Indira Gandhi National Open University
SCHOOL OF HEALTH SCIENCE

BNSL-043

Public Health and Primary Health Care Skills

Public Health Care Skills

1

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Indira Gandhi
National Open University
School of Health Sciences

Block

1

PUBLIC HEALTH SKILLS

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May, 2017

ISBN :

Further information about the School of Health Sciences and the Indira Gandhi National Open University courses may be obtained from the University's office at Maidan Garhi, New Delhi-110 068.

Printed and published on behalf of the Indira Gandhi National Open University, New Delhi by **Prof. Pity Koul, Director**, School of Health Sciences.

We acknowledge the reference of material and figures from various sources like NNF, AIIMS, WHO, UNICEF, IGNOU, Govt. of India etc.

Laser Typesetting and Printed at : Akashdeep Printers, 20-Ansari Road, Daryaganj, New Delhi-110002

COURSE INTRODUCTION

The practical course on public health and primary health care skills will enable you to undertake community need assessment and help in prioritizing services as per health status of community. The focus of this course is to enable you to do anthropometric assessment using correct technique, identify nutritional deficiency disorders, plot and interpret growth chart, carry out investigation of an outbreak e.g. cholera, dengue, chikungunya, zika virus etc. in participate actively to contain the disease outbreak, institute preventive and control measures as per protocols and submit the report to appropriate authority. You will also be able to develop skills in organising special clinics such as Non-communicable disease clinics, Family planning clinics, Maternal and child health clinics, Adolescent wellness clinics, Oral health clinic, Mental health clinics to provide services to individuals, families and community. Social mobilisation skills to promote positive health practices, educate community to change their lifestyle and reinforce healthy behavior. Emphasis has been given on Basic laboratory tests so that you can perform these tests at subcentre. You also have to manage common emergency conditions and develop reproductive, maternal, newborn, child health and adolescent health skills, identify complications and make appropriate referral to higher health facility.

This Practical course consist of six blocks as given below:-

Block 1 deals with Public Health skills

Block 2 relates to General Skills and Laboratory Skills

Block 3 focuses on Skills for Management of Common Conditions and Emergencies

Block 4 deals with Maternal Health Skills

Block 5 focuses on Reproductive and Adolescent Health Skills

Block 6 deals with Newborn and Child Health Skills

We hope that this practical course would strengthen your knowledge and skills, to provide effective and comprehensive care to individuals, families and community.

BLOCK INTRODUCTION

Assessment of community strengths, weaknesses and needs is an essential step in planning effective health services for the community. You as Mid Level Health Care Provider (MLHP) need to assess the health status of community in terms of morbidity, mortality, fertility and nutritional status. You will have to perform anthropometric measurements, assess nutritional deficiency disorders and identify children with malnutrition using growth chart. The focus is on plotting and interpreting growth chart, creating awareness on complimentary foods and methods of preparing them.

Disease outbreaks e.g. cholera, dengue, chikungunya, zika virus etc., often pose a major public health problem in the affected areas and necessitates a prompt action by health department to contain the disease outbreak. Therefore you will have to actively participate in the identification of the source of outbreak, providing health care to affected individuals and institute preventive and control measures. The focus is also on 'surveillance' 'keeping a watch' so as a health provider you should always remain alert about the disease situation in your area. Under National Health Programs you need to organize special clinics in community such as DOTS centers, Non-communicable disease clinics, Family planning clinics, Maternal and child health clinics, Adolescent wellness clinics, Oral health clinic, Mental health clinics etc. to provide health services to individuals, families and community

Your responsibility is to promote positive health practices and therefore you need to mobilize people. Focus on health education and counseling will help you to provide information related to positive health, social skills, healthy lifestyle and reinforcement of positive health behavior to the community. Record keeping is one of the most important activities to be carried out by you which will reflect the work accomplishment, so you will have to ensure the availability of all the registers to be maintained at the health centre.

This block skills consists of seven units as given below

Unit 1 focuses on Community Need Assessment And Identification of Common Health Problems

Unit 2 deals with Nutritional Assessment

Unit 3 relates to Investigation of an Outbreak/Surveillance

Unit 4 focuses on Organising and Conducting Special Clinics

Unit 5 deals with Social Mobilization Skills

Unit 6 emphasizes Health Education and Counselling

Unit 7 deals with Report Writing and IT Skills

We hope the information given in this Block may help you in improving your knowledge and skills to perform your activities independently in a subcentre.

UNIT 1 COMMUNITY NEED ASSESSMENT AND IDENTIFICATION OF COMMON HEALTH PROBLEMS

Structure

1.0 INTRODUCTION

Assessment of community strengths, weaknesses and needs is an essential step in planning an effective health service for the community.The community assessment help in better understanding of dynamics of the community and help the service providers and beneficiaries in prioritising services. The needs assessment also enables to know the health status of community- in terms of morbidity, mortality, fertility and nutritional status. The present unit discusses community needs assessment approach in health and how to measure health.

1.1 OBJECTIVES

After completing this unit, learner will be able to:

- define community needs assessment concept;
- describe and apply the community needs assessment process while planning health care services;
- enumerate tools of measurement of health;
- enumerate indicators of health and calculate as per need; and
- enumerate determinants of health.

1.2 COMMUNITY NEEDS ASSESSMENT

Let us discuss concept of Community Needs Assessment (CNA) as given below:

Community needs assessment concept refers to need assessment and planning for services with the involvement of the following:

- Community

- Non-governmental organisations (NGOs),
- community health volunteers,
- women's group and
- Panchayat.

It is a process that describes the state of health of people, enables the identification of major risk factors, causes of ill health, and identification of actions needed to address these.

Box 1: CNA Approach

• Need based participatory planning
• Community involvement in assessment of their needs and planning, monitoring and surveillance
• Self estimated goals of health workers
• Integrated package of services
• Good quality of work
• Educating community

Needs assessment will enable the mid level health care provider to:

- Plan and deliver the most effective care to those in greatest need;
- Ensure that scarce resources are allocated where they can give maximum health benefit; and
- Work collaboratively with the community, other professionals and agencies to determine which health issues cause greatest concern and plan interventions to address those issues.

Community Needs Assessment Process

Community Needs Assessment process at village level/sub-centre level has two teams i.e. working team and the consultative team.

Health Worker (Female) are the key person on whom the outcome of the programme depends. She has to prepare the sub-center action plan in consultation with community and then to implement the same.

The working team will help in developing action plan under your leadership. The team consists of: Anganwadi workers, traditional birth attendants, Mahila Swasthya Sangh or any equivalent group, Accredited Social Health Activist (ASHA) and leaders of youth organisation. They assist HW(F) for conducting household surveys, collection of relevant information and reporting to health workers like birth, death, marriage, epidemics etc.

The information such as number of:

- eligible workers,
- pregnant mothers,
- births,
- deliveries,
- abortions,
- children etc.

Format for data collection are mentioned in the same block under Unit 7.

The second team is the consultative team comprises of: Panchayati Raj members, teachers, religious leaders, priests, members of NGOs and members of informal organisations. The members of the consultative team can directly collaborate with the working team for collection of relevant information and reporting of the major events. Meetings with two teams should be regularly conducted and they should be involved in planning and in the provision of services, and discussion of the priority issues, the actions taken and their results.

Remember :

At the primary health centre (PHC) level, work out matching resources needed for estimated volume of services. Supplies need to be procured and generate community resources through the working team. The requirement of services for the current year also needs to be compared with actual performance of previous year and it should be ensured that these are 5-25 per cent higher.

Let us discuss one case study so that you can get familiar with the assessment of health indicators as given below:

Case study: Community needs assessment of Myasandra village, Karnataka

Data was collected from the surveys to provide a descriptive analysis of the population, to assess certain health indicators of Mayasandra, and guide prospective planning of a future health clinic. The front of the survey instrument served as a medical intake sheet and queried information such as name, age, date of birth, height, weight, blood pressure and haematocrit and haemoglobin levels of patient. The back of the survey solicited information on family structure, prenatal care, delivery, breastfeeding practices, immunisation history, source of drinking water, and water treatment practices. Finally, clinic demand was assessed as well as willingness to pay.

Survey data was collected concerning 419 children in Mayasandra. Survey respondents were assumed to be children's caretakers and data refer to the children and their households. Data analysis revealed that 54% of sample was male while 46% were female.

Household size averaged 5, of which 2 were children. Thirty-six per cent of the sample used bore wells as primary drinking source, while 55% used tap water. Fifty-eight per cent of the sample treated water, either by boiling or filtration methods.

Prenatal care was received by 91% of mothers and the mean number of visits equaled 6.8, of which 81% were provided by doctors. Seventy-nine per cent of the deliveries were institutional (hospital, health center, clinic), while 20% of children were delivered at home. Sixty-five per cent of total deliveries were attended by a doctor, 25% were delivered by nurses, 3% by midwives and 7% by other (usually by the neighbour or mother-in-law). Ninety-seven per cent of women breastfed children for an average of 14 months. Ninety-four per cent of children had received all immunisations to date and 95% received vitamin A supplements. Most frequent health concerns included respiratory disorders, of which 24% of the sample was diagnosed. The average willingness to pay per service equaled

59 rupees, the equivalent of $1.30. Seventy one per cent of the sample stated that it had access to some form of healthcare. A handful of participants claimed that distance to the clinic and the absence of paediatric care were major issues. As a result, 24% of the population expressed the need for a family doctor and 72% felt the need of a paediatrician.

Example of an interview schedule when asking people their view about their local health needs:

1) How would you describe the health of the community?

   .....

2) What do you think affects people's health here?

   The good things are: .....

   The bad things are: .....

3) Which three things would you change here to improve people's health?

   1)

   2)

   3)

4) What are the best things about the services you use?

   .....

5) What are the worst things about the services you use?

   .....

6) Who else do you think I should speak to?

   .....

1.3 MEASUREMENT OF HEALTH

There are number of measures commonly used to identify health of the population. Indicators are required to measure the health status of a community and to draw comparisons with other populations. Indicators are also used for assessment of health needs; for allocation of scarce resources and for monitoring and evaluation of health services and programmes.

An indicator should be valid i.e. it should actually measure what it is supposed to measure; should be reliable and objective i.e. the answers should be the same when measured by different people in different circumstances; should be sensitive i.e. it should be able to sensitive to changes in the situation concerned; should be specific i.e. it should reflect changes in the situation concerned; should be feasible i.e. it should have the ability to obtain the data needed; and should be relevant i.e. they should contribute to the understanding of the phenomenon of interest.

As you have gone through earlier in theory course also, health is multi-dimensional and to measure each dimension of health there are number of indicators as given below:

- Mortality indicators

- Morbidity indicators
- Disability indicators
- Nutritional status indicators
- Fertility indicators
- Health care delivery indicators
- Utilisation rates
- Indicators of social and mental health
- Environmental indicators
- Socio-economic indicators
- Health policy indicators
- Other indicators

1.3.1 Tools for Measurement of Health

The basic tools of measurement of health are:

- Rates
- Ratio
- Proportion

i) **Rate:** A rate measures the occurrence of some particular event (development of disease or the occurrence of death) in a population during a given time period. It comprises of the following elements: numerator, denominator, time specification and multiplier. The rate is expressed per 1000 or some other round figure (10,000 or 1,00,000). Example: crude death rate.

ii) **Ratio:** It expresses a relation in size between two random quantities. The numerator is not a component of denominator. It is expressed in the form of x:y or x/y. Example: maternal mortality ratio

iii) **Proportion:** The proportion is a ratio which indicates the relation in magnitude of a part of the whole. The numerator is always included in the denominator. Example: (Total number of children with scabies at a certain time/Total number of children in the village at the same time) ×100

1.3.2 Indicators of Health

Health is measured by following indicators as given below:

1) **Mortality indicators:**

   a) **Crude death rate:** It is defined as number of deaths per 1000 population per year in a given population.

   b) **Age specific death rates:** It is defined as total number of deaths occurring in specific age group of the population in a defined area during specific period per 1000 estimated population of the same age group of the population in same area during the same period.

   c) **Infant mortality rate:** It is the ratio of deaths under 1 year of age in a given year to total number of live births in the same year, usually expressed as a rate per 1000 live births.

d) **Child mortality rate:** Number of deaths at ages 1–4 years in a given year per 1000 children in that age group at midpoint of the year concerned. It excludes infant mortality.

e) **Maternal mortality rate:** It is defined as total number of female deaths due to complications of pregnancy, childbirth or within 42 days of delivery from "puerperal causes" in an area during a given year per 1,00,000 live births in the same area and year.

f) **Case fatality rate:** It is defined as the number of deaths from a specific disease during a specific time period divided by number of cases during the same time period usually expressed as per 100.

2) **Morbidity indicators:** The following morbidity rates are used to estimate the burden of disease in a given population:

a) Incidence and prevalence rate

b) Notification rates

c) Admission, re-admission rates and discharge rates.

d) Out-patient department (OPD) attendance

3) **Disability indicators:**

a) **Event type indicators:** Number of days of restricted activity, bed disability rates, work loss days in a given period.

b) **Person type indicators:**

i) Limitation of mobility: Confined to bed or confined to house, special aid in getting around inside or outside the house.

ii) Limitation of activity: Limitation to perform basic activity of daily living (ADL) like eating, dressing, washing etc. or limitation to perform major activity like ability to work in job etc.

Disability adjusted life years (DALY): It is expressed as years lost due to ill health, disability or early death. It combines years of life lost (YLL) which is calculated as number of deaths at each age multiplied by the expected remaining years of life according to global standard life expectancy and years lost to disability (YLD) where the number of incident cases due to injury or illness is multiplied by the average duration of the disease and a weighting factor reflecting the severity of disease on a scale of 0 to 1.

4) **Nutritional status indicators:**

a) Anthropometric measurements of school children like height, weight, mid-arm circumference, head circumference, chest circumference.

b) Prevalence of low birth weight (weight at birth less than 2.5 kg).

c) Other indicators include: weight for age, weight for height, height for age.

Format for nutritional assessment are given in the same block under Unit 7.

5) **Fertility indicators:**

a) **Birth rate:** It is defined as number of live births per 1000 estimated mid year population in a given year.

b) **General fertility rate:** It is defined as number of live births per 1000 women in the reproductive age group (15–44 or 49 years) in a given year in a given area.

c) **General marital fertility rate:** It is defined as number of live births per 1000 married women in age group (15–44 or 49 years) in a given year in a given area.

d) **Age specific fertility rate:** It is defined as number of live births in a year to 1000 women in any specified age group.

e) **Age specific marital fertility rate:** It is defined as number of live births in a year to 1000 married women in any specified age group.

f) **Total fertility rate:** It represents the average number of children a woman would have if she were to pass through her reproductive years bearing children at the same rates as the women now in each age group.

TFR= 5 × Sum total of Age specific fertility rate (from 15–19 to 45–49 years) per 1000

g) **Total marital fertility rate:** Average number of children that would be born to a married woman if she experiences current fertility pattern throughout her reproductive span.

TMFR= 5 × Sum total of Age specific marital fertility rate (from 15–19 to 45–49 years) per 1000

h) **Gross Reproduction Rate:** Average number of girls that would be born to a woman if she experiences current fertility pattern throughout her reproductive span (15–44 or 49 years), assuming no mortality.

GRR= 5 × Sum total of Age specific fertility rate (from 15–19 to 45–49 years) for female live births per 1000

i) **Net Reproduction Rate:** It is defined as number of daughters a newborn girl will bear during her lifetime assuming fixed age specific fertility and mortality rates. NRR of 1 is equivalent to attaining 2 child norm.

j) **Other indicators:** Child woman ratio, pregnancy rate, abortion rate, abortion ratio, marriage rate.

6) **Health care delivery indicators:** These indicators reflect the equity of distribution of health resources in the whole country.

a) Doctor population ratio

b) Doctor nurse ratio

c) Population bed ratio

d) Population per health centre

7) **Utilisation rates:** Utilisation of services is expressed as proportion of people in need of a service who actually receive it in a given period. E.g. proportion of people using various methods of family planning or proportion of infants who are fully immunised against 6 vaccine preventable diseases.

8) **Indicators of social and mental health:** These include: suicide, homicide, road traffic accidents, juvenile delinquency, alcohol and drug abuse etc.

9) **Environmental indicators:** These include indicators of air or water pollution, proportion of population having access to safe water and sanitation facilities.

10) **Socio-economic indicators:** Level of unemployment, dependency ratio, per capita calorie availability, and literacy rates etc.

11) **Health policy indicators:** Proportion of Gross Net Product (GNP) spent on health services, proportion of total health resources spent on primary, secondary and tertiary care.

12) **Other indicators:** Quality of life indicators, sustainable development goals indicators etc.

1.4 SOCIAL AND ENVIRONMENTAL DETERMINANTS OF HEALTH

Health status cannot be the result of one factor. Many factors influence the health status. Such factors which influence the health and well-being are called as determinants of health.

1.4.1 Determinants of Health

1) **Age:** There is close relationship of diseased status with age. While some diseases are common in younger age group, chronic diseases such as hypertension, diabetes, osteoarthritis are predominant in older age groups. Age is also an important factor in determining the prognosis of diseases.

2) **Gender:** Women are considered to be biologically stronger than men. Consequently, the life expectancy of women is relatively more than men. Further, some diseases differ according the gender. While oral cancers are more common among men, breast cancer and cervical cancer affect large number of women. Similarly, inguinal hernias have gender predisposition towards males. Due to the gender differences in pattern of a distribution of a particular disease, a different approach needs to be adopted for addressing the issues related to it.

3) **Genetics:** The traits transferred from parents during conception as genetic configuration are permanent and remain unaltered till end of the life. His physique, intelligence, temperament and response to diseases agents usually resembles in many respects to either of his parents or grandparents. Many diseases in humans like chromosomal anomalies, errors of metabolism, mental retardation, diabetes etc. are known to be of genetic origin.

4) **Race, ethnicity:** Race is a cultural construction. Members of non-white racial and ethnic groups tend to experience more ill health and disease than their white counterparts.

5) **Literacy status:** Literacy and education status of the people also have an indirect impact on health as these are interrelated with occupation, economic and hygiene standards. People with good educational background have an understanding to practice better ways and means of living improving their health standard.

6) **Nutrition:** Diet has been scientifically and extensively linked to disease. The relation between high fat diet and coronary heart disease is well established. Similarly, under-nutrition predisposes the person to multitude of infections. Thus, the health of a community depends both on the adequate availability of safe food and the intelligent consumption of it.

7) **Environment:** A person is fully dependent on external environment for his body needs in day to day life, but its adverse conditions are responsible for a very large number of health related problems and diseases. All the diseases caused by physical and biological agents are the result of adverse conditions of the external environment. Internal environment of a person is comprised of his own anatomical body parts and physiological activities. It mostly affects health a positive manner by promoting the physical and mental growth and development and making it immune from adverse external factors. Many of the diseases and conditions like sarcoidosis, auto-immune disorders, diabetes hypertension, coronary heart diseases (CHDs), arthritis, cataract, Alzheimer's disease and malignancies etc. are mostly caused due to adverse physiological conditions of the internal environment.

8) **Socio-economic status:** Economic status of the country, community and of an average individual has an impact on the purchasing power and thus affects the living standard of a person. Daily needs of nutrition, education, housing, clothing and standard of life are all dependent on per capita income. Further, access to health services, are also largely dependent upon the income. Certain diseases such as lifestyle disorders have been found to be associated among the group belonging to higher socio-economic status while infectious diseases such as tuberculosis, leprosy are considered to be diseases of poor.

9) **Socio-cultural conditions:** A person learns and develops the qualities to interact with others in the society in his early developmental stage. On interaction with a person, one can easily think of the culture and a society which he belongs to. These are all behavioural traits displayed by him during interaction. Development of such qualities is mostly by learning from prevailing behavioural and socio-cultural conditions in the society.The health behaviour of person is also influenced by his socio-cultural environment.

10) **Health care system/services:** Care of people provided through effective system of medical and health care services creates a positive influence on health of the people.The impact of these services can be seen by sensitive indicators of health viz. infant mortality rate, maternal mortality rate and expectation of life at birth.

11) **Other factors:** The development of newer technologies of information and communication offer tremendous opportunities in providing an easy and instant access to medical information. Other determinants include adoption of policies in the economic and social fields that would assist in raising the standards of living and hence indirectly affecting the health.

1.4.2 Social Determinants of Health

World Health Organization (WHO) describes social determinants of health as the “the conditions in which people are born, grow, live, work and age”. It goes on to state that these conditions or circumstances are shaped by the distribution of money, power and resources at global, national and local levels. These are themselves influenced by policy choices. It makes clear the link between the social determinants of health and health inequalities, defined as “the unfair and avoidable differences in health status seen within and between countries”.The real causes of many deaths are social determinants such as illiteracy, fatalism, gender bias, racial bias, unemployment, and poverty.

The knowledge about determinants of health is important since of the determining factors can be modified or changed such as nutrition, literacy status, socio-economic status, delivery of health services and environment.

Assessment of social and environmental factors would help in identifying related problems among people at large. The format for collecting relevant information have been covered in this block , Unit 7, sub-section 7.2.5. You need to collect information as per format and if you come across additional information it can be recorded in remarks.

1.5 LET US SUM UP

For effective planning of health services, needs of the community should be assessed. The community needs assessment process is comprehensive and involves whole gamut of stakeholders . Measurement of health is an important component of needs assessment. Proportions, rates and ratio are important tools for measurement of health and using them we can calculate number of health indicators.

1.6 ACTIVITY

1) Plan home visit to collect background information of the community as per the formal given in Unit 7 and sub-section 7.2.5 and document the findings.

2) Prepare a working team under your supervision and identify the problems faced by people during your interaction with them. Record and report the findings to higher authority.

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UNIT 2 NUTRITIONAL ASSESSMENT

Structure

2.0 INTRODUCTION

Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. You have read in details in Block 2 of Theory Course 1.

2.1 OBJECTIVES

After completing this practical, you should be able to:

- measure anthropometric assessment using correct technique;

- do anthropometric measurement to assess body composition;
- enumerate clinical methods of assessing nutritional status;
- assess to nutrient deficiency disorders for adult following steps of assessment;
- assess the PEM and identify children with malnutrition using growth chart;
- plot or interpret growth chart;
- interpret growth curve of children with clinical signs;
- describe complimentary food and method of them; and
- list the uses of growth chart protocol for malnutrition.

2.2 ASSESSMENT FOR MARASMUS AND KWASHIORKOR

Marasmic Kwashiorkor (marked protein deficiency and marked calorie insufficiency signs present, sometimes referred to as the most severe form of malnutrition).

Children may present with a mixed picture of marasmus and kwashiorkor, and children may present with milder forms of malnutrition. For this reason, term protein-calorie (energy) malnutrition is to include both entities.

Marasmus : Marasmic children have retarded growth with specific clinical manifestations:

Table 2.1 : Check list for Assessment of Marasmus and Kwashiorkor

S.No.	Signs and Syptoms	Yes	No
MARASMUS			
1.	Wasting of subcutaneous fat and muscles (flabby muscles)		
2.	Wizened monkey (old man face)		
3.	Increased appetite		
4.	Sunken eye balls		
5.	Mood change (always irritable) and		
6.	Mild skin and hair changes		
KWASHIORKOR			
1.	Growth failure		
2.	Wasting of muscles and preservation of subcutaneous fat		
3.	Oedema (pitting type)		
4.	Fatty liver (haepatomegaly)		

S.No.	Signs and Syptoms	Yes	No
5.	Psychomotor retardation (difficulty of walking)		
6.	Moon face due to hanging cheeks as a result of edema		
7.	Loss of appetite		
8.	Lack of interest in the surrounding (apathy) and miserable		
9.	Skins changes (ulceration and depigmentation or hyper pigmentation)		
10.	Hair changes (de-pigmentation, straightening of hair and presence of different colour bands of the hair indicating periods of malnourishment and well nourishment (flag sign)		
11.	Straightening of hair at the bottom and curling on the top giving an impression of a forest (Forest sign) and easily pluckable hair.		

Marasmic kwashiorkor can have the clinical features of both Marasmus and kwashiorkor.

2.2.1 Diagnosis

The diagnosis of PEM rests mainly on meticulous clinical examination for the symptoms and signs of the syndrome plus anthropometric assessments using different methods.

Table 2.2 : The anthropometric assessments can be done using the following methods

Growth Chart (weight-for-age)	
Percentage (%)	**Level of Malnutrition**
90-109	Normal
75-89	Mild (Grade I)
60-74	Moderate (Grade II)
< 60	Severe (Grade III)

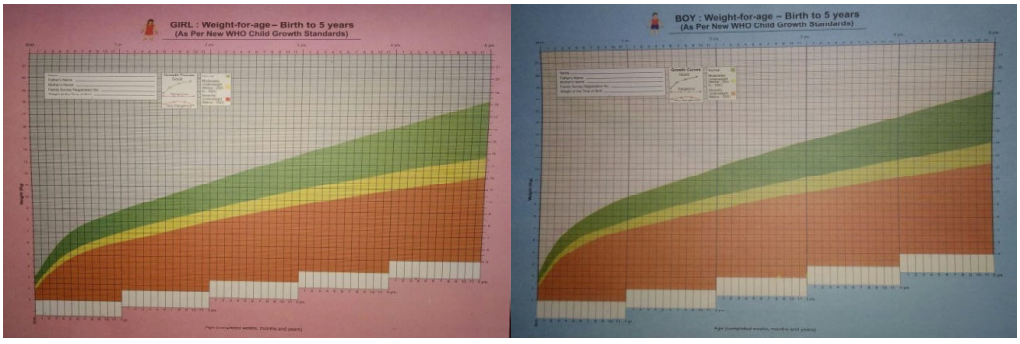

Fig. 2.1: Growth cards to assess weight for age

2.2.2 Interpretation of Growth Charts

On the growth chart age for weight is plotted. At x-axis age is given and at y - axis weight is given. Weight is to be marked as per age on the growth chart and where these two points meet a dot is to be put result. Dot in green zone indicates normal nutritional status.

- Dot in yellow zone indicates border line malnutrition and dot in red zone indicate severe malnutrition. These charts are different for boys and girls.

2.3 ASSESSMENT FOR VITAMIN DISORDERS

After having learnt about PEM and its assessment, let us now go through for vitamin deficiency disorders.

Low levels or lack of Vitamin A in a human body causes Vitamin A deficiency and it is the number one cause of what is known as preventable blindness in children and severe visual impairment.

