

Part I Basic Sciences Related to Community Medicine



1

Concept of Health and Disease, Ethics in Medicine and Doctor–Patient Relationship

In community medicine, ‘patient’ is ‘community’. Problem-based Learning focuses on “Analysis of healthcare problems of community is one of the most effective ways of competency-based learning in community medicine”. “Whole of institution and whole of the faculty approach” must be adopted to produce a basic doctor and future human resources/professionals.

“A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame. A teacher who has come to the end of his subject, who has no living traffic with his own knowledge, but merely repeats his lessons to his students can only load their minds. He cannot quicken them. Truth not only must inform, but also must inspire. If the inspiration dies out, and the information only accumulates, then truth loses its infinity.”

—Rabindranath Tagore

The following four part saying is about knowledge and self-knowledge:

- He who knows not, and knows not he knows not, is a fool; shun him.
- He who knows not, and knows he knows not, is simple; teach him.
- He who knows, and knows not he knows, is asleep; awaken him.
- He who knows, and knows he knows, is wise; follow him.

—Bruce Lee

COMPETENCY BASED LEARNING IN COMMUNITY MEDICINE

Revised Competency Based Medical Education curriculum (CBM) Guidelines of Sept 2024 identified 20 broad topics with 136 core competencies. Out of these, 91 (67%) are related to domain of knowledge (knows and knows how) focusing on didactic learning, while 45 (37%) are related to skill domain (shows and shows how and performs) focusing on skill learning. At the end of the course, student should be able to demonstrate and/or perform these skills himself or herself. Building these skills in community medicine is an enormous task and a challenge indeed.^{1,2}

New regulations give an impetus to improved doctor–patient relationship and acquisition of effective communication skills through AETCOM course. They encourage self-directed learning by choosing a subject of interest by the learner and exposure to clinical experience in the very first year of the MBBS course. Clear directions are there for integrated teaching by way of horizontal and vertical integration. Learning is outcome based under new

regulations. Specific core competencies to be acquired, span over the years. Domains of learning, methods of learning as well as methods of formative and summative assessment have been explicitly stated.¹ Guidelines provide structured Family Adoption Programme (FAP) of 84 hours by 14 full-day visits.

Suggested Methods of Acquisition of Various Competencies

In community medicine “the patient” is “the community” not an individual, hence the focus of learning should be: ‘**Community diagnosis and Community therapy**’. To arrive at community diagnosis, the student should be able to **listen** to chief complaints of community, directly observe, interact with community, and analyse health practices, health seeking behaviours, community structure, analyse and interpret a household survey, and facility survey data, live data of surveillance, service delivery and routine health reports/data of facility. Apart from this the student should be able to identify the root causes/determinants of health problems and be able to communicate effectively with community and organized listening groups. Some of the methods of active and participatory learning are being explained in this chapter. The teacher acts as a facilitator and provides learning resource material to learner.

Revised curriculum provides a unique opportunity to medical faculty of 780 Medical Colleges (2024–25) to restructure their teaching program, to develop learning resource material, promote problem-based learning, prepare relevant case studies, integrate teaching and learning with healthcare delivery system, use real life situations and live data, exploit modern technologies, develop field practice areas to bring field experiences to classroom setting, involve program officers of state/district in teaching program to achieve competency-based learning. Further,

it provides an opportunity to transform conventional field visits to specific skills to be acquired with clear cut objectives and ensuring achievement of relevant learning objectives through Logbook Maintained by student. The pivotal responsibility of faculty is to develop positive attitude among 128976 students admitted every year towards community.^{3,4}

Logbook: It is verified record of progression of the learner documenting the acquisition of the requisite knowledge, skills, attitudes and/or competencies. Entries of completed activities in the logbook are mandatory.

Essential Skills for Community Medicine Practice

The most essential skills/competencies include:

1. Positive attitude of mind to work for community.
2. Ability to communicate effectively with people/patient and family on health and disease.
3. Ability to organize community or groups in the community.
4. Ability to generate resources from community.
5. Ability to elicit community participation.
6. Give responsibility to community (sanitation, birth and death registration, reporting outbreaks, maintenance of wells—chlorination of water—disposal of human excreta, animal excreta, and garbage).
7. Ability to assess community health needs.
8. Ability to meet community health needs.
9. Ability to share the health information with community.
10. Ability to lead health team and of training of community volunteers (birth attendants, health guides, *Anganwadi* workers, ASHAs, school teachers, *Mahila Swasthya Sanghs* and health workers).

The teachers/faculty must reinvent themselves to refine and practice these competencies.

Teaching vs Learning

People resent being taught. Nobody wishes to be taught but everyone wishes to learn and people have strong desire to learn. Emphasis should be on learning. Learning is a lifelong process. Child learning and adult learning differs. There are four ways of learning:

1. **Trial and error:** By trying on oneself (trial and error) and learning from each trial (experiential learning).
2. **Being told:** By receiving instructions either orally or in writing or by demonstration.
3. **Imitation:** By copying the actions of another person usually an instructor or a skilled person.
4. **Thinking:** By organizing one's thoughts about a topic or problem to arrive at an explanation or solution.

Best way of learning is learning by doing. Common Proverb is:

“I hear, I forget, I see, I remember, seeing is believing, (People are more willing to trust their eyes than ears), I do, I know.”

Adult learning should be problem-centered and experience-centered.

Pedagogy

The art and science of learning/teaching is known as pedagogy. It includes different teaching/training methods and technology to change the knowledge, attitude and behaviour of learner.

Curriculum: It is “a sum total of all planned educational experiences which include four components—**learning objectives, content areas or subject matter, instructional strategies, methods of learning and evaluation.**”

Emphasis should be on learning. Lesson plan should include learning objectives, methods of learning, learning aids, contents, feedback and evaluation.

Pedagogic methods: Teaching technology and methods in medical education are—lecture, lecture discussion, demonstration, return demonstration, tutorial, clinical teaching, group discussion, brain storming, buzz session, problem-based learning, panel discussion, symposia, seminar, workshop, conference, convention, institute, completion of project, focus group discussion and case study methods, role play, reflections, narratives, cinema, comics, and skill lab.

Teaching aids: Include audio–visual and other aids, such as—tape recorder, over-head projector, mike, transparencies, video-tapes/cassettes, pictorials, blackboard, computer, laptop, etc.

Problem-based Learning/Participatory Learning

Education is a process to bring about change in behaviour of the students. Three domains—*cognitive* (knowledge), *affective* (attitudes) and *psychomotor* (practical skills) are the main focus of **competency based medical education**.

Behaviour change can be done by conventional methods of *teacher-centred training* in which the knowledge and skills are imparted to students by traditional methods of lectures and demonstrations; it is a passive process. The second method is, in which the students participate and take active part in self-directed learning. Here, the teacher acts as a facilitator. The learning here is *learner centric* and active.

At present, undergraduate medical education is subject-based teaching in various semesters. One course is not related to other. In the traditional subject-based curriculum, it is assumed that the knowledge gained in pre- and paraclinical periods will be remembered and will be transferred to illness situations. Both of these assumptions are unsupported. Forgetting is massive and rapid.

Cause to Effect and Effect to Cause Approach

Basic science teachers present material in *cause–effect logic*, in which they organise their own knowledge and in

which most of the textbooks are written. The students as clinician have to relearn it in the *effect–cause sequence* within which clinical problems must be worked out. That is, the clinical problem start with an effect of a disease process. The student must work backwards from *effects* through possible explanation to identify what is likely to *cause*. This can be best achieved by integrated curriculum and integrated teaching. Various techniques have been used to have integrated curriculum, like *system-based learning*, *community-based* and *problem-based learning*, case studies self-directed, role play, group discussion and experiential learning.

Problem-based learning is defined as learning that results from the process of working towards the understanding the evolution of a community health problem. Problem based learning is often confused with problem solving. Although problem solving may be its component, it is not necessary to solve the problem. Problems are used as spring board for learning. The health problem is encountered first. It serves as a stimulus for the application and development of **problem-solving skills** and search for **knowledge** to understand the mechanisms (root causes) responsible for the health problem and its solution. The process involved facilitates self-directed independent learning. Once the information has been gathered, digested and understood, the knowledge obtained can be used to analyse other problems. In this form of learning students used the problem as the primary vehicle for obtaining the information from various sources. The key features of problem-based learning are:

1. “Analysis of healthcare problems” in community as main method of acquiring and applying knowledge.
2. Self-directed lifelong learning.
3. Use of small tutorial groups of 5–10 students.
4. Develop an epidemiological reasoning process.

The problem-based learning creates an atmosphere which encourages active participation, emphasizes the personal nature of learning, accepts the differences between the learners, recognizes the learner’s right to commit mistakes, tolerates imperfection, encourages openness of mind and trust in self, facilitates discovery, puts emphasis on self-evaluation and accepts confrontation of ideas.

The Problem Selection

The problem selected should be major public health problem. The entire subject may be taught on the basis of problems. Specially prepared problems are given to the students for study and discussion .

- a. Problems are presented to the students as written cases or live situation or actual cases.
- b. The students analyse these problems and discuss these problems and generate issues which may be basic or clinical.

- c. These issues are framed into objectives of learning by the students.
- d. The teacher has a list of learning objectives for that health problem with him. He helps the students to identify the objectives of learning by themselves.
- e. The students seek the information from library, books, journals and resource persons in different disciplines in the college and wards of the hospitals.
- f. In subsequent tutorials, the students appraise the information; share it with other students in the group and discuss all aspects of the problem. They critically evaluate their own performance.
- g. Once the students and tutor are satisfied that the pre-determined objectives have been met, the students write down the summary of discussions. Later on other problems are taken up in the same sequence.
- h. **Assessment:** The evaluation of students performance is based on their achievement of the programme objectives and their performance in problem-based learning exercises, self-evaluation, peer evaluation and the evaluation by the tutor. Objective-structured clinical examination (OSCE) and objective-structured practical examination (OSPE) and special exercises can be given for evaluation of competency-based learning. It also includes evaluation of tutors and programmes by the students. In 2026 the National Medical Commission initiated an anonymous feedback from MBBS-undergraduate students directly on various issues of medical education system to find and rectify various gaps in the system.

(Source: Souvenir-Diamond Jubilee celebration, MCI)

Recently, MCI (2018 Regulations) has revised the curriculum of UGs wherein horizontal (elements in the same phase) and vertical (elements from other phases) integration of teaching and training have been structured.

MCI has been replaced by National Medical Commission in 2020.^{1,2}

Clinico–social Case Review (CSCR)

This is yet another method to learn and comprehend the natural history of disease and effective interventions (levels of prevention).

This approach has two distinct components. One—the clinical review—which consists of standard case management (history taking, examination, clinical diagnosis, confirmative diagnosis, treatment, counselling and follow-up). This is best done by treating physicians and their teams in the outdoor or indoor set-up. Objective here is to treat the illness and reduce its prevalence.

Second part is social review: Social review essentially consists of identification of specific *social factors* and their analysis in respect of presenting *disease* with the *objective*:

- a. To recognize the *sufficient causes* or risk factors or underlying determinants of presenting disease.

- b. To *treat* the *cause* by effective intervention in order to prevent the disease, reduce its incidence, prevalence and ultimately elimination of disease.

The social review thus begins with a *disease* and searches for its *causes* which are often *multiple*—host factors, environmental factors and factors relating to necessary cause—‘The causative’ agent of disease (multifactorial etiology).

Example: Host factors—age, sex, habits, personal hygiene, marital status, age of marriage, birth interval, migrant worker/labourer, social class (determined by income, education, housing and occupation), immunity and heredity may predispose a person to an illness.

Social and Cultural Factors/Practices/Behaviour of Host Such as:

Use of tobacco, use of alcohol, physical inactivity, high speed driving and not obeying traffic rules, unhealthy lifestyles—unprotected sex with multiple sex partners (lifestyles), non-utilization of available health services or delay in seeking care, incomplete treatment, faulty choice of food—junk food, fast food, inadequate food, delayed initiation of breastfeeding, and weaning, large-sized family, lack of information and knowledge, wrong beliefs and attitudes, are other factors which could initiate a disease, help in its progression or precipitate a disease or an event. Many harmful cultural practices may worsen a disease.

Environmental Factors

- Unsafe environments, such as unsafe water, indiscriminate defecation, soil pollution, air pollution, overcrowding, urban slums, breeding of mosquitoes, flies, rodents, insects, presence of stray dogs, animals and pets, bad working environment/occupational hazards, could be sufficient causes for disease occurrence.
- Economic loss due to an illness to individual, family, community and nation and cost of treatment and care.
- Impacts of illness on individual, family, community and nation or state are other dimensions of CSCR.

In essence, social and cultural factors have their significant role in either initiating a disease, its progression, recovery or cure.

Example: Inadequate breastfeeding and delayed weaning initiates malnutrition in young children, and an episode of diarrhoea in malnourished child precipitates malnutrition. Girl child or lesser child is predisposed to malnutrition.

Necessary Cause (Etiological Cause): Causative Agent Factors—Explained in Chapter 7

A CASE STUDY ON CLINICO-SOCIAL CASE REVIEW

Clinical Review

1

A low birth weight (1.8 kg) male baby was born to Maya at first referral unit. Baby could not suck the breast milk

and expressed milk was given to this baby by nurses. Baby was kept with mother for 10 days when the breastfeeding got established and baby started thriving on breastfeeds. Thereafter, the mother and baby were sent home. This baby started having episodes of cough and difficult breathing requiring hospitalization on two occasions. At the age of 10 months, the hospital admission was on account of difficult and fast breathing and the child recovered after 7 days time and sent home after counselling. The baby was due for measles vaccine and this opportunity was missed in the hospital. Weight-for-age at the time of discharge was 6 kg.

Social Review

Maya was lesser child and most of her time got spent in care of younger brother and sister and household chores. She could not be enrolled in school and got married around 16 years of age, she looked very weak and pale, and got easily tired after household work, became pregnant after 2 months of marriage. She had to work in farm and family, to bring fodder, fuel and cook meals. *Anganwadi* worker registered Maya as pregnant women around fifth month and this family was identified as below poverty line family, but Maya could never go to *Anganwadi* because she was too much occupied. Similarly, antenatal care visits to sub-centre located at a distance of 2 km could not happen. At last, Maya was brought to sub-centre with swollen face and legs with labour pains. Female health worker with the help of ASHA arranged free transport up to first referral unit (FRU). Free medicines and material were provided at FRU for safe delivery and incentive money was given to Maya from funds under *Janani Suraksha Yojana* (JSY) under the umbrella of National Rural Health Mission.

