fatness and can show growth more clearly.

### Milestone of Development

Milestones are definite landmarks in the growth and development of a child. These are attainments in terms of a new skill or action and involve not only physical but mental and social development. The accepted development milestones are given below-

|              | Motor development                  | Language development       | Adaptive development            | Social-personal development |
|--------------|------------------------------------|----------------------------|---------------------------------|-----------------------------|
| 6-8 weeks    |                                    |                            |                                 | Looks at mother and smiles  |
| 3 months     | holds head erect                   |                            |                                 |                             |
| 4-5 months   |                                    | hastening                  | begins to reach out for objects | recognises mother           |
| 6-8 months   | sits without support               | experimenting with noises  | transfers objects hand to hand  | enjoys hide and seek        |
| 9-10 months  | crawling                           | increasing range of sounds |                                 | suspicious of strangers     |
| 10-11 months | stands with support                | first words                |                                 |                             |
| 12-14 months | walks wide base                    |                            | builds                          |                             |
| 18-21        | walks narrow base beginning to run | joining words              | beginning to explore            |                             |
| 24 months    | runs                               | short sentences            |                                 | day to day                  |

### **What to do the first time that you weigh a child**

Introduce yourself to the mother or other family member and the child. Register the child as required.

Show the parent the chart, and explain what it is for and what it means. If it is explained carefully, the mother is more likely to be interested in weighing the child, in keeping the chart carefully and in talking about how she feeds baby.

Spend as much time as you can ask the mother about the child and her family.

- Ask about the other children, how old they are, if they are healthy or ill or have died.
- Talking with the mother helps you to know if the family has any special problems and whether the child needs special care.
- Be careful not to embarrass the mother. If you are friendly, she is more likely to bring her children for weighing regularly.

Fill in on the chart details of about the child and family.

- Make sure that you have the complete name of the child.
- Find out the date of birth as accurately as possible.
- Fill in the birth order by finding out how many children the mother has.
- Fill in details about sisters and brothers.

Record any 'Reason for special care'

Register the family in your 'follow-up register' if the child is undernourished or at risk of under nutrition.

Then if they do not return when you expect them, you can try to visit them at home.

### **What to do at each visit**

The service system may vary in different health centre. Different people may register and weigh the child, and advise the family. The order here may be best if it is possible.

1. Greet the child and parent and ask how they are.

### **Reasons for special care**

In the child -

## Growth and Development

- How birth weight (less than 2.5 kg).
- Twin
- Born less than 24 months after previous child.
- Disabled (mental handicap, heart problem, cleft palate).
- Chronic sickness (e.g. HIV infection)

### In the family-

- More than 5 children in the family.
  - Other children in the family malnourished or have died.
  - Only one parent, or no parents.
  - Mother lives alone with children.
  - Family very poor.
  - Mother mentally or physically ill.
  - Mother is adolescent.
2. If the child is sick or has been sick since the last visit, find out details of the illness.
  3. Ask how the child is feeding.
  4. Ask to see the child's growth chart. If you have seen the child before, the growth will remind you about her, and about what you thought. If you have not seen the child before, she may have a growth chart from somewhere else.
  5. Record on the chart any immunizations that are given. If necessary, record the immunization in the register.
  6. Weigh the child.
  7. Plot the weight on the growth chart and join the dot up to previous dots.
  8. Examine the growth chart. Look at today's weight and look at the growth line. Decide how the child is growing. Explain the growth line to the mother. Discuss what you find with the mother. Praise the mother for what she is doing right. Ask if she has any questions and try to answer them.
  9. Record important events in the child's life on the growth chart-
    - Starting weaning foods or artificial feeding
    - Stopping breastfeeding
    - Illnesses.

### **What to look for in the child's growth line**

Watch that the child's is within the normal range. If it is below the 3<sup>rd</sup> centile or above the 97<sup>th</sup> centile (if 97<sup>th</sup> centile is provided on the chart) then think of it. Find out the cause of growth falling or overgrowth. A child's line may not always be the same. The child may grow well for a long time and then grow poorly. So it is necessary to look at the child's past growth and present growth.