Table 2.3: Checklist for assessing Vitamin Deficiency Disorders

Sign and Symptoms (Vitamin A)	**Present**	**Absent**
Reduced vision in the night or dim light.		
Dry eyes which could also lead to xeropthalmia.		
Eye inflammation can also result from Vitamin A deficiency.		
Growth can be halted in children due to vitamin A deficiency.		
Sign and symptoms Vitamin B		
Vitamin B (thiamine).		
Deficiency causes beriberi		
Weight loss		
Emotional disturbances		
Wernicke's encephalopathy (impaired sensory perception)		
Weakness and pain in the limbs		
Periods of irregular heartbeat		
Oedema (swelling of bodily tissues)		
Muscle pain - typically in the calves		
Congestive cardiac failure –		
• shortness of breath		
• fluid retention		
• rapid and sometimes bounding pulse		
Peripheral neuropathy –		

Sign and Symptoms (Vitamin A)	Present	Absent
• loss of sensation and sometimes strength in the hands or lower limbs		
Wernicke's Encephalopathy –		
• ataxia (unsteadiness)		
• impaired consciousness		
• problems of eye movement		
Korsakoff's Psychosis - loss of memory for both recent (anterograde) and past		
Hypothermia		
Hypotension (low Blood Pressure)		
Vitamin B_2 (riboflavin) Riboflavin Deficiency		
Cheilosis (cracks in the lips)		
High sensitivity to sunlight		
Angular cheilitis		
Glossitis (inflammation of the tongue)		
Seborrheic dermatitis or pseudo-syphilis (particularly affecting the scrotum or labia majora and the mouth)		
Pharyngitis (sore throat)		
Oedema of the pharyngeal and oral mucosa		
Vitamin B-3 (niacin)		
Nausea and abdominal cramps. Severe deficiency - mental confusion		
Vitamin B_6 (pyridoxine, pyridoxal, pyridoxamine)		
Anaemia		
Skin disorders, such as a rash or cracks around the mouth.		
Depression		
Confusion		
Nausea		
Susceptibility to infections		
Pink eye		
Neurological symptoms (e.g. Epilepsy)		
Vitamin B_9 (folic acid)		
Macrocytic anaemia		

Sign and Symptoms (Vitamin A)	Present	Absent
Birth defects		
Vitamin B_{12} (cobalamin)		
Tingling in the feet and hands		
Extreme fatigue		
Weakness		
Irritability or depression		
Memory Loss		
Cognitive Defects		
Sign and Symptoms Vitamin C		
Fatigued and lethargic		
It affects bone and muscle strength and it stifles the immune system.		
Easy bruising Swollen gums		
Bleeding gums		
Slow wound healing		
Gingivitis (inflammation of the gums)		
Dry and splitting hair		
Dry red spots on the skin		
Rough, dry, scaly skin,		
Nosebleeds		
Weakened immune system		
Digestive disorders like **leaky gut and autoimmune** disease		
Possible weight gain because of slowed metabolism swollen and painful joints.		
Sign and symptoms Vitamin D		
Increased risk of death from cardiovascular disease		
Cognitive impairment in older adults		
Severe asthma in children		
Cancer		

2.4 ASSESSMENT FOR MINERALS DEFICIENCY DISORDERS

Let us now go through assessment for mineral deficiency disorders by using checklist as given below:

Table 2.4: Check list for assessment of Minerals Deficiency Disorders

Iron Deficiency:-		
Sign and Symptoms of Anaemia	**Yes**	**No**
Shortness of breath		
Dizziness		
Headache		
Coldness in your hands and feet		
Pale skin		
Chest pain		
Weakness		
Fatigue (tiredness)		
Symptoms of Calcium Deficiency	**Yes**	**No**
Muscle aches & cramps		
Tooth Decay		
Weak or deformed bones		
Brittle nails & dry skin		
Miscarriage		
Osteoporosis		
Heart Disease		
Allergies		
Chronic Arthritis		
Headaches		
Common Colds, Flu, Infections		
Infertility		
Low pH, Acidic Saliva/Urine		
Symptoms of iodine or thyroid deficiency		
Brittle nails		
Cold hands and feet		
Cold intolerance		
Depression		
Difficulty swallowing Dry skin		
Dry hair or hair loss		
Fatigue /lethargy		
High cholesterol		

Hoarseness		
Infertility		
Menstrual irregularities		
Early menopause		
Poor memory or concentration		
Slower heartbeat		
Throat pain		
Weight gain		

Table 2.5: Micronutrient deficiencies

	Necessary for:	Causes of Deficiency:	Manifestations of isolated Deficiency:	Management and Prvention:
Iron	• Haemoglobin • Myoglobin	• Poor diet • Elevated needs (eg, pregnancy, childhood) • Parasitic infections	• Anaemia and • fatigue • Impaired cognitive development • Reduced growth	• Foods rich in iron • Iron-fortified weaning foods • Low-dose supplements
Iodine	• Thyroid hormones	Most Diets worlwide are deficient unless fortified salt or seafood are available.	• Goitre • Hypothyroidism • Growth restriction	• Iodine supplementation • Fortified salt • Seafood
Vitamine A	• Eyes • Immune system	Diets poor in vegetables and animal products.	• Night blindness • Immune deficiency childhood illness and death	• Dark green leafy vegetables • Animal products oils/fats • Supplementation
Zinc	• Many enzymes • Immune system	diets based on refined cereals and lacking in animal products.	• Immune deficiency • Acrodermatitis • Increased childhood illness and death	• Zinc treatment for diarrhoea and malnutrition • Improved diet

2.5 NUTRITIONAL ASSESSMENT

As a community health nurse, you will frequently be dealing with your community's nutritional problems.

Nutritional assessment is the interpretation of anthropometric, biochemical (laboratory), clinical and dietary data to determine whether a person or groups

of people are well nourished or malnourished (over nourished or undernourished).

Nutritional assessment can be done using the ABCD methods. These refer to the following:

a) Anthropometry

b) Biochemical/biophysical methods

c) Clinical methods

d) Dietary methods.

2.5.1 Anthropometry

The word anthropometry comes from two words: Anthropo means 'human' and metry means 'measurement'.To assess growth in children you can use several different measurements including length(infants), height, weight, head circumference, chest circumference, upper mid arm circumference.

a) **Length**

A wooden measuring board (also called sliding board) is used for measuring the length of children under two years old to the nearest millimeter. Measuring the child lying down always gives slightly readings greater than the child's actual height.

Procedure

To measure the length of a child less than two years, you need one assistant and a sliding board.

You need an assistant to help you measure a child using this method.

1) Both assistant and measurer are on their knees.

2) The assistant holds the child's head with both hands and makes sure that the head touches the base of the board.

3) The assistant's arms should be comfortably straight.

4) The line of sight of the child should be perpendicular to the base of the board (looking straight upwards).

5) The child should lie flat on the board.

6) The measurer should place their hands on the child's knees or shins.

7) The child's foot should be flat against the foot piece.

8) Read the length from the tape attached to the board.

9) Record the measurement

b) **Height**

This is measured with the child or adult in a standing position (usually children who are two years old or more). The head should be in the Frankfurt position (a position where the line passing from the external ear hole to the lower eye lid is parallel to the floor) during measurement, and the shoulders, buttocks and the heels should touch the vertical stand. Either a stadiometer or a portable anthropometer can be used for measuring. Even wall can be marked with centimeters and milometers if you are using same place every day for measuring

height with the help of tape measure. Measurements are recorded to the nearest millimeter.

Procedure

As with measuring a child's length, to measure a child's height, you need to have another person helping you.

1) Both the assistant and measurer should be on their knees.
2) The right hand of the assistant should be on the shins of the child against the base of the board/wall.
3) The left hand of the assistant should be on the knees of the child to keep them close to the board/wall.
4) The heel, the calf, buttocks, shoulder and occipital prominence (prominent area on the back of the head) should be flat against the board.
5) The child should be looking straight ahead.
6) The hands of the child should be by their side.
7) The measurer's left hand should be on the child's chin.
8) The child's shoulders should be leveled.
9) The head piece should be placed firmly on the child's head.
10) The measurement should be recorded on the card.

c) **Weight**

A weighing sling (spring balance), also called the 'Salter Scale' is used for measuring the weight of children under two years old, to the nearest 0.1 kg. In adults and children over two years a beam balance is used and the measurement is also to the nearest 0.1 kg. In both cases a digital electronic scale can be used if you have one available. Do not forget to readjust the scale to zero before each weighing. You also need to check whether your scale is measuring correctly by weighing an object of known weight.

Birth weight is weight of the child at birth and is classified as follows:

- More than 2500 grams = normal birth weight
- 1500-2499 grams = low birth weight
- Less than 1500 grams = very low birth weight

Procedure

The procedures for weighing a child under two years old using a Salter Scale.

1) Adjust the pointer of the scale to zero level.
2) Take off the child's heavy clothes and shoes.
3) Hold the child's legs through the leg holes.
4) Hold the child's feet.
5) Hang the child on the Salter Scale.
6) Read the scale at eye level to the nearest 0.1 kg.
7) Remove the child slowly and safely.

Boys and girls nutritional status can be assessed as per weight to height chart.

Table 2.6: Height /weight charts for girls and boys

HEIGHT / WEIGHT CHART

Average height and weight of girls at different ages

AGE	WEIGHT (kg)	HEIGHT (cm)
Birth	3.2	49.9
3 months	5.4	60.2
6 months	7.2	66.6
9 months	8.6	71.1
1 year	9.5	75.0
2 years	11.8	84.5
3 years	14.1	93.9
4 years	16.0	101.6
5 years	17.7	108.4
6 years	19.5	114.6
7 years	21.8	120.6
8 years	24.8	126.4
9 years	28.5	132.2
10 years	32.5	138.3
11 years	33.7	142.0
12 years	38.7	148.0
13 years	44.0	150.0
14 years	48.0	155.0
15 years	51.5	161.0
16 years	53.0	162.0
17 years	54.0	163.0
18 years	54.4	164.0

Average height and weight of boys at different ages

AGE	WEIGHT (kg)	HEIGHT (cm)
Birth	3.3	50.5
3 months	6.0	61.1
6 months	7.8	67.8
9 months	9.2	72.3
1 year	10.2	76.1
2 years	12.3	85.6
3 years	14.6	94.9
4 years	16.7	102.9
5 years	18.7	109.9
6 years	20.7	116.1
7 years	22.9	121.7
8 years	25.3	127.0
9 years	28.1	132.2
10 years	31.4	137.5
11 years	32.2	140.0
12 years	37.0	147.0
13 years	40.9	153.0
14 years	47.0	160.0
15 years	52.6	166.0
16 years	58.0	171.0
17 years	62.7	175.0
18 years	65.0	177.0

d) Head circumference

The head circumference (HC) is the measurement of the head along the supra orbital ridge (forehead) anteriorly and occipital prominence (the prominent area on the back part of the head) posteriorly. It is measured to the nearest millimeter using flexible, non-stretchable measuring tape around 0.6 cm wide. HC is useful in assessing chronic nutritional problems in children under two years old as the brain grows faster during the first two years of life. But after two years the growth of the brain is more sluggish and HC is not useful.

e) Measurement of chest circumference

- In a normally nourished child, chest grows faster than the head circumference during second and third years.

Technique

- Use flexible non-stretchable measuring tape.
- Chest circumference is measured at the level of nipple in mid inspiration.

Relationship between head size with chest circumference:

- At birth head circumference is 34 cm and chest circumference is 32 cm.
- The head circumference is greater than chest circumference by more than 3 cms in preterms, small-for-date, and hydrocephalic infants

- At around 9 months to 1 year of age: head circumference = chest circumference, but thereafter chest grows more rapidly compared to the head.
- In PEM, due to poor growth of chest, the head circumference may remain to be higher than the chest even at the age of 2.5 to 3 years due to poor development of thoracic cage. Growth of brain is less affected by under nutrition. Therefore, there will be considerable delay before chest circumference overtakes head circumference.
- Both the measurements are not useful beyond the preschool age.

2.5.2 Anthropometric Measurements to Assess Body Composition

In assessing body composition (fat content) the body is considered to be made up of two compartments: the fat mass and the fat free mass. Therefore different measurements are used to assess these two compartments.

a) **Measurements of fat mass (fatness)**

Body Mass Index (BMI) is the weight of a person in kilograms divided by their height in meters squared. An adult is considered to have a normal BMI when it falls between 18.5 and 25 kg/m .Table shows you the different categories of nutritional status based on a person's BMI.

Table 2.7: Cutoff values for BMI for assessing adult nutritional status

BMI(kg/m^2) Cutoffs	Nutritional status
<16	Severe chronic energy deficiency
16-16.9	Moderate chronic energy deficiency
17-18.49	Mild chronic energy deficiency
18.5-24.9	Normal
25-29.9	Overweight
30.0 -40.0	Obese
more than 40.0	Very obese

b) **Measuring fat free mass (muscle mass)**

An accurate way to measure fat free mass is to measure the Mid Upper Arm Circumference (MUAC). The MUAC is the circumference of the upper arm at the midway between the shoulder tip and the elbow tip on the left arm. The mid arm point is determined by measuring the distance from the shoulder tip to the elbow and dividing it by two. A low reading indicates a loss of muscle mass.

MUAC is a good screening tool in determining the risk of mortality among children, and people living with HIV/AIDS.

c) **Measuring the MUAC of children**

A special tape is used for measuring the MUAC of a child. The tape has three colours, with the red indicating severe acute malnutrition, the yellow indicating moderate acute malnutrition and the green indicating normal nutritional status.

Procedures for measuring MUAC

1) Ask the mother to remove any clothing that may cover the child's left arm. If possible, the child should stand erect and sideways to the measurer.

2) Estimate the midpoint of the left upper arm.

3) Straighten the child's arm and wrap the tape around the arm at the midpoint. Make sure the numbers are right side up. Make sure the tape is flat around the skin.

4) Inspect the tension of the tape on the child's arm. Make sure the tape has the proper tension and is not too tight or too loose.

5) When the tape is in the correct position on the arm with correct tension, read the measurement to the nearest 0.1 cm.

6) Immediately record the measurement.

Normal MUAC is 13 cms. From 12–13 cms indicate borderline malnutrition and below 12 cm indicate child is malnourished

2.6 CLINICAL METHODS OF ASSESSING NUTRITIONAL STATUS

As a frontline health worker providing health services at community level, you will almost certainly encounter many people with nutritional deficiency problems. In addition to the anthropometric assessments, you can also assess clinical signs and symptoms that might indicate potential specific nutrient deficiency.

Clinical methods of assessing nutritional status involve checking signs of deficiency at specific places on the body or asking the patient whether they have many symptoms that might suggest nutrient deficiency from the patient.

Clinical signs of nutrient deficiency include: pallor (on the palm of the hand or the conjunctiva of the eye), capillary refilling time, Bitot's spots on the eyes, pitting oedema, goitre and severe visible wasting.

a) **Checking for bilateral pitting oedema in a child:-**

In order to determine the presence of oedema, you should apply normal thumb pressure on both feet for three seconds (count the numbers 101, 102, 103 in order to estimate three seconds without using a watch). If a shallow print persists on both feet, then the child has nutritional oedema (pitting oedema). You must test for oedema with finger pressure because you cannot tell by just looking.

Grades of oedema

Depending on the presence of oedema on the different levels of the body it is graded as follows. An increase in grades indicates an increase in the severity of oedema.

0 = no oedema

+ = Below the ankle (pitting pedal oedema)

++ = Pitting oedema below the knee

+++ = Generalised oedema.

b) **Bitot's spots**

These are a sign of vitamin A deficiency. These spots are a creamy colour and appear on the white of the eye.

c) **Goitre**

Goitre is a swelling on the neck and is the only visible sign of iodine deficiency. Ask the individual to hyper extend the neck and swallow the saliva then observe the movements of thyroid gland and see if the thyroid gland is enlarged or not.

d) **Visible severe wasting**

In order to determine the presence of visible severe wasting for children younger than six months, you will need to ask the mother to remove all of the child's clothing so you can look at the arms, thighs and buttocks for loss of muscle bulk. Sagging skin and buttocks indicates visible severe wasting.

e) **Capillary refilling time**

Press the nail bed of any finger it will turn white in colour now leave it and note the time when it regains its pink colour. It should be less than 2 seconds. More time indicates anaemia.

Dietary methods of assessing nutritional status

Dietary methods of assessment include looking at past or current intakes of nutrients from food by individuals or a group to determine their nutritional status.

You can ask what the family or the mother and the child have eaten over the past 24 hours and use this data to calculate the dietary diversity score.

Dietary diversity is a measure of the number of food groups consumed over a reference period, usually 24 hours. Generally, there are six food groups that our body needs to have every day.

2.7 GROWTH CHARTS

The growth chart or road to health chart was first designed by David Morley and later modified by WHO which is a visible display of a child's physical growth and development. It is designed primarily for the longitudinal follow up of a child, so that changes over time can be interpreted. In 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 easily detected by comparing with the reference curves. A child can lose weight, but not the height.

2.7.1 Growth Monitoring Chart Register

Growth monitoring chart register is a part of the Mother & Child Protection (MCP) Card Package, which also includes a Mother & Child Protection Card and a Guide Book. Growth monitoring chart register is for recording the weight of children as per their age up to 5 years. The register contains weight-for-age growth charts based on new WHO Child Growth Standards. As per the new Standards, there are separate growth charts for girls and boys, as they have different weights and lengths beginning at birth and grow to different sizes related to their age. The first half of the register has growth charts for girls with 'pink border' and

the second half is for boys with the 'blue border'. Each set of charts is followed by pages marked as "Index" for keeping the record of growth charts maintained in the register.

2.7.2 Description of the Growth Curve

- A growth curve is formed by joining the plotted points on a growth chart. Direction of the growth curve indicates whether the child is growing or not and is more important than the actual weight of the child at a given point of weighing.
- On each growth chart, there are 3 printed growth curves. These are called Reference Lines or Z Score Lines and are used to compare and interpret the growth pattern of the child and assess her/his nutritional status.
- The 1st top curve line on the growth chart i.e. upper border of green band is the median which is, generally speaking, the average.
- Second line is the junction of green and yellow bands and 3rd line is the junction of yellow and orange bands. Weight of all normal and healthy children, when plotted on the growth chart, fall above 2nd curve (green band); weight of moderately underweight children fall below the 2nd curve to 3rd curve (yellow band); and weight of severely underweight children fall below the 3rd curve (orange band).

2.7.3 Equipment and Tools Used for Maintaining Growth Chart

- Weighing scale
- Mother & Child Protection Card
- Growth Monitoring Chart Register.

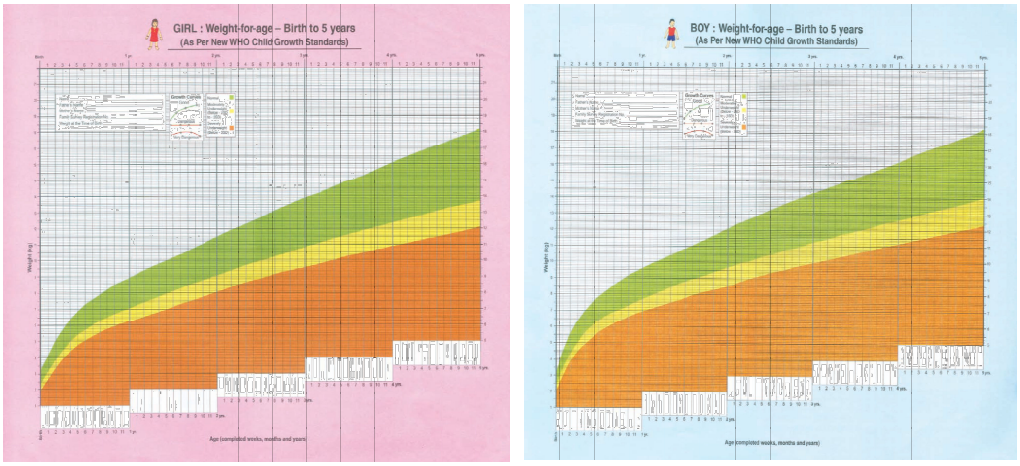

Fig. 2.2: WHO growth chart for girls and boys

Fig. 2.2 shows the new WHO growth chart used in the ICDS programme for girls and boys respectively. On the extreme top left there is the information box where the child's name, father's and mother's name, family survey register number and weight at the time of birth are to be filled. Each growth chart has two axes. The horizontal line at the bottom of the chart is the X Axis. This is for recording the age of the child for five years and is called 'month axis'. The vertical line at the far left of the chart is the Y Axis. This is for recording the weight of the child from birth onwards and is called "weight axis". The horizontal

lines from bottom to top of the growth chart reflect the weights from 0 to 21 kg at 100 gm interval.

2.7.4 Interpreting Growth Curve

When weight points plotted at different intervals are joined with a line, we get a Growth Curve. Depending on the pattern of monthly growth of a child, the direction of the growth curve may be upward, flat or downward. An upward growth curve indicates that the child is healthy, gaining weight and is growing. However, it is not only an upward curve which is important, but also a healthy upward curve, as a result of adequate weight gain each month. Whenever the weight gain is not sufficient as per the age of the child, then the growth curve is either flat or downward.

2.7.5 Steps in Interpretation of Growth Curve

i) Plotted point for weight-for-age helps in assessing the nutritional status of the child.

ii) Note the position of the plotted point with reference to printed Growth Curves.

iii) Interpret the position of the plotted points to identify normal growth or growth problems.

iv) If plotted weight of a child falls much above the 1st curve, the child has a growth problem, which can be overweight or obesity. This is better assessed from other indicators. Refer the child to the health centre.

v) If plotted weight-for-age of a child falls exactly on the 1st or 2nd or 3rd printed growth curve line, then the child is in the less severe category of underweight e.g. plotted point on the 2nd curve line indicates that the child's growth is normal and she/he is not moderately underweight, where as plotted point below the 2nd curve line indicates that the child is moderately underweight. Similarly, plotted point on the 3rd curve line indicates that the child is moderately underweight and she/he is not severely underweight, whereas plotted point below the 3rd curve line indicates that the child is severely underweight.

vi) If plotted weight-for-age of a child falls on the green band, then the child's growth is normal; if it falls on the yellow band, child is moderately underweight, and if the plotted weight is on the orange band, the child is severely underweight.

vii) Assess the nutritional status of the child as per the plotted weight-for-age, as given in the box below.

Table 2.8: Interpretation of growth chart

Position of the Plotted Point	Nutritional Status
Plotted point is	
Exactly on or just above the Ist curve(or)	Child's growth is normal
Between the 1st & 2nd curve	
Exactly on the 2nd curve	

Position of the Plotted Point	Nutritional Status
Plotted point is: Between 2nd & 3rd curve Exactly on the 3rd curve	Child is moderately underweight
Plotted point is below the 3rd curve	Child is severely underweight

2.7.6 Interpreting Growth Curve of Children with Clinical Signs

Observe the child and note clinical signs. It may be mentioned that weight of children with clinical signs would be plotted and indicated clearly on the growth chart (close to the plotted point) about child's clinical sign.

If a child is severely underweight, clinical signs of marasmus or kwashiorkor may be observed. It is important to recognise signs of marasmus and kwashiorkor since they require urgent specialised care that may include special feeding, careful monitoring, medicines, etc. Regardless of their weight, children with these syndromes should be referred for urgent medical care.

Table 2.9: Direction of child's Growth curve

Direction of Growth Curves	Growth Pattern
Upward Growth Curve	**Good** Indicates adequate weight gain for the age of the child. The child is growing well and is healthy.
Flat Growth Curve	**Dangerous** Indicates that the child has not gained weight and is not growing adequately. This is called stagnation. The child needs attention by the mother and the AWW. This needs to be investigated.
Downward Growth Curve	**Very dangerous** Indicates loss of weight. The child requires immediate referral and health care.

Growth problems

Growth problems or risk can be interpreted from the child's growth curve for the following situations:

- **Child's growth curve is far above the first curve line**
- Child may have a growth problem. This is better assessed from other nutrition indicators at the health centre. However, it may be mentioned that a tentative principle has been followed to understand the growth curve above the green band that is a hypothetical line dividing green band into two equal parts may be drawn and one of the two equal parts may be pasted above the green band

and the children whose plotting falls between this hypothetical line and the real green zone need not to be referred to health centre.

- However, children whose plotting falls above the hypothetical line actually have growth problem and need to be referred to health centre.
- **Child's growth curve is far below the third curve line**
- Child may be severely underweight and she/he needs urgent specialised medical care.
- **Any quick change or sharp incline or decline in the child's growth curve**
- When child's growth curve goes upward or downward from its normal track, this needs to be investigated to determine the cause and remedy of the problem.
- **Child's growth curve crosses a printed curve line**

  If a child's growth curve crosses a printed curve - either from above or below, it means there has been a significant change in the child's growth. This may indicate a good change or risk. An AWW can interpret it based on from where (relative to the 1st curve line) the change in the curve began and the rate of change as given below:

- If the shift is towards the lst curve (green), this is probably a good change.
- If the child's growth curve line stays close to the lst curve, occasionally crossing above and below it, this is fine.
- If the shift is towards 2nd curve (yellow) or 3rd curve (orange) this indicates a problem or risk of a problem. If it is noticed on time, it may be possible to intervene early and prevent a problem.
- **Child's growth curve remains flat**

  Child may have a growth problem if there is no gain in weight as the age increases. This is called stagnation. This needs to be investigated if the condition remains so consecutively for 2–3 months.

2.7.7 Uses of the Growth Chart

Growth monitoring means keeping a regular track of the growth and development of the child with the help of key nutrition indicators related to their age like weight or height. Plotting the child's weight, taken every month or quarter, on the growth chart and joining these weight points with a line to form the growth curve, makes the growth of the child visible. The growth curve is a useful tool in many ways and enables AWW /Supervisor/CDPO/ANM/MO to:

- Detect early growth faltering and prevent underweight;
- Identify underweight children who need special care and feeding at home, in addition to supplementary nutrition received at the AWC;
- Identify severely underweight children who need special care and feeding at home and to provide referral advice, in addition to Micronutrient-fortified food/Energy-dense food supplementation at the AWC;
- Identify causes of weight loss or lack of growth i.e. illnesses such as fever, diarrohoea and acute respiratory infection; inadequate or insufficient diet; mother's illness; etc., and take corrective and timely action; and educate,

counsel and support mothers and families for optimal nutrition, health care and development of their children.

Advice appropriate balance diet and suggest any dietary modification

Pregnant/lactating women dietary advises: A well-nourished woman is likely to be healthy and therefore able to look after her family well. The outcome of pregnancy and lactation are enhanced when the woman is healthy. The nutritional needs of a pregnant and a lactating woman are greater than at other times in her life. During pregnancy, the food the mother eats helps to meet the nutritional needs of the unborn baby. During lactation, the food the mother eats helps in production of breast milk. You have read in Course 1, Block 2 nutrition for pregnant and lactating mother in details. Ensure provision of extra food and healthcare to pregnant and lactating women Rationale.

2.8 WHAT ARE SUPPLEMENTARY/ COMPLEMENTARY FOODS?

Let us discuss concept of supplementary/complementary foods such as:

Breast-milk alone is not enough for infants after 6 months of age. Complementary foods should be given after 6 months of age, in addition to breastfeeding. Do not delay complementary feeding. Feed low-cost home-made complementary foods, on demand 3–4 times a day. Provide fruits and well cooked vegetables. Observe hygienic practices while preparing and feeding the complementary food. Read nutrition label on baby foods carefully.

Feeding During illness

- Never starve the child.
- Feed energy-rich cereals-pulse diet with milk and mashed vegetables.
- Feed small quantities at frequent intervals.
- Continue breastfeeding as long as possible.
- Give plenty of fluids during illness.
- Use oral rehydration solution to prevent and correct dehydration during diarrhoea episodes

1. Kichidi

Rice	...	35 g
Green gram dal	...	10 g
Leafy vegetables	...	2 t. sp
Fat	...	2 t. sp
Cumin (jeera)		

Method: Clean rice and dhal and cook them in water with salt till the grains are soft and water is absorbed. Leafy vegetables can be added when the cereal/pulse is 3/4th done. Cumin is fried in fat and added towards the end.

2. Malted Ragi Porridge

Malted Ragi	...	30 g
Roasted Groundnut	...	15 g
Jaggery	...	20 g

Method: Malted ragi, roasted groundnuts and jaggery are powdered. Sufficient water is added and cooked.