Several issues can be identified out of this clinical-social case review, such as girl child—the lesser child, deprivation of education to girls, undernutrition, age of marriage and teenage pregnancy, workload, anaemia in pregnancy, toxemia, below poverty line family, health seeking behaviour, incentives for safe delivery, missed opportunities, causes of low birth weight babies, breastfeeding and management of low birth weight babies, weight gain pattern in low birth weight babies, etc. It could be a part of problem-based learning and learning of epidemiological methods.

These reviews can be an opportunity for vertical *integrated teaching* by the departments of paediatric, obstetric and gynae and community medicine, to identify causes of low birth weight and occurrence of repeated episodes of illness in young children as also integrated management of childhood illness (IMCI) apart from gender disparity.

Competency addressed: The student should be able to:

CM 1.1: Define and describe the concept of **public health**.

CONCEPT OF PUBLIC HEALTH

I. Public Health

- Winslow defined **public health** as “the art and science of preventing diseases, prolonging life, and promoting health through organized community efforts and informed choices of society organizations, public and private, communities, and individuals.”

It means organizing healthcare systems, resources and infrastructure. Health management is an example of public health.

- WHO and Acheson report defined **public health** as, “the science and art of preventing diseases, prolonging life and promoting health through organized efforts of society.”
- Focus of public health is total population (healthy and sick both).

The World Bank Development Report 1993 defined public health as “the service classified as public goods, which may be products or health services, and some of those with spillover of benefits or losses from one individual to another constitute what is known as “Public Health”.

Public health includes those services provided to the whole **population** at large or its sub-groups or to the **environment** such as insecticide spraying to control vector-borne diseases, immunizations, information education and communication for behavior change, safe drinking water and sanitation, etc. The key characteristic of public goods is that one individual can use them or benefit from them without limiting other’s consumption or benefit. Example—one person’s use of health information does not leave less available for other to consume. One person cannot benefit from control of malaria carrying mosquitoes while another person in same area is excluded. Other health services have large spillover of benefits from one individual to another such as immunization of children slows transmission of measles and other diseases. Polluters and drunk drivers create negative spillover effects. We need to encourage behaviours that carry positive spillover and discourage those with negative spillover effects (World Development Report 1993 “Investing in Health”).

The **Public Health Systems** approach strike against health problems of **entire population** or population subgroups. Their objective is to promote health, prevent diseases, prolong life and eliminate/eradicate diseases ultimately.

The clinical service respond to demand from individuals. They generally seek to cure or to ease pain of those **already sick**.

Essential Public Health Package includes: Universal immunization, school health program, deworming, micronutrient supplements, fertility control, (contraception) reduce consumption of tobacco, alcohol and other drugs, promote physical activity and healthy eating, and prevention of STD/AIDs besides improving household environments—Air pollution.

Essential clinical service package include: RMNCH + A, TB elimination, family planning, STD control/AIDs, emergency and trauma service.

Essential public health package and essential clinical package combined together can avert 32% of disease burden in India.

How to Achieve Goal of ‘Health’?

Public health system achieves goal of health by:

1. **Providing organized health services** (promotive, preventive, curative and rehabilitation services)
2. **Promoting healthy behaviours** and lifestyles (universal exclusive breastfeeding, handwashing, physical activity and avoid tobacco and alcohol).
3. **Promoting healthy environments** (household and external) water supply and sanitation, prevent indoor and outdoor air pollution, accidents and mosquito breeding or vector breeding and control of disease vectors.
4. **Implementing health legislations** against tobacco use, food adulteration, epidemic/pandemic, etc.

II. Concept of Preventive Medicine

“It is the science and art of preventing diseases, prolonging life and promoting health”.

Generally the preventive medicine focuses on individual health or groups, such as high-risk groups and advocates screening of high-risk groups/individuals. The concept can be extended to general population. This term and concept became popular in the United States of America.

In India we adopted the term of ‘social and preventive medicine’ or ‘preventive and social medicine’ and subsequently the term ‘community medicine’ has been adopted.

III. Concept of Social Medicine

“Social medicine is the study of socio-economic, cultural, environmental and health services and genetic factors and conditions which influence the health of population”. This term and concept became popular in United Kingdom during the industrial revolution.

IV. Community Medicine/Community Health

Last JM defined community medicine as “the field concerned with the study of health and disease in the population or a defined community or group. Its goal is to identify the health problems and needs of defined populations (community diagnosis) and to plan, implement and evaluate the extent to which health measures effectively meet these needs”.

The Ottawa Charter (1986) is the pivot of principles and practices of health promotion. It recognizes the fundamental conditions and resources for health—peace, shelter, education, food income, a stable ecosystem, sustainable resources, social justice of equity. The Ottawa

Charter on health promotion advocates five key strategies:

1. Building healthy public policy
2. Create supportive environments
3. Strengthen community action
4. Develop personal skills
5. Reorient health services.

CM 1.2 is a complex competency, hence split into 4 parts

Competency addressed: The student should be able to:

CM 1.2 Part 1: Define health and describe the concept of holistic health.

CONCEPT OF HEALTH AND HOLISTIC HEALTH

SDG-3 “Ensure healthy lives and promote well being for all at all ages”. WHO at 70 has chosen the theme of world health day on 7 April 2019 ‘universal health coverage: everyone, everywhere’.⁵

There is renewed focus on the “One Health” which proposes to take measures to protect the health of animals, environment and humans.

“Health should be seen and believed as development function.” Health is difficult to define but easier to understand. To many of us, it may mean absence of disease or infirmity and to many it may mean sound body and sound mind and sound function of the body: A concept close to holistic health.

‘**Holistic health**’ can be **defined** as an approach to life. Rather than focusing on illness or specific parts of the body, this ancient approach to **health** considers the **whole person** and how he or she interacts with his or her environment. **Holistic health** emphasises the connection of mind, body, and spirit.

ATTAINING HOLISTIC HEALTH

Well-being is made up of physical health, social and emotional nurture, mental stimulation, focus clarity and spiritual nourishment. Therefore, in order to feel at our very best we need to start a holistic self care path to create a personal well-being plan. Start by categorising the physical, mental, emotional and spiritual parts and then choose one or more activity that will serve you in the most enjoyable and meaningful way.

For example

Physical—a daily 45-minute walk

Mental—commit to a 15-minute morning meditation

Spiritual—rediscover a passion, interest or hobby by making time to incorporate in your week. ‘India is a Centre of World Holistic Healthcare’—“PM Modi”.

“Good health is the most precious thing anyone can have. When people are healthy, they can learn, earn, work and support themselves and their families. When they are sick,

nothing else matters (Dr Tedros Adhanom Ghebreyesus WHO Director General 2019)”. “Healthy beginnings hopeful futures” theme of WHO—2025 is most apt.

To an anatomist: Healthy body means it should confirm to normal anatomical structures.

To a physiologist: Health means normal body functions.

To a biochemist: It means normal biochemical levels/values.

To a pathologist: It means normal cellular make-up.

To a geneticist: It means full realization of genetic potential.

Similarly, to a clinician it means no abnormality in structure and function and usually when a clinician fails to detect anything in a person by his clinical wisdom and laboratory tests, he/she labels a person no abnormality detected (NAD).

To a psychiatrist: It means well adjusted and a balanced personality.

Definition

World Health Organization (WHO) has given a comprehensive definition of health which includes important dimensions, such as physical, mental and social health. WHO in its constitution has defined health in the largest sense of the term that states:

“**Health** is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” WHO’s 199 member states have endorsed this statement.¹ The Executive Board of the World Health Organization (WHO) proposed redefining ‘health’ as “a dynamic state of complete physical, mental, social and spiritual well-being, and not merely the absence of disease or infirmity” (WHO 1998).

WHO recognizes “**health** as a fundamental human right of an individual, family and community and it sets a most important social goal of the enjoyment of highest attainable standard of health by all nations or countries “without distinction of race, religion, political belief, economic or social condition”. Realization of this goal requires the action of many other social and economic sectors in addition to health sector. Health is thus a multisectoral subject. Inter- and intra-sectoral coordination is essential to achieve the goal of “health in all”.

THE NEW CONCEPT OF HEALTH

With the progression of new millennium, the concept of health has changed and while a few years back it was seen as entity which was to be achieved with advancement of healthcare technology, along with the universal coverage of health; it is now believed to be an achievement which is possible only when the human beings are in attune with their physical and mental environment. This New Concept of “ONE HEALTH Approach” is an approach calling for the collaborative efforts of multiple disciplines working locally, nationally, globally to attain optimal health for people, animals and our environment.

“One health approach” (Human + Animal, Plant + Environment Health) has been defined by WHO as “an approach to designing and implementing, programs, policies, legislations and research in which multiple sectors communicate and work together to achieve better public health outcomes”.

WHO theme on “World health Day” 2026—“Together with health, stand with science” addresses—human, animal, plant and planetary health” (One Health Approach)—a science-based approach to protect health.

In the international conference on primary healthcare jointly organized by the WHO and UNICEF in Alma Ata, USSR, in September 1978, fundamental principles of health were enunciated and a declaration was made; this declaration endorsed the earlier resolution of 30th World Health Assembly (1977).

“The attainment by all citizens of the world by the year 2000 of a level of health, that will permit them to lead a socially and economically productive life.”

This is popularly known as ‘Health for all’ (HFA) and it is to be achieved through primary healthcare approach, in a spirit of social justice and as a part of overall development. Development of health is to be based on self-determination and self-reliance in health on the part of individual, the community and the nation. Ottawa Charter (1986) further lends support to health promotion.

DIMENSIONS OF HEALTH

There are three dimensions of health: *Physical, mental* and *social*. A fourth dimension of *spiritual health* has been added.

Physical Well-being

It means adequate body weight, height and circumferences as per age and sex with acceptable level of vision, hearing, locomotion or movements, acceptable levels of pulse rate, blood pressure, respiratory rate, chest circumference, head circumference, and waist–hip ratio. The body structures and functions confirming to laid down standards within the range of normal development and functions of all the systems. Some of the physical health standards are:

- Birth weight should range between 2.7 and 2.9 kg ‘cut-off’ level of low birth weight is 2.5 kg.
- Standard growth charts have been evolved to monitor growth of young children.

Body mass index: Normal range is 18.5–23 for Indians and waist–hip ratio normal range is 0.6–0.9 and triceps skinfold thickness 12–15 mm and sub-scapular skinfold 18–20 mm.

Similarly, ideal weights as per age and height for male and female have been worked out. Reference Indian adult man and woman have been defined.

Reference Indian Adult Man and Woman (NNMB)

Reference man is in age group 19–39 years and weighs 65 kg with a height of 1.77 m with a BMI of 20.75 and is free from disease and physically fit for active work; on

each working day, he is engaged in 8 hours of occupation which usually involves moderate activity, while when not at work he spends 8 hours in bed, 4–6 hours in sitting and moving about, 2 hours in walking and in active recreation or household duties.

Reference woman is in age group 19–39 years, non-pregnant non-lactating (NPNL) and weighs 55 kg with a height of 1.62 m and a BMI of 20.95, is free from disease and physically fit for active work; on each working day she is engaged in 8 hours of occupation which usually involves moderate activity, while when not at work she spends 8 hours in bed, 4–6 hours in sitting and moving about, 2 hours in walking and in active recreation or household duties.

Reference Body Weight and Height

Reference body weights and heights of Indians as under physical health are easier to understand and easier to measure. Periodical health examination and pre-placement health examination determine the level of health of an individual. We want best of physical health standards to be attained by all individuals and we are most particular for recruitment in army for physical standards apart from mental health.

Mental Well-being

The positive dimension of mental health is stressed in WHO’s definition of health as contained in its constitution.

Mental health is defined as “a state of well-being in which the individual realizes his or her own abilities, can cope with normal stresses of life, can work productively and fruitfully and is able to make a contribution to his or her community”.

A mentally normal person has the ability to mix-up with others, he/she makes friendship, behaves in a balanced manner, keeps himself tidy and observes adequate personal hygiene, well oriented to time, place and person and environments and is unduly not suspicious of others, he is cheerful and happy and enjoys life with a purpose and he thinks positively and has normal development and contributes fully and is useful and productive to society and nation. He/she is a balanced person and emotionally stable and realizes his/her shortcomings and strengths and abilities. People are judged by others. The friend circle or family members are the one’s who can endorse the mental health status of an individual first of all.

Social Well-being

It is third dimension of health. It means ability of a person to adjust with others in his social life, at home, at work-place and with people. Men interact with men and they inter-relate and interdepend on each other and play their effective role in accordance with a situation. Essentially, social well-being includes harmonious inter-relation and interaction of human beings.

Social well-being is a composite function of **income level, literacy, occupation** and working conditions, marital harmony, institution of family, social groups and cultural and behavioural pattern of the society and stressful situation. Social well-being is conditioned by the influence of environments as well. Social well-being can be measured on a scale by taking into consideration indicators like income, literacy and occupation (as discussed under socio-economic status of family).

Competency addressed: The student should be able to:

CM 1.2 Part 2: Describe the concept of **spiritual health**.

Spiritual Well-being

The WHO at its 37th World Health Assembly has added the spiritual dimension to health. The recognition of this dimension speaks of the importance of multidimensional well-being of *swasthya* (health).

Spiritual health has been defined as “that part of the individual which reaches out and strives for meaning and purpose in life. It includes integrity, principles and ethics, the purpose in life, commitment to some higher beings and beliefs in concepts that are not subject to the state-of-the-art explanation”. It includes practicing honesty, sincerity, forgiveness, selfless service, compassion towards less fortunes and ethics.

Positive health: A person who enjoys all the four dimensions of health (physical, mental, social and spiritual) is said to be in a state of positive health. The concept of perfect positive health cannot become a reality because a person can never be in perfect state of all the four dimensions.

Medical Classification: Officers

Health of serving officers is continuously monitored through periodical medical check-ups during the entire length of their service. Similarly, periodical medical examination of industrial workers is done regularly.

Medical Classification

Medical classification of serving officers is done by medical board after assessing his fitness under five factors, indicating by the code word ‘**SHAPE**’ which represents the following factors:

- S** Psychological
- H** Hearing
- A** Appendages
- P** Physical capacity
- E** Eyesight

Medical classification under the system is based on functional capacity of the individual as a whole for military duties. Thus, classification done under this system enable the administrative authorities to assign appropriate assignment to officers depending upon their employment capacity. Functional capacity of an officer under each

factor is denoted by numerals 1–5 against each code letter, indicating declining functional efficiency. The numerals are written next to the code letter, except that where an officer is in grade 1 in all factors, his categorization may be denoted by writing SHAPE-1 instead of writing S1 H1 A1 P1 E1. General evaluation of numerals is as under.

