

# Community Medicine

## 1. GOAL

The broad goal of the teaching of undergraduate students in Community Medicine is to prepare them to function as community and first level physicians in accordance with the institutional goals.

## 2. OBJECTIVES

### 2.1. Knowledge

At the end of the course, the student should be able to :-

2.1.1. Describe the health care delivery system including rehabilitation of the disabled in the country;

2.1.2. Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control.

2.1.3. List epidemiological methods and describe their application to communicable and non-communicable diseases in the community or hospital situation.

2.1.4. Apply bio statistical methods and techniques;

2.1.5. Outline the demographic pattern of the country and appreciate the roles of the individual, family, community and socio-cultural milieu in health and disease.

2.1.6. Describe the health information systems.

2.1.7. Enunciate the principles and components of primary health care and the national health policies to achieve the goal of 'Health for All'.

2.1.8. Identify the environmental and occupational hazards and their control.

2.1.9. Describe the importance of water and sanitation in human health.

2.1.10. To understand the principles of health economics, health administration, health education in relation to community.

### 2.2. Skills

At the end of the course, the student should be able to:-

2.2.1. Use epidemiology as a scientific tool to make rational decisions relevant to community and individual patient intervention.

2.2.2. Collect, analyze, interpret and present simple community and hospital based data. 2.2.3. Diagnose and manage common health problems and emergencies at the individual, family and community levels keeping in mind the existing health care resources and in the context of the prevailing socio-cultural beliefs.

2.2.4. Diagnose and manage maternal and child health problems and advise a couple and the community on the family planning methods available in the context of the national priorities.

2.2.5. Diagnose and manage common nutritional problems at the individual and community level.

2.2.6. Plan, implement and evaluate a health education programme with the skill to use simple audio-visual aids.

2.2.7. Interact with other members of the health care team and participate in the organization of health care services and implementations of national health programmes.

**2.3. Integration** Develop capabilities of synthesis between cause of illness in the environment or community and individual health and respond with leadership qualities to institute remedial measures for this.

### **3. DEPARTMENT OBJECTIVES**

Aim of teaching by the department is directed towards achievement of the goal of "Health for All" and millennium development towards this end, by the completion of his training, the M.B.B.S. student should be:

1. Aware of the physical, social, psychological, economic and environment aspect of health and disease.

2. Able to apply the clinical skills to recognize and manage common health problems including their physical, emotional and social aspects at the individual and family levels and deal with medical emergencies at the community level.

3. Able to define and manage the health problems of the community he / she serves. To achieve this, he / she shall learn to:

3.1. Organize elementary epidemiological studies to assess the health problems in the area. For this he should be able to design a study, collect data, analyze it with statistical tests, make a report and be able to participate in a health information system.

3.2. Prioritize the most important problems and help formulate a plan of action to manage them under National Health Programme guidelines including population control and family

welfare programme. He should be able to assess and allocate resources, implement and evaluate the programmes.

3.3. Demonstrate knowledge of principles of organising prevention and control of communicable and non-communicable diseases.

3.4. Organize health care services for special groups like mothers, infants, under-five children and school children.

3.5. Organize health care in case of calamities.

4. Able to work as an effective member of the health team.

5. Able to coordinate with and supervise other members of the health team and maintain liaison with other agencies.

6. Able to plan and implement health education programmes.

7. Able to perform administrative functions of health centres.

8. Able to promote community participation especially in areas of disease control, health education and implementation of national programmes.

9. Aware of the national priorities and the goals to be achieved to implement comprehensive health care.

## **4. SYLLABUS**

### **4.1. Theory**

#### **4.1.1. Concepts in Health**

Definition of health; appreciation of health as a relative concept; determinants of health - Characteristics of agent, host and environmental factors in health and disease and the multifactorial aetiology of disease - Various levels of prevention with appropriate examples - Indices used in measurement of health - Health situation in India: demography, mortality and morbidity profile and the existing facilities in health services - Difficulties in measurement of health - Millennium development Goals - Concept of rural and urban health care.