3. Wheat Payasam

Wheat	...	30 g
Roasted Bengal gram flour	...	15 g
Roasted & crushed Groundnut	...	5 g
Sugar	...	15 g

Method: Roast whole wheat and powder. Add roasted Bengal gram flour, groundnut and sugar. Cook with sufficient water.

4. Kheer

Vermicelli/Rice	...	30 g
Milk	...	100 ml.
Water	...	As required
Jaggery	...	20 g

Method: Boil rice/vermicelli in water till half done. Add milk and bring to boil. Add jaggery and cook well.

Note:
1. All these recipes provide approximately 250 Kcals. and 5 g proteins and amounts given are for 2 servings.
2. Recipes Nos.2 and 3 can be prepared and stored in airtight containers to be used whenever required.
3. Non-vegetarian foods such as soft boiled egg, minced meat may be introduced at the age of 6 months.

Fig. 2.3: Complementary foods

Fruits and vegetables

Normal diet, to be wholesome and tasty, should include fresh vegetables and fruits, which are store houses of micronutrients.

- Vegetables/fruits are rich sources of micronutrients.
- Fruits and vegetables also provide phytonutrients and fibre which are of vital health significance They help in prevention of micronutrient malnutrition and certain chronic diseases such as cardiovascular diseases, cataract and cancer.
- Fresh fruits are nutritionally superior to fruit juices.
- Eat as much of other vegetables as possible daily.
- Eat vegetables/ fruits in all your meals in various forms (curry, soups, mixed with curd, added to pulse preparations and rice).
- Consume raw and fresh vegetables as salads.
- Grow the family's requirements of vegetables in the kitchen garden if possible.
- Green leafy vegetables, when properly cleaned and cooked are safe even for infants.
- Let different varieties of vegetables and fruits add colour to your plate and vitality to your life.
- Beta-carotene rich foods like dark green, yellow and orange colored vegetables and fruits (GLVs, carrots, papaya and mangoes) protect from vitamin A deficiency.

2.8.1 How much Fruits and Vegetables to be Taken?

The Expert Committee of the Indian Council of Medical Research, taking into consideration the nutrient requirements, has recommended that every individual should consume atleast 300 g of vegetables (GLV : 50 g; Other vegetables : 200 g; Roots & Tubers : 50 g) in a day. In addition, fresh fruits (100 g), should be

consumed regularly. Since requirements of iron and folic acid are higher for pregnant women they should consume 100 g of leafy vegetables daily. High calorie vegetables and fruits to be restricted for over weight/ obese subjects

Fats

Fats/oils have high energy value and induce satiety.

Fats provide energy, essential fatty acids and promote absorption of fat-soluble vitamins. Fats are precursors of biologically-active compounds in the body.

Diets that provide excess of calories, fats and cholesterol elevate blood lipids (cholesterol and triglycerides) and promote blood clotting.

Excessive fat in the diet increases the risk of obesity, heart disease, stroke and cancer.

Ill effects of excess dietary fats are initiated early in life.

- Take just enough fat.
- Substitute part of visible fat and invisible fat from animal foods with whole nuts. Moderate the use of animal foods containing high fat, SFA and cholesterol.
- Limit the use of ghee, butter, especially vanaspati as a cooking oil. Choose low- fat dairy foods in place of regular whole fat dairy foods.
- Eat foods rich in alpha-linolenic (ALA) acid such as legumes, green leafy vegetables, fenugreek and mustard seeds.
- Eat fish more frequently (at least 100–200g /week), prefer it to meat, poultry and limit/ avoid organ meats such as liver, kidney, brain etc.
- Egg has several important nutrients but is high in cholesterol. Limit the consumption to 3 eggs/week. However, egg white may be consumed in good amounts.
- Minimise consumption of ready- to- eat fast foods, bakery foods and processed foods prepared in hydrogenated fat.
- Use of re-heated fats and oils should be avoided.
- Use fats and oils in moderation and consume varieties of foods to get good proportion of all fatty acids for optimal health benefits.

2.8.2 Important Tips

Prefer traditional, home made foods. Avoid replacing meals with snack foods.

Limit consumption of sugar and unhealthy processed foods which provide only (empty) calories.

Prefer fortified processed foods.

Always read food labels (given on containers) regarding content of nutrients, shelf-life and the additives present

Diets during specific deficiency diseases

Micronutrient deficiencies

Deficiencies in iron, iodine, vitamin A and zinc remain major public health problems in developing countries.

Anaemia

Anemia is the most common nutritional deficiency disorder in the world. It is a condition that occurs when the red blood cells do not carry enough oxygen to the tissues of the body. WHO defines anaemia as a condition in which the Haemoglobin (Hb) content of blood is lower than normal as a result of deficiency of one or more essential nutrients, regardless of the cause of such deficiencies. Most of the anaemias are due to inadequate supply of nutrients like iron, folic acid and vitamin B12, proteins, amino acids, vitamins A, C, and other vitamins of B-complex group i.e., niacin and pantothenic acid are also involved in the maintenance of haemoglobin level. Other than pregnant women and lactating mothers, scenario is not good in the normal population. Punjab is known as a prosperous state of India but the status of anaemia among young girls and women is alarming.

In the milder form, anaemia is "silent", without symptoms. In its severe form, anaemia is associated with symptoms like fatigue, weakness, dizziness and drowsiness. It may further include loss of normal colour in the skin (in fair skinned people) and in the lips, tongue nailbeds and the blood vessels in the white of the eye. If not treated, anaemia can worsen and becomes an underlying cause of chronic ill health, such as impaired foetal development during pregnancy, delayed cognitive development and increased risk of infection in young children, and reduced physical capacity in all people.

2.9 REFERRAL PROTOCOL FOR MALNUTRITION

The World Bank estimates that India is one of the highest ranking countries in the world for the number of children suffering from malnutrition. The prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub Saharan Africa with dire consequences for mobility, mortality, productivity and economic growth. Referral Protocol for malnutrition is given in Fig. 2.6.

The 2015 Global Hunger Index (GHI) Report ranked India 20th amongst leading countries with a serious hunger situation. Amongst South Asian nations, it ranks third behind only Afghanistan and Pakistan with a GHI score of 29.0 ("serious situation").

India is one of the fastest growing countries in terms of population and economics, sitting at a population of 1.2 billion and growing at 1.5%–1.7% annually (from 2001–2007).

Though most of the population is still living below the National Poverty Line, its economic growth indicates new opportunities and a movement towards increase in the prevalence of chronic diseases which is observed in at high rates in developed countries such as United States, Canada and Australia. The combination of people living in poverty and the recent economic growth of India has led to the co-emergence of two types of malnutrition: undernutrition and overnutrition.

Malnutrition refers to the situation where there is an unbalanced diet in which some nutrients are in excess, lacking or wrong proportion. Simply put, we can

categorise it to be under-nutrition and over-nutrition. Despite India's 50% increase in GDP since 1991, more than one third of the world's malnourished children live in India. Among these, half of them under 3 are underweight and a third of wealthiest children are over-nutriented.

Some of the major causes for malnutrition in India is gender inequality. Due to the low social status of Indian women, their diet often lacks in both quality and quantity. Women who suffer malnutrition are less likely to have healthy babies. In India, mothers generally lack proper knowledge in feeding children. Consequently, new born infants are unable to get adequate amount of nutrition from their mothers.

Deficiencies in nutrition inflict long-term damage to both individuals and society. Compared with their better-fed peers, nutrition-deficient individuals are more likely to have infectious diseases such as pneumonia and tuberculosis, which lead to a higher mortality rate. In addition, nutrition-deficient individuals are less productive at work. Low productivity not only gives them low pay that traps them in a vicious circle of under-nutrition, but also brings inefficiency to the society, especially in India where labour is a major input factor for economic production. On the other hand, over-nutrition also has severe consequences. In India national obesity rates in 2010 were 14% for women and 18% for men with some urban areas having rates as high as 40%. Obesity causes several non-communicable diseases such as cardiovascular diseases, diabetes, cancers and chronic respiratory diseases.

On the Global Hunger Index India is on place 67 among the 80 nations having the worst hunger situation which is worse than nations such as North Korea or Sudan. 25% of all hungry people worldwide live in India. Since 1990 there has been some improvements for children but the proportion of hungry in the population has increased. In India 44% of children under the age of 5 are underweight. 72% of infants and 52% of married women have anaemia. Research has conclusively shown that malnutrition during pregnancy causes the child to have increased risk of future diseases, physical retardation, and reduced cognitive abilities.

2.9.1 Severe Acute Malnutrition (SAM)

Severe acute malnutrition is defined by very low weight-for-height/length (Z-score below -3SD of the median WHO child growth standards), a mid-upper arm circumference <115 mm or by the presence of nutritional oedema.

SAM increases significantly the risk of death in children under five years of age. It can be an indirect cause of child death by increasing the case fatality rate in children suffering from common illnesses such as diarrheoa and pneumonia. Children who are severely wasted are 9 times more likely to die than well-nourished children.

2.9.2 Screening for SAM in the Community

Active and early case finding is an important determinant of case fatality rate, programme coverage and the programme impact. Community mobilisation is crucial for active and early case-finding. To reduce the barriers to access, reduce case fatality and improve programme impact, screening must take place in the community and before the onset of medical complications. Active case finding should be done in the community by the ANM and AWW and aided by the ASHA of the village.

It is important to supplement active case-finding with community sensitisation which would lead to self-referral. Frontline community workers (AWW, ASHA, ANM) can identify children with SAM by using simple coloured plastic strips that are designed to measure mid upper arm circumference (MUAC). They should also be able to recognise nutritional oedema of the feet, which is another sign of this condition. Regular growth monitoring at the Anganwadi centre or during Village Health and Nutrition Day is an opportunity for active case finding. Once identified, these children with SAM need further assessment to determine if they require referral to health facility and facility based care or whether they can be managed at community level with visits as outpatients to a health center or facility. Besides active case finding in the community (through regular growth monitoring at AWC or during VHND) all possible contact opportunities with children should be exploited including home visits, immunisation outreach sessions, visit to sub centres and all levels of health facilities. Assessing the nutrition status of all sick children presenting to health facility should be emphasised and wherever possible, included in physical examination guidelines/formats.

(MUAC< 11.5 cms. or oedema) with medical complications

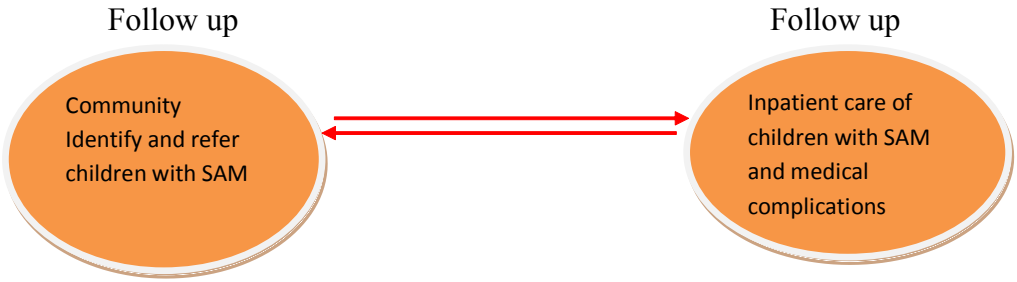

Fig. 2.4: Mid upper Arm Circumference

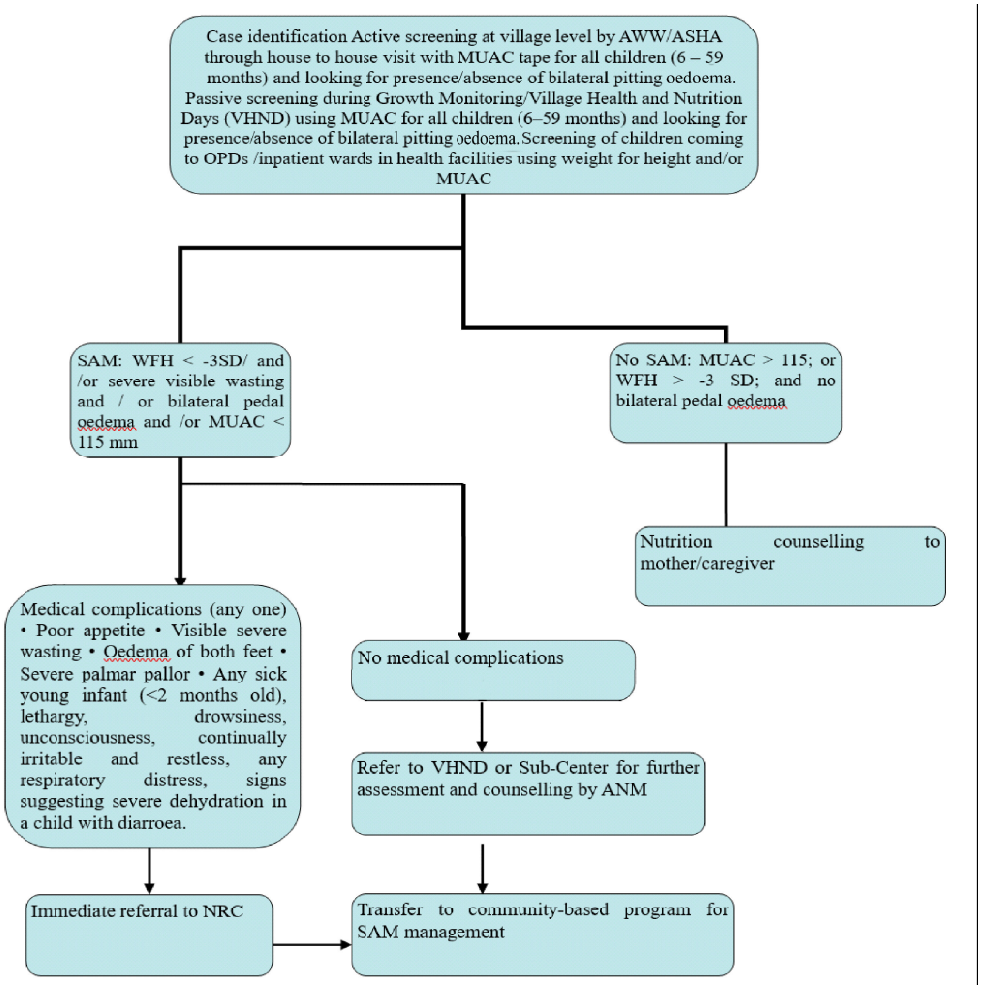

Fig. 2.5: Referral protocol for malnutrition

2.10 LET US SUM UP

In this unit we have discussed identification and assessment of nutritional deficiency disorders, malnutrition, plotting of growth chart, interpretation of growth curve of children with clinical signs. The unit content also describes anthropometric measurements to assess body composition. There is discussion on clinical methods of assessing nutritional status. We also read uses of growth chart and referral of case protocol for malnutrition.

2.11 ACTIVITIES

- Select children five years of age measure height, weight MAC, MUAC and plot in growth chart.
- Interpret the finding.
- Select malnourished children, use check list to identify their problems/signs/ symptoms and plan health education as per need.

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UNIT 3 INVESTIGATION OF AN OUTBREAK

Structure

3.1 INTRODUCTION

I keep six honest serving-men: (They taught me all I knew) Their names are What and Where and When and How and Why and Who.

—Rudyard Kipling (1865-1936)

These words of Rudyard Kipling provide keys to identify factors responsible for disease occurrence and distribution . You might have heard about disease outbreaks off and on from several parts of the world e.g. cholera, dengue, chikungunya, zika virus etc. Such outbreaks of disease often pose a major public health problem in the affected areas. It necessitates a prompt action by health department to contain the disease outbreak. This requires active participation of the health functionaries like you. They play an important role in the identification of the diseased individuals, the source of outbreak, providing health care, management of the affected individuals and in instituting preventive and control measures. The idea is that such outbreaks do not occur again. You can also learn this easily. In this unit, we will be discussing the steps in the investigation of disease outbreaks. The term 'surveillance' here means 'keeping a watch'. This means health functionaries

should always remain alert about the disease situation in their area. News papers, TV and other media sources, nowadays also help in keeping us updated on this aspect

3.0 OBJECTIVES

After going through this unit, you should be able to:

- define epidemic;
- describe sources of epidemic;
- list the steps of investigation of an outbreak;
- take measures for preventing further spread of infection;
- prepare and submit a report of the outbreak; and
- carry out investigation of an epidemic.

3.2 STEPS OF INVESTIGATION OF AN OUTBREAK

Let us discuss definition and steps for investigating an epidemic as given below:

Definition of epidemic

An epidemic is defined as "The occurrence in a community or region of a group of illnesses of similar nature, clearly in excess of normal expectancy." It is commonly known as 'disease outbreak' as well. How do we say that disease occurrence is in excess of the expectations? This can be inferred by assessment of records of the previous years. Usually previous three years' average data during similar period (months) can be considered and if the current number exceeds the average by more than two standard deviations from the mean/ average then one can consider it to be an epidemic.

This definition is not applicable for those diseases which have been eradicated or under control. Thus, one case of small pox anywhere in the world would be considered as epidemic and it is a public health emergency to contain the epidemic. This is applicable for polio, guinea worm, yaws etc. which are considered to be eradicated.

Whenever an epidemic happens, it needs to be investigated. It is very important to know the underlying cause of the epidemic so that appropriate preventive measures are applied for controlling the spread of infection at urgent basis. There are some well-established steps of investigation of an epidemic which are discussed in this section. While data is collected regarding causes, time, place, person affected, treatment of affected individuals should be simultaneously undertaken.

Steps in the outbreak investigation are as follows:

Note: Please see the diagrams /news cutting at the end ot this unit for better understanding.

3.2.1 Ensure Existence of Outbreak

This is important since the report of the outbreak may just be a rumor.

Occurrence of unusually a large number of cases in the community should lead us to suspect an outbreak /epidemic. We must bring it to the notice of health authorities.

Sometimes people are not aware of any such phenomenon. But routine records and returns may show a sudden rise in number of cases due to particular disease.

> **Remember:**
>
> Increase in number of cases beyond expected number in case of those diseases, which are endemic can be considered as an outbreak.

Thus, we can say that in case of endemic diseases like diarrhoea and acute respiratory tract infections, it is expected that there will be some cases throughout the year. Keep a watch for sudden increase in the number of cases due to these diseases in your region. Season specific watch should be kept. Also we should be ready to tackle it accordingly, e.g. in summers…for diarrhoea (keep ORS ready), vector borne diseases like malaria, dengue, chikungunya.

3.2.2 Confirm Diagnosis

It is vital, since once the diagnosis is clear, our response will be more systematic & effective.

When there are large number of cases occurring simultaneously in the community, it may not be possible to take a detailed history and clinical examination for each and every case. Since signs and symptoms of the disease are similar, "a working case definition" can be made based on symptomatology and clinical signs of the disease.

> **Note:** Symptoms are subjective criteria and are based on what the patient feels or on his/her experiences. For example, loose stools, pain in abdomen or vomiting etc. for diarrhoeal diseases. On the other hand, clinical signs and laboratory tests gives objective criteria for diagnosis e.g. signs of dehydration based on presence of dry tongue, less urine output, slow skin pinch etc.

During an epidemic, there could be many individuals affected or only a few individuals affected. If number of cases is small, each and every case can be examined thoroughly and laboratory investigation undertaken for all of them. But if the number of cases is few thousands, it is not possible and also not essential to undertake lab investigations for each and every individual. In such situations, investigations may be carried out on representative sample of the affected cases to confirm diagnosis and find out the important information related to agent, host and environment and mode of transmission of the disease. But it is very important to take few blood or other specimens, as advised by the doctors before medicines are started. Otherwise proper lab. report will not come, since the disease organism will be neutralised by the medicines.

3.2.3 Estimate the Number of Cases

Using the 'working case definition' estimate the number of person affected. Collect relevant data such as age, sex, place of residence of the cases, history of travel, exposure to a suspected case and a detailed history about the symptoms. This information may be collected on 'epidemiological case sheet' from cases as well as from persons apparently exposed but unaffected.

To find out the total population exposed to the risk of infection, sometimes it is necessary to carry out a house-to house survey.

During an epidemic, there can be some overt (clear cut) as well as sub-clinical (hidden) cases. Identification of these sub-clinical cases or carriers is important from the point of view of the spread of the disease. Estimating clinical cases as well as sub-clinical cases is, thus, an important step in investigation of an epidemic.

3.2.4 Analyse the Data in Terms of Time, Place and Person

It is always good to take a paper and a pen to prepare the 'epidemic curve'. It is a simple and clear way to show the relationship between the occurrence of cases and their time of onset.

This can also be shown on the 'spot map' to highlight the affected area/region. It may help to show that the cases of food poisoning occurred close to a sewage treatment plant or its outflow or around a factory letting out toxic fumes/gases.

Calculate the attack rate of the infection. This can be done by considering the population at risk as the denominator and those individual affected as the numerator. Also calculate the attack rate/ case fatality rates for those exposed and those who are not exposed. Fig. 3.1(a) showing 'epidemic curve' of an outbreak of toxic food-poisoning, A single source acting for a brief period. Fig 3.1(b) showing 'epidemic curve' of an outbreak of viral fever starting from a single source and then maintained by case to case infection.

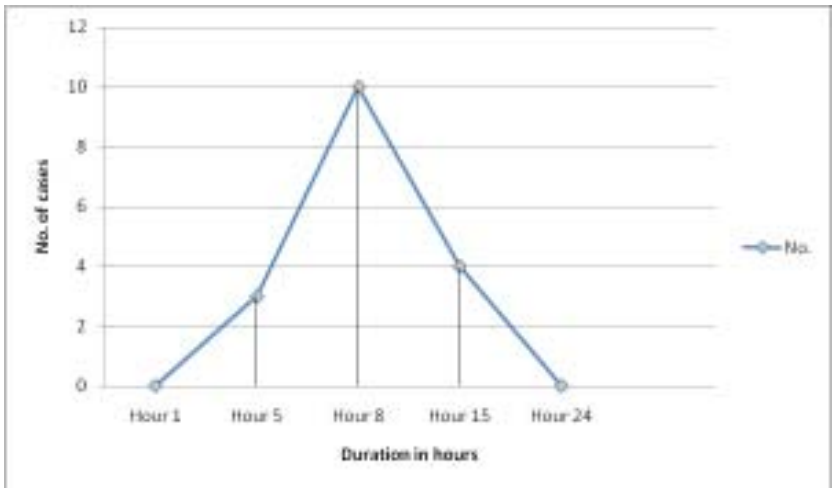

Fig. 3.1(a): 'epidemic curve'of an outbreak of toxic food poisoning, a single source acting for a brief period

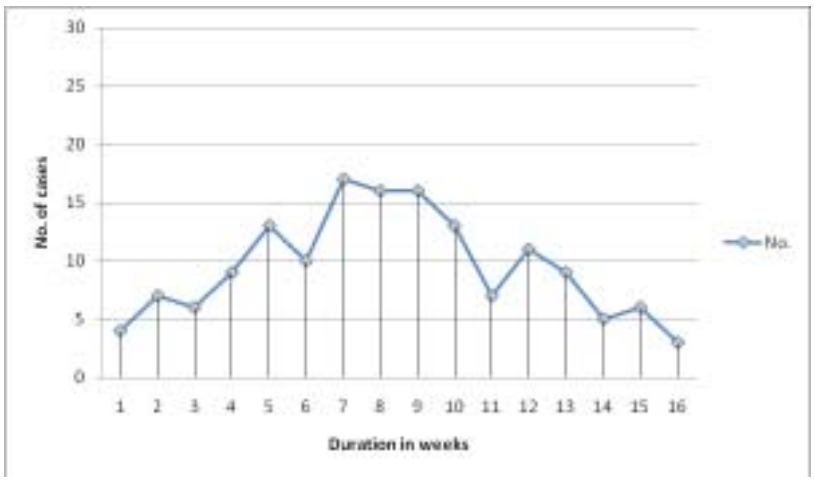

Fig. 3.1(b): 'epidemic curve'of an outbreak of viral fever starting from a single source and then maintained by case to case infection

In the case of outbreak of viral infection, as shown in Fig. 3.1(b), the infection gets prolonged due to multiple sources leading to more and more cases followed by gradual decline over a longer time than the single source outbreak. We can see multiple peaks and declines in the curve.

3.2.5 Determine Who is at Risk of Contracting the Disease

When outbreak occurs it is very important to determine the population at risk. For example, in water-borne disease, when the water supply of the area is contaminated, all the population receiving water from the contaminated source is at risk. Out of this risky population persons with the disease under consideration can be identified. These values of numerator (People with the disease) and denominator (Total population at risk) are essential for calculating incidence rate, prevalence rate, attack rate and case fatality rate.

$$\text{Incidence rate} = \frac{\text{New persons with the disease} \times 1000}{\text{Total population at risk}}$$

$$\text{Prevalence rate} = \frac{\text{Persons with the disease (old and new)} \times 1000}{\text{Total population at risk}}$$

Attack rate is usually the incidence rate used when the population at risk is exposed for a short duration of time during epidemics.

$$\text{Case fatality rate} = \frac{\text{Persons dying from the disease} \times 100}{\text{Number of persons with the disease during the specified time}}$$

When the outbreak is limited to certain population group like food poisoning among those who attended a party or feast etc. suffers infective hepatitis in a particular residential area, the investigation can be focussed on these restricted population groups at risk (who attended the party).

3.2.6 Preparation of Written Report

The most important step is to prepare a written report, which forms the basis for action by health officials. The report should be complete comprising the background information, methodology of investigation, analysis and interpretation of data such as agent, host and environmental factors, mode of spread of the disease. The report will help in preparation and implementation of preventive and control measures so that such outbreaks do not occur in future. Even if the outbreaks occur, it will help in better preparation to face the situation and institute control measures effectively within a short time. The report may also form the basis for reallocation of resources for disease prevention and control measures.

3.3 OUTBREAK OF ACUTE GASTRO-ENTERITIS/ ACUTE DIARRHOEAL DISEASE

Let us study the following case. There has been a report of 35 cases of acute diarrhoeal disease reported from village Barwala, Haryana during July 2016 in the routine outpatient clinic of the primary health centre located at Barwala. During 2013 to 2015, in the month of July, the reported cases of acute diarrhoeal disease in the health centre were 5,4 and 7 respectively.

The average number of diarrhoeal disease during past three years is (5+4+7)/3 =5.3 rounded to five and standard deviation of 1.52. The number of cases reported during first two weeks of July 2016 is 35, which is much more than the expected number of cases reported during past three years in the month of July (if two standard deviations are considered, maximum expected cases is 8.3, rounded to 8). Thus, there is an outbreak of acute diarrhoeal disease in the village which needs investigation.

The common causes of acute diarrhoeal disease are Shigella dysenteriae type 1 and Vibrio cholera. The initial hypothesis can be framed as "There is an outbreak of acute diarrhoeal disease probably caused by Shigella or Vibrio cholera". In order to establish this hypothesis, we must prepare standard case definition for suspecting the two causes of diarrhoeal disease. The sample case definitions are shown below.

3.3.1 Case Definitions

Standard case definitions for suspected case of acute diarrhoeal disease are:

In an area where the disease is not frequent and a patient aged five years or more develops loose stools with dehydration or dies from acute watery diarrhoea.

In a cholera endemic area, a patient aged five years or more develops acute watery loose stools, with or without vomiting.

A confirmed case of Vibrio cholera 01 or 0139 in a patient suffering from loose stools/ diarrhoea. Bacillary dysentery can be suspected if there is acute onset of diarrhoea with visible blood in stool.