1. Fit for all duties anywhere.
2. Fit for all duties but may have limitations as to type of duties of employability. Employment restrictions are given separately by the medical board.
3. Excepting for ‘S’ factor fit for routine or sedentary duties but may have limitations of employability at high altitude (above 2700 meter), extreme cold area/hilly terrain and for lone assignments for which specific recommendations are given.
4. Temporary unfit for military duties on account of hospitalization/sick leave.
5. Permanent unfit for military duties.

Competency addressed: The student should be able to:

CM 1.2: Part 3: Define and describe the **relativeness of health**.

RELATIVENESS OF HEALTH

Health is a relative phenomenon. It is biological ‘normal’ state based on statistical norms/standards. The use of reference values to diagnose or screen for disease implies that health is relative concept. Clinical examination, evaluation of laboratory data and diagnostic imaging findings all require comparison to ‘normal’ standard. Normality itself is also relative. Very often normal values differ between geographical areas, between sexes or age groups. For example, ‘normal’ blood pressure differs between sexes, and also varies with age and its pattern is not the same in all human populations. A statement of normal values must indicate the population referred to similarly, pulse rate, heart rate, height, weight, serum cholesterol and haemoglobin levels vary from person to person. The establishment of ‘normal’ values permits the selection of appropriate actions in medical practice.

Variability is inherent in biomedical measurements upon which decision on individual patient care or community health programmes are based. It is therefore necessary to establish **standards** on which decision can be made. These standards are often referred to as **normal values** and are generally based on measurements made on **healthy** population in statistical reasoning. What occurs most frequently is considered as **normal**. The problem is often where to draw a cut off line between **normal** and **abnormal**.

Two types of normal values are usually required for medical decisions:

- i. **Point normal** values, and
- ii. **Normal range**

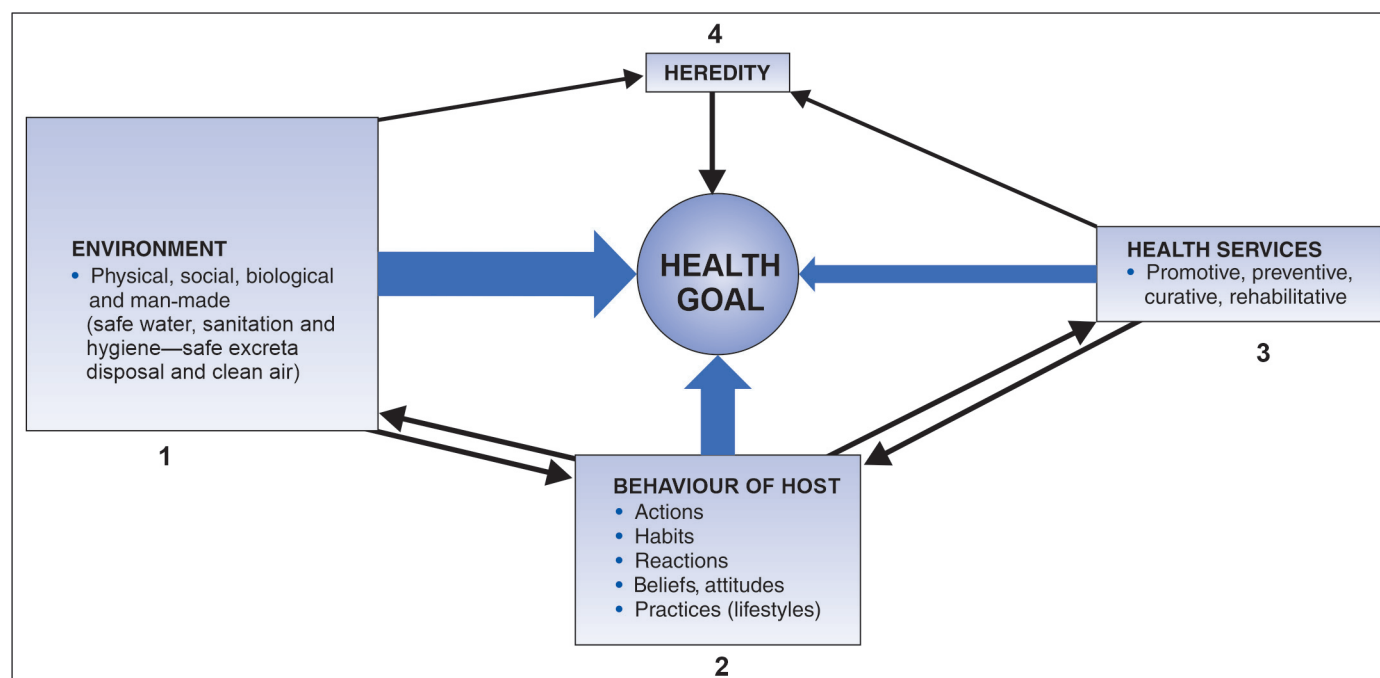


Fig. 1.1: Determinants of health (WHO*)

*The direction of the arrow indicates the direction of impact while the width of the arrow indicates the relative weight or importance of the input to health (WHO). “One health approach”: Focuses on measures to protect the health of animals, plants, environment and humans.

- Point normal values are derived from population/sample mean values (mean, median or mode).
- Normal range in medical sciences is as mean ± 1.96 SD, which ensures 95% of randomly selected healthy people would fall within the limits in a normal distribution. It is easy to compute normal range in term of the mean and standard deviation by using the property of normal distribution.

Competency addressed: The student should be able to:

CM 1.2: Part 4: Define and describe **determinants of health**.

DETERMINANTS OF HEALTH

Determinants of health are underlying causes of ill-health and development. These are—“the **causes** for the **causes**” these can be addressed by collective action across multiple sectors—health, education, nutrition, water and sanitation, poverty reduction, etc. ‘Health in all Public Policies’ and healthy public policies can be effective interventions.

Health is a development function. Much more health comes through sectors other than health sector, such as water and sanitation (environments) nutrition, literacy, women and child development and healthy lifestyles (behaviours). These are also known as determinants of health. Hence, integration of health services with determinants of health achieves better health. The National Health Mission adopts a synergistic approach by effective integration of *Health* concerns with determinants of good health, viz. *nutrition, sanitation,*

hygiene and safe drinking water through district action plan for health.

1. Environment

This is considered to be the most important determinant and input to health. The environment is defined as “the aggregate of all external conditions and influences affecting the life and development of an organism, human behaviour and society”. A composite of physical, economic pressures, culture and education contributes largely to the background to which one’s genetic apparatus reacts. Harmonious environment relationship to man contributes to an improved state of health (Fig. 1.1).

Rightly so the national health planners have included in their agenda to control and improve the natural physical environments, e.g. **air, water, soil, and noise**.

Man-made Environment

In man-made environment or artificial environment included items are **housing, transport, industries** and **communication** (roads, rail, air and sea).

Environment forms the fulcrum in the chain of transmission (epidemiological triad). As shown below, there is continuous interaction between agent, host and environment:

Agent $\rightleftharpoons$ Environment $\rightleftharpoons$ Host.

If there is an equilibrium between agent, host and environment, the balance is maintained and the individual, family and community enjoy perfect health. If the environments become favourable for agent (disease

producing stimulus/factors/conditions/microorganisms) the balance is tilted, health is disturbed and the result is disease or bad outcome. Treating and modification of environments favourable to human host promotes health and prevents diseases.

Over 80% of diseases are due to bad environments like unsafe water supply, wide spread insanitary conditions due to indiscriminate defecations, poor disposal of waste water, garbage and refuse apart from air pollution leads to wide spread filthy conditions and are perpetual threat to endemic diseases and outbreaks. Mosquitoes and fly breed enormously and pose threat to occurrence of several diseases. Environment is a global concern and all energies are now focused to save the planet (our earth) by improving the deteriorating environments. While talking of environments, community treatment has been successful by handling the environment by three methods:

- i. **Socio-economics (poverty):** The term social and economics although susceptible to different definitions are completely interdependent in relation to environment. Economic life is chief determinant of social existence, hence the term socio-economics. The poor governments do not have enough money and so are the people of that government. *Poverty affects the health in that productivity is lost due to partial disability. There is vicious circle because people are poor as they are sick and sick because they are poor.* However, the high economics does not always assure good health. They may purchase things which impair health.
- ii. **Wealth distribution (employment):** Remunerating jobs, freedom from unemployment provides for improving living standards which in turn can help provide personal and environmental health, these are considered purchasable commodities. Wealth ensures good housing facility, nourishment, clothing, recreation, good use of leisure, and all these contribute to health.
- iii. **Education:** Besides socio-economics education is another variate for contribution to health. Educational progress conditions biological, domestic and technical progress. Its positive contribution to economic growth including health is recognized by all. Planning for education is thus considered planning for health and *vice versa*. 'Education for all' and universal elementary education are the thrust areas which will contribute substantially to improved health for all including environments besides **health-seeking behaviour**.
- iv. **The Environment (Protection) Act of 1986** is an Umbrella Act for the *protection of the environment*. Relevant to the water environment, this Act has among others the following features:
 - Nationwide programme for prevention, control and abatement of environmental pollution.
 - Empower any person to enter, inspect, sample and test.
 - Establish/recognize environmental laboratories.

- Regulate, close, prohibit industries, processes, and operations.
- Require Government organizations to furnish information, etc.

The Central Pollution Control Board (CPCB) is the national apex body for assessment, monitoring and control of water and air pollution. Well-managed and integrated water and sanitation programmes are crucial to health and development. A clean environment and adequate safe water are essential prerequisites for all children to grow, develop and attain good health. There is now distinct change in the strategy for promoting sanitation by the government. The Central Rural Sanitation Programme now promotes sanitation as a seven-component package: Handling of drinking water, disposal of waste water, disposal of human excreta, disposal of garbage and animal excreta, home sanitation and food hygiene, personal hygiene and village sanitation. Investments for ensuring access to safe drinking water will bring the desired health benefits only when complemented by investment in all the seven components of sanitation.

A staggering 29% of Indians defecate in open risking the environments and leaving the excreta to seep through the soil and contaminate the water table and water bodies with pathogens which come back into food chain. This is a key causative factor behind the high prevalence of soil and waterborne diseases in rural India as also in urban slums. According to World Health Organization, 80% of all diseases, such as diarrhoea, cholera, typhoid fever infective hepatitis, vector-borne diseases, etc. are caused due to lack of safe water and sanitation.

END OPEN DEFECTION BY 2030

As per UNICEF 2020 data, 71% of households have toilets. This percentage is lower in villages where 67% use toilet (Table 1.1). Total sanitation campaign (TSC)/ *Swachh Bharat Abhiyan* (Gramin and Urban) is a sound beginning. Its objectives are to bring about improvement in the general quality of life in rural areas, accelerate sanitation coverage and generate demand for toilets in all schools and *Anganwadis* in rural areas through awareness and behaviour change through education involving Panchayati Raj Institutions (PRIs). *Nirmal Gram Puraskar* a National Award under total sanitation campaign has been

Table 1.1: Households basic sanitation services 2021

Country	Improved sanitation coverage (%)		
	Urban	Rural	Total
China	95	88	92
India	79	67	71
Iraq	100	100	100
Pakistan	82	60	68
Sri Lanka	93	94	94
World	88	66	78

launched on Feb. 24, 2005 by the Government. PRIs can look forward to get cash prizes ranging from 50,000 to 5,00,000 if:^{6–8}

- All households in the village have access to toilets with full usage.
- There is no open defecation.
- All *Anganwadi* centres have access to sanitation facilities.
- There is general cleanliness all around.
- Kerala is the first state to end open defecation.
- India was declared open defecation free in Oct 2020.

Environment being Compulsory Subject

50 hours compulsory core module course in *Environmental studies*, spread over to 6 months, at undergraduate level in all streams has been introduced by various universities in view of direction of the Hon'ble Supreme Court of India; with effect from 2004 to 2005. This course will enhance knowledge, skills and attitudes to environment. The syllabus is divided into eight units covering 50 lectures including field work activities of five lecture hours.

2. Behaviour of Host (see Fig. 1.1)

- i. It is considered second largest area or determinant/input to one's health and at some places it is even higher than environment. Like most personally held values and beliefs, certain habits are first learnt from family, community and school, all of these play an important role in general behaviour pattern. In terms of satisfactory survival, one's behaviour may not be the most rational and will therefore require modification through effective behaviour change communication (BCC) in most of non-communicable diseases.
- ii. Each society and indeed individual has cultural values, ideologies and interests relating to health and health services. The beliefs inimical to survival indicate need for health promoting changes in cultural pattern. But it may also be determined whether such changes are desirable or even tolerable. Behaviour change communication is to create healthy lifestyles, healthy habits, responsible reproductive behaviour, values of traditional and indigenous foods, safe sex and practice of personal hygiene to promote health and prevent diseases. Proper evaluation of beliefs, social values and motivation should determine the needed changes and in which way the services are to be provided to be acceptable.
- iii. Attitude change is a major change and may bring about permanent behavioural change (feeding young children, promotion of universal exclusive breastfeeding, feeding and eating habits—a core cultural variable, adequate diet for physical and mental alertness).
- iv. Primary values are respected and self-image is not destroyed.

- v. Geographical social mobility and dissatisfaction foster change.
- vi. Attitudes are also related to utilization of services provided. Even for the existing services, the utilization rates are low at 50% or even less for antenatal care, use of iron and folic acid and vitamin A prophylaxis.
- vii. **Habits (*habit means repetitive behaviour in an individual*):** Habits die very hard. In the word 'HABIT' if you remove 'H' ABIT of it is there, if you further remove 'A' BIT of it is there, if you remove 'B' IT is still there. Habits do not change by sheer will power. It demands change in beliefs and attitudes and it requires practice and skills.

3. Health Services

Availability, accessibility, affordability and acceptability of health services are considered an important determinant/input to health. Health services utilization depends on quality of services offered as also faith and satisfaction derived from services apart from accessibility. Health services include promotive, preventive, curative and rehabilitative services available through various health systems. Utilization of health services depends upon health behaviour and socio-economic conditions (income, literacy and occupation of a person).

4. Heredity

Genetic inheritance may provide the initial significant contribution to one's state of health, may be modified by environments and specifically by health services. Even before individual's birth, comprehensive health planning will need to include such aspects of healthcare as prenatal counselling and prenatal care apart from marriage and genetic counselling.

Ecology of health: Ecology is defined as mutual relationship between living organisms and their environment. Ecology of health is the study of relationship between variations in man's environments and his state of health.

Social Determinants of Health⁹

Social determinants of health are the 'causes for the causes'. Social determinants of health are the conditions in and under which people are born, grow, live, work and age, and broader set of forces, and systems that shape the conditions of daily life are referred to as **social determinants of health** (WHO).