### **Growth Chart**

Growth chart is a graphical representation of some parameters of growth, i.e. weight, occipitofrontal circumference of an individual to monitor and compare their norms either as weight for age, height for age or weight for height etc with standard as related to their age. Growth curves are derived from longitudinal data (repeated measurements at intervals) and cross sectional data (a single measurement of many individuals of different ages). Longitudinal data reflect individual patterns and cross sectional data soothe out individual variations.

Or

The growth or "road-to-health" chart (first designed by David Morley and later modified by WHO) is a visible display of the child's physical growth and development. It is designed primarily for the longitudinal follow-up (growth monitoring) of a child, so that changes over time can be interpreted.

It is important to note that in the weight-for-age chart, the height of the child is not taken into consideration. This is because weight is the most sensitive measure of growth, and any deviation from "normal" can be detected easily by comparison. In short, the growth chart offers a simple and inexpensive way of monitoring weight gain and in fact child health over time.

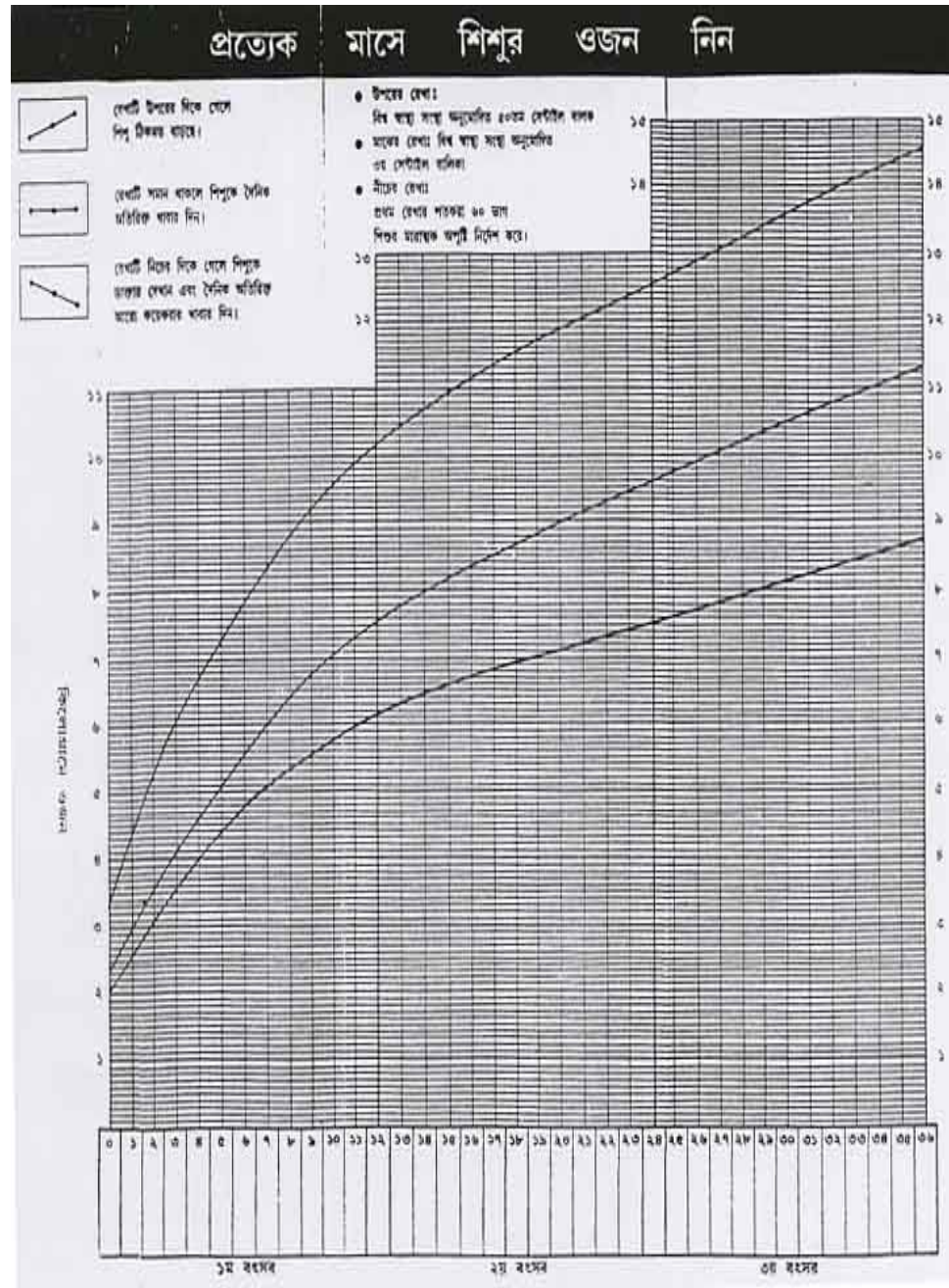
### **Types of Growth Chart**

There are many types of growth chart in common in different countries. Some have only two reference curves and others as many as five. The WHO in recent years has made an effort to unify the countless growth charts and curves used throughout the world.

1. International standard
  - a) Simple monitoring (e.g. NCHs)
  - b) Preventive
2. National standard: When it exists, is ideal if it has been derived from representative samples of the population.

## Growth and Development

3. Specially designed weight chart: Preventive and curative (integrated) e.g. NNC.



The standard growth chart (NCHS growth chart) is based on data collected from 1963 to 1975 by NCHS (National Centre for Health Statistics) an office of the US Bureau of vital statistics. A sample of more than 20,000 children was selected to represent us population from birth to 18 years. Although it represents well-nourished and healthy population of USA, it is accepted by WHO as international population of USA, it is accepted by WHO as international standard of growth for under five population.