Shigella dysenteriae type 1:

The symptoms include loose stool, abdominal cramp, fever, and rectal pain. Less frequent complications include sepsis, seizures, renal failure, and haemolytic / uraemic syndrome.

Vibrio cholera 01 and 0139:

The characteristic features are: rice watery stool with or without vomiting.

3.3.2 Confirming the Outbreak

The identified cases using the standard case definitions should be confirmed by clinical history, examination and laboratory testing of the stool samples which should also include determining antimicrobial sensitivities.

3.3.3 Case Finding and Estimating Geographical Distribution

The next step is identification of cases using the standard case definitions in the community. For this, we need to prepare an epidemiological case sheet which incorporates little important information for case detection, identification characteristics, and probable source of infection. The epidemiological case sheet should have the following information.

Table 3.1: Epidemilogical Case Sheet

Identification No.
Date and time:
Name:
Age:
Sex:
Address: Residence, workplace separately
Contact no:
Symptoms present, Date and time of onset:
Source of water supply:
Tap, hand pump, well, river, ponds, natural water body, etc.
History of travel outside:
History of intake of food items outside house, items taken:
Any medication taken and names if records available, where shown:
Any laboratory investigations: check and note based on available records:
Family members list with age, sex, any family member suffering from the infection, their onset day and time:

In areas where cholera and bacillary dysentery are endemic, cases occur every year with seasonal peaks usually during rainy season such as monsoon. Thus, one should be prepared to assess the occurrence of acute diarrhoeal diseases to find out whether there is a spurt in the cases and that too more than the usual expected number of cases during the season. If there is a spurt in the cases, one should go for active case finding to assess the magnitude of the outbreak using the case definitions. The cases should also be line listed on the basis of daily reporting and occurrence. Further, a spot map should be prepared to find out the geographical distribution of the cases.

An example of line listing of cases of acute diarrhoeal diseases in a Barwala village, Haryana is shown in Table 3.2. This includes information on signs, symptoms, source of water supply, travel history collected by rapid epidemiological case sheet.

Table 3.2: Line listing of cases of acute episode of diarrhoea in Barwala, during July 2016

						Signs and symptoms						
S.N	Date	Name	Age	Sex	Area	Loose stool	Pain abdomen	Fever	Vomiting	Dehydration	Water source	Travel outside
1	03-Jul	Raja	23	m	Sakurbasti	yes	no	No	no	yes	well	yes
2	04-Jul	Neeta	21	f	Sakurbasti	yes	no	No	yes	yes	well	no
3	04-Jul	Ritu	18	f	Sakurbasti	yes	yes	No	no	yes	well	no
4	04-Jul	Manu	24	m	Sakurbasti	yes	no	No	yes	yes	well	no
5	05-Jul	Santosh	23	m	Sakurbasti	yes	no	no	no	yes	well	no
6	05-Jul	Bhola	26	m	Sakurbasti	yes	no	no	no	yes	well	no
7	05-Jul	Jaydeep	21	m	Sakurbasti	yes	yes	yes	no	yes	well	no
8	05-Jul	Cheetu	28	f	Sakurbasti	yes	no	no	no	yes	well	no
9	05-Jul	Premchand	24	m	Sakurbasti	yes	no	no	yes	yes	well	no
10	06-Jul	Ishan	30	m	Sakurbasti	yes	no	no	no	yes	well	no
11	06-Jul	Purshottam	28	m	Sakurbasti	yes	no	no	yes	yes	well	no
12	06-Jul	Janki	25	f	Sakurbasti	yes	no	no	no	yes	well	no
13	06-Jul	Raghav	27	m	Sakurbasti	yes	no	no	no	yes	well	no
14	06-Jul	Chetan	26	m	Sakurbasti	yes	no	no	no	yes	well	no
15	06-Jul	Billo	45	f	Kumhargali	yes	no	yes	no	yes	handpump	no
16	06-Jul	Manav	37	m	Sakurbasti	yes	yes	no	yes	yes	well	no
17	06-Jul	Anjum	60	m	Sakurbasti	yes	no	no	no	yes	well	no

18	07-Jul	Bobby	52	f	Sakurbasti	yes	no	no	no	yes	well	no
19	07-Jul	Dhiren	26	m	Sakurbasti	yes	no	no	no	yes	well	no
20	07-Jul	Chandu	28	m	Sakurbasti	yes	no	no	no	yes	well	no
21	07-Jul	Jacob	25	m	Kumhargali	yes	no	no	no	yes	handpump	no
22	07-Jul	Nutan	23	f	Sakurbasti	yes	no	yes	yes	yes	well	no
23	08-Jul	Pappu	43	m	Sakurbasti	yes	no	no	no	yes	well	no
24	08-Jul	Devendra	34	m	Sakurbasti	yes	no	no	no	yes	well	no
25	08-Jul	Mahender	24	m	Sakurbasti	yes	no	no	no	yes	well	no
26	08-Jul	Reena	26	f	Sakurbasti	yes	yes	no	no	yes	well	no
27	08-Jul	Rajesh	27	m	Sonargali	yes	no	no	no	yes	handpump	no
28	09-Jul	Gopal	32	m	Sakurbasti	yes	no	no	no	yes	well	no
29	09-Jul	Sunita	33	f	Sakurbasti	yes	no	no	no	yes	well	no
30	09-Jul	Jarnal	45	m	Sakurbasti	yes	no	no	yes	yes	well	no
31	10-Jul	Kannu	25	m	Balmikibasti	yes	no	no	no	yes	handpump	no
32	11-Jul	Tanu	35	f	Sakurbasti	yes	no	no	no	yes	well	no
33	11-Jul	Kallu	28	m	Sakurbasti	yes	no	no	no	yes	well	no
34	12-Jul	Birender	25	m	Sakurbasti	yes	no	no	no	yes	well	no
35	13-Jul	Kulwant	34	m	Sakurbasti	yes	no	no	yes	yes	well	no

m= male, f= female

3.3.4 Analysing the Information

Time distribution:

The data collected should be entered in the computer or prepared manually if computer is not available. Excel sheet in computer can be used for this. The above Table 3.2 is an example of entry in the excel sheet of the computer. Manual preparation of this master sheet can also be done. The data can be analysed as per time of onset and number of cases. It can be plotted as a curve as shown in fig. 3.2. There is an increase in the number of cases with the first case reported on 3rd July with a peak of 8 cases on 6th July. Fig. 3.2 showing Line diagram with number of cases of acute diarrhoeal diseases in July.

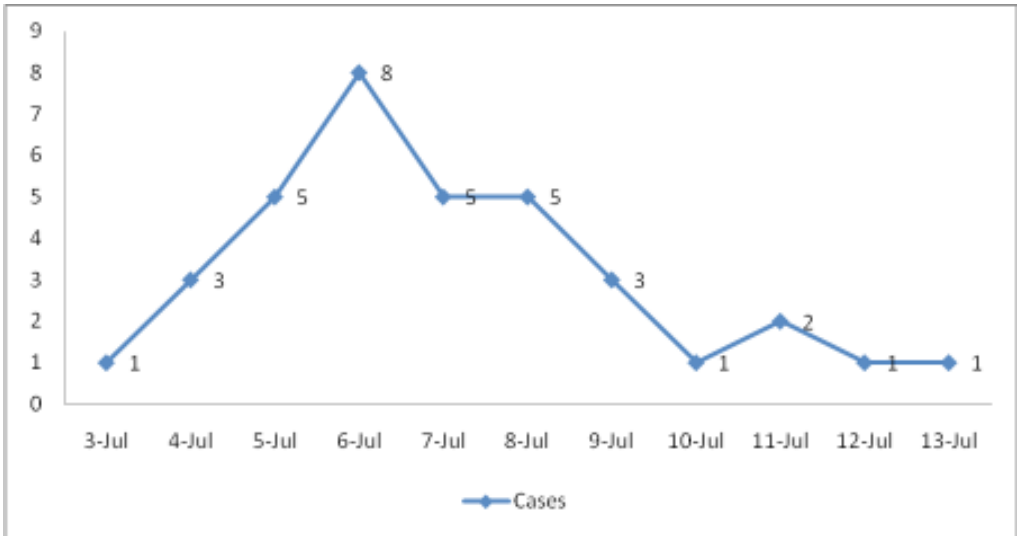

Fig. 3.2: Line diagram showing number of cases of acute diarrhoeal diseases in July

Thereafter, the cases have declined with the last case on 13th July. Thus, the outbreak lasted for 10 days. It seems that there is a common source for the outbreak. To understand the situation better in terms of geographical distribution, a spot map can be prepared. In this, important landmarks, distribution of cases, water supply sources, health centre etc. are mapped. An example for the above cases is shown in Fig. 3.3.

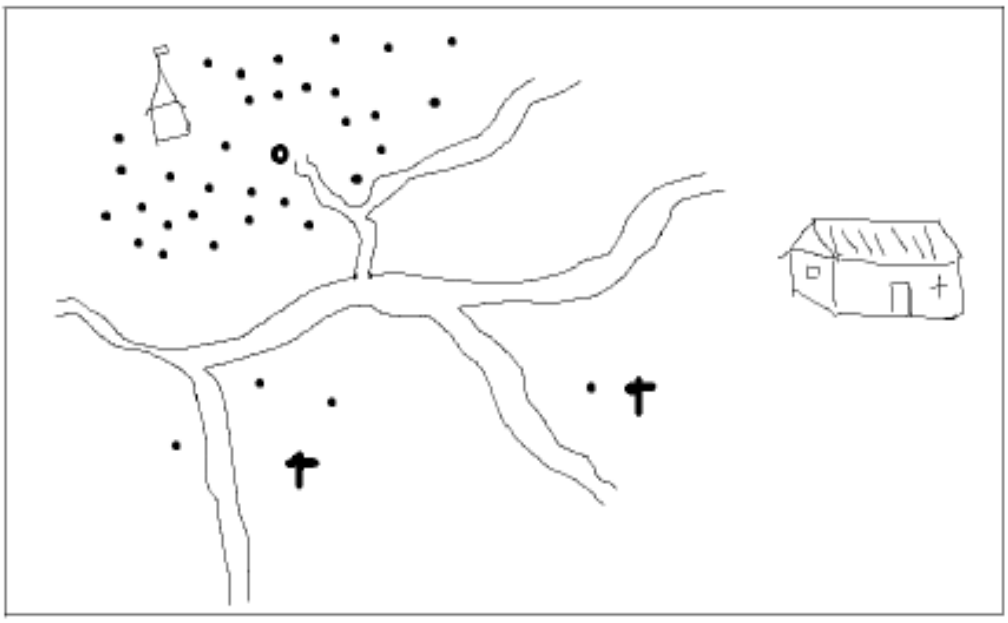

Fig. 3.3: Spot map showing distribution of cases of acute diarrhoeal disease in Barwala

The spot map shows landmarks such as a temple, well, health centre with roads. There are three areas in the village broadly viz. Sonargali, Kumhargali, Balmiki Basti and Sakurbasti. The source of water supply in Sakurbasti is from a well whereas for the other localities is from hand pumps. There is clustering of cases of diarrhoeal diseases in Sakurbasti and few scattered cases in other localities. This indicates probably the well could be the main source for the outbreak.

The next step is estimation of cases by age, sex and by area or locality. For this calculation, the number of cases are arranged by age and sex as shown in Table 3.3.

Table 3.3: Age group wise distribution of the cases of diarrhoeal diseases

Age Group (in years)	Number of Cases	%
Upto 24	9	25.7
25-34	19	54.3
35-44	3	8.6
45 and above	4	11.4
Total	**35**	**100.0**

However, this does not tell which age group was most common but only tells the maximum number of cases. Hence, the distribution should also include the total number of persons surveyed in each age group. Once this is obtained, we can calculate the age specific attack rate of diarrhoeal diseases. Thus, the age specific distribution is shown in Table 3.4. It shows that the attack rate was maximum i.e. 27.1% in 25–34 years age group followed by 18.0% in persons aged up to 24 years.

Table 3.4: Age specific distribution of the cases of diarrhoeal diseases

Age Group (in years)	Number of Cases	Out of	Attack Rate (%)
Upto 24	9	50	18.0
25-34	19	70	27.1
35-44	3	40	7.5
45 and above	4	45	8.9
Total	**35**	**205**	**17.1**

Similarly, we can also calculate the attack rate according to sex difference. This is shown in Table 3.5. It shows that attack rate was 23.8% among males as compared to 10% females.

Table 3.5: Sex specific distribution of the cases of diarrhoeal diseases

Sex	Number of Cases	Out of	Attack Rate (%)
Male	25	105	23.8
Female	10	100	10.0

We can also find out the attack rates in different localities or areas of the village. This is shown in Table 3.6.The attack rate was maximum in Sakurbasti (44.3%) as compared to other localities thereby suggesting that some factor specific to Sakurbasti was responsible for the diarrhoeal outbreak. Since diarrhoeal diseases are transmitted faeco-orally the probable cause could be contamination of water supply. This can be supported by studying the source of water supply in the localities.

Table 3.6: Locality wise distribution of the cases of diarrhoeal diseases

Locality	Number of Cases	Out of	Attack Rate (%)
Sakurbasti	31	70	44.3
Balmikibasti	1	50	2.0
Kumhargali	2	40	5.0
Sonargali	1	45	2.22
Total	**35**	**205**	**17.1**

On analysing the water supply source from Table 3.2, we can see that all the cases from Sakurbasti had water supply from the well. This is shown in the spot map at Fig. 3.2. This gives an indication that well water was contaminated. Hence water samples from the well as well as from the hand pumps in the other localities should also be collected for microbiological testing in order to find out the aetiological agent for the diarrhoeal disease. In addition, stool samples from the patients should be collected for microbiological testing of the agents. However, it should be noted that those patients who have already taken treatment with antibiotics will not yield positive tests for the microbial agents and hence their stool samples should not be collected. Few contacts mostly the family members can be contacted for taking rectal swabs for assessing the carrier state of the microbial agent. The results will determine the causative agent responsible for the outbreak.

In order to arrive at the probable diagnosis, the clinical features of the cases should also be analysed in terms of the presenting signs and symptoms. This can be compared with the case definition and presumptive diagnosis based on the clinical picture can be made. The summary of the signs and symptoms of the cases is sown in Table 3.7.

Table 3.7: Distribution of signs and symptoms of the diarrhoeal disease cases

Signs and Symptoms	Number of Cases	Per cent (n=35)
Loose stool	35	100.0
Pain in abdomen	4	11.4
Fever	3	8.6
Vomiting	8	22.9
Dehydration	35	100.0
Blood/mucous in stool	0	0.0

3.3.5 Clinical Presentation

Based on the Table 3.6 the common signs and symptoms of the diarrhoeal disease cases are loose stools without blood or mucous, with dehydration followed by vomiting and pain in abdomen. The presentation seems to be more likely that of bacterial origin probably Vibrio cholera since the area was prone for cholera based on earlier outbreak reports. Further, on enquiry of the nature of the loose stools, in 50% cases the nature was rice watery stool suggestive of cholera. In this manner, the presumptive clinical diagnosis can be made. It can be corroborated with the microbiological reports of stool samples and water sample tests.

3.3.6 Case Fatality

The severity of the outbreak can be assessed by calculating the case fatality rate. In this example, two cases have reportedly died. Thus, the case fatality rate is $2/35 \times 100 = 5.7\%$. If the case fatality rate is higher, it indicates the severity of the outbreak which could be related to the virulence strain of the microbe, and or the availability of facility or lack of effective medications for treatment of the cases. These factors should be brought out during the analysis for further recommendations.

3.3.7 Assessing Local Response and Immediate Needs

This is an important aspect of investigation of any disease outbreak. Investigation of the outbreak should be continued alongside with institution of treatment of cases, prevention and control measures. This cannot be done by health sector alone but with active participation of the community. Hence, there is a need to assess the community participation. From the health sector side, we should assess whether any steps have been taken by the health officials and ask whether there is any plan of action, standardised reporting procedures, and whether any trained staffs are available to deal with the outbreak. There should be guidelines for management of cases, and ensure the availability of essential drugs such as oral rehydration salts, soap, bleaching powder or chlorine tablets (for chlorination of water at source or at household level). In case of large outbreaks, there is a problem of space for admission of patients in the primary health centre or health facility level. Under such circumstances, a building such as school, community hall etc. can be identified and disinfected for admission of patients temporarily.

From the community or civil society side, the community leaders, panchayat members, ASHA workers, anganwadi workers, volunteers need to be identified and they should help in identification of cases at the household level, educating people about safe water and sanitation, controlling panic among the people, and even in transporting patients in severe cases to the higher health facility. They can also help in reporting and identification of new cases in the community for surveillance.

3.3.8 Local Epidemiological Surveillance

Local epidemiological surveillance is necessary till it is confirmed that no such new cases are occurring in the community. For this, the help of both local volunteers, health staff in the sub-centres, anganwadi workers, ASHA workers, community leaders should work in tandem to report any new case. Further, active alertness on the part of the health staff at the health centres is necessary to suspect any new case using the standard case definition.

3.3.9 Reporting the Outbreak

The final step in outbreak investigation is report writing and reporting to the health authorities. In the above example on outbreak investigation of diarrhoeal diseases, the report should contain information on the background, methods, analysis, whether there was an outbreak, whether the clinical features were confirmed by laboratory test results, the number of cases, deaths, geographical distribution of the cases, the size of the population at risk, whether it was a common source outbreak or transmitted from multiple sources or from person to person, the source of infection, antimicrobial sensitivities, control measures instituted, reporting mechanism both at the national and international level, status of resources available for containment or any lacunae, case management, and recommendations. In addition, newer hypothesis can be put up if no imminent cause and sources cannot be identified. In the above example, we can put this question: how was the water in the well contaminated and how the primary case got the disease ? There is an indication that the first case (Raja) had travelled outside the village and got the disease. And on further enquiry, his family does not have a sanitary latrine and they go outside in the field near the well for defaecation. Probably the well water got contaminated due to open defaecation. Thus, this hypothesis could be put forward for the outbreak and preventive measures should also include provision of sanitary latrines in the community.

3.4 LET US SUM UP

In this unit, we have discussed the steps in the investigation of outbreak/epidemic using epidemiological principles. The example used here is of acute infection and similar method can be adopted for chronic diseases such as diabetes with suitable modifications. The steps in the investigation of an outbreak/epidemic are summarised as follows.

Verify the existence of an epidemic/outbreak, Confirm the diagnosis, Rapid assessment of the magnitude using epidemiological case sheet, spot mapping, determine the risk population, assess time, place and person distribution of cases, may develop a hypothesis for the epidemic/outbreak occurrence, plan a more systematic study, analyse data collected and prepare a report, take control, preventive measures and treat the cases and appropriate referral as per need, propose measures for control and preventive measures.

3.5 KEY WORDS

Epidemic : Occurrence of disease in a community or region that is unusually large or unexpected for the given place and time. It can be ascertained by looking at the data of previous years, usually three or more can be used for estimating the average number of cases and if the number of cases are more than two standard deviations from the mean number of cases, epidemic can be suspected. In areas where no case has been reported or controlled/eradicated, even a single case can be declared as outbreak.

Outbreak : Smaller epidemic in an area is usually referred to as outbreak. This does not create panic among the people as compared to epidemic.

Attack rate : It is an incidence rate, used when the population at risk is exposed to the outbreak for a limited period

Incidence : Number of new cases occurring in a defined population during a specified time period.

Prevalence : Total number of old and new cases existing in a population during a specified time which can be point or period.

Spot map : This is a map drawn to highlight the outline of a place, region, with prominent or specific landmarks, and to show the occurrence of cases which can give an indication about the clustering and source of disease occurrence.

3.6 ACTIVITY

Observe the pattern of disease outbreak during change of season from summer to rainy season/winter to summer as per need, collect information about the various symptoms and document using epidemiological case sheet and analyse data of occurrence of the disease.

3.7 REFRENCES

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UNIT 4 ORGANISING AND CONDUCTING SPECIAL CLINICS

Structure

4.0 INTRODUCTION

You know, earlier the care of sick was provided at home. But later on, places were evolved for treatment of those who could visit them. These are called clinics. At clinics facilities for diagnosing the sick people and their treatment is provided. A clinic is a place or a health facility for care of our patients in a community or a part of hospitals, for ambulatory patients who receive diagnostic and therapeutic need based care.

Some clinics have specialty in particular area, like maternity care, vaccination, prevention of diseases. Some clinics facilitate the diagnosis and treatment of communicable and non-communicable diseases like tuberculosis, malaria, cancer, dental problems, cardiac problems or orthopedic problems etc. the clinics which cater to services in special areas are called special clinics.

Under National Health Programmes special clinics are established in community which provide the services to individuals, families and community at large, at low cost or sometimes free of cost, according to the government schemes for

particular programmes like tuberculosis treatment is provided free of cost at DOTS clinics or centers.

Some important special clinics existing in the community are as follows:

- Non-communicable disease clinics
- Family planning clinics
- Maternal and child health clinics
- Adolescent wellness clinics
- Oral health clinic
- Mental health clinics

4.1 OBJECTIVES

After completing this unit, you should be able to set following special clinics in your community:

- Non-communicable diseases clinic;
- Family planning clinic;
- Maternal and child health clinic;
- Adolescent wellness clinics;
- Oral health clinics; and
- Mental and other disabilities clinics.

4.2 NON-COMMUNICABLE DISEASE CLINIC

Let us read and learn about various aspects of Non-Communicable disease clinic in details:

As you know that National Health Mission Guides about prevention, early detection and management of non-communicable diseases as part of comprehensive Primary Health Care Package. Prioritising provision of services for NCD at the level of sub-centre and primary health centre, well linked into an appropriate referral system and ensuring a continuum of care, relies on the fact that NCDS account for a substantial proportion of mortality and morbidity. Prevention, early diction and management can significantly improve health and development outcomes.

The World Health Organization (WHO) has identified four major NCDS, Cardiovascular (CVD) like heart attacks and stroke, Diabetes, Chronic Respiratory Diseases (Chronic obstruction pulmonary diseases and asthma) and Cancer. The list of NCDS is of course much longer than four. However, these four conditions account for a high proportion of premature mortality in India (WHO 2014).

Non-Communicable Disease (NCD) clinics are established at village level, Community Health Centres (CHCS), District Hospitals, tertiary care hospitals etc. NCD refers to Cancer, Diabetes, Hypertension, Cardiovascular diseases and Stroke.

NCD clinics provide comprehensive examination of patients referred by lower health facility, health worker as well as those who report directly.

4.2.1 The Functions of NCD Clinics

Screening for early diagnosis

- Management including counselling and lifestyle management.
- Ruling out complications and further referral.
- Home based care.
- NCD clinic provides opportunistic screening of persons above the age of 30 years.
- Screening involves simple clinical examination comprising of relevant questions about lifestyle.
- Identify high risk individuals.

4.2.2 Package of Services at NCD Clinics at Various Health Facilities

The table given below illustrates the package of services at NCD clinics at various health facilities:

Health Facility	Packages of Services
Sub centre	1. Health promotions for behaviour change 2. "Opportunistic" Screening using B.P measurement and blood glucose by strip method 3. Referral of suspected cases to CHC
CHC	1. Prevention and health promotion including counselling 2. Early diagnosis through clinical and laboratory investigations (Common lab investigations: Blood Sugar, Lipid profile, ECG, Ultrasound, X ray etc.) 3. Management of common CVD, diabetes and stroke cases (out patient and in patients.) 4. Home based care for bed ridden chronic cases 5. Referral of difficult cases to District Hospital/higher health care facility.
District Hospital	1. Early diagnosis of diabetes, CVDs, Stroke and Cancer 2. Investigations: • Blood Sugar, • Lipid Profile, • Kidney Function Test (KFT), • Liver Function Test (LFT), • ECG, Ultrasound, • X ray, • Colnoscopy, • Mammography etc. (if not available, will be outsourced)

Health Facility	Packages of Services
	3. Medical management of cases (out patient, inpatient and intensive care) 4. Follow up and care of bed ridden cases 5. Day care facility 6. Referral of difficult cases to higher health care facility 7. Health promotions for behaviour change
Tertiary care Centre	Comprehensive cancer care including prevention, early detection, diagnosis, treatment, minimal access surgery after care, palliative care and rehabilitation.

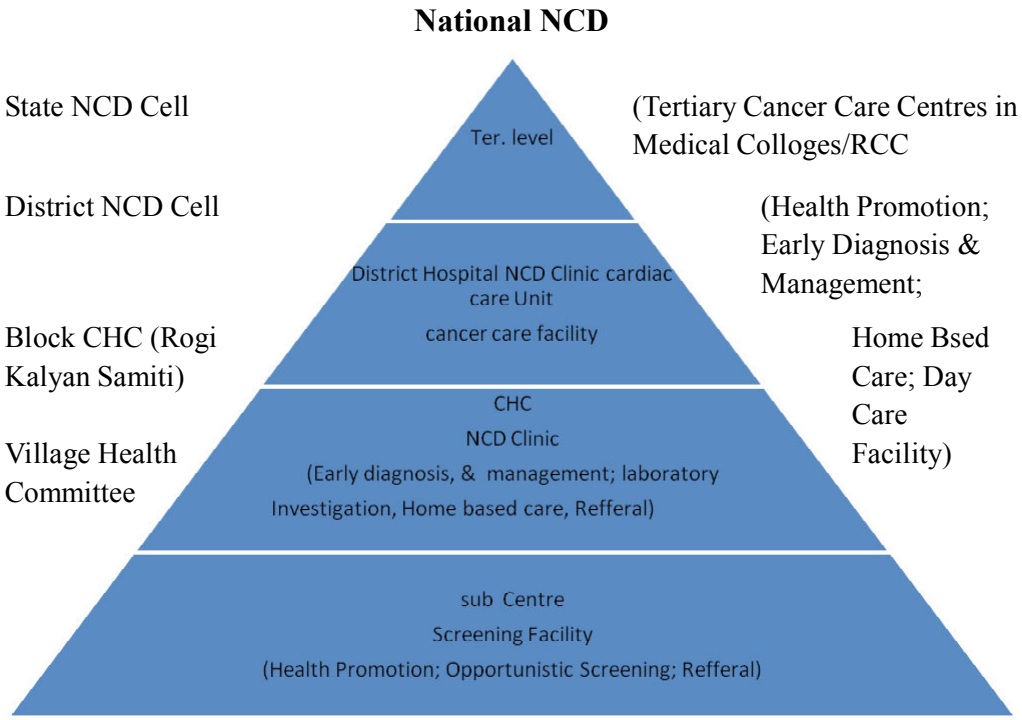


Fig. 4.1: Services available under NPCDCS at different levels

4.2.3 Role of NCD Clinics at Community Health Centre (CHC)

Activities at Community Health Centre

Under NPCDCS 7000 CHCs shall be selected in total for programme implementation in two years. Each selected CHC shall establish a "NCD clinic" for comprehensive examination of patients referred by the Health worker as well as reporting directly to rule out complication or advanced stages of common NCDs. The clinic shall run on all working days of the weak.