#### **4.1.2. Epidemiology**

Use of basic epidemiological tools to make a community diagnosis of the health situation in order to formulate appropriate intervention measures - Epidemiology : definition, concept and role in health and disease - Definition of the terms used in describing disease, transmission and control - Natural history of disease and its application in planning intervention - Modes of transmission and measures for prevention and control of

communicable and non-communicable disease - Principal sources of epidemiological data- Definition, calculation and interpretation of the measures of frequency of diseases and mortality - Need and uses of screening tests - Accuracy and clinical value of diagnostic and screening tests (sensitivity, specificity, predictive values) - Planning, collecting, analyzing and interpreting data to reach a community diagnosis. Planning an intervention programme with community participation based on the community diagnosis - Epidemiology of communicable and non-communicable diseases of public health importance and their control - Epidemiological basis of national health programmes - Awareness of programmes for control of non-communicable diseases : Planning and investigation of an epidemic of a communicable disease in a community setting; Institution of control measures and evaluation of the effectiveness of these measures - Various types of epidemiological study designs - Application of computers and internet in epidemiology

#### **4.1.3. Biostatistics**

The scope and uses of biostatistics; Collection, classification and presentation of statistical data; Analysis and interpretation of data - Obtaining information, computing indices (rates and ratio) and making comparisons - Apply statistical methods in designing of studies: Measures of central tendency and measures of deviations ; Applying test of significance normal distribution for means and proportional; Interpretation of statistical tables - Common sampling techniques, simple statistical methods for the analysis, interpretation and presentation of data, frequency distribution, measures of central tendency, measures of variability.

#### **4.1.4. Entomology**

Role of vectors in the causation of diseases - Identifying features of and mode of transmission of vector borne diseases - Methods of vector control with advantages and limitations of each -Mode of action, dose and application cycle of community used insecticides - Life cycle of insects of medical importance

#### **4.1.5. Environmental Sanitation**

Concept of safe and wholesome water; Requirement of sanitary sources of water; Methods of purification of water with stress on chlorination of water-large scale and small scale purification -Physical, chemical standards; tests for assessing quality of water -Disposal of solid waste and liquid waste both in the context of urban and rural conditions in the country - Problems in the disposal of solid waste and liquid waste both in the context of urban and rural conditions in the country - Concepts of safe disposal of human and animal excreta - Sources, health hazards and control of environmental pollution; Influence of physical factors - like heat, humidity, cold, radiation and noise on the health of the individual and community; Standards of housing and the effect of poor housing on health ; Global warming

#### **4.1.6. Nutrition**

Common sources of various nutrients and special nutritional requirement according to age, sex, activity, physiological condition - Nutritional assessment of individual, family and the

community by selecting and using appropriate methods such as : anthropometry, clinical, dietary, laboratory techniques - Compare recommended allowances of individuals and families with actual intake - Plan and recommend a suitable diet for the individuals and families bearing in mind local availability of foods, economic status etc. - Common nutritional disorders : Protein energy malnutrition, Vit.A.def., anaemia, iodine deficiency disease, fluorosis, food toxins diseases and their control and management - Nutritional Indices of management - National programmes in nutrition.

#### **4.1.7. Genetics and Community Health**

Basic principles of genetics - Chromosomal disorders - Genetic predisposition in common disorders - Advances in molecular genetics, briefly about stem cells therapy - Preventive and social measures - Eugenics & Euthenics, genetic counseling - Early diagnosis, treatment and rehabilitation - Principles of Nano technology and Nano medicine.

#### **4.1.8. Sociology and Community Health**

Conduction of a clinic; social evaluation of the individual in relation to social, economic and cultural aspects ; educational and residential background; attitude to health, disease and to health services; the individual's family and community - Assessment of barriers to good health, to recovery from sickness and to leading a socially and economically productive life - Development of a good doctor and patient relationship - Identification of social factors related to health and disease in the context of urban and rural societies - Impact of urbanisation on health and disease - Role of family in health and disease.