The data are presented in four standard charts -

- a. Weight for age
- b. Height for age
- c. Weight for height
- d. Head circumference for age



Fig. : Measurement of arm circumference.

Separate charts are provided for boys and girls. Each is provided with seven percentile curves representing distribution of weight, height, length or head circumference at each age. The percentile curve indicates the percentage of children at a given age on the 'X' axis whose measured value falls below the corresponding value on the 'Y' axis. For example, on the weight chart of boys 0-36 months of age, the 9-month age line intersects the 25<sup>th</sup> percentile curve at 8.5 kg, indicating that 25% of the 9-month-old boys in the NCHS sample weigh less than 8.5 kg (75% weigh more). Similarly a 9<sup>th</sup> month boy weighing more than 11 kg is heavier than 95% of his peers. The 97<sup>th</sup> centile indicates a measurement more than that of 97% of the sample, 3<sup>rd</sup> centile indicates a measurement where 97% of the sample remains outside the measurement and less than 3% sample falls within the measurement. The 97<sup>th</sup> centile represent "maximum expected growth", 50<sup>th</sup> centile "mean growth" and 3<sup>rd</sup> centile "minimum expected growth". A child is considered normal if he/she falls within this range. The 50<sup>th</sup> centile is the median (Standard), the value above or below which 50% of the observed values fall.

WHO later adopted 'NCHS' growth chart but a unified chart usable for growth monitoring was modified using 97<sup>th</sup> centile of 'male child' of NCHS and 3<sup>rd</sup> centile of girls of NCHS: 50<sup>th</sup> centile representative 'mean' (reference) value and they also advocated 'Gomez classification of PEM' based upon this unified chart (i.e. <60%, 60-74%, 75-89%, 90-100%).

## Growth and Development

weaning diet, breast-feeding, and immunization was incorporated in the WHO growth chart.