These include early year's experiences, education, economic status, employment and decent work, housing and environment and effective systems of preventing and treating ill health. Actions on these determinants, such as eradicating poverty and hunger, ensuring food security, access to safe drinking water and sanitation, employment and decent work and social protection, protecting environments and delivering equitable economic growth will ensure economically productive and healthy society.

It requires 'Health in all policies' with action by sectors outside the purview of health to attain better health and development.

Village Health Sanitation and Nutrition Committees (VHSNC), Urban Health Sanitation and Nutrition Committees and Mahila Arogya Samiti in Urban Slums

Following the launch of revised guidelines for VHSNCs, as a part of guidelines for community processes VHSNCs are envisaged as a standing/subcommittee of the Panchayat and the role of ASHA as member secretary has been strengthened. Village Panch has been made the chairperson and VHSNC has been reconstituted. Over 5.66 lakh VHSNCs have been constituted by June 2025.

Composition of VHSNC

- Minimum of 15 members, chairperson—mahila panch—scheduled caste preferred.
- Member secretary—ASHA.
- Members: Elected Gram Panchayat members—5, ANM, AWW, school teacher, PHED, NGO members/self-help groups volunteers 10, including users of health services.

Untied grant: ₹10,000 per annum for local actions, e.g. village sanitation and reduction of breeding of mosquitoes.

Objectives of VHSNC: To provide a platform for convergent actions on social determinants and all public services directly or indirectly related to health.

Convergent Actions on Social Determinants of Health⁹

A year-long campaign—VISHWAS (**v**illage based **i**nitiative to **s**ynergise **h**ealth **w**ater and **s**anitation) has been launched which will be conducted by each VHSNC/UHSNC in its village across all the states. ASHA will play key role in facilitating this process, but the campaign will be led by VHSNC members, and core group of volunteers from community. Eleven monthly campaigns will be conducted on selected themes, viz.

- Open defecation free village day, school and Anganwadi sanitation day, liquid and solid waste management, healthy lifestyles/health promotion, vectors control day—dengue and malaria, safe water and personal hygiene, integrated diarrhoea control fortnight, breastfeeding week. National Nutrition week/month in September.
- Each of these monthly campaigns days will aim at building a platform for convergence of all programmes, resources and community action on the day's theme. A manual for the campaign has been prepared. The campaign has been rolled out in October 2017. These activities are part of strategic information, education and communication (IEC) plan of Ministry of Health and Family Welfare (MOH and FW) using mass media along with mid-media, social media and interpersonal communication.

National Urban Health Mission (NUHM) envisaged a woman collective/*Samiti* in urban slums/slum-like settlements as a leadership platform for community level actions. As per guidelines, *Mahila Arogya Samiti* (MAS) has been constituted at the level of 50–100 households. MAS is expected to generate demand, ensure optimal utilization of services, increase community ownership and sustainability, and to establish community-based monitoring system. Over 62000 MAS have been formed in urban slums as part of urban health centres under NUHM.

Concept of Disease

The WHO has defined health, but not disease because of its variations, e.g. mild, moderate, severe, fatal, and disease without clinical manifestations. Definition, given by Webster, "A condition in which the body health is impaired, a departure from a state of health, an alteration of human body interfering in performance of vital functions".

Morbidity: Morbidity has been defined as any departure, subjective or objective, from a state of physiological or mental well-being, whether due to disease, injury or impairment.

Disease means 'lack of ease' or 'disorder of structure or function'. Disease produces specific symptoms or that affects a specific part of the body.

Examples: Fever, cough, diarrhoea, vomiting, convulsion, injury to any part of the body that may result in loss of body part or may affect the function of the body parts such as loss of vision, hearing, etc.

Extent: Overall 7.5% of people are sick at any given point of time, 6.8% in rural and 9.1% in urban areas, respectively (NSSO 75th Round 2018).

Pattern: Occurrence of disease varies by time, places, and persons.

Spectrum: Disease has a spectrum, it may be sub-clinical with no symptoms or signs or it may be early disease with mild symptoms and signs or it may be in **advance** or at severe stage with frank signs and symptoms. The outcome of disease may be full recovery with or without treatment, recovery with sequelae or disability or a person may die of fatal disease. Those who recover may become carriers of that disease (infectious disease).

Duration: A disease may be of short duration lasting for a few days less than a week or 2 weeks or it may be of long duration. A disease of short duration is called **acute disease**, e.g. acute diarrhoea fever, cough or a disease may have longer duration and we call it a **chronic disease** such as tuberculosis, leprosy, typhoid fever. Symptoms of ailment persisting **more than one month** or if a course of treatment of an ailment continuing for a month or more is called a chronic ailment. Some diseases such as diabetes, hypertension, HIV are lifelong and require lifelong continuous treatment and follow-up.

Major categories: A disease may be **communicable**, i.e. spreads from person to person or may spread by or

transmitted by a vector or a common source such as unsafe drinking water or food. These diseases are caused by micro-organisms. Other categories of diseases are **non-communicable** diseases (NCDs) which are chronic in nature, expensive to treat and are caused by unhealthy behaviours or lifestyles and are multifactorial.

Measuring disease burden: Disease burden is measured by disability adjusted life years (DALYs): “A measure that combines healthy life years lost because of premature death with those lost as result of disability”. One DALY equals to 1 year of healthy life lost due to premature death or disability. Other measures of disease are incidence and prevalence rates, spells of sickness and duration of sickness.¹⁰

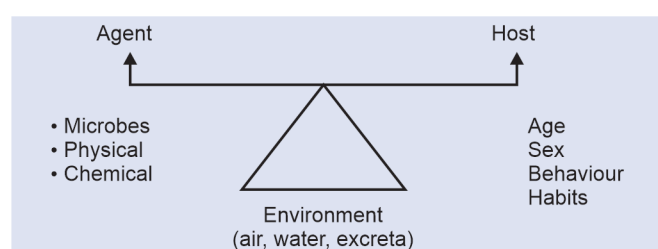


Fig. 1.2: Characteristics of agent, host and environmental factors

Competency addressed: The student should be able to:

CM 1.3: Describe the **characteristics of agent, host and environmental factors in health and disease and multifactorial etiology** of disease.

Figure 1.2 displays the characteristics of agent, host and environments in health and disease. The detail of characteristics of agent, host and environment is described in Chapter 7.

Causes—single or multifactorial: A disease may be caused by a single agent or specific micro-organism (bacteria, viruses, protozoa, rickettsial, spirochaetes and fungi, etc.) or may result from combination of several risk factors, we call it a multifactorial disease, e.g. cardiovascular diseases, diabetes, cancers, etc. are multifactorial.

Ayurveda propagated disease theory based on ‘Imbalance of Tridosha’—**Vata** (air), **Pita** (bile) and **Kapha** (mucus).

Competency addressed: The student should be able to:

CM 1.4: Describe and discuss the natural history of disease.

The natural history of any disease refers to the phases through which the disease passes, in the absence of any intervention. Clear knowledge of natural history of a disease helps in identifying the stages vis-à-vis appropriate intervention to prevent and control the disease or eliminate and eradicate a disease. The natural history of any disease begins as soon as the organism of a disease (infectious (disease) enters the body of a susceptible host or else a disease provoking stimulus or

accumulation of risk factors or condition/exposure/ circumstance or combination of these factors start operating in the **susceptible host**.

Pre-pathogenic phase: During this period the host stays healthy without any disease and the **agent, host** and **environment** remain in balance.

Pathogenic phase: This begins/starts as soon as the disease producing organism or stimulus enters the human body, the body of host reacts and chain of events follow as depicted in Fig. 1.3.

If the natural history of a disease is known and most probable risk factors/exposures are known then appropriate levels of prevention/interventions can be applied in healthy population or in sick persons to promote health, to prevent disease, cure disease, limit disability and to rehabilitate persons.

Competency addressed: The student should be able to:

CM 1.5: Describe the application of interventions at various **levels of prevention**.

How? The student defines and describes levels of prevention of a given specific disease or observed disease in the allotted family under FAP.

LEVELS OF PREVENTION

The word ‘prevention’ is derived from Latin ‘*praevenire*’ means ‘to come before’. The prevention is anticipatory medicine. It comes before the disease occurs. Anticipatory actions or proactive measures are preventive in nature. Preventive actions can be taken at any stage of the spectrum of health and disease. Most of the preventive measures are focused on ‘healthy people’, to ensure that they stay healthy and do not contract or develop disease or diseases. The goal of prevention is to ‘achieve health for all’ and ‘health in all’ to ensure adequate level of health which permits them to lead a productive and socially useful life.

Proportion of ailing person increased from 7.5 to 13% during 80th round NSS due to early detection.

Clearly, the concern and focus of prevention is on 87% ‘healthy people’ to ensure that they stay healthy but the concept of prevention can be applied to 13% of unhealthy or sick also to restore their health at the earliest and to prevent deaths and disability in sick persons (Fig. 1.4).

LEVELS OF PREVENTION—APPLICATION OF INTERVENTIONS AT VARIOUS LEVELS

Following levels of prevention are applicable:

- | | | |
|---------------|---|---|
| 1. Primordial | } | Focus on healthy people/total population |
| 2. Primary | | |
| 3. Secondary | } | Focus on sick people (who have already developed a disease) |
| 4. Tertiary | | |

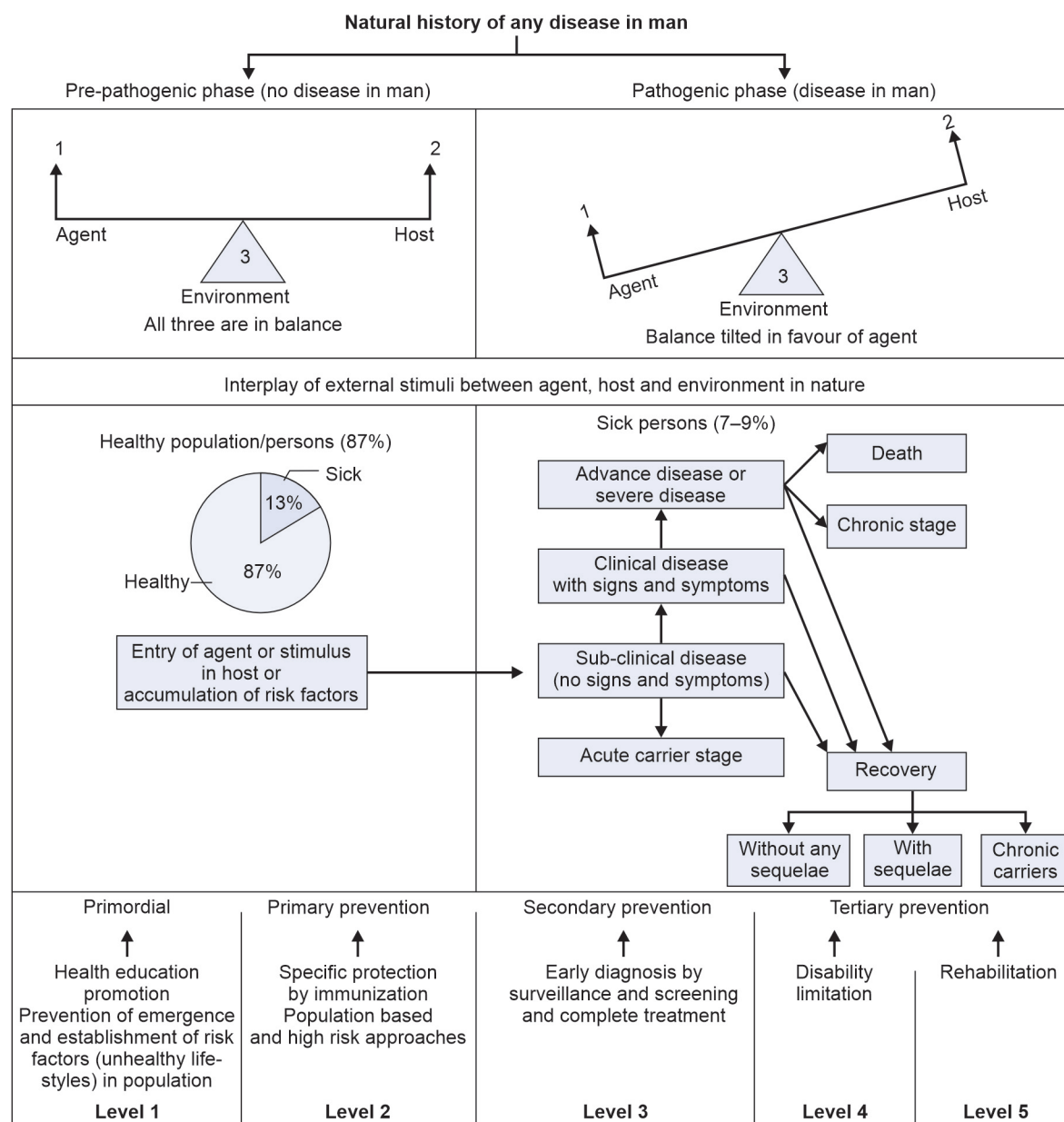


Fig. 1.3: Natural history of disease and levels of prevention

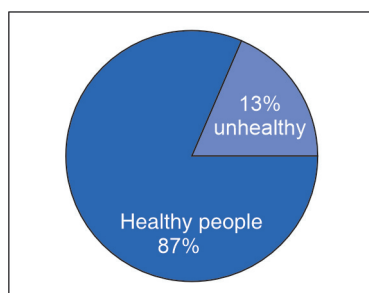


Fig. 1.4: Proportion of ailing persons in a 15 days period

The proportion of ailing persons increased from 7.5 to 13% during the 80th round of NSS due to early detection, expanded health coverage and increase in life-style diseases.

All these levels are important and complementary, although primordial prevention and primary prevention have the most to contribute to the health and well-being of the whole population.

1. Primordial Prevention

This is the real prevention, which does not allow the people to fall sick. The goal of primordial prevention is **healthy nations, healthy population, healthy cities, towns and villages, healthy homes, healthy environments, and work place.**

Aim

The aim of primordial prevention is to prevent the emergence and establishment of social, economic and cultural pattern of living and 'unhealthy lifestyles' in

population or to prevent the emergence of ‘risk factors’ in the community.

Primordial prevention is a *strategy* to reduce risks and promote healthy lifestyles.

In developing countries with high mortality, 10 selected leading risk factors or underlying causes have been identified for appropriate actions, these are:

- i. Underweight/malnutrition
- ii. Unsafe sex
- iii. Unsafe water, sanitation and hygiene
- iv. Indoor smoke from solid fuels and outdoor air pollution
- v. Zinc deficiency
- vi. Iron deficiency
- vii. Vitamin A deficiency
- viii. High blood pressure
- ix. Tobacco use
- x. Cholesterol

The policy and legislation on tobacco and smoking have been adopted by many governments in the world including India. Tobacco epidemic can be prevented by effective legislation against tobacco. WHO global initiative has motivated many countries to adopt effective policy on tobacco.