Following activities will be performed by a CHC under the NPCDCS:

a) **Screening**

Opportunistic screening of persons above the age of 30 years shall be carried out at CHC by the appointed doctor under the programme which will be assisted by the nurse. Such screening will involve simple clinical examination comprising of relevant questions and easily conducted physical measurements

(such as history of tobacco consumption and measurement of blood pressure, blood sugar estimation etc.) to identify those individuals who are at a high risk of developing cancer, diabetes and CVD, warranting further investigation/ action.

b) **Prevention and health promotion**

Apart from clinical services CHC shall be involved in promotion of healthy lifestyle through health education and counselling to the patients and their attendants at the time of their visit to health facility about the benefit in prevention of NCDs. Key messages that need to be conveyed to the public include:

- Increased intake of healthy foods
- Increased physical activity through sports, exercise, etc.
- Avoidance of tobacco and alcohol
- Stress management
- Warning signs of cancer

Medical officer and a nurse shall impart the health education during the OPD as well as to the inpatients if any. Counsellor appointed under the programme shall counsel on diet, nutrition and tobacco, alcohol, warning signs of cancer etc.

c) **Laboratory investigations**

CHC shall do the required investigations/tests for comprehensive examination for NCDs like Blood Sugar measurement, Lipid profile, Ultrasound, X-ray and ECG etc. in case there is no facility for particular investigations/tests it may be referred to District Hospital. Provision of out sourcing of required investigations to some extent can be done where investigations are not available at the hospital.

d) **Diagnosis and Management**

The unit of NCD clinic at CHC which involves doctor and paramedical personnel will do the diagnosis, management and stabilisation of common CVD, diabetes and stroke cases (out patient as well as in patients).

e) **Home based care**

One of the nurses appointed under the programme shall undertake home visits for bedridden cases, supervise the work of Health workers and attend monthly clinics being held in the villages on a random basis. She shall visit one village/week for home visits and advise the bed ridden patients with diabetes stroke etc. about the care and will refer the case to the CHC/District Hospital if required. In total she shall visit 4 times in a month.

f) **Referral**

Complicated cases of diabetes, high blood pressure etc. shall be referred from CHC to the District Hospital for further investigations and management on the prescribed format.

g) **Data recording and reporting**

"NCD Clinic" at CHC shall maintain individual diagnosis, treatment and referral records on the patient's chronic disease card, with verbal and pictorial

advice for the patients. This record shall be send monthly to the District Cell set up under National Cancer Control Programme.

Human Resources for CHC NCD Services

For providing effective comprehensive care at CHC, following staff shall be appointed on contract basis by the State Government:

a) Doctor (1)

b) Nurses (2)

c) Counsellor (1)

d) Data Entry Operator (1)

i) **Role of Doctor**

- To conduct comprehensive examination to diagnose, investigate and mange the cases appropriately.
- To rule out complications or advanced stage.
- To refer complicated cases to higher care facility.
- To provide follow up care to the patients.

ii) **Role of Nurse**

- To assist in examination and investigation.
- To teach the patient and family about risk factors of NCDs and promote patients well-being.
- To assist in follow up and care.

iii) **Role of Counsellor**

- To provide counselling on diet and life style management.
- To assist in follow up care and referral.

4.2.4 Activities at District Level

The District shall provide the full complement of preventive, supportive and curative services for cancer diabetes, hypertension and cardio vascular diseases including stroke through the selected District Hospital. Following services will be provided by District Hospital.

District shall identify a district hospital to be strengthened under NPCDCS for providing NCD services. The hospital shall have an ICU and basis laboratory facilities available attached to it. A 'NCD Clinic' will be established at the identified District Hospital to provide emergency care and management of cancer, diabetes, hypertension and acute cardiovascular diseases. The clinic shall run on all working days of the weak. ICU of the District Hospital will be upgraded/strengthened with a cardiac care unit (2–4 beds) with ventilator and other necessary equipments. Following activities will be performed by a District under the NPCDCS:

a) **Opportunistic Screening**

NCD clinic at District hospital shall screen persons above the age of 30 years for diabetes, hypertension, cardiovascular diseases etc. to identify individuals who are at a high risk of developing diabetes, hypertension and

CVDs warranting further investigation/action. Such screening shall involve simple clinical examination comprising of relevant questions and easily conducted physical measurements (such as history of tobacco consumption and measurement of blood pressure, blood sugar estimation etc.

District NCD clinic shall also screen women of the age group 30–69 years approaching to the hospital for early detection of cervix cancer and breast cancer. District hospital would be assisted to purchase the required equipments like colposcopy and mammography etc.

b) **Detailed Investigation**

Detailed Investigation of persons those who are at high risk of developing NCDs on screening and those who are referred from CHCs will be done at District hospital. Laboratory services at District Hospital will be strengthened/ established to provide necessary investigations for cancer, diabetes, hypertension and cardiovascular diseases like Cardiac Enzymes, Lipid profile Coagulation parameters, ECG, ECHO, CT Scan, MRI and other Laboratory investigations.

c) **Outsourcing of Certain Laboratory Investigations**

District Hospital may outsource certain laboratory investigations that are not available at District hospitals including mammography.

Financial assistance will be provided under Public Private Partnership (PPP) mode will be granted for the purpose. It is expected that District Hospital shall have X-ray and Ultrasound facilities; however, in places where it is not available these shall be outsourced.

d) **Out-patient and In-patient Care**

NCD Clinic at District Hospital shall provide regular management and annual assessment of persons suffering from cancer, diabetes and hypertension. People with established cardiovascular diseases shall also be managed at District Hospital. Cardiac care unit established at hospital shall mange acute and emergent cases of cardiovascular diseases. The hospital shall ensure the availability of essential drug. In case of cancer support shall be provided for common chemotherapy drugs to treat about 100 cases, from the poor category only.

e) **Day Care Chemotherapy Facility**

Identified District Hospital stall provide a day care chemotherapy facility for patients on chemotherapy regimens. The day care facility shall have 4 beds along with necessary equipments such as IV stands, BP instruments, steriliser etc. a medical oncologist and two Nurses shall be appointed on contractual basis for smooth functioning of the centre.

f) **Home based palliative care**

District Hospital shall provide Home Based Palliative care for chronic, debilitating and progressive patients. A team consisting of nurse and counsellor shall be trained in identifying symptoms, pain management,

communication, psychosocial & emotional care, nursing needs of the terminally ill and ethics of palliative care. The nurse shall be trained in wound dressing, mouth care, oral morphine use, diet, hygiene etc. home care kit containing stethoscope, BP apparatus, torch, thermometer, tongue depressor, forceps, and common medicines etc. shall be provided to this team.

g) **Referral & Transport facility to serious patients**

To ensure timely and emergent care to the patients at district CHC or below, District Hospital shall make provision for transporting the serious patients to the hospital or at nearest tertiary level facility.

Complicated cases shall be referred to nearest tertiary health care facility with a referral card. Patients suffering from lymphomas and leukaemias shall be referred to tertiary care centres (TCC) for Chemotherapy as blood bank facilities and required human resources are available there.

h) **Health Promotion**

Apart from clinical services District hospital shall be involved in promotion of healthy lifestyle through health education and counselling to the patients and their attendants regarding

- Increased intake of healthy foods
- Increased physical activity through sports, exercise, etc;
- Avoidance of tobacco and alcohol;
- Stress management
- Warning signs of cancer etc.

i) **Training**

District Hospital shall impart training to the healthy personnel of Community Healthy Centre as per guidelines issued by National NCD Cell.

j) **Data Recording and Reporting**

Data shall be collected in prescribed formats and monthly report shall be sent to the District NCD Unit of the programme.

k) **Human Resources at District Hospital**

Following additional staff will be required on contract basis by the State Government to manage NCD clinic and to provide acute and chronic care services.

- Doctor (specialist in Diabetology/Cardiology/M.D Physician)
- Medical Oncologist
- Cyto-pathologist
- Cytopathology Technician
- Nurses (4): 2 for Day Care, one for Cardiac Care Unit, one for O.P.D
- Physiotherapist
- Counsellor
- Data Entry Operator
- Care Coordinator

Annexure 1: Community Based Assessment Checklist (CBAC) for Early Detection of Non-Communicable Diseases

General Information	
Name of ASHA	**Village**
Name of ANM	Sub Centre
PHC	Date
Personal Details	
Name	Any identifier (Aadhar card, UID, Voter ID
Age	RSBY beneficiary: (Y/N)
Sex	Telephone No.
Address	

Part A: Risk Assessment

Question	Range		Circle Any	Write Score
1. What is your age? (in complete years)	30-39 years		0	
	40-49 years		1	
	> 50 years		2	
2. Do you smoke or consume smokeless products such as Gutka; or Khaini?	Never		0	
	Used to consume in the past/ some times now		1	
	Daily		2	
3. Do you consume Alcohol daily?	No		0	
	Yes		1	
4. Measurement	**Female**	**Male**		
	< 80 cm	< 90 cm	0	
	80-90 cm	90-100 cm	1	
	>90 cm	>100 cm	2	
5. Do you undertake any physical activities for minimum of 150 minutes in a week?	Less than 150 minutes in a week		0	
	Atleast 150 minutes in a week		1	
6. Do you have a family history (any one of your parents or siblings) of high blood pressure, diabetes and heart disease?	No		0	
	Yes		2	
Total Score				
A score above 4 indicates that the person may be at risk for these NCDs and needs to be prioritised for attending the weekly NCD day.				

Part B: Early Detection : Ask if Patient has any of these Symptoms

B1: Women and Men	Yes/No	B2: Women Only	Yes/No
Shortness of breath		Lump in the breast	
Coughing more than 2 weeks		Blood stained discharge from the nipple	
Blood in sputum		Change in shape and size of breast	
History of fits		Bleeding between periods	
Difficulty in opening mouth		Bleeding after menopause	
Ulcers/patch/growth in the mouth that has not healed in two weeks		Bleeding after intercourse	
Any change in the tone of your voice		Foul smelling vaginal discharge	
In case the individual answers yes to any one of the above mentioned symptoms, refer the patient immediately to the nearest facility where a Medical Officer is available.			

Annexure 2: Roles and Responsibilities of the Primary Health Care Team in prevention, Early Detection and Management of NCD

This table delineates roles for the ASHA, ANM and the members of the team at the primary health centre. Sate with an adequate MPW (male) workforce could also use them in a complementary role with the ANM, for HT/DM and oral cancer screening. Once in place, the proposed mid-level health care providers (MLHP) will have a prominent role in leading the effort at the level of the sub centre.

The table below illustrates the HR roles for NCD screening in primary care:

Activity	Role of ASHA	Role of ANM*	Role of PHC Team (MO, Lady Health Visitor, Laboratory Technician)
Home visits	Enumeration of the population and creation of family folder/health card Complete CBAc for NCD screening; identify individuals with high risk behaviours. Mobilisation of community members to attend screening. Raising awareness	Review completed CBAC for cancer symptoms/epilepsy COPD and refers as appropriate. Supportive supervision through joint visits with ASHA, where required in order to motivate people to attend the screening day.	

	about NCDs, including about the effects of tobacco consumption, alcohol use, obesity, family history, lack of exercise, unhealthy diets.		
HWC/SC or Village (fixed day/ week)	Raise awareness and mobilise the community to attend weekly 'fixed day' NCD screening at the HWC/ village State to consider the possible role of ASHA for the delivery of screening (I>E measuring blood pressure and blood glucose). Lifestyle counselling/ BCC for people with diabetes and hypertension,	Undertake blood pressure and blood glucose measurement; Refer cases with high BP and blood glucose, symptoms requiring investigation for cancer to the appropriate facility for confirmation and initiation of treatment plan. Provide follow-up management for patients (monthly drug supply, periodic BP/ blood sugar measurement, referral for complications) Supportive supervision for ASHAs conducting NCD screening	Technical support for ANM/ASHA Maintain records, analyse and submit to district. Supportive supervision on NCD Day. Plan review of selected cases during routine visits. Confirmation of diagnosis** and initiation of a treatment plan for people with diabetes and hypertension at PHC/ CHC/DH. Provide one three month's supply of drugs. First follow up at three-months for all, or sooner for patients with concerns/complications, Manage and /or refer complications and cases requiring diagnostic work-up for cancer/ COPD/ epilepsy referred by the ANM Consider annual referral to specialist for HT/ diabetes
Navigation services	ASHA to accompany patients to health facilities/ referral centres and guide them through the consultation and diagnostic processes, on an as required basis. To be done by ASHA on the basis of need and availability		

	(however to be compensated for travel and day wages)		
Document and record maintenance	Maintain village register and record those cases on treatment including referral history.	Maintain NCD register (demographic details, symptoms, BP/ blood glucose readings, symptoms requiring investigation for cancers, referral treatment follow-up data and complications)	Maintain NCD register on patient management

Role of MPW (male) - In State with an adequate workforce of MPW (Male), these functionaries could be used to support ANMs in NCD screening, especially for the conduct of screening during home visits/ outreach sessions for those unable to attend screening at the HWC/ VHND and for those in difficult-to-access areas.

**** Role of lab technicians - Lab... Technicians at the PHC/CHC/DH level should be well-versed in measuring fasting, random and post-parandial blood glucose levels- and performing HbA1c tests, where appropriate.**

Annexure 3: Competencies required conducting NCD Screening

These can be divided into three categories-general skills, administrative skills and communications skills:

- **General Skills:** Organising work process during screening days; communications skills
- **Administrative Skills:** Process of enumeration and family folder creation (ASHA); follow up to ensure continuity of care; documentation and reporting (ASHA/ANM)
- **Clinical Knowledge and Skills:** Signs, symptoms and sequelae of hypertension and diabetes, history taking, skills for measurement of blood pressure and blood glucose, drugs and side effects, referral (ASHA/ANM), OVE, CBE, and VIA.

Training Schedule

i) Suggested schedule for the three-day training for ANM and five day training for ASHA, with content suitably structured for the roles of each.
   - Principles and value of prevention, early detection and management.
   - Signs, symptoms and basic pathology of HT and diabetes.
   - Complications/ sequel of HT and diabetes.
   - Skills- use of risk assessment tools, history taking, key messages in raising awareness, behaviour change and modification.
   - Measurement of blood pressure.
   - Measurement of blood glucose (Glucometer).

- Drugs and side effects; referral.
- Follow up to ensure compliance with treatment, motivation and support for lifestyle changes, community meeting, patient support groups, continuity of care.
- Overview of the NPCDCS programme; and the health systems approach to integrate primary care for NCDs.
- Organising weekly screening days, roles and responsibilities.
- Enumeration and family folder creation; record keeping.

ii) Orientation/sensitisation workshop for MO's (one day):

Session 1: Overview of the NPCDCS programme; orientation on prevention, early detection and management through a health system approach ton primary health care.

Session 2: Standard Treatment Guidelines; drugs and diagnostics.

Session 3: Referral pathways; follow-up arrangements.

Session 4: Understandings performance based incentives, supportive supervision for ANMs/ ASHAs.

4.3 FAMILY PLANNING CLINICS

Family planning: An expert committee (1971) of the WHO defined family planning as a way of thinking and living that is adopted voluntarily, upon the basis of knowledge, attitude and responsible decisions by individuals and couples, in order to promote the health and welfare of the family group and thus contribute effectively to the social development of the country.

4.3.1 Objectives of Family Planning Clinics

Family Planning Clinics cater to the following services that help individuals or couples to attain following objectives to :

- avoid unwanted births
- bring about wanted births
- regulate the intervals between pregnancies
- control the time at which birth occur in relation to the ages of the parent, and
- determine the number of children in the family.

4.3.2 Role of Nurse in Family Planning Clinics

- Identify people who desire to have children and those who do not Listening, Understanding, Counselling and making appropriate referrals for fertility control.
- Providing and interpreting family planning information and to identify community resources for the health workers and community.
- Planning, participating and evaluating family planning services.
- Training, supervising and guiding, ANMs, & ASHA, etc.
- Initiating and contributing towards health research.

Community Health Nurse

- Organises the physical set up of clinics in terms of supply of equipment & materials which includes supply of contraceptives.
- Ensures asceptic technique.
- Arrange for privacy when counselling and examining couples.
- Display of educational materials and aids.
- Assist medical officer in conducting clinics.
- Supervises the maintenance of registers and records i.e. eligible couple, list of family planning acceptors both temporary and permanent methods, follow up work, vital events and other clinic records.
- Teach, guide ANMs, Multipurpose workers, ASHAs in the clinic and field visits.
- Plan, conduct, supervise and evaluate health education programme.
- Referral services for people who opt for tubectomy and vasectomy and treatment for infertility.

Scope of Family Planning Services

Family planning is not synonymous with birth control; it is more than mere birth control. A WHO Expert Committee (1970) has stated that family planning includes in its purview.

- The proper spacing and limitation of births
- Advice on sterility
- Education for parenthood
- Sex education
- Screening for pathological conditions related to the reproductive system (cervical cancer)
- Genetic counselling
- Premarital consultation and examination
- Carrying out pregnancy tests
- Marriage counselling
- The preparation of couples for the arrival of their first child
- Providing services for unmarried mothers
- Teaching home economics and nutrition
- Providing adoption services
- These activities vary from country to country to national objectives and policies with regard to family planning this is the modern concept of family planning.

4.3.3 Register and Records

There are 20 registers, apart from other registers on national health programmes. These should be maintained properly and correctly, immediately after every visit or contact with the patient/ client, without delay. The F.W. programme registers

are given in following table. Just by number, one can recall, its purpose. These registers are numbered as per their purpose.

Table 4.3: Registers for F.W. Activities

Number		Purpose
R- 1	=	Clinic Register for Centre for ANC, Infant etc.
R- 2	=	Clinic Register for Condom Distribution
R- 3	=	Clinic Register for Sterilisation
R- 4	=	Clinic Register for Cut Insertion
R- 5	=	Eligible Couple Register accepted Contraception
R- 6	=	Rejected cases for Contraception
R- 7	=	Follow-ups for Contraception
R- 8	=	Helpers List
R- 9	=	Total record of Condom Distribution
R- 10	=	Camp Record for Sterilisation and Cut
R- 11	=	Total camp, private and P.H.C cases
R- 12	=	Social Education - OTC and Health Education
R- 13	=	Inventory Control - Stock Register of Oral Pills, Condom
R- 14	=	Family Survey of M.P.W. (Male and Female)
R- 15	=	ANC/PNC Record Maintained by MPW.
R- 16	=	0-2 year Children to be maintained by MPW (M+F)
R- 17	=	2-6 year Children to be maintained by MPW (M+F)
R- 18	=	Family Contact and Follow-ups
R-19	=	Mahila Mandals and Follow-ups
R- 20	=	Field Work Record for MPW (Male and Female)

4.4 MATERNAL AND CHILD HEALTH CLINIC

Maternal and child health clinics focus on health of both mother and child. It concentrates on the concept of healthy pregnancy by required care during pregnancy which leads to the birth of a healthy baby by a healthy mother.

4.4.1 Role of Nurse in MCH Clinics

1) Supervision and care during pregnancy through antenatal check ups.
2) Midwifery and nursing care before, during and after delivery.
3) Medical and nursing care for infants and toddlers.
4) Education about balanced diet during pregnancy.
5) Requirement of additional food and supplements for mother, infants and children.

6) Immunisation during pregnancy.
7) Immunisation for infants and under five children.
8) Postnatal care.
9) Lab services to detect maternal and child diseases.
10) Early detection of maternal and childhood diseases.
11) Reporting and recording of births, morbidity and mortality in mothers and children.
12) Training and supervision of TBAs and ANMs, ASHAs.
13) Procurement of equipments, supplies and vaccines.
14) Recording & Reporting of use of equipments, supplies and vaccines.

4.4.2 Maternal Clinic Services

The personnel available to provide adequate nursing care is quite insufficient in relation to the number of mothers attending the clinics. Since there is usually only one doctor present in the clinic for 50 to 100 or more mothers and children, it is essential for the nurse, and the midwife to relieve the doctor whenever required apart from performing their own functions. The maternity team should develop a programme whereby the normal mother sees the doctor on the first visit and at least on during the last month unless complications arise. The nurse should examine, interview and teach the normal mothers during each clinic visit. She/he should keep an eye on high health risk mothers who need expert opinion.

The doctor should see the mothers belonging to the following categories during each clinic session.

- All newly registered mothers.
- Mothers showing signs of toxemia, bleeding, anaemia or other abnormalities.
- Mothers with history of complications.
- Primigravidae.
- Mothers who have had more than five pregnancies.

The nurse should prepare each mother for the medical examination and the conference as follows (some of the duties may be allocated to other clinic workers too);

- Take the history of past and present health, complaints and pertinent facts about family conditions including history of treatment or exposure to syphilis, tuberculosis, leprosy or other communicable diseases.
- Make tests for haemoglobin, urinalysis, blood pressure, and take pelvic measurements. Collect specimen for the laboratory such as stool, blood for syphilis and malaria smear.
- Observe and record signs and symptoms of deviation from normal.
- Obtain and record reports of laboratory and other tests.
- Weigh each mother and take temperature if indicated.
- Note diet and nutritional status.

The maternity record serves as a guide for obtaining essential history and other data. It is possible to serve each mother well when the clinic is well organised and managed. Maternity clinics are conducted in the centres built for the purpose, in converted homes and in meeting places. Minimum requirements for a centre include: waiting room, room for history-taking examining room, latrine, and laboratory unit. Combined room for treatment and conference, storage and isolation unit.

When separate rooms are not available to provide privacy, the space provided for the clinic should be curtained off.

Arrange for as much privacy as possible. It is extremely important to arrange one door for entrance and other for exit. This prevents overcrowding in doorways and general confusion. A proper latrine and hand washing facility is essential for every clinic service unit. Latrines in the centre and an incinerator in the compound serve as a demonstration of good community health practices.

The work in the clinic and in homes needs a careful and constant adjustment. If the attendance at the centre is heavy, then there is no harm if the home visits become less but when the clinic attendance is poor then more time should be given to home visits, so as to gain confidence of the people and to encourage them to become clinic-minded. Suggested job descriptions for the nurse at main centre and multipurpose health worker at sub-centre:

- Supervise and manage the overall operation of the centre.
- Get the clinic personnel to arrange the clinic, sterilise instruments to be used, take out the records, and make laboratory tests, like urine testing.
- Admit and interview new mothers and attend to already registered mothers.
- Take blood pressure and pelvic measurements.
- Weigh or supervise the weighing procedure.
- Test haemoglobin of each mother and observe and interpret other duty.
- Supervise the midwife or student who may be assigned to this duty.
- Give treatments as instructed.
- Discuss doctor's instructions and other matters with each mother following medical consultation.
- Give appointments for next visit.
- Refer mothers to the hospital or to other agencies as required.
- Write records and reports.
- Give group teaching.
- Supervise distribution of tetanus Toxoid, vitamins and minerals and other essential supplements.

Although the efficient management and smooth running of the health centre or clinic is a responsibilities of the nurse, her larger responsibilities is to make sure that the mother really understands any teaching that is given to her and that ideas are presented to her in the most acceptable form. Learning the principles of good nutrition and antenatal and postnatal hygiene is essential to complete maternity care. The mother should understand the relationship between what is happening

in her body during pregnancy and all that she does, thinks, feels and eats. Finalising plans for delivery must start from the 32nd week.

The nurse may feel that she cannot cope with the large crowds and adequate perform the duties mentioned above. It has been found that trained volunteers can learn to help with such duties as: weighing mothers and babies, directing mothers to and from indicated services, recording for the doctor, assisting with simple laboratory procedures. When such volunteers and doctor's wives, and other educated women are available and trained, they can help in teaching and counselling mothers regarding personal hygiene, child care and nutrition.

It is advisable to have all mothers and children report to the clinic well in advance of the doctor's arrival so that all screening can be done, and that the midwife will be free to assist the doctor, and the nurse will be free to teach the mothers before and after they have seen the doctor. It has been found that some mothers come to the centre too often while others do not come often enough. Those who come too often create overcrowding problems. Appointment for clinic attendance should be given according to the need. Experiment with and try to establish an appointment system but give service to everyone who comes to the centre and sub-centres.

4.5 ADOLESCENT WELLNESS CLINIC

Adolescence refers to phase of human development from childhood to adulthood. It is a period of life that is extended from 10–19 years which includes pubertal development. This period is very crucial since these are the formative years in the life of an individual when major physical, psychological and behavioural changes take place. Therefore adolescent wellness clinic are required in all health care settings.

Adolescent wellness clinics shall be linked to facility-based services across all levels of health system usually services at sub-centre level are provided by the ANM, but an Adolescent Information and Counselling Centre will be made functional by the Medical Officer and ANM at the Primary Health Centre on a weekly basis. At Community Health Centre, District Hospital, Sub district Hospital, Taluk, area hospital and medical college level, Adolescent Health Clinics shall provide services on a daily basis. A professional counsellor shall be available on all days of a week at Community-Health Centre level and higher level facilities. Services in adolescent health clinics are available to all adolescent, married and unmarried girls and boys. Special focus will be given to establish linkages with Integrated Counselling and testing centres (ICTCS) and making appropriate referrals for HIV testing and RTI/STI management, providing comprehensive abortion care and provision of information, counselling and services for contraception to both married and unmarried adolescents. The provision of contraceptives is to be made through this clinic, while ensuring continuous contraceptive supplies and services.

Adolescent Wellness Clinic provide following services:

i) Clinical Services

ii) General Examination

- Nutrition advice

- Detection and treatment of anaemia.
- Easy and confidential access to medical termination of pregnancy.
- Antenatal care and advice regarding child birth.
- RTIs and STIs detection and treatment.
- HIV detection and counselling.
- Treatment of psychosomatic problems.
- De-addiction
- Other health concerns.

iii) **Counselling Services**

Counselling Services are provided as per the behaviour change domain according to the area of problems and issues e.g. teenage pregnancy and its termination. According to target group such as rural or urban adolescent, group counselling or individual counselling sessions are carried out by health care providers in a team. Different areas are to be catered by different specialty experts.

Information and counselling on adolescent sexual reproductive health and other health issues:

Adolescent require education about management of life skills. Life skills education is a novel promotional programme that teaches generic life skills through, participatory learning methods of games, debates, role plays, and group discussion. Conceptual understanding and practicing of the skills occur through experimental learning in a non threatening setting. Such initiatives provide the individuals with a wide range of alternative and creative ways of solving problems pertaining to various health and psychosocial issues like drug use, sexual abuse, teenage pregnancy, early sexual experimentation, bullying. Repeated practicing of these skills leads to a certain mastery and application of such skills to real life situation and gain control over the situation. It is a promotional programme, which results in the positive health and high self esteem.

The life skills which need to be taught to adolescent at the school level are:

- Critical thinking and creative thinking
- Decision making and problem solving
- Communication skills and interpersonal relations
- Coping with emotions and stress
- Self awareness and sympathy

iv) **Scheme for Promotion of Mental Health**

In order to address mental health issues, the adolescent health strategy envisages promotion of protective factors such as self-esteem, healthy relationships, and the ability to deal with stress and conflicts positively. The peer educators will be trained to counsel adolescents on these issues and service providers (teachers, AWW, ANMs and Preraks etc.) will be trained to screen for anxiety, stress, depression, suicidal tendencies and refer them to appropriate facility. In order to reduce adolescent pregnancy, focused messaging to individuals, families and communities (including men) will be

reinforced through the Life skills Education sessions that are delivered from various adolescent centric platforms including community outreach sessions and Anganwadi centres.

v) **Scheme for Promotion of Menstrual Hygiene among Adolescent girls in Rural India**

The scheme promotes better health and hygiene among adolescent girls (aged 10 to 19 years) in rural areas by ensuring that they have adequate knowledge and information about the use of sanitary napkins. Through the scheme, high quality and safe products are made available to the girls and environmentally safe disposal mechanisms are made accessible. The sanitary napkins are provided under NRHM's brand 'Free days'. These napkins are being sold to adolescent girls by ASHAs.

vi) **Preventive Health Checkups and Screening for Diseases, Deficiency and Disability**

The new approach in the implementation of the school Health Programme is to establish dedicated mobile health teams at block level. These teams will include two Medical Officer (MBBS/ Dental/ AYUSH qualified) and two paramedics (one ANM and any one of the following: Pharmacist/ Opthalmic Assistant/ Dental Assistant). These teams will be provided mobility support (dedicated hired vehicle) as per the approved norm of the State, equipment and medicines.

vii) **Health Problems**

Physiological Problems

Irregular Menstrual Cycle: Irregular bleeding is sometimes seen after menarche. Health Worker should reassure the girl and her parents and advise her to take nutritious diet. In most of the cases the periods get regular within about 2 years of menarche. If they do not get regular by 2 years, then refer the girl to a doctor (PHC/CHC).