### **NNC Chart**

In under five children it is best method of assessing state of nutrition. Flattening of the child's weight curve is the earliest sign of PEM and may precede clinical signs by weeks or even months. NNC (National Nutrition Council) of Bangladesh adopted the WHO growth chart that has been used as primary health care level. It is enriched with all the messages of "GOBI-FFF" (Growth Monitoring, ORS, Breast Feeding Education). Vitamin A supplementation, treatment of minor illness, socio-demographic information registration.

This integrated growth chart has demarcated the range of fluctuations between 50<sup>th</sup> and 3<sup>rd</sup> centile as "Road-to-Health" which is coloured with deep yellow indicating that any child remaining within this range is "safe". It has been proved to be highly effective and successful in the community level. Recently administration of vitamin -A capsules has been inserted into it.

This specially designed weight chart contains three lines -

- a) Upper line: 50<sup>th</sup> centile of boys of WHO.
- b) 2<sup>nd</sup> or middle line: 3<sup>rd</sup> centile of girls of WHO.
- c) 3<sup>rd</sup> line: 60% of the upper line.

Thus if the child's weight falls below middle (2<sup>nd</sup>) line, more so below lower line, obviously the child is under weight. This chart is incorporated with other information in health card of NNC.

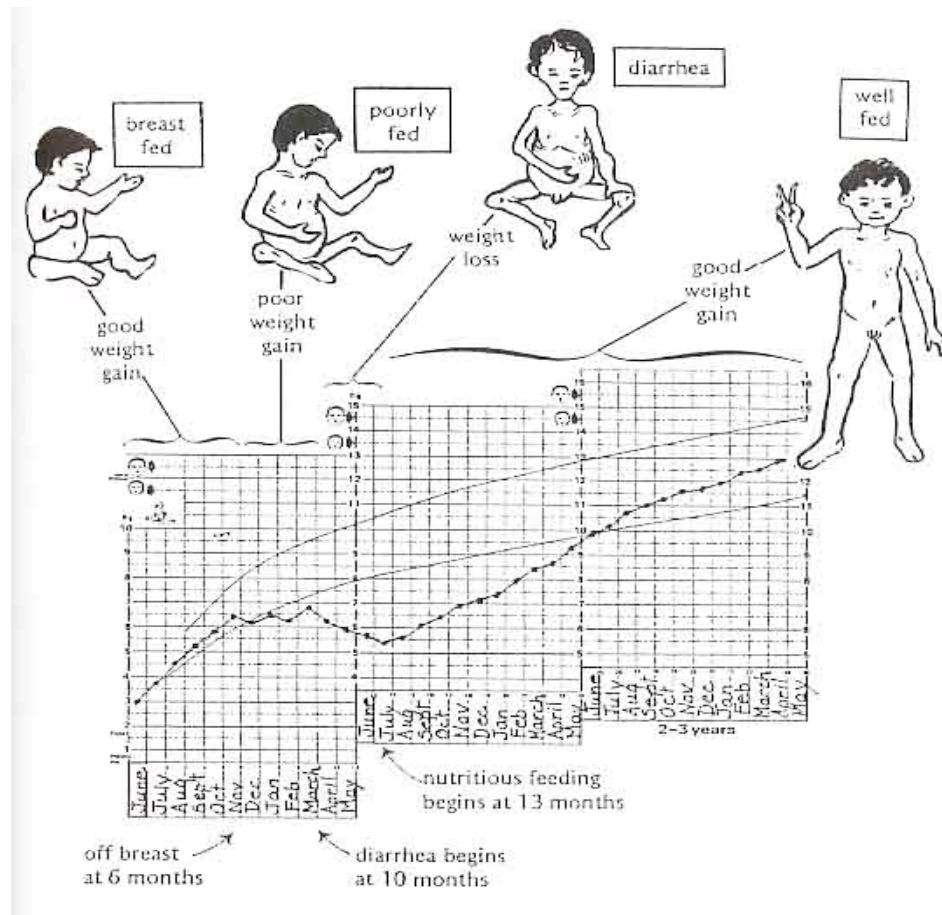
### **Other Growth Charts**

- a. Harvard standard growth chart.
- b. Tanner and white house (British standard).