People should not take onto smoking (tobacco use) or adopt unhealthy lifestyles in relation to diet, exercise, and physical activity.

The world is living dangerously either because it has little choice or because it is making wrong choices. Today there are more than 8.2 billion people coexisting on this fragile planet. On the one side there are many millions who dangerously face high and heavy concentrated burden from poverty, undernutrition, unsafe sex, unsafe water, poor sanitation and hygiene, iron deficiency and indoor smoke from solid fuels. On the other side lies unhealthy consumption, particularly tobacco and alcohol. The risks from blood pressure and cholesterol, strongly linked to heart attacks and strokes are also closely related to excessive consumption of *fatty, sugary and salty foods*. They become even more dangerous when combined with deadly forces of tobacco and excessive alcohol consumption. Obesity a result of unhealthy consumption coupled with lack of physical activity is itself a serious health risk.

India is facing a double burden of disease, i.e. infectious diseases due to lack of safe water, sanitation, and chronic non-communicable diseases due to *unhealthy lifestyles*.

Primordial Prevention Strategies¹⁰

(a) At Government Level: Healthy Public Policies

The Government especially Health Ministry should play a stronger role in formulating risk prevention strategies which are population- or community-based strategies.

- Provision of safe water and ensuring sanitation to rural, tribal and urban areas (By *Swachh Bharat Abhiyan*).
- Policy on nutrition to improve nutrition by effective agriculture policy on “food for all and good nutrition for all” particularly improving the nutrition of most

vulnerables: Infants, young children, adolescent girls, pregnant women and lactating mothers.

- Revised National Nutrition Policy on promotion of healthy diets: Eating right and eating safe.
- Controlling food industry to prevent production and sale of junk foods, salt and *trans*-fats reduction in processed foods.
- Healthy food habits through mid-day meal in schools.
- **Tobacco, alcohol and substance abuse:** Tobacco of course is a major risk factor for cardiovascular diseases. In terms of intervention, the greatest tobacco-related improvements in population health would be a combination of tobacco taxation (Sin tax), comprehensive ban on advertising and restriction of smoking in public places and sale of cigarettes/*bidis* to children should be implemented. ‘Legislations on tobacco’ by all nations has been adopted in view of great health risks of tobacco.
- Policy on crop alternative to tobacco.
- Controlling/regulating behaviour of road users through Road Safety Motor Vehicle Act—licensing for driving, use of safety belts and helmets.
- Prevention of air pollution (indoor and outdoor).
- Promoting non-health sectors involvement in developing policies for control of NCDs and intersectoral coordination—agriculture, education, food industry, women and child development, ministry of sports, etc. (multisectoral action plan for NCDs).
- Protection of environments.
- Improved safety at workplace.

Thus, the **primordial prevention** can be achieved by combination of education and legislation on tobacco and food, promotion of physical activity, healthy and clean eating and observing personal hygienic practices. These measures should begin right during **childhood** period, continued during **adolescence**, and maintained in **youth, adulthood** and old age. These measures will reduce emergence of risk behaviours in the population.

Competency addressed: The student should be able to:

CM 1.6: Describe and discuss the concepts, the principles of health promotion and education, IEC and BCC.

How to achieve it? By directly observing healthy and unhealthy practices in allotted family/families or in community.

This competency overlaps with competencies of Chapter 4, hence also covered in Chapter 4. Health education is an important mean of health promotion and prevention of diseases.

(b) At Community Level

- **IEC and BCC** for healthy lifestyles.
- **Education:** Health education for adopting healthy behaviours through mass media and inter-personal communication focusing on predominant risk factors—

undernutrition, unsafe sex, unsafe water and bad sanitation, high blood pressure, high cholesterol, overweight and tobacco use.

2. Primary Prevention

Once the risk factors have emerged in the community or unhealthy behaviours are practiced on large scale, the primary prevention has its prime place.

Aim

The aim of primary prevention is to limit the *incidence* of disease by controlling underlying causes/risk factors.

or

To prevent the development of disease/diseases in population, by *modification* of *risk factors*.

Strategies of Primary Prevention (see Fig. 1.3)

- A. Health promotion.
- B. Specific prevention/protection against disease, trauma and accidents.

A. Health Promotion

Health promotion means improving positive health in general by observing time honoured 'best practices' like personal hygiene, brushing teeth, handwashing, avoiding smoking and alcohol, regular physical exercise, adopting healthy habits of eating, etc. *Best health practices (Healthy lifestyles)* are established and practiced in the family first of all and at school and workplace and with peers in later life.

Measures for health promotion: Health promotion can be achieved through health education programmes, which could be formal and non-formal. Health education should be part and parcel of general education. Adequate nutrition, **Universal exclusive breastfeeding** improving environmental sanitation (safe water, safe disposal of human and animal excreta, reduction of air pollution), regular physical exercise and yoga promotes health and prevents diseases in population.

B. Specific Protection

- Immunization, against vaccine preventable diseases prevents many diseases. Most of the countries including India have national immunization programmes to prevent diseases. Immunization against polio is an important strategy for polio eradication. Smallpox was eradicated by effective vaccination programme. Hep B vaccine prevents liver cancer and liver cirrhosis.
- **HPV** vaccine prevents cervical cancer.
- Specific nutrients like mega doses of vitamin A and iron and folic acid tablets to young children, pregnant and lactating women and adolescent girls prevent blindness due to vitamin A deficiency and anaemia,

respectively. Iodine consumption by salt iodization prevents goitre/iodine deficiency disorders.

- **Contraception:** To prevent births, contraceptives are used widely. This is the priority number one in India to limit the size of population by spacing and terminal methods of contraception.
- Prevention of HIV and AIDS as also STIs, hepatitis B by condom use are examples of specific protection.
- **Accidents prevention:** Use of helmets and safety belts prevents head injuries and fatal accidents. Safety devices used in industries to prevent injuries and accidents are also an example of specific protection against accidents and injuries.
- Avoidance of allergens, radiation by specific protection.

Approaches in Primary Prevention

We have two approaches in primary prevention, which are population-based and high-risk approach.

(a) Population-based Approach

In population-based approach, the intention is to cover the whole population for adopting healthy lifestyles through behaviour change communication. Universal immunization focuses on coverage of all infants, children, adolescents and pregnant women. Similarly, safe water for all, the focus is whole population; universal elementary education is also population-based strategy. Other population-based approaches are legislation against smoking and tobacco and fixing legal age for marriage and risk reduction against HIV/AIDS, universal salt iodization are the examples of population-based strategies to prevent diseases or epidemic prone diseases. Regulating salt content and *trans*-fats in manufactured foods, maintenance of healthy diets, reduction of salt intake and saturated fats, promoting physical activities and control of tobacco use are key population-based strategies.

Advantages

- Population-based approaches are useful and these make high impacts in reducing the incidence of diseases and are sustainable and cost effective.
- The population approach does not require any screening programme to identify high-risk groups.
- Population-based approaches are more rewarding in risk reduction in population and treating **underlying cause**.

(b) High-risk Approach

The focus of primary prevention in this approach is select individuals who have high risk such as commercial sex workers or bridge population who practice high-risk sexual behaviour, and people with sexually transmitted infection (STD clinic attendees). This strategy is being followed in National AIDS Control Programme in the country.

Smokers are also high-risk individuals and similarly persons having family history of diabetes and hypertension are high-risk individuals.

Individual screening programmes for identification of high-risk individuals for coronary heart disease, hypertension and obesity have not met with much success. Screening is a costly affair and very few can afford it.

Focus on high-risk individuals will deal with only margin of the problem as it covers small number of persons and will not have much impact on reduction of disease incidence or **underlying cause** in population. Individual measures to reduce risk-like screening for blood pressure, cholesterol, diabetes and weight and height measurement, may produce small effects as these involve lot of cost, and effect of individual approach pays least.

Advantages

High-risk approach seems to be attractive as some argue that scarce resources should be used for high-risk people but this does not yield much results.

Implications

The distribution and determinants of risks in a population have major implications for strategies of prevention. Geoffrey Rose observed that in vast majority of diseases “natural history of disease presents us with continuum, not a dichotomy”. Risk typically increases with across the spectrum of a risk factor. Use of dichotomous labels such as ‘hypertensive’ and ‘normotensive’ are therefore not a description of natural order, but rather an operational convenience. Following this line of thought, it becomes obvious that the ‘deviant minority’ (e.g. hypertensive) who are considered to be high-risk are only part of risk continuum; rather than a distinct group. This leads to one of the most fundamental axioms in preventive medicine “a large number of people exposed to a small risk may generate many more cases than a small number of exposed to high-risk”. Rose pointed out that wherever this axiom applies, a preventive strategy focusing on high-risk individuals will deal with only margin of the problem and will not have any impact on the large proportion of disease occurring in large proportion of people who are at moderate risk. For example, people with slightly raised blood pressure; suffer more cardiovascular events than the hypertensive minority. While the high-risk approach may appear more appropriate to individuals and their physicians, it can have only little effect at a population level. It does not alter the underlying cause of illness, relies on having adequate power to predict future disease, and requires continued and expensive screening for few high-risk individuals.

The relation between risk factors and disease events is continuous and most events occur in people in the middle range of risk factors distribution who are not normally judged as at high risk.

The effort expended on measuring risk factors in individuals is, therefore questionable (Robert Beaglehole). Screening for risk factors in individuals (checking blood pressure, overall check-up, check-up for diabetes and

monitoring of cholesterol, etc.), cost time and lot of money and resources should be directed towards primary **prevention** based on **population strategies of risk reductions**.

In contrast, population-based strategies that seek to shift the whole distribution of risk factors have the potential to control population incidence. Such strategies aim to make healthy behaviours and reduced exposure into social norms and thus lower the risk in entire population. The potential gains are extensive, but the challenges are great as well, a preventive measure that brings large benefits to the community appears to offer little to each participating individual, this may adversely affect motivation of population at large (known as **prevention paradox**). Population-based approach is most often applied to prevention of cardiovascular diseases.

Population-based strategies to reduce salt content of manufactured food, maintenance of healthy diets, promotion of physical activity and control of tobacco industry should be priority to control epidemic of cardiovascular diseases.

3. Secondary Prevention

This level of prevention is directed towards those individuals who have developed disease. Early detection and prompt treatment at any stage can alter the course/ outcome of disease.

Aim

Aim of secondary prevention is to reduce *prevalence* of disease (reduce morbidity and mortality) in the community by curing that disease as also to prevent progression and complications of disease.

The secondary prevention is valid in our country for early detection and prompt treatment of tuberculosis, leprosy, malaria, blindness and cervical, breast and oral cancers in the country.

Strategies (Early Diagnosis and Prompt Treatment)

- The strategy of secondary prevention is to detect the disease at early stage and ensure prompt treatment to reduce its severity and duration. *Example:* Detection of malaria by active and passive fever surveillance offers prompt treatment in homes, similarly sputum examination of those persons having cough of 2 weeks or more helps early detection of tuberculosis and prompt treatment with DOTS strategy.
- By having population-based screening programmes, for persons above 30 years of age, we can detect the diseases at early stage. Screening of vision to detect refractive errors, to detect cataract, to detect precancerous lesions, diabetes, blood pressure measurement for treatment of hypertension in middle-aged and elderly people. Similarly, growth monitoring of children and birth weighing can detect growth faltering at the earliest to treat it at an early stage.

- Active surveillance and screening programmes help early case detection and prompt treatment. Periodic medical examination of industrial workers and army personnel helps in early detection of disease and its prompt treatment. This aims at detect susceptible persons/factory workers and remove them from exposure before they suffer any permanent incapacitation.

4. Tertiary Prevention (Disability Limitation and Rehabilitation)

The tertiary prevention is the last level of prevention. It is applied when the individual has reached an advanced stage of disease. It indicates that the first two levels have failed.

Aim

- To limit the progress and development of complications of established disease.
- To reduce impairment and disability.
- To provide rehabilitation measures.
- To prolong life.
- To prevent deaths.

Disability Limitation

Once a disability (impairment, activity limitation, participation restriction) has occurred, measures can be taken to prevent its progression to handicap. Disability can be limited to minimum by advanced treatment at referral centres or established clinics by physiotherapy, and by training of disabled for self-care.

Rehabilitation

Once the disability has progressed to the stage of *handicap*, then attempt is made to rehabilitate the individual. It is a restorative medicine using the remaining capacities of an individual and making him/her self-reliant and useful member in the community. The rehabilitation consists of physical, occupational and social rehabilitation measures. These are very costly.

Examples of rehabilitation: Rehabilitation of paraplegics, amputees (those who have lost limbs), blinds, deaf, mentally retarded, leprosy cases and polio cases. These persons are being provided support for rehabilitation at established centres either by government or by voluntary organizations.

Example: Artificial limbs and foot, hearing aids, spectacles, wheelchair for mobility, speech therapy, crutches, etc.

Community-based rehabilitation (CBR) is the preferred approach wherein family and community takes responsibility and government provides support. CBR programmes are designed and run by local communities. CBR seeks to ensure that people with disabilities have equal access to rehabilitation and other services and opportunities—health, education, and livelihoods. Developed by WHO in 1980s CBR is practiced in more than

90 countries and represents move away from institutions towards community self reliance. Tertiary prevention is a costly and a challenging task.

Competency addressed: The student should be able to:
CM 1.7: Enumerate and describe **health indicators**.

HEALTH INDICATORS

It is somewhat easier to define health for an individual or person or child or adolescent or youth but to define 'community health' is somewhat more difficult. 'Community health' parameters are different from health parameters of an individual. Community health can be measured through indicators of economics (gross national product, gross national income and per capita income), life expectancy, under five mortality, infant mortality, literacy level, composite index like human development index, maternal mortality, etc.

The other indicators of community health are environmental indicators, demographic, access to health services, healthcare utilization and health policy indicators.

A community is healthy when it enjoys sound health where disease and death rate is acceptably low, it is not threatened with bad environments and its economy is sound and the health practices are sound and based on scientific evidences. Its literacy levels are high and demographically it has balanced sex ratio and people live long, quality of life is good and human development index is high. A village is said to be healthy if it has safe source of improved water supply, safe method of waste water disposal, paved streets, disposal of garbage, refuse and animal excreta by manure pits, people use sanitary latrines, female literacy is high, girls enrolment is universal, deliveries are conducted by trained persons, birth rate and death rate are within acceptable limits, immunization coverage is high, children are well-nourished and housing condition is good.