Acne: Acne is a common skin problem in adolescents and youth and causes lot of stress among them.

viii) **Reproductive Health Problems**

Bigger and most populated states of the country have shown the higher percentage of adolescent girls married by the age of 18 years.

ix) **Behavioural Problems**

a) **Risk behaviour:** A significant number of adolescents are engaged in high risk behaviour that results in appreciable morbidity or mortality. A large number of school adolescents in urban areas get exposed to sexual intercourse and many a time they do not use safety measures. Similarly, many adolescents keep experimenting with drugs. Risk taking behaviour of adolescents in India is also high and some keeps knife, rods, and chain (Kishore 1999).

b) **Teenage Pregnancy:** Adolescent Pregnancies are high in number and associated with illegal abortion and infection leading to death.

c) **Sexually Transmitted Diseases:** High prevalence of sexual intercourse in adolescents is associated with high risk of sexually transmitted diseases

and HIV/AIDS because many do not use condom. Majority of adolescents (70% of male and 80% of female) had not even heard of STDs (Kishore 2006).

A report released on World Contraception Day 2011 showed that 28% of the young people had sex and 32% had sex with new partner without using contraceptive. It is also stated that school do not provide comfortable environment for question is a barrier to them to obtain accurate information (26%).

x) **Nutritional Problems**

a) **Undernutrition:** Under nutrition in adolescents may suffer from impaired growth, anaemia, iodine deficiency, etc. adolescent should be advised to take nutritious diet and whenever they have manifestations of any disease they must consult doctor.

b) **Anaemia in Adolescents:** Anaemia is a major nutritional deficiency disorder in India and other developing countries. Large population surveys in rural India indicate that the prevalence of anaemia ranges from 38–72% depending upon age and sex (Choudhury et al 1994). Hookworm, malaria and other infections if present further aggravate iron deficiency and increase its prevalence. The iron deficiency prevalence in adolescent girls has been reported to be high (22–92%) in various studies (Vasanthi et al 1994, SWACH 1997, Rajaratnam et al 2000). The reasons for high incidence of anaemia in adolescent's girls are:

- Increased iron requirements because of growth.
- Menstrual loss.
- Discrepancy between high iron need for haemoglobin formation and low iron content of foods that are commonly eaten.
- Dislike for foods rich in iron: green leafy vegetables.
- Iron absorption inhibitors in food: phytates/tannins.
- Frequent dieting/erratic eating habits.

c) **Prevalence of Obesity:** Paediatric obesity is an emerging problem in developing countries, especially among higher socioeconomic status groups. Significant gender disparity is seen. With boys of affluent background having a higher prevalence. In a study conducted in 2004 on school aged children 9–15 years showed that the overall prevalence of obesity and overweight was 11.1% and 14.2% respectively.

d) **Legislation:** The child Marriage Restraint Act, 1978: The act prescribes the minimum age at marriage for girls as 18 years and for boys at 21 years.

The Juvenile Justice (care and protection) Act, 2000: For special treatment, care, protection and rehabilitation of juvenile delinquents and neglected children (Male below 16 years and females below 18 years).

The Child Labour (prohibition and regulation) Act, 1986: Regulates minimum legal age limit (14 years) for employment of children and prohibits engagement of children in certain employments.

Immoral Traffic (Prevention) Act (ITPA), 1986: Prohibits trafficking in human beings, including children.

The Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985: Mainly deals with supply reduction activities.

Under NRHM and RCH for adolescent Health Priority Interventions

- Adolescent nutrition; iron and folic acid supplementation
- Facility-based adolescent reproductive and sexual health services (Adolescent health clinics)
- Information and counselling on adolescent sexual reproductive health and other health issues
- Menstrual hygiene
- Preventive health checkups

Adolescent Nutrition and Folic Acid Supplementation

As part of the new adolescent health strategy, in order to generate awareness, communication on consumption of balanced diet, nutritious food and inter-generational effects of malnutrition is deemed essential.

Nutrition education sessions to be held at the community level using existing platforms like VHND, Kishori Diwas, school setting, Anaganwadi Centres (AWC) and Nehru Yuva Kendra Sangathan (NYKS). Nutritional counselling on a dedicated quarterly Adolescent Health Day (to coincide with Kishori Diwas in SABLA districts) is also proposed. To make deeper in roads, nutrition education is to be included in school curriculum, establishing working linkage with 'Sakshar Bharat' Abhiyan.

Since the National Health Programme does not include the component of direct nutrition supplementation, linkage with MWCD (SABLA scheme) and MoHRD (Mid-Day Meal Programme) for supplementary is to be prioritised.

Child Health Screening and Early Intervention Services (RBSK)

Under the child health screening and early intervention services, screening of adolescents for low Body Mass index proposed and this will be followed by counselling at adolescent health clinics.

Weekly Iron and Folic Acid Supplementation Scheme

The Weekly Iron and Folic acid Supplementation (WIFS) scheme is a community-based intervention that addresses nutritional (iron deficiency) anaemia amongst adolescents (boys and girls) in both rural and urban areas. It aims to cover adolescents enrolled in class vi-xii of government aided and municipal schools as well as 'out of school 'girls. The key features of the scheme are:

- Supervised administration of weekly iron and folic acid supplements of 100 mg elemental iron and 500 mcg folic acid;
- Screening of target groups for moderate and severe anaemia and referral to an appropriate health facility;
- Bi-annual de-worming (Albendazole 400 mg) and
- Information and counselling for improving dietary intake and preventive actions for intestinal worm infestation.

4.6 ORAL HEALTH CLINICS

Oral cavity plays an important role for our body system.

Poor oral health can lead to infections in associated organs with oral cavity e.g. ear, nose, eyes, salivary glands, tonsils, larynx, respiratory tract and gastrointestinal tract. You are aware that teeth are vital for mastication of food which helps in proper digestion. As you know, following structures in oral cavity where bacteria can grow and produce infection.

- Tooth surface
- Inter-dental surface
- Gingival pocket
- Labial and lingual vestibules
- Saliva
- Fold of tonsils
- Cheek
- Tongue
- Hard and soft palate

4.6.1 Mobile Dental Clinics (MDC)

Do you know the functions of MDC:

- It provides on the spot diagnostic, preventive interceptive and curative services to people.
- Community and school children in far flung rural areas of the state are benefitted by MDC.
- There should be 3–4 mobile dental vans in each District catering to a population of 4.5 to 5 lakhs.
- Each mobile van should have two dental chairs, units, each with airturbine, micro-motor, ultrasound scales and other equipments.
- There should be following staff in mobile dental clinic:
    - Dental surgeons - 3
    - Oral Dental Hygienist - 1
    - Chair side assistants - 3

4.6.2 Dental School Health Services

Staff nurses should provide oral health services as important part of school health. You can teach good habits and healthy life style including oral health, which would reduce oral health problems in later life. Children will carry the health messages learned in school to their homes and exchange the knowledge with their parents, grandparents, siblings and play mates.

Functions of School Dental Health:

One dental surgeon with staff nurse performs following activities in school health programme:

1) Oral health education
2) Regular dental checkups
3) Demonstration of correct brushing techniques
4) Supervised fluride mouth rinsing
5) Primary treatment measures if required
6) Follow safe dental practices guidelines

Important functions of oral health clinics are:

- Regular Dental Checkups of individuals and diagnosis at primary level.
- Preventive services by health education of individuals, groups, families.
- Interceptive and curative services to the community at large and school children.
- Referral to the dental clinics at tertiary level if required.

4.6.3 Components of Oral Health Clinics

Oral health education:

- Staff nurses working in community shall impart oral health education, provide pain relief measures and be able to refer for further investigation and treatment.
- Oral health clinics shall have health education material like charts, posters, pamphlets, models and comics for individuals, children, and community.
- Spread message of oral health to masses at three media of communication i.e. audiovisual, print, folk media.
- Teach oral hygiene and its importance. Encourage mouth wash after each meal, as food remains in inter dental spaces and allow the bacteria present in the oral cavity to grow. The rate of growth is much faster in night that in day that is why it is always necessary to clean the teeth in the night after meals. These bacteria produce decalcification of tooth (caries), infection of gum (gingivitis), stomatitis etc.
- Educate individuals, groups, and masses about dental caries, periodontal diseases, malocclusion and oral cancers. Educate about mal-alignment of teeth and its relationship to jaw functioning. Refer children with mal-aligned teeth to dental clinics at tertiary level.
- Educate public about consequences of neglected oral health like dental caries, loss of teeth and other oral diseases.
- Educate public that 11.8% of pre-term and low birth weight deliveries are due to periodontal diseases in pregnant mothers.
- Diabetes patients having periodontitis have 3.2 times increased risk of Cardio-renal mortality.
- Peridontitis is also likely to increase the risk of many other diseases like chronic obstructive pulmonary diseases, coronary artery disease, atherosclerosis, MI, stroke, osteoporosis, etc.
- Peridental patients are more likely to develop stress related disorders due to altered cartsol levels.
- Educate public about cost of dental diseases and why prevention is required. Motivate to follow oral hygiene.

4.7 MENTAL HEALTH AND DISABILITY CLINICS

The National Mental Health programme was launched during 1982 with a view to ensure availability of Mental Health care services for all, especially the community at risk and underprivileged section of the population, to encourage application of mental health knowledge in general health and social development.

As you studied earlier that mental health is not just an absence of mental disorders. It is defined as a state of well-being in which every individual realises his or her own potential, can work productively and fruitfully and is able to make contribution to her or his community (2007). The focus should be on promoting mental health throughout the life span to ensure a healthy start in life for children and to prevent mental disorders in adulthood and old age. Depression is the 3rd leading cause of moderate to severe disability.

4.7.1 Aims of Mental Health and Disability Clinics

You know why you need mental health clinics:

- Early childhood intervention: Home visits for pregnant women, preschool psychosocial activities, combined nutritional and psychosocial health will prevent mental ill health in the community.
- Support to children: Skill building programme, child and youth development programme, will keep children mentally healthy.
- Socio-economic empowerment of females: Improving access to education and microcredit scheme for empowerment of females will help females in adjustment.
- Social-support for early population: Befriending initiative, community and day care centres for aged to help elderly population to adjust in their life and accept their new role in life span.
- Programme targeted at vulnerable group: Psychosocial intervention after disasters. Rehabilitation of venerable group who lost their family members and property during disasters to accept and adjust for survival.
- Mental health promotional activities at school: Adjustment programmes, counselling for adolescents, de addition programmes.
- Mental health intervention at work: Stress prevention programme, counselling for coping in life situations.
- Housing policies: Housing improvement orientation to financial schemes for building house and /standard of living for adjustment.
- Violence prevention: Moral education to respect the individuals rights of women and children for prevental of assaults and mental illness.
- Community development programme: For provision and mental health services for individuals, families and communities.

4.7.2 Services Provided by Mental Health Clinics

Mental Health Clinics provides following services:

- Prevention of mental illness through health education about coping mechanism, adjustment techniques, stress management etc by providing counselling to the clients.

- Early diagnosis and treatment of mental and neurological disorders and their associated disabilities. Doctors prescribe drugs, counselling sessions are held, follow up is encouraged.
- Use of mental health technology to improve general health services. Coping strategies are discussed with-clients for adjustment.
- Application of mental health principles in total community development to improve quality of life: Indentifying the weakness, shortcomings and strong points of the clients.
- Promotes community participation in mental health services development to stimulate efforts towards self help among mental patients in a community. Promoting communication between clients who are improving or have improved.
- Provides counselling to adolescents, adults, early of both genders.
- Identification of drug abusers, de-addiction programmes and rehabilitation of drug addiction clients.
- Early identification of mentally ill and referral to the tertiary care institutions.
- Health education programmes for adjustment of all age groups in both genders.
- Health promotion through Life Skills Education.

Taught at the school level especially adolescents as are:

- Critical thinking and creative thinking.
- Decision making and problem solving.
- Communication skills and Interpersonal Relations.
- Coping with emotions and stress.
- Self awareness and empathy.

4.8 LET US SUM UP

In this unit we have discussed some important clinics, their functions, services provided, role of NCD clinics at CHC, PH. The checklist is also provided for early detection of NCDs. Role and responsibilities of the primary health care team in early detection and management of NCD, family planning clinics and role of nurses, MCH clinics and services provided under this clinic along with job description of nurses at sub-centre. Counselling at adolescent clinics and various other activities carried out adolescent wellness clinics are also discussed. Oral health clinics are explained with various components of oral health clinics. Mental health and disability clinics and services provided under this clinics is also highlighted.

4.9 ACTIVITY

1) While doing home visiting do community assessment checklist for early detection of non communicable diseases. Plan health education programme in Family planning clinics.

   MCH Clinics

2) Select adolescents in need of counselling services on

- Nutritional needs
- High Risk Behaviours
- De-addiction
- Anaemia
- Psychosomatic problems

UNIT 5 SOCIAL MOBILISATION SKILLS

Structure

5.0 INTRODUCTION

In Unit 1 you have learnt about communication skill, which will help you to communicate effectively with the community. As you know the health of a community is dependent not only on the availability of drugs and medical technology but also on the social system, employment, education, ecology and climate. People's level of health is determined by their nutrition, life style, attitudes and health practices. Social norms, customs and traditions have a strong influence on health practices and habits of living. Involvement of people is thus essential for bringing about any change on a large scale. As a health care provider you have to promote positive health practices and therefore require the mobilisation of the people in large masses so that large-scale changes take place.

Public health deals with the health of people and the promotion of optimum health of all its members. Social mobilisation in public health is essential for the success of large-scale government sponsored national programmes like the pulse polio immunisation programme.

In this unit you will study the concept and types of social mobilisation and how they can be used for the successful implementation of health programmes at grass root level. You will see the important role played by social mobilisation in large national programmes like the pulse polio immunisation.

5.1 OBJECTIVES

After completing this unit, you should be able to:

- become familiar with the concepts of social mobilisation;

- appreciate the uses of social mobilisation;
- appreciate the role of health worker as a social mobiliser; and
- develop capacity for undertaking social mobilisation.

5.2 MEANING AND IMPORTANCE OF SOCIAL MOBILISATION

Social mobilisation is undertaken for the purpose of social change and involves masses. All mass movements are based on principles of social mobilisation.

The dictionary meaning of Social Mobilisation is : The process by which individuals or sections of society mobilise in order to effect social change-Oxford Dictionary

Social mobilisation is not a single event. It is sometimes a very long drawn process and may take even months or years. However, some social mobilisation takes only a few days. All social mobilisation do not follow the same path. Some stay for a longer period (sustained) and some stay for shorter period that is immediately after the goal is achieved. Whether it rises suddenly with a specific goal or grows as a wave over time the process usually leaves an impression on people who participated in it.

5.2.1 Nature

Social mobilisation is the process of activating a large group of people in a given community to participate in an event, activity or process of social nature which is intended to bring about a change in people's attitudes, knowledge or actions. Social mobilisation is essential for gaining the support of masses for an activity which requires acceptance, approval and adoption by the majority.

Benefits of Social Mobilisation

1) enhances the capacity of individual, group and community, to identify and fulfill their needs
2) increases community participation in the programme
3) helps to improve programme design
4) helps to improve quality and results of the programme
5) is a cost effective way to achieve sustainable result
6) increases community ownership
7) enables communities to determine their own development
8) helps to builds trust within communities so they can work together effectively
9) increases capacity of communities to work with government and other sectors (health services, research etc.)
10) helps to apply political pressure and create positive change

5.2.3 Need of Social Mobilisation

Social mobilisation is a proven development strategy that has helped people around the world identify and address pressing issues. For making any community

based programme successful and its sustainable, the involvement of community from planning, implementation, monitoring and evaluation is essential for which there is a need of mobilisation of the members of the community and other stakeholders who can be involved in the programme. The social mobilisation is needed for.

1) **Creating awareness:** The aware community can identify their problems, felt needs and can demand for interventions which will help to develop culturally appropriate strategies and messages This also helps to increase people's skill, knowledge and confidence and install in them a belief that they can make a difference.

2) **Community participation:** Involvement of community and stakeholders in the programme increases effectiveness and efficiency of interventions and to obtain additional resources and support to make the programme cost effective. It also helps in reaching the most vulnerable and needy members of the society.

3) **Increasing community ownership and sustainability:** Social mobilisation is needed for developing community ownership and sense of responsibility. This helps in increasing coverage and access to information and services.

4) **Empowering community:** The social mobilisation activities increase the capacity of the stakeholders in, decision-making, planning, programme implementation and analysis. When a community is empowered, people feel free to act within the society and at the same time associate a sense of belonging to it.

Social mobilisation is needed in various situations as given below:

- When large number of people have to be involved.
- When new programmes or policies requiring people's opinion or participation are introduced.
- When beneficiaries involvement is crucial to the success of the programmes.
- When behavioural changes need to be brought about in masses.

5.2.4 Uses

Social mobilisation plays an important role in social change and development. The most important uses are:

- To gain public support for a policy, programme, product or activity or service.
- To involve people in a large scale activity which the agency wants to be completed within a specific period of time e.g. camps and campaigns.
- To sustain development through involvement of people and enhancing the process of behaviour change.
- To ensure that the desired change take place faster which is possible by inducement of people.
- It helps to understand the felt needs of the people.
- It helps to empower individuals and groups for action.

5.3 TYPES OF SOCIAL MOBILISATION

Social mobilisation process is of following types:

- Controlled and Spontaneous
- Specific and General

5.3.1 Controlled and Spontaneous

Controlled

Controlled mobilisation starts outside the people who are part of the process. The planning and initiative are done elsewhere and people are only passive participants initially. They may be convinced enough to become more active forces later and may even take hold of the movement and carry it forward. One example is the immunisation awareness about the benefits of immunisation and adopting the practice. Another example is family planning. The sterilisation camps were highly effective in mobilising the entire nation into accepting the tubectomy/ non-scalpel vasectomy as the best suited form of birth control.

Spontaneous

Spontaneous movements start out of people's own reactions to actual or perceived wrong and injustices. The reactions may be against the establishment or other agencies and individuals. The mobilisation is sparked off through a recent even which affects peoples lives or emotions. The initiators are filled with zeal and enthusiasm. Everyone would like to participate and contribute to an activity. This highly charged and intense phase is short lived. The initial enthusiasm dies down and people go on to other interests. You must have felt this type of process when there has been a maternal death in a village. When you went around to invite villagers for a meeting to prepare an action plan to reduce maternal mortality, you must have found that it is easier immediately after this event. You could mobilise them easily.

5.3.2 Specific and General

Specific

Specific issues related to groups of people or daily living are taken up as the content of social mobilisation. The antiliquor movement dealt with one issue for which there was large-scale social mobilisation. The fever of activity and the high level of participation of people after a natural calamity like cyclone in the bay of Bengal or earthquake are well known. Another example is the high level of patriotic enthusiasm and activity during the Kargil conflict. All political parties try to mobilise people to their way of thinking for a specific purpose during elections. In the same way mobilising support during pulse polio, or other national programmes is for specific purposes. Most of these are very short processes.

General

The purpose of this type of social mobilisation is overall development of people. For example, mobilisation for introducing the local self-government through the 72nd amendment of the constitution (Panchayati Raj) is with the goal of achieving a more decentralised process and enhancing people's participation. This takes longer to start as well as to maintain but once introduced it lasts longer.

Campaigns are well planned and systematically conducted activities for a specific purpose. Social mobilisation may not always be a planned activity. It may start

due to an incident and may go beyond a specific activity. Social mobilisation may form a part of a large campaign or programme.

Let us take the example of a health professional at the grass roots that wants to mobilise the people of the villages in her area for avoiding rational use of injections. How will this person start and make a progress? Will she call for a village level meeting through the village president or announce through the village public address system or visit each house? Which is the best way to start?

When people on a large scale have to be mobilised for a specific purpose, it is not always necessary or even wise to start with the actual issue. An entry point something of paramount importance to them is required which will outreach the people. Some examples of entry points for social mobilisation could be:

i) Current problems of the people: The people are more likely to listen if it is a current problem giving them trouble e.g. recent floods or epidemics.

ii) An issue on problem, which affects the majority: In such a case the community mobilisation can get the attention of the majority in the villages or basti. Dealing with the problem of the majority will show that the differences are forgotten and togetherness is built. This will help later in the process of social mobilisation.

iii) Actual, religious or social event: At this event, there will be many people and they are in a mood to listen and remember. The first contact can be done through such an event.

5.4 SOCIAL MOBILISATION

Social Mobilisation should focus on building confidence, trust and respect, increasing knowledge base, and enabling community members to participate, and become more proactive with regard to their own health behaviour.

5.4.1 Pre-requisites for Social Mobilisation

Pre-requisites for social mobilisation include the following:

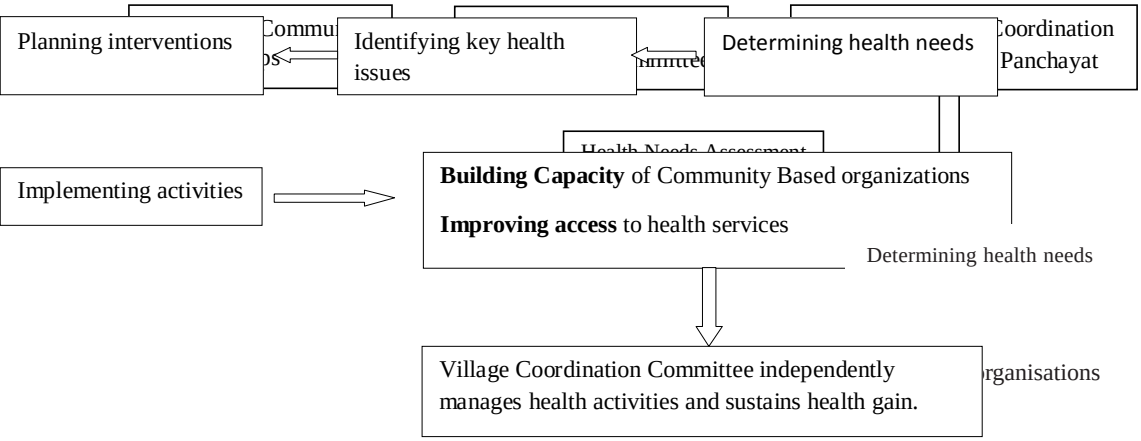
- Purpose or goal for which mobilisation is required.
- Leader who will inspire and encourage participants and spearhead the movement.
- Symbols for unification and building togetherness: slogans, banners, songs, badges.
- Messages which are used for mobilisation and the content of these messages in the form of speeches, pamphlets, booklets and songs etc. to keep alive the involvement and interest.
- Network of managers and workers who will organise and take responsibility for different components of the social mobilisation.
- Funds, which will help in keeping intention and action closer together and make sure that the intended activities are carried out without obstacles.
- Publicity and news in the form of media coverage, latest reports including an efficient system of dissemination of information.

5.4.2 Process of Social Mobilisation at the Village Level

Social mobilisation is not easy task because every community has its own beliefs, values culture, leadership, social systems, social groups, religion and interests. Hence it is necessary for the social mobilises to understand the community for whom the programme is being undertaken. However the following steps can be taken for Social Mobilisation.

- Initiate dialogue with community members to understand their interests, felt needs, resources, level of understanding, their perceptions, views about the programme, identify all the available resources in the community. Plan the best use of the available resources.
- Form new or identify existing community based organisations (like various committees, Self Help Groups, Village Development Forum etc.) and involve them the programme activities. Provide training if needed.
- Try to create an environment in which individuals can empower themselves to address their own and their community's health needs.
- Promote community participation by developing partnership with the community.
- Promote good leadership and democratic decision making.
- Enable the community to better govern itself better play a catalyst role.

Example of Social Mobilisation for Health in Rural Area



Go to the people

Live with them

Learn from them

Start with what they have

Built with what they have

But with the best leaders

When the work is done

The task accomplished
The people will say
We have done this ourselves
A Chinese Poem

5.5 QUALITIES OF A HEALTH WORKER FOR SOCIAL MOBILISATION

A Social Mobiliser is a person who mobilises relevant segments of society: decision and policy makers, opinion leaders, bureaucrats and technocrats, professional groups, religious associations, commerce and industry, communities and individuals. He should have respect towards the social culture, social values and faith that the community has potential to take decision and shoulder responsibilities. He/she should have the following qualities.

- Good communication skills
- Good facilitation skills
- Active listener
- Committed
- Decision maker
- Active
- Negotiation skills
- Known to culture and values of society
- Catalyst
- Non judgmental
- Good Management skills
- Responsible
- Honest
- Knowledgeable
- Social
- Good observer
- Leadership

5.6 LET US SUM UP

Social Mobilisation is essential in Community Based Interventions especially in the field of Community Health. Social mobilisation is a process that enables people in different sectors and at various levels of society to engage in dialogue, negotiation and collective action. And the purpose of social mobilisation is to bring together organisations, policymakers and communities to forge a collective identity and to work toward a goal. We have mentioned the importance and benefits of social mobilisation. We have also given various steps in the process of Social

mobilisation enlisted the qualities of a health worker required for Social Mobilisation.

5.7 ACTIVITY

Identify a situation to mobilise the community leaders so that they participate in planning for the community as per their need.

- Make them such as environmental sanitation
  - Use social toilet
  - Avoid open defecation
  - Document the way you make people participate
  - You faced barrier in the process of making social moblisation

UNIT 6 HEALTH EDUCATION AND COUNSELLING

Structure

6.0 INTRODUCTION

Health Education is a combination of two words health and education. Let us first understand the meaning of health. Good health means different things to different people, and its meaning varies according to individual to individual. Many people consider themselves healthy if they are free of disease or disability. However, **WHO** defined health as "a state of complete physical, mental, and social well-being and not mere absence of any disease or infirmity" which means a healthy person must be physically sound, mentally sound and socially sound and he/she should not be weak and do not have any infirmity.

Different people interpret the term 'education' in different ways. Some people refer to it as formal schooling or to lifelong learning. Some others refer to it as acquisition of knowledge, skills and attitudes.

Health education is any combination of learning experiences designed to help individuals and communities improve their health by increasing their knowledge, influencing their attitudes, behaviours and practices. Health

education is the processes that informs, motivates and helps people learn to promote, maintain and restore their own health. Health education is not limited to information related to good health. It goes much further by trying to give people the knowledge, social skills and know how necessary to be able to change their lifestyle and at the same time to reinforce healthy behaviour for them and their community.

6.1 OBJECTIVES

After completing this practical, you should be able to:

- list aim and principles of health education;
- explain various approaches in health education;
- adopt the steps for planning health education programme; and
- prepare outline of health education programme for the community.

6.2 AIMS AND OBJECTIVES OF HEALTH EDUCATION

Let us now go through the aims and objections of health education.