### **Uses of Growth Chart**

- c. To monitor growth parameters and to assess and to identify those children who are at risk of increased morbidity and mortality due to growth faltering.
- d. To evaluate impact of any programme or of specific intervention for improving child health and growth and thus to prevent malnutrition.
- e. It is an educational tool for health worker as well as parents for prevention of non-immunization, night blindness, death from diarrhoea

and promotion of breast-feeding, female education, food fortification and family planning.



**How growth chart shows whether a child is well nourished or not.**

- The weight dot may be ABOVE the reference curve. If a child’s weight is above the reference weight for age, he is probably well nourished, but we cannot be sure. He could be a large child who has stopped growing.
- The weight dot may be BETWEEN the reference curve and the 3<sup>rd</sup> centile. If child’s weight is within the healthy range, he is probably well nourished, but we cannot be sure.
- The weight dot may be a LITTLE BELOW the 3<sup>rd</sup> centile. A child’s weight is a child whose weight is below the normal range underweight. A child may be small and growing at a health rate. However, most children whose weights are below the lower curve are not getting enough nutrients and are undernourished.
- The dot may be FAR BELOW the 3<sup>rd</sup> centile. A child’s weight is definitely too low, and he is almost certainly undernourished.

## Growth and Development

In normally growing child the line will be above 3<sup>rd</sup> centile and parallel to it. Falling of child weight curve signals growth failure. In the centile chart, usually there is an established pattern of growth when there is a more than 2 percentile level of deviation from an established pattern of growth, and then further evaluation is required.

If the child is underweight with or without other features of PEM or it is evident that there is growth faltering, the child should be further evaluated for the underlying cause i.e. nutritional deprivation, infections like-gastroenteritis, measles, tuberculosis etc. In this chart weight is plotted every month.



### Activity

Age and weight of 5 children are 1 year, 1.5 years, 2 years, 2.3 years 2.5 years and 7 kg, 7.5 kg 8 kg, 16 kg respectively. Write down your comment about the growth of these children following a standard growth chart.

## Unit 4: Planned Health Talks on Infant Feeding

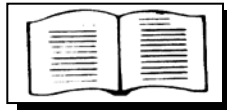
### Assignment 1: Breast Feeding

#### 1.1. Learning Objective



On completion of this assignment you will be able to –

- meaning of infant feeding
- types of infant feeding and
- advantage of breast-feeding.



Infant means children less than 1 yr. of age. After birth of baby, special care should be taken and give well-balanced and nutritious diet. The best food for newborn baby is mother's milk.

#### Types of Feeding of Infant

Feeding of infant is two types-

1. Breast feeding
2. Artificial feeding

#### Breast Feeding

Breast milk is the ideal food for the baby up to 6 months the age. No other food is required for the baby up to 4-5th months of age. Breast milk is free from contamination, adulteration and supplies nutrients in the correct amount and proportion needed by the infant. When a baby is given only breast milk, not even a drop of water, up to 5 months of age it is called an absolute or *exclusive breast-feeding*. During the first week, the mothers secretes about 450 ml of milk per day and it increase up to 600-700 ml daily later. Breast milk contains immuno-proteins, which protect the child against infection.

#### Colostrums

Colostrums are the secretion of breast following childbirth for the first 2-3 day, which contains a great quantity of proteins and calories in addition to antibodies and lymphocytes. The fluid is very nourishing and helps protect the baby against infection.

## Planned Health Talks on Infant Feeding

Colostrums contents - moderate protein, low sugar, high minerals, immunoglobulins, fat and cells.

### **Functions of Colostrums**

We know, colostrums contents high amount of antibodies, especially secretors IGA, which play an important in protection against infection and also-

- It helps to sterilize small intestine
- Colostrums possess laxative qualities.