#### **4.1.9. Health Education**

Effective communication with individuals, family and community using tools and techniques of information, education and communication: Barriers to effective communication; Principles, methods and evaluation of health education ; Methods of health education and their advantages and disadvantages ; Selection and use of appropriate media (simple audio-visual aids) for effective health education - Use of opportunities for health education of the individual, family and the community.

#### **4.1.10. Epidemiology of Specific Diseases**

The specific objectives of selected communicable diseases of public health importance for which National Disease Control/Eradication Programmes have been formulated are described here. For other diseases, the individual teacher would formulate the objectives while drawing the lesson plans. The idea of formulating objectives for a few diseases is to highlight their importance and to emphasize certain learning outcomes. Poliomyelitis, Infective hepatitis, ARI, Tuberculosis, Leprosy, Malaria, Measles, Dengue, Chikungunya, filariasis, Kala Azar, STDs & HIV - AIDS, Diarrhoeal diseases, Hypertension, coronary heart disease, Blindness, Mental Health, cancers.

- 1.Extent of the problem, epidemiology and natural history of the disease.
- 2.Relative public health importance of a particular disease in a given area.

3. Influence of social, cultural and ecological factors on the epidemiology of the disease.
4. Control of communicable and non-communicable disease.
  - 4.1. Diagnosing and treating a case and in doing so demonstrate skills in Clinical methods, Use of essential laboratory techniques, Selection of appropriate treatment regimes, Follow - up of cases.
  - 4.2. Principles of planning, implementing and evaluating control measures for the diseases at the community level bearing in mind the relative importance of the disease.
5. Emerging and Re-emerging diseases. Its epidemiology and control.
6. Institution of programmes for the education of individuals and communities.
7. Investigating a disease epidemic.
8. Principles of measures to control a disease epidemic.
9. Level of awareness of causation and prevention of disease amongst individuals and communities.
10. Control of communicable and non-communicable diseases by diagnosing and treating a case and in doing so demonstrate skills in:
  - i. Instituting measures, wherever necessary, for preventing disabilities / deformities.
  - ii. Rehabilitation of the patient.
11. Training of health workers in (i) disease surveillance, (ii) control and treatment, (iii) health education.
12. Managerial skills in the areas of (i) supervision, (ii) collection and compilation of data (iii) maintenance of records, (iv) transmission of data.

#### **4.1.11. Demography & Family Planning**

Definition of demography and family welfare programme - Stages of the demographic cycle and their impact on the population - Definition, calculation and interpretation of demographic control measures and evaluation of the effectiveness of these measures - Various types of epidemiological study designs - Application of computers and internet in epidemiology - Indices like birth rate, death rate, growth rate, fertility rates - Reasons for rapid population growth in India, high birth rate and low birth rate states - Need for population control measures and the National Population Policy 2000 - Different family planning methods and their advantages and shortcomings. Recent advances in contraception - Motivating a couple to select the appropriate family planning method - Medical Termination of Pregnancy Act. - Guidance for MTP and infertility services - National Family Welfare Programme

#### **4.1.12. Maternal and Child Health (MCH)**

Need for specialized services for these groups - Magnitude of morbidity and mortality in these groups in a given area - Local customs and practices during pregnancy, child birth and lactation - Concepts of 'high risk' and 'MCH Package', Child survival and Safe Motherhood,

Integrated Child Development Scheme and other existing regional programme, NRHM - Under - 5: Morbidity, mortality, high risk and care - Monitoring of growth and development and use of Road to Health Chart - Organization, implementation and evaluation of programmes for mothers and children as per National Programme guidelines; supervising health personnel; maintaining records; performing a nutritional assessment; promoting breast feeding, exclusive breast feeding. Babies friendly hospital.