INDICATORS OF QUALITY OF LIFE

Gross National Income (GNI) Per Capita

Definition: The gross national income (GNI), formerly referred to as gross national product (GNP) measures the total domestic and foreign value added claimed by the resident producers, at a given period in time, usually a year expressed in constant 2017 international dollars converted using purchasing power parity (PPP) conversion rates.

Limitations of GNI

Growth of GNP does not necessarily 'trickle down' to the poor and governments often struggle to intervene to ensure the distribution of economic progress to the poor but it percolates very slowly.

The GNI is concerned with production which is traded or monetarized, it does not reflect such factors as growing of food for family consumption or the unpaid labour of women

or do it yourself building of homes, or local collection and consumption of water or firewood and varieties of activities in home settings in rural and urban areas.

Average income statistics fail to reflect real levels of ‘social income’ provided by such government financed services as health and education.

Large proportion of GNI does not enter world trade, official exchange rate cannot reflect domestic purchasing power.

Moreover, GNI is an average figure. GNI of India was International \$ 9047 per annum per person in the year 2023.

Gross Domestic Product (GDP) Per Capita

Definition: The average per capita market value of the sum of gross values added of all resident institutional units engaged in production, for a given national economy, at a given period in time, usually a year, expressed in international dollars using purchasing power parity rates.

GDP measures the total output of goods and services for final use occurring within the domestic territory of a given country, it provides an aggregate measure of production. GDP for the year 2024–25 was \$2392 per capita. Which increased to \$ 2934 in 2026.

Life expectancy in India: In India as a result of COVID-19 pandemic the life expectancy of 69.7 years in 2019 has declined to 67.7 years in 2021, which is now 68.9 years for women and 65.8 years for men. UNFPA report of 2025 indicates life expectancy at birth of 74 years for females and 71 for males and overall life expectancy of 72 years in India.

Healthy life expectancy: It measures the average number of years a person can expect to live in full health, free from illness and injury. It reflects overall health of country’s population in India.

Gap between LE and HALE: India’s total life expectancy (LE) is around 72–73 years (as of 2023–2025), but the healthy life expectancy (HALE) is about a decade less, around 60–63 years, indicating that people spend roughly a decade living with illness or disability. Women live longer than men. HALE highlights the burden of disease and disability helping policy makers focus on preventing illnesses and improving quality of life to close the gap between LE and HALE.

HUMAN DEVELOPMENT INDEX¹¹

The human development index (HDI) remains an aggregate measure of progress in three dimensions—**health**, **education** and **income**. Inequities in human development persist

According to the revised human development report (HDR) methodology, HDI includes following parameters in three dimensions.

1. Life expectancy at birth.
2. Mean years of schooling and expected years of schooling.
3. Gross national income (GNI) per capita.

In the revised methodology, the health dimension is still assessed by life expectancy at birth and is calculated using a minimum value of 20 years and maximum value of 85 years, with the data provided by the UN Population Division. In the calculation of revised education component, education index is measured by mean years of schooling for adults aged 25 years and older and expected years of schooling for children of school-entry age. It is preferred over literacy rate as mean years of schooling are measured more frequently in most of the countries, and can better discriminate between countries.

The mean years of schooling are estimated by the United Nations Educational, Scientific and Cultural Organization (UNESCO), Institute for Statistics, based on educational attainment data from various census and surveys. The expected years of schooling are based on enrolment by age at all levels of education, capped at 18 years, and are produced by the UNESCO, Institute for Statistics.

Further, in the revised methodology, standard of living is being measured by gross national income (GNI) which is a better measure than gross domestic product for globalized economies, as significant difference may be there between income of a country and its residents. Also, some residents who live abroad send their income back to the country and some living in a country send their income abroad, which gets covered in GNI.

Following indices are used to represent aforementioned parameters:

1. Life expectancy index (LEI)

$$\text{Life expectancy index} = \frac{\text{Life expectancy} - 20}{85 - 20}$$

85 and 20 are maximum and minimum assumed values of life expectancy at birth, respectively. LEI is 1 when life expectancy at birth is 85 and 0 when life expectancy at birth is 20.

2. Education index (EI)

$$\text{Education index} = \frac{\text{Mean years of schooling index} + \text{Expected years of schooling index}}{2}$$

A. Mean years of schooling index (MYSI)

$$\text{MYSI} = \frac{\text{Mean years of schooling}}{15}$$

15 is projected as maximum value of mean years of schooling in any country till 2025.

B. Expected years of schooling index (EYSI)

$$\text{EYSI} = \frac{\text{Expected years of schooling}}{18}$$

18 is equivalent to achieving master’s degree in most countries.

3. Income index (II)

$$\text{Income index} = \frac{\ln(\text{GNIpc}) - \ln(100)}{\ln(75000) - \ln(100)}$$

The value of income index is 1 when GNI per capita is \$75,000 and 0 when GNI per capita is \$100. The higher the GNI per capita of a country, the higher would be the value of its income index.

Finally, the HDI is calculated as geometric mean of these three normalized indices, with equal weightage to all, which though is often criticized as all these dimensions not necessarily contribute equally in human development.

HDI of India in 2023

Life expectancy at birth = 72 years

Mean years of schooling = 6.9 years

Expected years of schooling = 13 years

GNI per capita = \$9047.

1. Life expectancy index (LEI)

$$\text{Life expectancy index} = \frac{72 - 20}{85 - 20} = 0.800$$

2. Education index (EI)

$$\text{MYSI} = \frac{6.9}{15} = 0.460$$

$$\text{EYSI} = \frac{13}{18} = 0.722$$

$$\text{Education index} = \frac{0.460 + 0.722}{2} = 0.591$$

3. Income index (II)

$$\text{Income index} = \frac{\ln(\$9047) - \ln(100)}{\ln(\$75000) - \ln(100)} = \frac{3.4565 - 2}{4.875 - 2}$$

$$\text{Income index} = 0.680$$

Geometric mean of 1, 2 and 3 indices

$$= 3\sqrt{0.800 \times 0.591 \times 0.680} = 0.685$$

Human development index is geometric mean of all three indices works out 0.685 for the year 2023 in India (Tables 1.2 and 1.3).

Between 1990 and 2023, India's HDI value increased from 0.446 to 0.685, an increase of nearly 53.6%, an indication of country's remarkable achievement in lifting 271 million of people out of poverty. However in 2021 the HDI declined to 0.647 due to COVID-19 pandemic.

Gender Development Index (GDI) for women in 2023 in India was 0.631 in contrast with 0.722 for men. It measures gender gap. India ranks among the world's worst as for as gender gap index.

Table 1.2: Ranking of countries based on HDI scores (Human Development Report 2023—UNDP)

Rank	Name of country	HDI score
1	Iceland	0.972
2	Switzerland and Norway	0.970
3	Germany	0.962
4	Sweden	0.959
130	India	0.685
193	South Sudan—at the bottom	0.388

Table 1.3: Trend of HDI in India

1990	2000	2010	2015	2020	2021*	2022	2023
0.446	0.501	0.590	0.633	0.652	0.647	0.676	0.685

* However in 2021 the HDI declined to 0.647 due to Covid-19 pandemic.

The COVID pandemic has infected and killed millions of people worldwide. It has upended the global economy, interrupted education dreams, health services and treatment, and disrupted lives and livelihood. The COVID crisis deepened in health, with a drop in life expectancy at birth. For the first time, indicators of human development have declined—drastically, unlike anything experienced in other recent global crises. (UNDP special Report 2022—New threats to human security in the Anthropocene. “Demanding greater solidarity”). COVID-19 pandemic has caused unprecedented decline in human development index values in the last two years.

Revised Multidimensional Poverty Index (MPI)

MPI looks beyond income and identifies multiple deprivations at household level. Revised and updated global MPI in September 2018 includes three key dimensions—health, education and standard of living and 10 indicators (nutrition, child mortality, years of schooling, school attendance, cooking fuel, improved sanitation, drinking water, electricity, housing and assets). Based on this index nearly 27.9% of people in India were poor in 2015–16.¹⁰ People who experience deprivation in at least one third of these weighted indicators fall into category of MPI.

PHYSICAL QUALITY OF LIFE INDEX

Physical quality of life index (PQLI) is one of the indicators used to measure the level of human development. This index takes into consideration of the following components:

- Infant mortality rate
- Life expectancy at age one
- Literacy rate

For the lowest level of IMR of Kerala of 8 against the 37 of UP or MP, the score for Kerala would be 100 and for

UP it would be only 9.25 where zero score is allotted to absolutely defined lowest performance and score of 100 denotes absolutely defined highest performance. After allocating the scores to each component, aggregate score of three components is averaged out. Each component has equal weightage. The PQLI is a composite index and measures social well-being of human development of a defined geographical territory. The PQLI does not include the component of GNP meaning thereby that economic development is not a prerequisite for human development. PQLI is not totally dependent upon economic development.

MEASUREMENT OF HEALTH STATUS THROUGH HEALTH INDICATORS

Since morbidity and mortality only relate to sick persons and persons who die. What about those who survive? The objective of nations all over the world is to improve the quality of life (physical, social and mental well-being). Therefore, the population or community health and development is judged through other indicators in addition to morbidity and mortality indicators. The quality of life of survival is judged through some of the following *indicators*, positive and negative both.

Policy Indicators

- Allocation of financial resources for health, e.g. allocation of percentage of budget on health and percentage of GDP spent on health.
- Percentage of public health investment on primary healthcare, secondary and tertiary healthcare.
- Policy on social insurance and coverage of most vulnerables and poor people, e.g. ‘*Ayushman Bharat*’.
- **Equitable** access to health services and equity in medical education and human resource development.
- Decentralized management of health institutions and delegation of authority to Panchayati Raj Institutions.
- Convergence and intersectoral coordination.
- Public–private and NGOs partnership.
- Use of rational drugs and drug policy.
- Population norms for health facility and IPHS.

1. Basic Indicators

Under-five mortality (negative indicator). India ranks at 53rd place with under-five mortality of 30 (2022).

- Infant mortality rate (negative indicator) of 25 in 2023
- Neonatal mortality rate of 19 in 2022
- Gross national income (positive indicator)
- Life expectancy at birth (positive indicator)
- Total adult literacy (positive indicator)
- Net primary school enrolment ratio

2. Nutrition Indicators

- Percentage of infants with low birth weight
- Early initiation of breastfeeding (%)

- Exclusively breastfed up to 6 months (%)
- Introduction of solid, semisolid or soft foods at 6–8 months (%)
- Malnutrition prevalence in under-five (underweight, wasting and stunting).
- Vitamin A supplementation coverage
- Households consuming iodized salt.

3. Health Indicators

- Population using improved drinking water source.
- Percentage of population using adequate sanitation facilities.
- Percentage of routine vaccines financed by government.
- Immunization status of pregnant women and infant.
- ORS use rate and ARI management rate at health facility.
- Children sleeping under impregnated bed nets (%).
- Percentage of under-five with fever receiving antimalarial drugs.

4. HIV/AIDS

- HIV incidence per 1000 uninfected population.
- Adults (15–49 years) prevalence rates.
- Estimated number of people living with HIV/AIDS.
- HIV prevalence among young people (15–24 years).
- Comprehensive knowledge of HIV (%).
- Women living with HIV (%).

5. Education

- Adult literacy rate
- Primary school gross enrolment ratio
- Net primary school enrolment ratio
- Primary school entrants reaching grade 5
- Secondary school gross enrolment ratio.

6. Demographic Indicators

Population, population annual growth rate, crude birth and death rate, life expectancy, total fertility rate, percentage of urban population, average annual growth rate of urban population (%).

7. Economic Indicators

GNI per capita, GDP per capita average annual growth rate, percentage of central government expenditure allocated to health, education and defence, and percentage of population below \$ 1.5 a day.

8. Women

Life expectancy of female, women literacy, gross enrolment ratio for girls, contraceptive prevalence, antenatal care coverage, skilled attendant at delivery (%) and maternal mortality ratio and lifetime risk of maternal death.

9. Child Protection

Child labour (5–14 years), birth registration, female genital mutilation, and child marriage.

10. Adolescents

Adolescents indicators include adolescents as proportion of total population, marital status, age at first birth, adolescent birth rate (15–19 years), attitudes towards domestic violence, secondary education and comprehensive HIV knowledge.

11. Equity

Health inequalities in various indicators persist in urban and rural, rich and poor, in different states and within state/districts. Equity indicators include birth registration, skilled attendance at birth, underweight prevalence in children, immunization—measles coverage and use of improved sanitation facilities in poorest and richest 20%.

Competency addressed: The student should be able to:

CM 1.8: Describe the **demographic profile** of India and discuss its impact on health.

DEMOGRAPHIC PROFILE OF INDIA AND ITS IMPACT ON HEALTH

Demographic indicators can be divided into two parts: Population statistics and vital statistics.

POPULATION STATISTICS

Size of Population and its Implications on Health

- Large size of population over 1463.9 million in July 2024 poses a challenge for universal health coverage. To set up health facilities, such as number of sub-centres, (health and wellness centres or *Ayushman Arogya Mandirs*) PHCs, CHCs and required manpower, physical infrastructure and finances as per Indian Public Health Standards and population norms, it becomes an uphill task.
- Nearly 66% of population is rural and 34% urban and half of urban population may be living in urban slums, which have high density of population and consequently high risk of respiratory infections and TB and COVID-19. Disparity or divide between rural and urban population/urban slums persists, as most of health resources are concentrated in favour of urban areas (hospitals, doctors, private nursing homes and big hospitals). Universal coverage of health for this much population remains a big challenge.

Sex Ratio—Demographic Implications

The demographic divide between women and men continues to exist till date. Out of total population of 1210 million in 2011, we had 587 million females against 623 million males, which means 36 million females are

missing in India. Overall female sex ratio was 943 per 1000 men. Many well to do states like Haryana and Punjab have low female sex ratio, indicating high mortality in female. The overall female sex ratio has improved to the level of 1020 in 2019–21 for the first time in India. Thus survival rates in women have improved.

a. Most Disturbing Sign of Demography: Declining Female Child Sex Ratio (CSR) Census 2011

The population of 0–6 years girls is declining. At national level this ratio is 914. Most worrisome feature of low child sex ratio of 830, 846, 886 and 867 was observed in the prosperous states of Haryana, Punjab, Delhi, and Chandigarh, respectively. Jhajjar district in Haryana had the lowest child sex ratio of 774. This is significant pointer towards sex selective abortions, this needs to be curbed by stringent implementation of PNDT Act. CSR has improved to 928 due to implementation of PNDT.