### **Breast feeding may be divided into two types**

- a. Demand feeding- the mother feeds, the child whenever cries because of hunger.
- b. The child feed every 3 hours. During night 6 to 8 hours intervals.

### **Advantage of Breast Milk**

#### **Advantage of Infant**

1. It is safe, clean, hygienic, cheap and always available to the infant at correct temperature.
2. It absolutely meets the nutritional requirements of infants in first few months of life.
3. It requires no preparation.
4. It contains many antimicrobial factors, which protect various infectious of infant.
5. Breast-feeding save the babies from the effects of malnutrition.
6. It is easily digested both normal and premature babies.

#### **Advantage for Mother**

1. It has psychological effect on the mother, promotes bonding, between mother and baby.
2. It reduces the risk of ovarian cancer and breast cancer.
3. It prevents ovulation, thus acting as contraceptive method.
4. It helps parents to space their children by prolonging the period of infertility.

### **Advantage of the Family**

1. Breast feeding costs less than artificial feeding
2. It saves time because there are no bottles to sterilize and no formula to mix and look.

### **Advantage of the Nation**

It reduces the cost of import of infant formula.

### **Causes of Restriction of Breast Feeding**

- In the mothers
- Infection in the breast
  - Psychotic mothers
  - Mother suffering from tuberculosis, breast abscess, septicemia, breast tumors
  - Mother taking anti cancer drug
- In the child
- Gross prematurely
  - Phenylketouria
  - Galactosuria

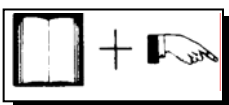


#### **1.2. Exercise**

1. What are advantages of breastfeeding?
2. In which cases, breastfeeding should be restricted.

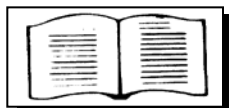
## Assignment 2: Artificial Feeding

### 2.1. Learning Objective



On completion of this assignment you will be able to –

- meaning of artificial feeding
- about need of artificial food and
- artificial food of infant.



Artificial feeding of infant means feeding infant except mother's milk. When a baby is completely deprived of mother's milk due to maternal or child cause and the dietary demand of the baby are met from another's source. When ever the source of milk, raw milk should be sterilized by boiling it for 5 minutes.

### Milk used for Artificial Feeding

- Cows milk (Fresh)
- Dried powder milk
- Modified milk
- Goats milk
- Pasteurized milk
- Vegetable milk, made from soyabean
- Lactose-free-milk
- Evaporated milk.

### Difference Between Cows Milk and Breast Milk

| <u>Composition</u> | <u>Cows milk</u> | <u>Breast milk</u> |
|--------------------|------------------|--------------------|
| Protein            | 33 gm/ litre     | 11 gm/ litre       |
| Carbohydrate       | 50 gm/ litre     | 70 gm/ litre       |
| Fat                | 35 gm/ litre     | 35 gm/ litre       |
| Minerals           | 8 gm/ litre      | 2 gm/ litre        |
| Ca                 | 1 gm/ litre      | .33 gm/ litre      |
| Fe                 | 0.3-0.5gm/ litre | .4-1.5 gm/ litre   |
| Vitamin D          | 25 UI            | 50 UI              |
| Water              | 7 gm/ litre      | 88 gm/ litre       |
| Energy             | 650 Kcal         | 640-720 Kcal       |



### **Disadvantage of Bottle Feeding**

- Bottle-feeding with cow's milk or powdered milk can cause malnutrition.
- Use to unsafe water
- Use unsafe bottle
- Cannot mix powder properly
- Not available in adequate temperature
- Expensive.

If mother gives artificial feeding to her baby they should know preparation and sterilization of bottles correctly and properly.

### **Sterilization of the Bottles**

Bottle-feeding is very danger but if needed bottle should be sterilized.