#### **4.1.13. School Health**

Objectives of the School Health Programme - Activities of the Programme like: Carrying out periodic medical examination of the children and the teachers; Immunization of the children in the school; Health education; Mid-day meals - Participation of the teachers in the school health programme including maintenance of records; defining healthful practices; early detection of abnormalities.

#### **4.1.14. Community Geriatrics**

Common diseases of the elderly - Prevention of degenerative diseases: role of exercise, nutrition, life style, etc. - Osteoporosis and arthroses: effects of immobility; prevention of contractures and bed sores - Economic and psychosocial needs of the aged - Care of elderly in organized and unorganized sectors - Role of Health Visitor and Social Worker - Social problems in the elderly - Joint family; Day care center and Day Hospital; home for the aged - Care giver.

#### **4.1.15. Urban Health**

Common health problems (Medical, Social, Environmental, Economic, Psychological ) of urban dwellers - Organization of health services for slum dwellers - Organization of health services in urban areas.

#### **4.1.16. Mental Health**

Importance of Mental Health - Types of mental illness and causes - Preventive aspects - Mental Health Services - Alcoholism, drug dependence - Epidemiological factors and prevention.

#### **4.1.17. Health Planning and Management**

Explain the terms: public health, public health administration, regionalization, comprehensive medical care, delivery of health care, planning, management, evaluation - Salient features of the National Health Policy: provision of medical care; primary health care and Health for All; health manpower development; planned development of health care facilities; encouragement of indigenous systems of medicine; recommendations of Health committees - Process of health care delivery in India : the health systems and health infrastructure at centre, state and district levels; the inter-relationship between community development block and primary health

centre; the organisation, functions and staffing pattern of community health centres, primary health centres and sub-center; the job descriptions of health supervisor (male and female),

health workers, village health guide, anganwadi workers, traditional birth attendants; the activities of the health team at the primary health centre- Management techniques : define and explain principles of management; explain the three broad functions of management (planning, implementation and evaluation) and how they relate to each other - Appreciate the need for International Health Regulations and Disease surveillance - Constitutional provisions for health in India: Enumerate the three major divisions of responsibilities and functions (concerning health) of the union and the state governments - Appreciate the role of national and international voluntary agencies in health care delivery - Explain the terms : cost; effectiveness, cost; benefit.

#### **4.1.18. Occupational Health**

Relate the history of symptoms with the specific occupation including agriculture - Employees State insurance Scheme - Identification of the physical, chemical and biological hazards to which workers are exposed while working in a specific occupational environment - Diagnostic criteria of various occupational diseases -Preventive measures against these diseases including accident prevention - Various legislations in relation to occupational health, factories Act, 1948

#### **4.1.19. Hospital Waste Management**

Services and types of Hospital wastes - Hospital waste management, Principles and guidelines - Recent advances

### **4.2. SKILLS**

#### **4.2.1. Part - I: General Skills**

**The student should be able to:**

- 1.Elicit the clinico - social history to describe the agent, host and environmental factors that determine and influence health.
- 2.Recognize and assist in management of common health problems of the community.
- 3.Apply elementary principles of epidemiology in carrying out simple epidemiological studies in the community.
- 4.Work as a team member in rendering health care.
- 5.Carry out health education effectively for the community.

#### **4.2.2. Part - II: Skills in Relation to Specific Topics**

**1.Communication** The student should be able to communicate effectively with family members at home ; patients at clinics or at homes; individuals, family or a group for health education ; peers at scientific forums.

**2.Team activity** Work as a member of the health team in planning and carrying out field work like school health.

**3.Environmental sanitation** Collect water samples for microbiological evaluation; chlorination of water; estimate the chlorine demand of water; estimate the residual chlorine of water; insecticides; their proper storage and use in control of vectors.