Population Structure—Age Composition

a. Infant and Young Children (0–4 Years)

The overall 0–4 year population which forms the base of pyramid is shrinking due to fall in fertility rate and success of F.P prog. currently it is 8.2% of total population.

Newborns, infants and young children below 5 years of age constitute 8.2% of total population. They are most vulnerable to diseases and deaths. High infant mortality of 28 and under 5 mortality of 32 is a problem. Their prime health needs are survival, feeding (breastfeeding, exclusive breastfeeding, complementary feeding), early childhood care and education, growth and development, immunizations and management of childhood illness like diarrhoea, ARIs and fevers.

They are supreme assets and future human resource of the country. Hence, the health services provision should be over-riding priority. Invest in their education and health.

b. Population of 5–14 Years (School-going Children)

These children constitute nearly 18.3% of India's population. They are vulnerable age group.

Major health implications for this population are supervision and monitoring of their growth and development, adequate diet, universal enrolment and retention in schools, screening and correction of 4Ds—common **defects** (visual and hearing impairment, dental caries), developmental **delays** and learning disorders, **diseases** and **deficiencies**. Major intervention includes health education to promote 'healthy lifestyles', healthy behaviours and habits (eating healthy foods, avoiding tobacco use, promoting physical activities, using toilets, handwashing and personal hygiene, drinking clean water) besides health protection by immunizations, iron folic acid supplementation and deworming. Major challenge is coverage of all schools (government and private) under universal health coverage and RBSK and RKSK prog.

Adolescent Age 10–19 Years

Adolescents constitute Nearly 17% of population of India. Health implications in this age group are to provide them correct and complete information on ‘healthy lifestyles’ menstrual hygiene, reproductive and sexual health, prevention of RTI, STDs, and HIV, adequate and healthy diet, avoiding drugs, alcohol and tobacco use, prevention of accidents road safety, right age of marriage and child bearing, contraception and prevention of non-communicable diseases. Main health intervention is health education and counselling by peer educators, through curriculum and education system and implementation of RKSK.

Population of 20–59 Years—Working Age Population

This is economically productive population. They constitute nearly 51% of India’s population.

Health Implications

The **health needs** of this age group is a necessity for economic development. They must be healthy at home and at workplace, and do not fall sick and should have safeguards in terms of financial security in the event of sickness to prevent catastrophic expenditure. Nearly 60 million people are pushed to poverty every year in India due to catastrophic health expenditure. Health protection schemes and workplace safety for this segment of population is an imperative need for national economy and productivity.

Men and women in reproductive age group (15–49 years) constitute nearly 52% of population in India. The health implications in this age bracket are to address reproductive and sexual health of men and women—to reduce high fertility, to control STI/RTI and HIV, to reduce high maternal morbidity and mortality due to anaemia, unsafe abortions, repeated pregnancies, besides problem of oral, breast and cervical cancers and other lifestyle chronic diseases—NCDs.

Population of 60+ (Geriatric Population)

Demographic transition in India has led to increased population of older persons above the age of 60 which constituted nearly 10.5% in July 2022 of total population of India and projected to touch 14.9% by 2036 (“India Ageing Report 2023” released by Nations Population Fund and IIPS). People live longer and life expectancy has increased to 70 years a sign of socio-economic development.

Health Implications

Due to demographic shift of ageing population India has to address the health problems of aged people in terms of chronic non-communicable diseases and degenerative diseases which require expensive lifelong treatment and care. To address health and social problems of elderly people is a challenging task in universal health coverage.

Population of 30–65 constitutes 37% of total population. This age group is being targeted for population-based

screening of common cancers (oral, breast and cervical) and non-communicable diseases, and lifestyles management.

Vital Statistics

Vital statistics and other demographic indices (mortality and fertility rates) are described in Chapter 9.

Competency addressed: The student should be able to:

CM 1.9: Demonstrate the role of effective communication skills in health in a simulated environment.

Objective of this skill is to arrive at communication needs assessment.

How? Maintain regular contacts and communication with community and allotted families throughout the course curriculum.

Role of Effective Communication Skills in Health and Disease

Communication skills of health managers (Doctors) and workers, ASHAs and *Anganwadi* volunteers are crucial, critical and much depends on their training. Good communication skills are essential to elicit correct history (chief complaints), effective counselling and to enhance patient satisfaction.

Communication

Communication is a core competency for Indian medical graduates. Communication skills are necessary for community and patient diagnosis, satisfaction, building good relationship of trust and respect, speedy recovery and improved health outcomes besides health promotion and adopting healthy lifestyles.

How to achieve this skill

“Communication with patient, family and community is simply listening”.

a. Listening to community or client and direct observation:

In community medicine “the patient” is ‘community’ not an individual. Listening to community you serve is the most important skill in communication. Active listening means analysing the mind of community/client. It is first step in community diagnosis and patient diagnosis.

Student listens to rural/urban community, their chief complaints or felt needs and priority demands, interacts with elected leaders (formal) and informal leaders and organized groups such as village/urban health sanitation and nutrition committee, *Mahila Arogya Samiti* in urban areas, AWWs, health workers, school teachers, NGOs and family members in allotted families.

Transact walk in community helps mapping of sources of water supply, excreta disposal practices, breeding places, housing, health facilities, schools, electricity and market places. Information collected by listening and direct observation is recorded in diary/practical Logbook and

analysed to arrive at community diagnosis and communication needs assessment of family/community.

Active Listening

“You can’t learnin’ nothin’ you’re doin’ all the talkin’.”

—Lyndon B Johnson, US President

Listening actively is different from hearing. **Hearing** is physiological function while active listening is analysis of what is being said, how it is being said, and body language of person or client/patient/community. Listening is the key skill to effective communication. Active listening analyses the mind of persons, their profile, helps to assess their health and communication needs and community diagnosis. Listen attentively, show that you are listening, by maintaining eye contacts, nodding your head and reflecting feelings. Active listening is a part of participatory leadership and management. People say more and they say it better when they believe that someone is really listening to them. Most health managers spend around 50% of their time to listening, talking, writing and reading (communication). Too much of the communication between provider and client is one way. Field workers need to spend more time listening to clients than talking, discussing their health and family planning needs. Training in listening and counselling is necessary.

Interpreting Body Language

Listen to what is not being said. Communication is not only verbal, everyone communicates their feelings “non-verbally”, though what is popularly called “body language”, learn how to interpret body language. Learn to pay attention to body language, and be sensitive to what your staff and colleagues are trying to communicate to you non-verbally. It can help you to identify problems. Body language examples:

- Touching face frequently *means* anxiety, and discomfort
- Rubbing nose *means* anxiety, wishes to avoid
- Foot tapping *means* impatience, anger
- Elbow on table, hands forming steeple—confident, secure
- Hand over mouth *means* playing, wishes to hide, anxiety
- Avoiding eye contact *means* anxiety, distrust, discomfort, hiding.

Empathy

Empathy enables us to connect with people and build relationship. Empathy is part of being human in active listening. Through empathy we connect with other’s emotions, thoughts and feelings and share in their felt health needs/experiences. Key component of empathy is emotional connection with the person/client or community. Empathy is an experience of understanding another person’s condition from their perspective by placing yourself in another’s shoes and feeling what they are feeling. It is known to increase helping behaviour. Empathy includes mirroring what a person is feeling, to identify

and understand another person’s emotions (being happy, sad, angry, shy, nervous).

b. Speaking (verbal communication skill) is another important skill. What to speak, how to speak, when to speak and whom to speak are essential elements. It means, the communicator should have latest knowledge and speak scientifically. Convey message which is sense making and has proven scientific evidence. Health information to people must be accurate, accessible and actionable.

Speaking/Talking—a Verbal Communication Skill

Most of communication in our life is verbal/oral communication. Verbal communication by doctors to patients builds a relationship of trust and works more than healing with medicines or other interventions. Use sympathetic/empathic tone, easy to understand language, addressing or focusing on concern of audience/community talk with people not at them, people do not learn much from telling. They learn from what they think, feel, discuss, see and do together. Skill of group formation, group discussion, focus group discussion is most rewarding in gathering information.

Goal of verbal and written communication: It is to improve “Health Literacy” of individual, family and community to adopt healthy behaviours and lifestyles.

c. Writing: It means developing clear and precise health messages in local dialects, facts for health and their critical analysis. Clear and concise written job descriptions and instructions with health teams helps them to perform what is expected of them.

Writing skills (written communication): Learn to write effectively. Clear writing is clear thinking. Writing effectively means your thoughts are clear, and concise. Write clear instructions for health workers. Updated, written job descriptions must be available with the health workers so that workers understand what is expected out of them. Technical directions are best written so there is no possible misinterpretation and so there is a ready reference later on. Quite often, medical officers are required to write a brief note for district collector for supporting plans of action and intersectoral coordination. Similarly, drafting a press release for clearance and health messages for actions or adopting healthy behaviour/lifestyle by people are other examples of writing skills. Always write in active voice; short sentences. Because of need to communicate to illiterate persons, familiar pictures/pictorials are used to convey messages. The term “visual literacy” has been used for a Person’s familiarity with pictures and conventions of graphic design.

d. Reading: It means acquiring latest knowledge on health-development, health system policies and services to inform people to enhance utilization of services.

e. Reasoning power: A sound skill of reasoning in communication is imperative. It involves creative thinking. Good reasoning for adopting healthy lifestyles/best

practices helps promoting health, preventing diseases and health seeking behaviours and utilization of services by community.

Expected outcomes: Student takes transect walk in the community—rural or urban and maintains regular contacts and communication and interacts with community, its elected and non-formal leaders and organised groups of men and women and allotted families and households record his/her observations in logbook. Minimum frequency of contacts to be determined locally.

NMC mandate is minimum of 14–28 visits of 84 hours in the allotted families. He/she attends VHSNC/UHSN once a month on fixed day and fixed venue.

Competency addressed: The student should be able to:

CM 1.10: Demonstrate the important aspects of the doctor–patient relationship in a simulated environment.

Objective of this skill is to abide by the prescribed ethical and legal codes of conduct and practice to improve quality of relationship between providers and the community. Doctor is bound by medical ethics of “The physician’s pledge”. Nuremberg code of ethics in medical research, Declaration of Helsinki and duties of physician to their patients as per Medical Council of India. In public health, the patient is “**Community**”. A typical rural health centre is responsible to a defined population of 30,000 and urban health centre to 50,000 population. **The way in which providers of public health services are connected with community they serve is known as community relationship.** The households, families, community, Village and Urban Health Sanitation and Nutrition Committees, ASHAs, AWWs are connected or linked with dynamic health system of subcentres (health and wellness centres), PHCs, CHCs and district hospitals for continuum of comprehensive primary healthcare across lifecycle. The system maintains sustained contacts with the families and the community by regular home visits and outreach services, leading to community participation and satisfaction and also increased use of public health services at all these levels. There is direct face to face interaction with families through their life span.

How? “These interactions and sustained contacts must be demonstrated to the students or else role play by students. Students observe the ethical practices of honourable role models—faculty of medical college silently to emulate in their life later on. Thus ‘faculty must practice what they teach on ethics’. Most textbooks on community medicine do not have a chapter on medical ethics. Hence, the UGs and faculty are deprived of this information”.

DOCTOR–PATIENT RELATIONSHIP (DPR)

Sacred DPR perspectives have changed from Hippocratic oath to: “The physician’s pledge” it is one to one, rational, based on mutual trust, value system and is reciprocal, give and take and each one has a specific role to play. DPR is

the cornerstone to patient care. Good interaction and contacts between doctor and patient enhances satisfaction. Empathy (sharing feelings of patient) and effective communication (providing correct information) builds mutual trust and avoids litigation.

Types of DPR

1. **Paternalistic model:** In this model the doctor should make all the decisions. Assumption here is doctor knows the best.
2. **Informative model:** Here doctor provides all the relevant information for the patient to make decision.
3. **Deliberative model:** Here doctor deliberates through dialogue and discussions and helps the patient to select the best treatment among alternatives.
4. **Interpretive model:** Here doctor helps the patient to articulate his/her values through interpretation and provides interpretation which is truly wanted.

Empathy and effective communication is part of therapy and is linked to outcomes of care through sustained DPR on treatment adherence, satisfaction and improved health status.

Consent: Voluntary agreement by patient to allow medically trained person to touch, examine and perform treatment. The consent is implied, or expressed consent and best is informed consent.

Duty of Care for Doctor

Qualified in modern system of medicine, is competent for giving medical advice and treatment, duty of care in deciding what treatment to give, update his/her knowledge and skills, maintain medical records, medical certificate register, display details and observe all statutory laws and regulations. **Negligence** is an offence under consumer protection Act. Empathetic behavior of doctor, ensuring dignity, privacy and confidentiality of patients all these count.

Know Your Patient Well

- His/her health literacy and socio-economic status.
- His prime concern, perception of illness, outlook and attitude, health seeking behaviour, coping mechanism, his/her expectation and expectation of patient’s attendants.

Patients autonomy, privacy and dignity, decisions must be respected. First do no harm (non-maleficence and doing good (beneficence). Patients have right to seek second opinion and can withdraw from a research study anytime rights should be ensured.

Duty of Patient

As laid down by government of India and various health Acts and regulations. Patient expects that the doctor will be friendly, listens, gives him clear precise and professional directions, gives necessary time attention, care and cure.

Responsibilities of Patients

To keep the facility clean, avoid spitting in corners, avoid over-crowding by attendants, respecting visiting hours, not causing any harm to public property including violence against healthcare professionals.

Expected Outcomes

The student interacts with medical officer, health workers and health volunteers (ASHAs, AWWs), identifies their nature and frequency and duration of contacts with the community they serve. Students observe their acceptability and ability to organize community and documents his/her observations in the logbook for self directed learning.¹⁰

The new MBBS curriculum has a course called Attitudes, Ethics, Communication (AETCOM) which runs across years. It has 27 modules of 140 hours spread over 4 years. Students will be assessed for how they communicate with patients, how they counsel people for organ donations or other challenging procedures, how sensitively do they offer care and obtain informed consent. All these will count along with competencies. It is an ambitious course, hopefully it gets implemented. Medical faculty must demonstrate to students “the humane approach to patient and community”. AETCOM cannot be taught merely by lectures/sermons, its practice must be seen to be believed. The Medical College faculty must practice it first of all. AETCOM must be integrated with different phases—pre, para and clinical phases rather than a separate dis-integrated modular, course in isolation. One such approach is clinico-social case review, problem-based learning and sustained community and family contacts as explained under pedagogy.^{12, 13}

Attitude: A human attribute indicating a particular mental state or an outlook to life. It mainly includes affective domain chiefly related to feelings, moods, settled way of thinking, thoughts and emotions and inclinations.