All the equipment should be put in hot, soapy water. The interior of the bottle should be scrubbed with a suitable brush and salt rubbed inside the teats to remove any trace of milk. The bottles and teats should be washed thoroughly under warm, running water. There after the bottles are kept in a large deep container, which filled with water and boiled for 10-15 minutes. The water is discarded and the bottle, and nipples are kept in a covered container till used.

*For each feeding only sterilized bottles and nipples should be used.*



#### **2.2. Exercise**

1. What is artificial feeding?
2. Name commonly used different artificial feeding.

## Assignment 3: Weaning

### 3.1. Learning Objective



On completion of this assignment you will be able to –

- meaning of weaning
- when starts weaning food and
- weaning food.



Weaning is the process in which infant diet pattern is gradually changed from liquid to semisolid foods.

Weaning means infants (around 4-5 months of age) gradual transition from milk diet to a mixed diet containing a variety of foods. Because the mothers milk alone is not sufficient to permit normal growth and development of child.

So, at this time, it should be supplemented by suitable food, which is rich in protein and other nutrients. These are called supplementary food such as cow's milk, fruit juice, soft cooked rice, pulses, and vegetables especially potato, dhal water, shuji, soup egg, smasked khichuri etc.

### Importance of Weaning

Weaning is vital part of the babies life because the mother's milk alone is not sufficient to growth and development at this time.

The weaning period is the most crucial period in child development, because during the weaning process children are particularly exposed to the malnutrition and infection.

'Weaning' mean accustom. The mothers should keep in mind that baby is not be exposed to another new food. The first weaning food should be very smooth. It requires be finely sieved or mixed with milk. So it looks like milk to him. Starting of weaning should be made happily, slowly and with the liking of the baby.

### Menu Planning for an Infant (6-12 month)

| <u>Menu</u>          | <u>Food stuff</u>          |
|----------------------|----------------------------|
| <b>Early morning</b> | Milk (1000) 200g.<br>Sugar |
| <b>Breakfast</b>     | Milk of Suji<br>Cereals    |

|                    |   |
|--------------------|---|
| <b>Mid Morning</b> | Egg or soup<br>Fruit juice                                    |
| <b>Lunch</b>       | Rice, Dal, Fish, or meal Salk, Carrot, Potato, Pears,<br>Oil. |
| <b>Evening</b>     | Milk or Milk Suji, Fruit or Cereals                           |
| <b>Dinner</b>      | Khichuri or Cereals   |
| <b>Bed time</b>    | Milk.   |

### An Example of Weaning Chart

| Week | 6 am      | 10 am                                  | 2 pm                         | 6 pm                      | 10 pm     |
|------|-----------|--|------------------------------|---------------------------|-----------|
| 1st  | Milk feed | 1 of high protein cereal and milk feed | Milk feed                    | Milk feed                 | Milk feed |
| 2nd  | Milk feed | 1 of high protein cereal and milk feed | Milk feed                    | Fruit juice and milk feed | Milk feed |
| 3rd  | Milk feed | Egg flip                               | Fruit juice and milk feed    | Canal and milk feed       | Milk feed |
| 4th  | Milk feed | Mashed boiled egg and milk feed        | Vegetable soup and milk feed | Cereal and milk feed      | Milk feed |
| 5th  | Milk feed | Mashed boiled egg and milk feed        | Fruit custard pudding        | Caramel feed              | Milk feed |

Now child becomes accustomed to liquid, smooth, sweet and semi solid food, he will have to switch over to new flavours texture and temperature gradually. Egg yolk preferably boiled soft cooked egg may be introduced at about 7 or 8 months of age. It can be mashed along with boiled vegetables and cereals or any baby food.

### Choice of Weaning Foods

Weaning food should be locally available, in expensive, culturally, acceptable and in consonance with the traditional feeding practices.

It should provide all the nutritional requirements of the infants with respects of energy, protein, vitamins, and minerals.