The ultimate goal of health education is to improve the quality of life. Therefore, improving a community's health status will improve that community's quality of life. So, overall we can say that the goal of health education is to promote, maintain, and improve individual and community health. On an individual basis the goal of health education is to assist people in making informed decisions about their health. Regardless of the setting, the goal of health education is to help people protect and enhance their most valuable asset – their health.

6.2.1 Aims

- Motivating people to adopt health-promoting behaviours by providing appropriate knowledge and helping to develop positive attitude.
- Helping people to make decisions about their health and acquire the necessary skills to put their decisions into practice.
- Encouraging people to adopt and sustain health promoting life style and practices.
- To promote the proper use of the health services available to them.
- To arouse interest to provide new knowledge, improve skilled and change attitudes in making rational decisions to solve their own health problems.
- To stimulate individual and community self reliance and participation to achieve health development through individual and community involvement at every step from identifying problems to solving them.

6.2.2 Importance of Health Education

- Encourages a person to make healthy choices.
- Enables a person to remain physically fit and in proper health.

- Improves the health status of individuals, families, communities, states, and the nation.
- Enhances the quality of life for all people.
- Reduces premature deaths. By focusing on prevention, health education reduces the costs that individuals, families, communities, the state and the nation would spend on medical treatment.

6.3 PRINCIPLES TO BE KEPT IN MIND WHILE PLANNING HEALTH EDUCATION PROGRAMME

Before planning health education programme, we should keep following principles in mind as given below:

- **Credibility:** The Health Care Provider must have the quality of being believable and worthy of trust of the people. Unless the people have trust and confidence in the communicator, no desired health action will take place.
- **Interest:** The health education should be need based. It is a psychological principle that people are unlikely to listen to those things which are not to their interest.
- **Participation:** It should aim at involving and encouraging people to work actively with health workers and identify their own health problems and also in developing solution and plans to work them out.
- **Known to unknown:** Start where the people are and with what they understand and then proceed to new knowledge.
- **Comprehension:** You must know the level of understanding, perception and education of people to whom the health education is imparted.
- **Reinforcement:** Health education is not a magic stick. Repetition at interval is extremely useful for understanding and accepting new ideas.
- **Motivation:** Every individual has a fundamental desire to learn. Encouragement, stimulation or awakening of desire of learning is called motivation.
- **Learning by doing:** The Chinese proverb "if I hear, I forget. If I see, I remember. If I do, I know" illustrate the importance of learning by doing.
- **Setting an example:** You must practice what you preach.
- **Good human relations:** You must have good relations and rapport with the people.
- **Feedback:** The feedback from the people provides opportunity to modify the message, approach and strategy of health education.

6.4 APPROACHES IN HEALTH EDUCATION

Let us read the various approaches which would help you in the process of planning and implementing health education programme.

a) Regulatory Approach (Managed Prevention): The regulatory approach seeks the change in health behaviour and improvement in health status of the people by enforcing laws. This approach seems to be simple but just making laws it is difficult to change the behaviour of the people. It may be useful only in emergencies.

b) Service Approach: In this approach, it is assumed that if all the health services would be provided at door step of the people they would use them and their health will be improved. It is only useful if the health services are need based.

c) Health Education Approach: It is based on the principle that the informed community would be able to make decisions to protect their own health. The people must be educated through planned learning experiences, informed and encouraged to make their own choice for a healthy life.

d) Primary Health Care Approach: This approach is a new approach. In this approach the community is actively involved with full participation in planning and delivery of health services. The main objective of this approach is to help individuals to become self reliant in health matters. The health of the community will improve only if the people themselves become involved in planning, implementing, and having a say about their own health and health care.

6.4.1 Contents in Health Education

The following areas can be covered while planning health education programme keeping in the mind of the community.

- Human Biology
- Nutrition
- Environmental Hygiene
- Personal Hygiene
- Control of communicable diseases
- Control of non communicable diseases
- Mental Health
- Prevention of Accidents
- Use of Health Services

6.4.2 Health Education Messages

- Message consistency and clarity go a long way toward ensuring that your audience clearly understands what you're intending to convey. By developing key messages supported by clear identifiable information, your job of communicating and responding to inquiries will become much easier. The health education messages should increase audience knowledge and awareness of a health, influence behaviours and attitudes towards a health issue, demonstrate healthy practices and benefits of behaviour changes to public health outcomes as well as increase demand or support for health services.

A good message should be:

- In line with the objective/s
- Meaningful
- Based on felt needs
- Clear and understandable
- Timely and adequate
- Fitting the audience
- Interesting
- Culturally and socially appropriate
- Specific and accurate

6.4.3 Methods of Imparting Health Education

Let us go through the methods, which can be used while connecting health education session:

a) Individual Approach: This is also called Inter-Personal Communication (IPC). It means interaction between two people who are together. The decisive criterion for personal communication is that communication happens at the same time and place. It provides maximum opportunity for a two way communication. There are plenty of opportunities for the nurses for individual health education. The topics for health education may be selected according to relevance of the situation. The advantage of individual health education is the health care provider can discuss, argue, and persuade the individual to change the behaviour. The IEC material like album, flip chart can be used for better understanding.

b) Group Approach: Group education is an effective way of health teaching. There are many different groups in the society Self Help Groups, ANC mothers, Panchayat members, Adolescent groups, religious groups, students etc. The relevant topic for group education should be chosen. This approach is also very effective as the group can discuss common issues and their solutions. The methods for group approach can be used include Lectures, Demonstrations, and Discussions (Panel discussion Symposium, Workshop, Conferences, Seminar etc.) role play.

c) Mass Approach: Mass communication is a means of transmitting messages to a large segment of a population in short time. Electronic and print media are commonly used for this. This is one way method but it is effective for one particular action. Mass media alone are generally inadequate in changing behaviour. However, mass approach is very useful in creating political will, raising health consciousness and setting norms among a large number of populations. The mass medias are Television, Radio, News Paper, Printed material, posters, billboards, health museums and exhibitions and Folk methods like Ram Leela, Drama, Kirtan etc.

6.4.4 Choosing Information Education Communication (IEC) Material

After having discussed qualities of the message and methods of educating people. Let us now go through the material used and points to consider before choosing material:

1) **Consider the audience**

   While choosing a particular communication material, it is important to consider the size of the audience. For instance if a picture in the size of a post card is used for an audience of 20 to 30 people, then the significance of the picture will fail to register in the minds of the people.

2) **Easy to see**

   To be effective, visual aids must be easily seen by the participants. You must also place them in such a way that they are visible to each member of the audience without obstruction.

3) **Easy to understand:** Make sure the words and the language used in the material are simple and easy to understand.

4) **Simple and direct:** The idea used in the material must be simple, clear and direct. You may use colours to highlight important points or sentences, especially in the wall writing or the Banners.

5) **Easy to handle and transport**

   It would be difficult for you to carry big bulky communication aids. It should be light in weight as far as possible. The size need not be larger than is necessary to fulfill their function.

6) **Easy to access**

   Make communication materials from things, which are handy and easily available to you. For example, make posters by using cuttings from magazines, newspapers, locally available books, etc. You could use radio/audio programmes that are broadcasted at a particular time everyday by forming listening groups among women groups and youth groups or even members of the local body.

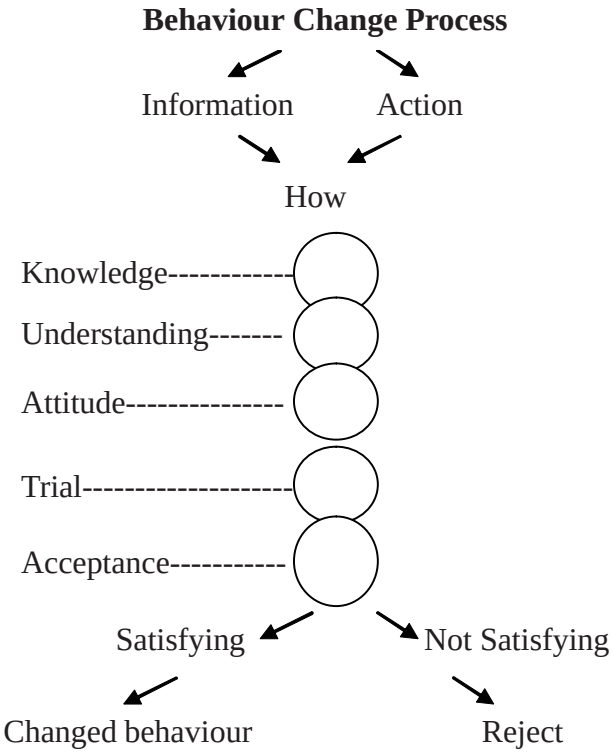
7) **Attractive and clean:** To be effective, use materials that are colourful, neat, clean and in good working condition.

8) **Inexpensive:** It will be useless to think of using expensive materials, because trying to get a sanction to purchase or create these materials may turn out to be a time consuming process.

Steps for Developing Health Education Programme:

- Organise groups with common internet and goals such as teachers, school children, Sarpanch, landlord, traditional birth attendants, women groups etc.
- Call these groups at the time and place convenient to them.
- Discuss health interests of the members as presented by them.
- Keep in mind principles of learning while conducting the session.

Behaviour change process



6.4.5 Steps in Planning Health Education Programme

Let us now discuss the steps involved in planning health education programme.

a) **Needs Assessment:**

- List the determinants of the problem
- Divide them into behavioural and non behavioural factors
- Analyse the information

b) **Behavioural Diagnosis:**

- Behavioural analysis: type, location, behaviour chain
- Identify target behavior and develop behavioural objectives

c) **Educational Diagnosis:**

- Identify levels of intervention
- Identify communication techniques
- Identify inputs for intervention

d) **Strategy Development:**

- Develop appropriate strategy

e) **Manpower, Material and Financial Planning**

- Estimate workload
- Develop Job definitions

f) **Monitoring & Evaluation**

- Develop monitoring and evaluation indicators

6.4.6 Outline of Health Teaching Plan

Health teaching plan is an essential aspect of health education programme, whatever is the method selected outline remains nearly the same for health teaching. Given below is the outline of health teaching plan.

- Topic
- Unit: No. of members:
- Group
- Language
- Place
- Time Duration _____ to _____
- Persons or Health worker involved:
- Supervisor
- Previous Experience or knowledge of the Group
- Aim
- Objectives of health talk:
- References

Time Budget	Objectives	Content	Teaching Learning Activity	Evaluation
	What are the expected outcomes or expected changes as per specific objectives	Introduction Topic : Definition of the subject covered. Details of the content covering causes, preventive measures to be adopted Services availability Summary conclusion Any activity or recommendation	This may include different A.V. aids used or methods used. Or Teaching learning methods	Questions to Evaluate or return demonstration.

6.5 COUNSELLING

Counselling is the professional advice and guidance given to a person (client) by a trained person (usually Counsellor), in order to assist the client to explore, discover and clarify ways of living more positively, satisfactorily and resourcefully in society. Counselling occurs only when there is a mutual understanding between the Counsellor and the patient/client brought about by information sharing and exchange of ideas.

6.5.1 Importance of Counselling

- Counselling enables patients/clients to release their stress and anxieties
- Patients/clients are empowered and able to understand and solve their own problems
- It enables patients/clients to use available resources and experience to develop positive ways of coping with situations/problems

6.5.2 Qualities of a Good Counsellor

- **Patience:** The Counsellor need to be very patient and give sufficient time to the client.
- **Active Listener:** The counsellor should be a good and active listener. Never interrupt what the patient/client has to say. Give your inputs only when the client / patient have finished talking. Show the patient/client that you are paying attention, rather than looking through papers on your desk as the patient/client is talking to you, you should look at his/her face as you listen.
- **Keen Observer:** The counsellor needs to be very observant and able to interpret non-verbal communication.
- **Good human being:** The counsellor should smile and show concern and acceptance to the client. to create conducive environment. He/she should greet the patient/client politely and make him/her feel comfortable and relaxed. With facial expression, eye contact, gestures, and posture, show him/her that you are interested in what he/she is telling you.
- **Knowledgeable:** The counsellor should have enough knowledge about the topic and counselling skills
- **Empathetic:** The counselor should understand the feelings the patient/client. In other words put himself in his/her position.
- **Confidentiality:** The counsellor should ensure that he/she maintains confidentiality on what the patient/client tells. The patient/client would feel greatly offended if you disclose any information about him or her to other people. Counseling must be done individually and privately.
- **Neutral and non-Judgmental:** The counsellor should be neutral and non judgmental.
- A good counsellor is committed, open minded, non judgmental, patient listener, attentive, tolerant, respectful and well informed. He/she should also have sense of responsibility and use positive body language.
- A counsellor should have excellent communication skills, ability to judge state of mind of a person, quick empathetic responses, focused, reflection of feeling, questioning, paraphrasing, structuring and prioritisation, ability to formalise strategies

6.5.3 Counselling Process

There are six elements to the counselling process. They are easy to remember with the memory aid GATHER. Each letter in the word GATHER stands for an action or step that a counsellor is expected to take when counselling a patient/client.

- G..... Greet the patient/client.
- A.... Ask patient/client about herself/himself.
- T..... Tell patient/client about proper use of drugs.
- H..... Help patient/client to understand the instructions
- E..... Explain how to use the drugs.
- R..... Return for follow-up.

In order to have a successful counselling session you must do the following:

Rapport building, Gaining Trust, Explaining limits, Problem identification, Discuss options, Take action, Follow up.

6.5.4 Barriers in Counselling

- A counselling room which does not offer privacy;
- Poor lighting;
- Dirty and untidy room;
- Distracting noise;
- Extreme temperatures;
- Uncomfortable seating arrangement;
- Distractions in the room such as equipment and visual aids.

6.5.5 Role of Counsellor

You as Mid level health care provider would have to play the following role such as Advocacy role, Health Education, Referral and Therapeutic roles.

Contents of counselling

Contents of counselling depend on the ability of the client to grasp. It is dynamic process. The counsellor must be able to assess the client's needs and state of mind quickly.

Goal of counselling

Forming a helping relationship, Clarifying and addressing problems, Establishing personal goals, Providing information on alternative resources, Selection of realistic alternatives, Stimulation of motivation and decision making, Helping client to develop competence, Recognising and diagnosing signs of psychological distress and providing support.

6.6 VERBAL AUTOPSY (VA)

The term verbal autopsy was first coined in a project of the Department of International Health of Johns Hopkins School of Hygiene and Public Health which ran from 1965 to 1973 in Punjab, India.

Verbal Autopsy (VA) is an investigation of the chain of events, circumstances, and signs and symptoms of illness leading to death through an interview of relatives or associates of the deceased. Verbal Autopsy procedures are widely used for estimating cause-specific mortality in areas with little or no medical

death certification. This is done by using a standardised questionnaire that elicits information on signs, symptoms, medical history and circumstances preceding death. The cause of death, or the sequence of causes that led to death, are assigned based on the data collected by a questionnaire and any other available information. Health information and a description of events prior to death are acquired from conversations or interviews with a person or persons familiar with the deceased and analysed by health professional or computer algorithms to assign a probable cause of death

The respondent who provides information about the deceased and allows the interviewer to complete the verbal autopsy questionnaire should be the primary caregiver (usually a family member) who was with the deceased in the period leading to death. This individual is likely to provide the most reliable and accurate account of the signs and symptoms of importance.

Verbal autopsy is used in settings where most deaths are undocumented. The VA method attempts to establish causes of death for previously undocumented subjects, allowing scientists to analyse disease patterns and direct public health policy decisions.

Role of a Community Health Nurse in Health Education

1) Role of the nurses as health educator Nurses as educators play a key role in improving the health of the people. Educating people is an integral part of the nurse's role in every practice setting -schools, community, work sites, health care delivery sites, and homes.
2) The nurse, using health education principles, can assists people in achieving their health goals in a way that is consistent with their personal lifestyles, values, and beliefs. Health education involves not only providing relevant information, but also facilitating health-related behaviour change.
3) The nurse's role is to support the rights of the individuals to know their health status and to assess and assist a person's physical, psychological, and spiritual response to that knowledge.
4) The nurse should provide health teaching and health counselling based in individual interest and decision depending on the interest and needs of a person, nurses should establish a partnership to guide the individual in the selection and use of relevant health services.
5) A Community Health Nurse should facilitate behaviour change, while satisfying the person's right to relevant health information and the freedom for people to make decisions about their own health that should encourage self-care, self empowerment and ultimately, less dependence on the health care system.
6) As a health educator, the nurse may use marketing strategies to enhance the effectiveness of health education programmes that are focused on certain target populations.

6.7 LET US SUM UP

In this unit you have learnt about aims and principles of health educators, various approaches in health education, steps for planning health education programme and health education programme for the community.

6.8 ACTIVITY

Select a group of pregnant mothers, identify common health problems, prioritise the problems and plan health education as per need using-

Individual approach

Group approach

Mass approach

UNIT 7 REPORT WRITING AND IT SKILLS INCLUDING INTERPRETATION AND USE OF DATA

Structure

7.0 INTRODUCTION

In the previous practical unit about tools and techniques of giving health educations. Any activity carried out, at the end needs to be recorded and important findings to be reported. In this unit, we will discuss various aspects of records and reports.

Record keeping is one of the most important activity to be carried out, which reflect the work accomplishment. Let us learn in details about various records and reports.

7.1 OBJECTIVES

After completing this unit, you should be able to:

- ensure the availability of all the registers to be maintained at the health centre;
- appreciate the availability of all the equipment and drugs in working conditions;
- fill the records properly;
- prepare and send the report authority for the needful; and
- identify any endemic or outbreak of the disease and report immediately to the responsible authority.

7.2 FORMATS FOR REGISTERS, RECORDING AND REPORTING

Let us now learn how to prepare map of sub-centre and its area covered as given below:

7.2.1 Prepare the Map of Sub-Centre and its Area

- Identify villages to be covered by the sub-centre.
- Take help from AWWs, TBAs and MSS member etc from each village and prepare a map of entire sub-centre area.
- Identify community resources available in the sub-centre area (place for conducting group meetings (public/private), transport facility for referral, people who can help in organising various camps etc) Please refer to plotted map given in Block 3, Unit 3.

7.2.2 Village Register

The register is maintained to store the information regarding an overall picture of each village covered under the sub-centre area. The information needed to be recorded are:

- Number of households (a household is defined as consisting of those family members having a common kitchen).
- The population of each village.
- The population distribution according to age and sex.
- Number of Anganwadi centres with the name and address of AWWs.
- Number of private practitioners (Allopathic, Ayurvedic, Homeopathic, RMP etc).
- Dais in each village (name and address).
- Schools – location.
- Panchayat Bhawan – Name and address of the Sarpanch.

- M.S.S/Mahila Mandal members.
- Voluntary organisations, if any.
- Number of deep hand-pumps involved.

7.2.3 Household Survey Register

The information regarding each and every household is collected during household survey. After the initial survey, it should be revised after three years. The details of information, need to be collected and entered in the survey register are:

- eligible couples (ECs).
- pregnant mothers.
- pregnant mothers registered.
- pregnant mothers registered given full doses of TT.
- births.
- births registered.
- home deliveries.
- home deliveries conducted by TBAs.
- home deliveries conducted by ANM/LHV.
- deliveries conducted at PHCs/CHCs/Govt. hospitals/nursing homes.
- deliveries conducted by private practitioners.
- pregnant mothers referred as high risk cases.
- pregnant mothers who develop any kind of complication.
- abnormal deliveries.
- abortions.
- low birth weight babies born.
- newborns who had difficulty in breathing immediately after birth (did not cry immediately).
- neonatal deaths occurred.
- Any stillborn baby delivered.
- children upto one year of age.
- children below 3 years of age.
- children who have had frequent episode of diarrhoea.
- Any children referred due to dehydration.
- Number of children who have had frequent attacks of ARI.
- children referred to PHC/hospital for treatment of pneumonia.
- children suffering from malnutrition.
- children going to AW centre.
- children completely or fully immunised.

  1 year

  upto 3 years

  upto 5 years

- women using oral pills.
- women who have undergone MTP.
- women who got Cu "T" inserted.
- couples using condom.
- women who had accepted sterilisation (tubectomy).
- men who have undergone vasectomy.
- women who are having signs and symptoms of RTI/STI.
- women/couples taking any treatment for RTI/STI.
- adolescents - i) Girls (10-19 years)
  ii) Boys (10-19 years)

7.2.4 Eligible Couple Register

Identify the number of couples where the wife's age is between 15–45 years from household survey register and enter in this register with address. The family status with parity and age of the youngest child should also be mentioned. The couples if using any contraceptives also need to be recorded along with the details of contraceptives methods being used.

7.2.5 Cumulative Family Folder/Record

Family Folder

1) Name of Head of Family (HoF) _____
2) House No. _____
3) Family No. _____
4) Family Unique ID _____
5) Type of Family _____
6) Religion _____
7) Caste _____
8) B.P.L* (Y/N)** _____
9) Details of family members

Name of family	AGE	SEX	Rel. with HoF	Age at marr-iage	Edn	Occu-pation	Inco-me	Ht	Wt	No. of meals/ Day Large + small	Any health problem member

*BPL- Below Poverty Line
**Y/N - Yes/No

10) Birth and Death data

a) Any birth in last 12 months (Y/N) _____

i) Number _____

ii) Sex _____

b) Any death in last 12 months (Y/N) _____

i) Number _____

ii) Sex _____

11) Communication facility available (Y/N) _____

a) Newspaper _____

b) Phone _____

c) TV/Radio _____

d) Other (specify) _____

12) Social Pathology

	Yes	No	Unique ID
Addiction			
Debt			
Widow			
Delinquent behaviour			
Unemployed			

13) Environment

a) Type of House

i) Pukka _____

ii) Kuchha _____

iii) Semi Pukka _____

b) Total living area/sq feet _____

c) Type of

i) Attached _____

ii) Semi Attached _____

iii) Detached _____

d) Electricity supply (Y/N) _____

If Yes - Official / Non-Official _____

e) Ventilation

i) Adequate _____

ii) Not Adequate _____

f) Lighting

i) Adequate _____

ii) Not Adequate _____

g) Source of water supply: Tap/Bore/other _____

h) Water Storage : Safe/Unsafe _____

i) Waste Water Drainage: Sewerage/ Drain/soak pit/open _____

j) Refuse : Open field/ Municipal Van _____

k) Sanitary latrine : Yes/No _____

l) Pet Animal : Yes / No _____

If Yes, Pet is kept

i) Inside House _____

ii) Outside House _____

14) Family Planning

Contraceptive Method Used	**Unique ID of EC**	**Duration of Use**	**Satisfied**	**Not Satisfied**
Condom				
OCP				
Cu-T				
Vasectomy				
Tubectomy				

15) **Maternal Health and Contraception register**

a) **Antenatal Records**

1) Unique ID No of woman _____

2) Name of the antenatal mother _____

3) Husbands name _____

4) Residential address _____

5) Age (yrs) _____

6) L.M.P _____

7) E.D.D _____

8) MAMTA Card Present(Y/N) _____

9) Gestational age at registration _____

10) No. of ANC visits done _____

11) Lab Investigations

a) Hb _____

b) Urine Albumin _____

c) Urine sugar _____

d) Blood grouping /typing _____

12) Tetanus Toxoid Vaccine

a) I Dose _____

b) II Dose _____

c) Booster _____

13) Any disease during Pregnancy (Anaemia/H.T/Any other specify) _____

14) Treatment taken _____

b) **Natal Records**

1) Place of Delivery (Institutional/ Home) _____

2) Delivery conducted by

a) TBA/Untrained TBA _____

b) ANM _____

c) LHV _____

d) Community Health Nurse _____

e) Doctor _____

3) Any complications during delivery (Y/N) _____

If yes specify _____

c) **Postnatal Records**

1) No. of days in hospital _____

2) No. of visits for post natal check up _____

3) Any complication (Y/N) _____

4) Initiation of Breastfeeding _____

d) **Contraception Register**

1) Temporary method

a) Female - Oral Pills _____

IUD _____

b) Male - Nirodh/condom _____

2) Permanent Method

a) Vasectomy for male _____

b) Tubectomy for female _____

e) **Child Health Register (Under Five Years)**

1) Unique ID of child _____

2) Name of the child _____

3) Fathers name _____

4) Mothers name _____

5) Residential address _____

6) Age _____

7) Sex _____

8) Date of birth _____

9) Birth weight (kg) _____

10) Place of birth (Institutional/home) _____

11) Initiation of Breastfeeding _____

12) Exclusive breastfeeding till age (in months) _____

13) Age of weaning _____

14) Immunisation Card (Y/N) _____

15) BCG _____

16) HEP (birth dose) _____

17) OPV (Zero dose) _____

18) Penta 1/OPV 1 _____

19) Penta 2/OPV 2 _____

20) Penta 3/OPV 3 _____

21) Measles 1 _____

22) Vit A OPV/DPTB Mesales 2 _____

23) DPT 2nd _____

7.2.6 Sub-Centre/FRU Clinic Register

This register is maintained for keeping records of patients attending the sub-centre clinics. The attendance in antenatal, immunisation, family planning clinics should not be registered in this record. The columns essential for this register are:

S.No	Date	Name & Address	Complaints	Medicine given	Remarks

7.2.7 Death Register

All deaths occurring in the are covered by the sub-centre are entered in this register. The items of information to be recorded include:

- Date of death : ……..
- Name and address: ……
- Age: ……..
- Sex: ……..
- Cause of death: ……..

7.2.8 Stock Register

Records of particulars related to all items provided and utilised at sub-centre should be maintained.

a) **Drugs:**

Date	Previous Balance	Quantity Received	Quantity Used	Balance in Hand	Expiry Date	Remarks

b) **Inventory of Vaccines and Drugs**

S. No	Item	Unit	Requirement Assessed Last Year	Actual Quantity Received Last year	Surplus of Shortage Last Year	Requirement for Current Year
1	ORS packet					
2	Metronidazole tablets					
3	Cotrimoxazole					
4	Paracetemol					
5	Chloroquine					
6	Antiseptic solution					
7	Uristix					
8	DD kits (Disposable Delivery Kits)					

9	Thermameter					
10	Gloves					
11	IFA large tablets					
12	IFA small tablets					
13	Vitamin A solution					
14	Condom					
15	Oral Pills					
16	IUDs					
17	Syringe and Needles					

c) **Monthly Stock Position**

S. No	Item	Opening Balance	Received	Total	Consum-ption	Balance	Require-ment
1	IFA large						
2	IFA small						
3	Vitamin A						
4	Cotrimoxozole						
5	ORS packets						
6	Methylergo-metrine						
7	Cholorophe-naramine						
8	Paracetemol						
9	Anti-spasmodic tablets						
10	Inj Methyler-gometrine						
11	Mebendezole						
12	Syringes and needles						
13	Vaccine day carrier						
14	Steriliser Autoclave						
15	Choloram-phemicol						

16 Centrimide powder						
17 Povidine ointment 5%						
18 Cotton bandage						
19 Contracep-tives						
i) Nirodh						
ii) Oral pills						
iii) IUDs						
20 Disposable Delivery Kit						
21 Chloroquine Tablets						

Note: Antibiotic list to be included along with any other drugs as per Government approval

d) **Vaccine Received from PHC**

S. No	Name of vaccine Weekly Session 1 Date/Dose	Vaccine Received for Weekly Session 2 Date/ Dose	Vaccine Received for Weekly Session 3 Date/ Dose	Vaccine Received for Weekly Session 4 Date/ Dose	Vaccine Received for Weekly	Vaccine Received	Total
1	DPT						
2	OPV						
3	DT						
4	TT						
5	BCG						
6	Measles						
7	Pentavalent						

7.2.9 Register for Recording Consultative Process

As an important member of the health team you have to conduct meetings with village working team constituted for each village and with other members of the group of that village. The details of the meetings are recorded of each meeting in the register. The following information needs to be entered:

Month/Year	Date & Time of holding the Meeting	Venue/Place	Members Attended	Items Discussed

7.2.10 Referral Register

The details of the referred cases should be entered in the register. This will also help to undertake follow-up of the referrals made.