#### **4. Communicable and Non-Communicable Diseases**

4.1. Eliciting clinico-social history and examining the patient for diagnosis and treatment.

4.2. Collection of appropriate material for microbiological, patho-logical or biochemical tests.

4.3. Fixing, staining and examining smears -peripheral blood smear for malaria and filariasis, sputum for AFB; slit skin smears for lep-rosy; Hb estimation; urine and stool examination.

4.4. Assessing the severity and / or classifying dehydration in diar-rhea upper respiratory tract infection, dog bite, leprosy .

4.5. Adequate and appropriate treatment and follow-up of lep-rosy, malaria, filariasis rabies, upper respiratory tract infections, diarrhea and dehydration

4.6. Advice on the prevention and prophylaxis of common diseases like vaccine preventable diseases, tetanus, malaria, filariasis, ra-bies, cholera, typhoid, intestinal parasites.

4.7. Use of proper screening methods in early diagnosis of com-mon diseases.

4.8. Take necessary steps in / disease outbreak / epidemics / natu-ral disasters - Investigation of epidemic, food poisoning; notifica-tion; organizing medical care following disasters.

#### **4.2.3. Maternal and Child Health**

1.Antenatal - examination of the mother; application of the risk approach in antenatal care.

2.Intranatal -conducting a normal delivery; early recognition of danger in intranatal period; referral of cases requiring special care.

3.Postnatal - assessment of the mother and new born advice on appropriate family planning method; promotion of breast feeding; advice on weaning.

4.Assessment of growth and development of the child use of the 'road to health ' card ; recording important anthropometric assess-ments of the child; giving immunisation to the child; identifying high risk infants.

#### **4.2.4. Statistics**

Compute Mean, Median, Mode, Variance, and Standard De- viation - Make proper sample - Apply appropriate tests of signifi- cance to make correct inference - Simple analysis and presenta- tion of data.

#### **4.2.5. Nutrition**

Conducting a diet survey - Identify nutritional dietary samples and their specific nutritional content - Community survey and clinical diagnosis of nutritional deficiencies; vitamin A deficiency, iodine deficiency, malnutrition - Making recommendations regarding diet.

#### **4.2.6. Entomology**

Identification of Disease causing vectors and insects and their differentiation of species

#### **4.2.7. Occupational Health**

Inspection of work sites - Recommendation in improving work sites - Medical examination of workers

#### **4.2.8. Health care of the community**

Ensuring community participation in health care - Arranging inter sectorial coordination where necessary - Working in liaison with other agencies involved in health care in various National Health Programmes.

#### **4.2.9. Health Management**

Be an effective team leader - Guide and train workers -Supervision of workers and programmes

#### **4.2.10. Family Planning:**

Advice on appropriate methods.

#### **4.2.11. Managerial:**

Organize antenatal and under-five clinic.

## **I – MBBS INTEGRATED SUBJECT**

### **INTRODUCTION TO HUMANITIES & COMMUNITY MEDICINE**

This chapter Including Introduction to the subjects of Demog-raphy, Health Economics, Medical Sociology, Hospital Manage-ment, Behavioral Sciences inclusive of Psychology.

#### **1. OBJECTIVES**

##### **1.1. Knowledge**

**The student shall be able to:**

- 1.1.1. Explain the principles of sociology including demographic population dynamics;
- 1.1.2. Identify social factors related to health, disease and disability in the context of urban and rural societies;
- 1.1.3. Appreciate the impact of urbanization on health and disease;
- 1.1.4. Observe and interpret the dynamics of community behavior;
- 1.1.5. Describe the elements of normal psychology and social psychology;
- 1.1.6. Observe the principles of practice of medicine in hospital and community setting;

##### **1.2. Skills**

At the end of the course, the student should be able to make use of:

- 1.2.1. Principles of practice of medicine in hospital and community settings and familiarization with elementary nursing practices.
- 1.2.2. Art of communication with patients including history taking and medico-social work.
- 1.3. Teaching of community medicine should be both theoretical as well as practical. The practical aspects of the training programme should include visits to the health establishments and to the community where health intervention programmes are in operation.