### Choice at Weaning Foods

- It can be easily prepared at home with existing facilities.
- It should be physiologically suitable, easily digestible and nourishing.
- Weaning food should be clean and hygienic. The weaning diet should be cooked from the usual family food in a mashed form.
- The weaning food should be well balanced nutritionally.
- In case of egg, it is advisable to begin with the 'Yolk'.

## Planned Health Talks on Infant Feeding

- Fruit are usually started soon after the cereal. The most common and relished fruit is a ripe banana. Mashed banana may be given mixed with a little cow's milk.
- Of the juice, orange or 'mausmi' juice is the most common to astral with.
- Juice is usually given between feeds rather than with a feed.

### Preparation and Storage of Weaning Foods

Careful hygienic preparation and storage of weaning food is crucial to prevent contamination. Hands should be thoroughly washed with soap and water before preparation and feeding.

- The cooking area and utensils must be clean.
- The food should well and if possible should be prepared only a short while before consumption.
- If food has been kept for over two hours, it is desirable to reheat thoroughly until it boils before consumption.



### 3.2. Exercise

1. Why is breast-feeding essential for a child?
2. Comment on artificial feeding.
3. What is weaning? Why weaning is important?
4. What precaution should be takes while starting weaning?
5. Give a weaning chart for a 7<sup>th</sup> month baby.

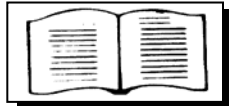
## Assignment 4: Maintenance and Promotion of Health of Mothers and Children

### 4.1. Learning Objective



On completion of this assignment you will be able to –

- Reduction of maternal mortality and morbidity
- Promotion of reproductive health.



Women are expected to play a very important role in promoting health and development of the country.

So health of the mother is the vital factor of the nation.

The socio-economic, environmental and cultural factors and the consequent poverty, ignorance, illiteracy and malnutrition are considered to be major contributors to this dismal health status of women. Neglect of women by society and the lack of their access to quality antenatal care, essential obstetric services cause maternal mortality and morbidity.

Effective antenatal care of the mothers during pregnancy to protect, promote health of the mothers and child.

Protection and maintainers of the health of the mothers during childbearing age of 14-45 yr.) is only improving the health of mothers and children we can improve the health of total population.

Maintainer promotion of the health of the mother.

Maternal health education comes, most important on.

- Primary health care.
- Home resource food education, clean drinking water sanitation.
- Prevent malnutrition
- Self care of health, awareness of risk of pregnancy and labours
- Care of new born
- Advantage of breast feeding
- Immunization
- Oral rehydration therapy
- Contraception.

## Planned Health Talks on Infant Feeding

3. Promotion of family planning to control the number of children, and spacing of births.
4. Dietary supplementation including correction of anaemia.
  - Regular antenatal checkup
  - Immunization against maternal tetanus
  - Early serving of high-risk pregnancy and its referral to specialist centre
  - Prevention of infection and hemorrhage
  - Treatment of medical condition
  - Prevention of complication e.g. elapsed
  - High risk pregnancy can be identified
  - Clean delivery practice
  - Provision of local trained female health workers
  - Regular screening and monitoring throughout pregnancy
  - Provision of medical, nutritional, and social services.

## Mountainous and promotion of the health of the child

- Foetal health promotion by mother's health promotion.
- Birth of pre-term and growth-retarded baby is prevented.
- Foetal well-being is assessed.
- Birth asphyxia is minimized.
- Protect newborn against tetanus of 3 months.
- Control of neonatal infections.
- High risk factors can be identified e.g. malformation, pre-term, and growth retardation, malpresstation.
- Better control of communicable disease
- Advances in chemotherapy, antibiotics and in sectaries
- Better nutrition.
- Better breast-feeding practice.
- Improvements in the standard of living.
- Safe water and basic sanitation- mothers education.



### Activity

As a nurse, what would be your contribution for the maintenance and promotion of health of a mother and child?