Date	Name & Address	Age	Sex	Complaints	Reasons for Referral	Referred to	Follow-up Actions Taken
1	2	3	4	5	6	7	8

7.2.11 Live Birth Report

Serial No _____

Registration Unit/Village/Taluq/Tehsil/Block/Thana/District

Town/Municipality

1) Date of Birth:
2) Sex - Male/Female
3) Name of Child
4) Place of Birth
5) Permanent residential address
6) Father's
   i) Name
   ii) Literacy
   iii) Occupation
   iv) Religion
7) Mother's
   i) Name
   ii) Literacy
   iii) Occupation
   iv) Religion
8) Age of mother in completed years at confinement
9) Order of birth

   (Number of Live births including birth registered)

10) Type of attention at delivery

11) Informant's

i) Name

ii) Address

Date_____ Signature or thumb mark of the informant

7.2.12 Still Birth Report

Serial No _____

Registration Unit/Village/Taluq/Tehsil/Block/Thana/District

Town/Municipality _____

1) Date of Birth

2) Sex - Male/Female

3) Place of Birth*

4) Permanent residential address

5) Father's

i) Name

ii) Literacy

iii) Occupation

iv) Religion

6) Mother's

i) Name

ii) Literacy

iii) Occupation

iv) Religion

7) Age of mother in completed years at confinement

8) Type of attention at delivery+

9) Informant's

i) Name

ii) Address

Date_____ Signature or thumb mark of the informant

* If the delivery took place in the hospital or any other institution, write "hospital" or "institution" giving its name, otherwise give full address of the place of birth.

+ If the delivery was conducted in a hospital or maternity home, write the name of institution otherwise mention whether it was conducted by a qualified or unqualified midwife and give her name.

Note:

1) In the case of illegitimate birth the word "illegitimate" should be entered in the remarks column and no person's name should be entered as that of the father, unless there is a joint request of the mother and the person acknowledging himself to be the father of the child.

2) In the case of multiple births make separate entry for each and a reference in the remarks.

3) If the person is a non-worker insert the word "Nil" in the column for occupation.

7.2.13 Death Report

Serial No _____

Registration Unit/Village/Taluq/Tehsil/Block/Thana/District

Town/Municipality _____

1) Date of death
2) Full name of the deceased
3) Place of death
4) Name of trhe father/husband
5) Age
6) Sex - Male/Female
7) Marital Status
8) Occupation
9) Religion
10) Nationality
11) Permanent residential address+
12) Cause of death*
13) Whether medically certified (Yes/No)
14) Kind of medical attention received, if any
15) Informant's
    i) Name
    ii) Address

Date_____ Signature /thumb mark of the informant

+ The address of the parent, in the case of a child, husband/late husband in a case of married women/widow and deceased if independent, is to be given in this column.

* Whether the cause of death is medically certified the cause marked (-) in the medical certificate for No 8/8A is to be entered here.

Note:

1) If the deceased was over 1 year of age, give age in completed years. If the deceased was under 1 year of age give age in completed months and if below 1 month give age in completed number of days and if below one day in hours.

20 If the person is a non-worker insert the word "Nil" in the column for occupation.

7.2.14 Daily Diary

The daily diary is maintained by the Health Team Members in which the daily activities are performed in the field as well as the clinic with regard to immunisation, antenatal checkup and follow-up, distribution of contraceptives, follow-up of IUD and OP cases, identification of PID. RTI/STI cases, birth and death reported, malaria cases etc. The meetings conducted with the village working team and the group of village representatives should also be mentioned in the diary.

The daily diary will enable to update all the register to be maintained and will also be helpful in preparation of the monthly report. It is easy to carry one daily diary instead of all the registers when one goes on home visits/ meetings.

7.2.15 Monthly Report for Sub-Centre

General Information

1) State: _____

2) District: _____

3) PHC: _____

4) Sub-centre:_____

5) Population of PHC:_____

6) Population of sub-centre:_____

7) Reporting for the month of :_____

8) Eligible couples (as on 1st April of the year) : _____

S. No	Services	Performance in Corres-pondding Month of Last Year	Perfor-mance in the Repor-ting Month	Cumulative Performance till Correspon-ding Month of Last Year	Cumulative Performance till Current Month	Planned Perfor-mance in Current Month
1	**Antenatal Care**					
1.1	Antenatal Cases registered a) Total b) < 12 weeks					

1.2	No. of pregnant women who had 3 check-ups					
1.3	Total no. of high risk pregnant women referred					
1.4	No of TT Doses i) TT 1 ii) TT 2 iii) Booster					
1.5	No. of pregnant women under treatment for anaemia					
1.6	No. of pregnant women given prophylaxis for anaemia					
2	**Natal Care**					
2.1	Total No. of deliveries					
2.2	Home Deliveries a) (i) by ANM (ii)by LHV b) by TBA c) Untrained Birth Attendant					
2.3	Deliveries at sub-centre					
2.4	Complicated Deliveries referred to PHC/FRU					
3	Maternal Deaths					
3.1	During pregnancy					
3.2	During delivery					
3.3	Within 5 weeks of delivery					
4	**Postnatal Care**					
4.1	No of women given 3 post natal check-ups					

4.2	Complications referred to PHC/ FRU										
5	**RTI/STI**										
5.1	Cases a) Detected b) Treated c) Referred										
6	**Pregnancy Outcome**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
6.1	a) Live births b) Still births										
6.2	Order of Birth in 3 (a) a) 1st b) 2nd c) 3rd										
6.3	Newborn status at birth a) less than 2.5 kg b) 2.5 kg or more c) No. of high risk newborns referred to PHC/FRU										
7	**Immunisation**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
7.1	Infant 0-1 year BCG DPT 1 DPT 2 DPT 3? OPV 0 OPV 1 OPV 2 OPV 3 Measles										
7.2	Children more than 18 months DPT Booster OPV Booster										

7.3	Children more than 5 years DT										
7.4	Children more than 10 years TT										
7.5	Children more than 16 years TT										
7.6	Adverse reaction reported after immunisation										
8	**Vitamin A administration (9 months to 3 years)** Dose 1 Dose 2 Dose 3–5	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
9	**Childhood Diseases**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
9.1	Vaccine preventable diseases a) Diphtheria i) Cases detected ii) Treated iii) Referred iv) Deaths b) Poliomyelitis (AFP) i) Cases detected ii) Treated iii) Referred iv) Deaths										
9.2	c) Neonatal Tetanus i) Cases detected ii) Treated iii) Referred iv) Deaths d) Measles i) Cases detected ii) Treated iii) Referred iv) Deaths										

9.3	ARI under 5 years (Pneumonia) a) Treated with Cotrimoxozole b) Referred to PHC/FRU c) Deaths										
9.4	Acute Diarrhoeal Diseases under 5 years a) Treated with ORS b) Referred to PHC/ FRU c) Deaths										
10	**Child Deaths** a) Within 1 week b) 1 week - 1 month c) 1 month - 1 year d) 1 year - 5 years	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
11.	**Contraceptive Services**										
11.1	Eligible couples contacted										
11.2	Male sterilisation a) Total no. of cases motivated b) No. of cases followed up										
11.3	Female sterilisation a) Total no. of cases motivated b) No. of cases followed up										
11.4	Total IUD insertion a) Cases followed up b) Complication c) Discontinued i) Removed ii) Expelled										
11.5	Total Oral Pill Users a) Old users										

	b) New users c) Complications d) Discontinued										
11.6	Total Condom users										
12	**Abortions** a) No. of women referred for MTP b) No. of MTP done c) Cases followed up d) Deaths										

7.3 DATA SOURCE, COLLECTION AND ENTRY, COLLECTION, ANALYSIS AND REPORTING

7.3.1 Concept of Data

Data consists of observation of attributes or events that carry little meaning when considered alone, data as collected are inadequate for planning. Data need to be transformed into information by reducing them, summarising them and adjusting them for variation so that comparisons over time and place are possible. Data not transformed into information is of little value to guide decision makers, policy makers, planners, administrators and health care personnel.

7.3.2 Components of Health Information System (HIS)

A comprehensive health information system requires information and indicators on the following subjects:

a) demography and vital events

b) environmental health statistics

c) health status: mortality, morbidity, disability and quality of life.

d) health resources: facilities, beds, manpower.

e) utilisation and non-utilisation of health services: attendance, admission and waiting lists.

f) indices of outcome of medical care.

g) financial statistics (cost, expenditure) related to the particular objective,

7.3.3 Uses of Health Information

- to measure the health status of the people and to quantify their health problems and medical and health care needs.
- for local, national and international comparisons of health status.
- for planning, administration and effective management of health services and programmes.

- for assessing whether health services are accomplishing their objectives in terms of their effectiveness and efficiency.
- for assessing the attitudes and degrees of satisfaction of the beneficiaries with the health system.
- for research into particular problems of health and disease.

7.3.4 Sources of Health Information Data

- Census
- Registration of vital events
- Sample Registration System
- Notification of diseases
- Hospital records
- Disease registers
- Record linkage
- Epidemiological surveillance
- Other health service records
- Environmental health data
- Health manpower statistics
- Population surveys
- Other routine surveys related to health
- Non-quantifiable information

7.3.5 Community Health Assessments

Typically use both primary and secondary data to characterise the health of the community:

- **Primary data** are collected first-hand through surveys, listening sessions, interviews, and observations
- **Secondary data** are collected by another entity or for another purpose
- **Indicators** are secondary data that have been analysed and can be used to compare rates or trends of priority community health outcomes and determinants

Community health assessment indicators should be

- Methodologically sound (valid, reliable, and collected over time)
- Feasible (available or collectable)
- Meaningful (relevant, actionable, and ideally, linked to evidence-based interventions)
- Important (linked to significant disease burden or disparity in the target community)

Please refer Course 3, Block 1, Unit 1 for more details on Community need assessment.

Data and indicator analyses provide descriptive information on demographic and socioeconomic characteristics; they can be used to monitor progress and determine whether actions have the desired effect. They also characterise important parts of health status and health determinants, such as behaviour, social and physical environments, and healthcare use.

7.3.6 Analysis and Reporting

Data obtained is subsequently classified, analysed and tested for accuracy by statistical methods. Statistical data once collected, must be arranged purposively in order to bring out important points clearly and strikingly. The data can be presented in the form of tables, charts, diagrams, graphs, pictures and special curves.

a) **Tables :** Tables are devices for presenting data simply from masses of statistical data.

   Tabulation is the first step before the data is used for analysis or interpretation.

   The general principles of tables are to be applied while preparing.

   - should be numbered
   - title must be given (brief and self-explanatory)
   - heading of columns/row should be clear and concise
   - data to be presented as per size/importance, chronologically, alphabetically/geographically.
   - to present % average place them as close as possible
   - table should not be large.
   - may be presented in vertical or horizontal arrangement.
   - footnotes may be given.
   - Tables cane be simple table or frequency distribution table.

b) **Charts and Diagrams:** They are useful method of presenting simple statistical data which have a powerful impact. Key points to be remembered are they have to be kept simple to avoid misinterpretation. Accuracy and details must be kept in mind. They can be presented as bar charts (simple bar chart, multiple bar chart & component bar chart), histogram, line diagram, pictogram (representing data in the form of pictures).

7.4 USE OF HMIS AND MCTS DATA FOR PUBLIC HEALTH ACTION

You have read in theory Course 1, Block 5 Unit 4 about Health Management Information System in details. Here we will discuss HMIS and The Mother and Child Tracking System (MCTS) for public health action.

7.4.1 Health Management Information System (HMIS)

A Health Management Information System (HMIS) is a process whereby health data (input) are recorded, stored, retrieved and processed for decision-making (output). Decision making broadly includes managerial aspects such as planning,

organising and control of health care facilities at the national, state and institution levels. As per WHO guidelines evaluation of HMIS is to be done in the areas of data generation and report compilation, data utilisation, details about computer hardware and software, training and monitoring.

HMIS is primarily concerned with health care delivery issues like - antenatal care, immunisation, disease control programmes and administrative issues like reporting, inventory management, financial management, and vehicle and personnel management issues.

A computerised management information system can

- help improve the health system;
- aid the workers in providing services, data collection, storage, analysis and dissemination of information. The HMIS has undergone three generation evolution over the years reflecting the advancement in information technology as well as changing perceptions of the users of HMIS.

Output of the HMIS : Output of HIMS are:

- Work plan generated each month after the data has been updated. The work plan lists the monthly activities by house and contains updated information about all the individuals including the under-five children, pregnant women, eligible couples, and geriatric age-group in the house.
- It also serves as a tool for monitoring of the workers by the medical officer and the supervisors.
- Other outputs include monthly reports, lists for immunisation and contraceptive services, and performance indicators of workers, sub-centers and PHCs.
- Annual performance review of each worker is done based on the indicators generated from the HMIS.

Purpose of HMIS

- to support health workers in delivering health care services to the population.
- to support programme managers in monitoring and supervision of the workers. The costs were classified into two broad categories:

1) Capital cost -
    - Consists of those items which have a life of more than one year and represent an initial investment.
    - Training cost and software development was treated as a capital cost with life of ten years.
    - Data transfer was also considered as a one-time investment with a life of 20 years.
    - Space is available at the health care centres.
    - It is then converted to equivalent annual costs based on their useful life years and a discount rate of 5%.

2) Recurrent costs (consumables & salaries) -

- Include those items that have less than one year of life and largely consisted of human resource cost and cost of consumables like paper, cartridges, electricity etc.
- Minimum of two set of computers and printers required to house the database and facilitate easy working.
- The time required for training and database transfer needs to be kept in mind.
- The time spent by workers in planning their work, record keeping, report preparation at sub-center level, compilation at PHC level as well as review by medical officer should be considered.
- The costs of maintenance, stationery, electricity.
- The cost of time spent by all human resources was estimated based on their current salary structure under GOI.

7.4.2 Mother and Child Tracking System (MCTS)

The Mother and Child Tracking System is a beneficiary-specific database for MCH services delivered through the Indian public health system. It was launched in 2009 as part of a global trend towards harnessing e-health innovations in improving service delivery, and India's existing HMIS was not meeting the service delivery needs of FHWs. It has "objectives, scopes, and implementation timelines and milestones, as well as measurable outcomes and service levels". It is designed to capture and track all pregnant women (from conception up to 42 days post-partum) and all newborn children (up to 5 years of age).

Objectives:

Its objectives are to ensure that:

- all pregnant women receive their full Antenatal Care (ANC) and Postnatal Care (PNC) services at the due times;
- institutional deliveries for pregnant women, particularly for high risk mothers, are encouraged; and
- all children receive the full immunisation schedule at the due times.

Workplan

- Beneficiary and service delivery data are written by FHWs on registers and formats and then transferred to the nearest PHC for entry into the MCTS portal by DEOs.
- All health facilities, from the State to the most peripheral HSCs, are mapped in the portal, which also maps FHWs to specific HSCs.
- The data enables the MCTS to generate work plans for FHWs, detailing forthcoming service delivery needs, such as antenatal check-ups or immunisation sessions, on a per-beneficiary basis.
- Supervisory officials can also generate reports from the MCTS web portal that indicate MCTS performance (beneficiary registration rates) or service delivery performance (e.g. % of children fully immunised).
- Success of the MCTS as a data system relies heavily on processes and practices at the village/ HSC level.

- The field-level data collection, consolidation and transfer activities ultimately determine MCTS data quality.
- Low data completeness rates leads to poor performance numbers.
- Reason for incomplete MCTS portal data is the incompleteness of the primary data source.
- There was an absence of standardisation in the data tools, and data processes
- The MCTS has developed an inbuilt mechanism for generating a due list of beneficiaries before each immunisation session. MCTS training among service delivery, supervisory and data entry staff was inconsistent.

Challenges:

- Irregular electricity supply, inconsistent internet connectivity and the slow speed of the MCTS web portal were some of the challenges faced by block-level facilities, which act as the primary MCTS data entry points.
- Hurdles to implementation include -
  - clearly define Standardised data tools and processes.
  - standardise registers and formats to meet the needs of the MCTS portal and the service delivery needs of FHWs.
  - clearly defined standardised data processes and guidelines for staff at the most peripheral levels of the health system.
  - guidelines should clearly lay out a plan for data collection, consolidation, and transfer to the data entry point, with stipulated timelines.

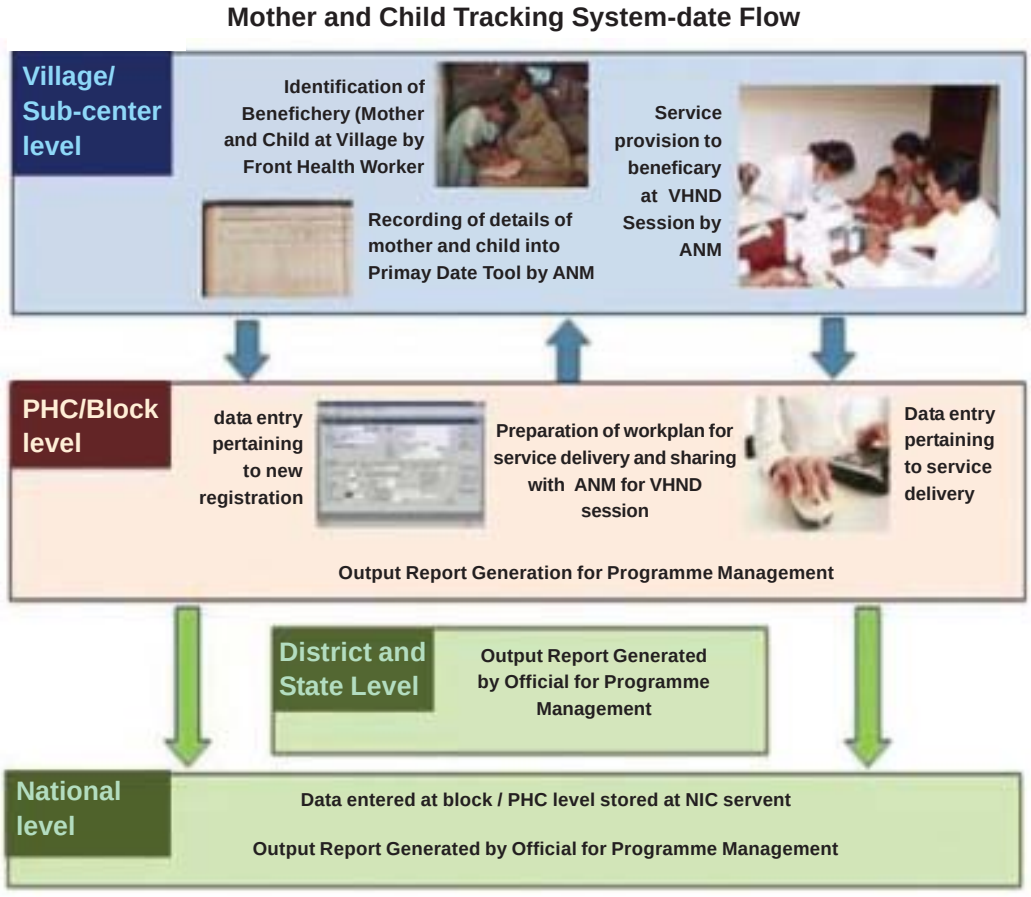


Fig. 7.1: Mother and child tracking system: data flow

7.4.3 Nursing Technology and Information System

Information system in nursing technology are the practical realities of how professions change and how to support innovation in practice. Issues for nursing information are ownership and accessibility.

Nursing in yesteryears :

- Traditionally the nursing professions was perceived to be data gatherers rather than data users.
- The traditional training of nurses did not prepare the profession well for data analysis and using quantitative methods to present the case for change.
- Decision making was characterised by professional judgement based on observation with the reporting systems based on the traditional nursing hierarchy.
- The lack of supporting quantifiable data and nursing view not supported led to frustration, as the nursing view often reflected the complex realities of health care.
- Nursing information includes data collected by nurses; data used by nurses; data about nursing activity; and data about the nursing resource.
- Patients, nurses, midwives and health visitors can benefit from it but there are challenges ahead.

Nursing now and in future:

- Computer technology is a reality of our modern world.
- It gives us a tool which can be used to help us cope with the complexity and efficiency which is often required in many areas of work.
- The use of the computer frees the person from the drudgery of repetitive labour to allow more time and effort to be available for the more personal skills to find expression.
- It has now been recognised the need for nurses to develop skills in handling information; deciding what information they need to collect to do their jobs; how to analyse it, present written reports well supported by both quantifiable and qualitative data.
- Recording assessment data using a computer keyboard allows just as much caring communication between nurse and clients as writing it down on a form.
- The critical factor is not the method of recording but the interpersonal skills and motivation of the nurse.
- The nursing profession is at last beginning to appreciate the role which the new technology can have in improving the service provided to patients.
- Implementation of computers to clinical practice will help nurses maintain control of their own professional contribution in health care settings.
- Knowledge based systems are set to become a major component in the nurse's ability to take on this role.

7.5 GENERAL REPORT WRITING SKILLS FOR FACILITY RELATED FORMATS INCLUDING COMMON LIST OF HOUSEHOLDS, REPORTS, FORMATS TO HIGHER FACILITIES, REGISTERS

It is very important that a good report be written and presented with the data collected, tabulated and analysed. The steps of writing a good report are:

- Plan - write down purpose, headings, introduction and need. It saves time.
- Write first draft
- Write a summary
- Edit - editing several times, the report gets better. Prune sentences to 15–10 words on average, link them with sentence connectors, punctuate properly, use everyday vocabulary, avoiding or explaining any social care jargon

Check for errors, seek second opinion from colleague and ask if the report makes any sense for the purpose it is prepared.

- Avoid irrelevant, inappropriate information, meaningless phrases and illogical conclusions.
- Training is the key to producing good reports.
- Poor language skills can affect the quality of reports.
- Need to be able to write reports that can be taken seriously in court.
- Take care of spelling, as they can be atrocious when spelt wrongly.
- Learn the art of critical analysis.
- Take time to write good quality reports.
- More critical judgement is needed.
- Maximise professional opinions and observations.
- Place the report in an appropriate environment for logical use.

7.6 LET US SUM UP

It is very important that the Community Health Nurse and her team understands the importance of record writing and reporting. A well maintained record and report written as per the guidelines and principles will help one and all in proper decision making for the clients under their care.

7.8 KEY WORDS

ANC : Antenatal Care

ANM : Auxillary Nurse Midwife

ARI : Acute Respiratory Infection

AW : Anganwadi

AWW : Anganwadi Worker

BCG	**:**	Bacilli, Calmette and Guerin
B P L	**:**	Below Poverty Line
CHC	**:**	Community Health Centre
DEO	**:**	Data Entry operator
DD Kits	**:**	Disposable Delivery Kits
DT	**:**	Diphtheria, Tetanus
DPT	**:**	Diphtheria, Pertussis and Tetanus
DPTB	**:**	Diphtheria, Pertussis
EC	**:**	Eligible Couple
EDD	**:**	Expected Date of Delivery
FHW	**:**	Female Health Worker
FRU	**:**	First Referral Unit
GOI	**:**	Government of India
HIS	**:**	Health Information System
HMIS	**:**	Health Management Information System
HoF	**:**	Head of Family
HSC	**:**	Health Sub-centre
HT	**:**	Hypertension
IFA	**:**	Iron and Folic Acid
LHV	**:**	Lady Health Visitor
LMP	**:**	Last Menstrual Period
MCTS	**:**	Mother and Child Tracking System
MSS	**:**	Mahila Swasthya Sangh
MTP	**:**	Medical Termination of Pregnancy
RTI	**:**	Reproductive Tract Infection
STI	**:**	Sexually transmitted Infection
IUD	**:**	Intra Uterine Device
OP	**:**	Oral Pills
OPV	**:**	Oral Polio Vaccine
PHC	**:**	Primary Health Centre
PID	**:**	Pelvic Inflammatory Disease
PNC	**:**	Postnatal Care
RMP	**:**	Registered Medical Practitioner
TBA	**:**	Trained Birth Attendant
TT	**:**	Tetanus Toxoid
WHO	**:**	World Health Organization

7.8 ACTIVITY

On the Visit to Health Centre

1) Prepare a village map of the health centre you have visited.
2) Fill a sample stock register of the centre for the month you have visited.
3) Go for home visiting and prepare full family folder of that family.
4) Identify the health needs of the family priority wise.
5) Prepare a monthly report of the health centre and send it to the next authority.
6) Prepare the weekly report of your health centre.
7) Prepare a weekly work plan of the health centre.

7.9 REFERENCES

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Certificate in Community Health for Nurses (BPCCHN)
Practical Course

BNS-043 : Public Health and Primary Health Care Skills (10 Credits)

Block – 1 : Public Health Skills

Unit 1 : Community Need Assessment and Identification of Common Health Problems
Unit 2 : Nutritional Assessment
Unit 3 : Investigation of an Outbreak
Unit 4 : Organizing and Conducting Special Clinics
Unit 5 : Social Mobilisation Skills
Unit 6 : Health Education and Counseling
Unit 7 : Report Writing and IT Skills including Interpretation and Use of Data

Block- 2 : General Skills and Laboratory Skills

Unit 1 : Universal Precautions and Bio Medical Waste Management
Unit 2 : Procedures for Basic Tests
Unit 3 : Common Blood Tests and Preparation of Peripheral Smear
Unit 4 : Examination of Swelling, Lumps and Joints
Unit 5 : Eye and ENT Examination
Unit 6 : Screening and Management of Common Dental Conditions
Unit 7 : Suturing of Superficial Wounds
Unit 8 : Drugs Dispensing and Injections

Block – 3 : Skills for Management of Common Conditions and Emergencies

Unit 1 : Basic Life Support (BLS)
Unit 2 : Assessment and Management of Fevers
Unit 3 : Management of Common Aches and Pains
Unit 4 : First Aid Techniques and Stabilization Care in Common Emergencies – 1
Unit 5 : First Aid Techniques and Stabilization Care in Common Emergencies – 2
Unit 6 : Geriatric and Palliative Care

Block – 4 : Maternal Health Skills

Unit 1 : Assessment of Health Status of Women
Unit 2 : Ante Natal, Intra Natal, Post Natal Examination and Care
Unit 3 : Organising Labor Room
Unit 4 : Conducting Normal Delivery and Partograph
Unit 5 : Identification, Care and Referral of Complications during Labour
Unit 6 : Post Natal Examinations and Care
Unit 7 : Emergency and Injectable Contraceptives and Follow-up Care

Block 5 : Reproductive and Adolescent Health Skills

Unit 1 : Assessment and Management of STIs and RTIs
Unit 2 : Insertion and Removal of IUCDs
Unit 3 : Management of Abortion and Counselling
Unit 4 : Adolescent Counselling

Block 6 : Newborn and Child Health Skills

Unit 1 : Newborn Resuscitation
Unit 2 : Assessment of Newborn
Unit 3 : Kangaroo Mother Care
Unit 4 : Infant and Young Child Feeding and Counseling
Unit 5 : Promoting and Monitoring Growth and Development and Plotting of Growth Chart
Unit 6 : Immunisation and Safe Injection Practices
Unit 7 : Use of Equipments