ETHICS IN MEDICINE (MORAL PRINCIPLES)¹⁴

Ethics is the branch of philosophy dealing with the distinction between right and wrong with the moral consequences of our actions (last 1989); it refers to moral issues involved in statistical investigations in medicine, the scientific integrity of the investigator and the obligations implicit in the **doctor–patient relationship**. Doctor is at the central stage bound by medical ethics of “The physician pledge” (WMA Declaration Geneva).

Doctor is responsible for care of sick individuals, healthcare of community and training of health teams. The ethical responsibilities extend to very large domain and in particular the area of medical ethics has become much more important *in view* of recent advances in medicine like:

- **Genome project:** Genetic counselling in hereditary diseases, *in vitro* fertilization, growing foetus in the womb of surrogate mothers are important areas.
- Termination of pregnancy on medical grounds (MTP Act).

- Ethics in contraceptives and family planning practices.
- HIV/AIDS.
- Legal and ethical conflicts under Human Organs and Tissues Transplantation Act.
- Vaccine and drug trials and medical research.
- Distribution and allocation of resources according to health needs of masses in urban and rural areas to reduce inequality.
- Doctor–patient relationship.
- Health policies.
- Policies of care of terminal ill patients and voluntary passive euthanasia.

It is mandatory that every medical institution should have an ethical committee to approve the plan of research work in relation to human **beings** and **animals**.

LAWS PERTAINING TO PRACTICE OF COMMUNITY MEDICINE

Consumer Protection Act—Avoid Negligence—Relates to AETCOM 4.9

The doctors must practice medicine ethically in terms of **doctor–patient relationship**, avoid unnecessary investigations and consultation and avoid negligence in care. *Consumer Protection Act* (CPA) safeguards the **rights of client** and it improves the quality of medical care. Under CPA, the negligence in medical care is an offence. Negligence means that a person who holds himself ready to give medical advice and treatment implied, undertakes that he is possessing skill and knowledge for the purpose. Such a person, who is consulted by a patient, owes him certain duties, namely a duty of care in deciding what treatment to give or a duty of care in the administration of that treatment. A breach of any of these duties gives a right of action for negligence to the patient. Doctors in private practice, hospitals, clinics who charge for patient care/hospital paid by an insurance firm for treatment/hospitals having free as well as paying patients come under the purview of this Act.

Clinical Establishment Act, 2010

Main Features

- Grading of clinical establishment.
- Standard treatment guidelines.
- Protection of patient rights—such as rights to information, access to medical records informed consent, second opinion and confidentiality.
 - Standard of care and prices/fees of services.
 - Negligence and unfair practice.
 - Organ and tissue transplantation.

HIPPOCRATIC OATH

Modern Version

I swear to fulfil, to the best of my ability and judgement, this covenant (solemn agreement):

- I will respect the hard-won scientific gains of those physicians in whose steps I walk and gladly share such knowledge as is mine with those who are to follow.
- I will apply, for the benefit of the sick, all measures which are required, avoiding those twin traps of over treatment and therapeutic nihilism.
- I will remember that there is art to medicine as well as science, and that warmth, sympathy and understanding may outweigh the surgeon's knife or the chemist's drug.
- I will not be ashamed to say "I know not", nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery.
- I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I treat with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God.
- I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.
- I will prevent disease whenever I can, for prevention is preferable to cure.
- I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm.
- If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter. May, I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.

WORLD MEDICAL ASSOCIATION (WMA) DECLARATION OF GENEVA—OCTOBER 2017

The Physician's Pledge

As a member of the medical profession:

- **I solemnly pledge** to dedicate my life to the service of humanity.
 - **The health and well-being of my patient** will be my first consideration.
 - **I will respect** the autonomy and dignity of my patient.
 - **I will maintain** the utmost respect for human life.
 - **I will not permit** considerations of age, disease or disability, creed, ethnic origin, gender, nationality, political affiliation, race, sexual orientation, social standing or any other factor to intervene between my duty and my patient.
 - **I will respect** the secrets that are confided in me, even after the patient has died.
 - **I will practise** my profession with conscience and dignity and in accordance with good medical practice.
- **I will foster** the honour and noble traditions of the medical profession.
 - **I will give** to my teachers, colleagues, and students the respect and gratitude that is their due.
 - **I will share** my medical knowledge for the benefit of the patient and the advancement of healthcare.
 - **I will attend** to my own health, well-being, and abilities in order to provide care of the highest standard.
 - **I will not use** my medical knowledge to violate human rights and civil liberties, even under threat.
 - **I make these promises** solemnly, freely, and upon my honour.

NUREMBERG CODE OF ETHICS IN MEDICAL RESEARCH

1. The voluntary **consent** of the human subject is absolutely essential. This means that the **consent** should be free and without force, fraud, deceit duress or any other ulterior motive. The person giving consent should have the legal capacity to do so. It should be intelligent and given only after understanding the nature of experiment, its purpose, duration, methods, its hazards and after effects that may arise out of the experiment.
2. The experiment should be such as to yield fruitful results for the good of society, unprocureably by other methods or means of study, and not random and unnecessary in nature.
3. The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problems under study that the anticipated results will justify the performance of the experiment.
4. The experiment should be conducted to avoid all unnecessary physical and mental suffering and injury.
5. The experiment should be conducted where there is a prior reason to believe that death or disabling injury will occur; except, perhaps in those experiments where the experimental physicians also serve as subjects.
6. The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.
7. Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability or death.
8. The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conduct or engage in the experiment.
9. During the course of the experiment, the human subject should be at liberty to bring the experiment to an end if he has reached the physical and mental state where continuation of the experiment seems to him to be impossible.

10. During the course of the experiment, the scientist in charge must be prepared to terminate the experiment at any stage, if he had probable cause to believe, in the exercise of good faith, superior skill and careful judgement required of him, that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.

This code got to the subjects of consent the voluntariness of consent, the right of a patient to withdraw if he wished, and the basic question of doing things in accordance with proper medical standards and safeguards. However, among other limitations, it did not explicitly deal with the subject of children. Probably nobody at that time, thought it would be necessary. Administer the **assent** form if the respondent is less than 18 years old and take **informed consent** from the respondent parent/guardian/care-giver.

DECLARATION OF HELSINKI (Retates to AETCOM Module 2.5 and 2.7)

World Health Association has prepared the following recommendations as a guide to every doctor in biomedical research involving human subjects. They should be kept under review in future. It must be remembered that these are only a guide to physicians all over the world. Doctors are not relieved from criminal, civil and ethical responsibilities under the laws of their own countries.

I. Basic Principles

1. Biomedical research involving human subjects must conform to generally accepted scientific principles and should be based on adequately performed laboratory and animal experimentation and on a thorough knowledge of the scientific tradition.
2. The design and performance of each experimental procedure involving human subjects should be clearly formulated in an experiment protocol which should be transmitted to specially appointed independent committee for consideration, comment and guidance.
3. Biomedical research involving human subject should be conducted only by scientifically qualified persons and under the supervision of a clinically competent medical person. The responsibility for the human subject must always rest with a medically qualified person and never rest on the subject of the research, even though the subject has given his or her consent.
4. Biomedical research involving human subjects cannot legitimately be carried out unless the importance of the objective is in proportion to the inherent risk to the subject.
5. Every biomedical research project involving human subjects should be proceeded by careful assessment of predictable risks in comparison with foreseeable benefits to the subject or to others. Concern for the interests of the subjects must always prevail over the interest of science and society.
6. The right of the research subject to safeguard his or her integrity must always be respected. Every precaution should be taken to respect the privacy of the subject and to minimize the impact of the study on the subject's physical mental integrity and on the personality of the subject.
7. Doctors should abstain from engaging in research projects involving human subjects unless they are satisfied that the hazards involved are believed to be predictable. Doctors should cease any investigation if the hazards are found to outweigh the potential benefits.
8. In publication of the results of his or her research, the doctor is obliged to preserve the accuracy of the results. Reports of experimentation not in accordance with the principles laid down in this declaration should not be accepted for publication.
9. In any research on human beings, each potential subject must be adequately informed of the aims, methods, anticipated benefits and potential hazards of the study and the discomfort it may entail. He or she should be informed that he or she is at liberty to abstain from participation in the study and that he or she is free to withdraw his or her consent to participation at any time. The doctor should then obtain the subject's freely given informed consent, preferably in writing.
10. When obtaining **informed consent** for the research project the doctor should be particularly cautious if the subject is in a dependent relationship to him or her or may consent under duress. In that case, the informed consent should be obtained by a doctor who is not engaged in the investigation and who is completely independent of the official relationship.
11. In case of legal incompetence, informed consent should be obtained from the legal guardian in accordance with national legislation. Where physical or mental incapacity makes it impossible to obtain informed consent, or when the subject is a minor, permission from the responsible relative replaces that of the subject in accordance with national legislation.
12. The research protocol should always contain a statement of the ethical considerations involved and should indicate that the principles enunciated in the present declaration are complied with.

II. Medical Research Combined with Professional Care (Clinical Research)

1. In the treatment of the sick person, the doctor must be free to use a new diagnostic and therapeutic measure, if in his or her judgement it offers hope of saving life, re-establishing health or alleviating suffering.
2. The potential benefits, hazards and discomfort of the new method should be weighed against the advantages of the best current diagnostic and therapeutic methods.
3. In any medical study, every patient including those of a control group, if any should be assured of the best proven diagnostic and therapeutic methods.

4. The refusal of the patient to participate in a study must never interfere with the doctor–patient relationship.
5. If the doctor considers it essential not to obtain informed consent, the specific reasons for this proposal should be stated in the experimental protocol for transmission to the independent committee.
6. The doctor can combine medical research with professional care, the objective being the acquisition of new medical knowledge, only to the extent that medical research is justified by its potential diagnostic or therapeutic value for the patient.

III. Non-therapeutic Biomedical Research Involving Human Subjects (Non-clinical Biomedical Research)

1. In the purely scientific application of medical research carried out on human beings, it is the duty of the doctor to remain the protector of the life and health of that person on whom biomedical research is being carried out.
2. The subjects should be volunteers—either healthy persons or patient for whom the experimental design is not related to the patient's illness.
3. The investigator or the investigating team should discontinue the research if in his/her or their judgement it may, if continued, be harmful to the individual.
4. In research to man, the interest of science and society should never take precedence over consideration related to the well-being of the subject.

EUTHANASIA (Relates to AETCOM Modules 2.6 and 2.8)

‘Thanatology’ is a branch of science that deals with scientific study of death and practices associated with it. Euthanasia has its origin from Greek word, the term *Eu* means well and *Thanatos* means death and it literally means an easy death. It is a form of peaceful or dignified death which is specially advocated when life becomes a punishment and dying comes as pleasure to patient, suffering from some incurable disease like cancer with severe intolerable and uncontrollable pain.

Honourable SC permits ‘living will’ for passive euthanasia: The supreme court recognises right to die with dignity and allows an individual to execute an ‘advance directive’ or ‘living will’ authorising someone to withdraw his/her life support if he/she went into a permanent vegetative state (PVS) because of an incurable and irreversible medical condition. Life support could be withdrawn only after a medical board approved it. With this verdict India joins nations such as UK, Germany and the Netherlands which have advance directive laws allowing an individual to execute a ‘living will’. Now SC allows passive Euthanasia as right to die with dignity even without living will (March—2026)

But active euthanasia which involves administering some medicines or lethal injection to end life, continues to be illegal in India.

Advantages of legal recognition of brain death in terminal injury:

- It will facilitate organ transplantation.
- It will ensure economy of intensive care resources.
- It will have maximum impact in the matter of property rights, negligence claims, insurance and workers compassionate.

INDIAN MEDICAL COUNCIL (PROFESSIONAL CONDUCT, ETIQUETTE AND ETHICS) REGULATION, 2002

(Amended up to 8th October 2016)

Medical Council of India

Duties of Physicians to their Patients¹³

(Medical Council of India)

Obligations to Sick (relates to AETCOM 1.1, 3.4 and 3.5)

2.1.1 Though a physician is not bound to treat each and every person asking his services, he should not only be ever ready to respond to the calls of the sick and the injured, but should be mindful of the high/character of his mission and the responsibility he discharges in the course of his professional duties. In his treatment, he should never forget that the health and the lives of those entrusted to his care depend on his skill and attention. A physician should endeavour to add to the comfort of the sick by making his visits at the hour indicated to the patients. A physician advising a patient to seek service of another physician is acceptable, however, in case of emergency a physician must treat the patient. No physician shall arbitrarily refuse treatment to a patient. However, for good reason, when a patient is suffering from an ailment which is not within the range of experience of the treating physician, the physician may refuse treatment and refer the patient to another physician.

2.1.2 Medical practitioner having any incapacity detrimental to the patient or which can affect his performance vis-à-vis the patient is not permitted to practice his profession.

2.2 Patience, delicacy and secrecy: Patience and delicacy should characterize the physician. Confidences concerning individual or domestic life entrusted by patients to a physician and defects in the disposition or character of patients observed during medical attendance should never be revealed unless their revelation is required by the laws of the state. Sometimes, however, a physician must determine whether his duty to society requires him to employ knowledge, obtained through confidence as a physician to protect a healthy person against a communicable disease to which he is about to be exposed. In such instance, the physician should act as he would wish another to act toward one of his own family in like circumstances.

- 2.3 Prognosis:** The physician should neither exaggerate nor minimize the gravity of patient's condition. He should ensure himself that the patient, his relatives or his responsible friends have such knowledge of the patient's condition as will serve the best interests of the patient and the family.
- 2.4 The patient must not be neglected:** It relates to AETCOM module 4.9. A physician is free to choose whom he will serve. He should however, respond to any request for his assistance in an emergency. Once having undertaken a case, the physician should not neglect the patient, nor should he withdraw from the case without giving adequate notice to the patient and his family. Provisionally or fully registered medical practitioner shall not wilfully commit an act of negligence that may deprive his patient or patients from necessary medical care.
- 2.5 Engagement for an obstetric case:** When a physician who has been engaged to attend an obstetric case is absent and another is sent for and delivery accomplished, the acting physician is entitled to his professional fees, but should secure the patient's consent to resign on the arrival of the physician engaged.

3. DUTIES OF PHYSICIAN IN CONSULTATION

Unnecessary Consultations should be Avoided

- 3.1.1** However, in case of serious illness and in doubtful or difficult conditions, the physician should request consultation, but under any circumstances such consultation should be justifiable and in the interest of the patient only and not for any other consideration.
- 3.1.2** Consulting pathologists/radiologists or asking for any other diagnostic laboratory investigation should be done judiciously and not in a routine manner.
- 3.2 Consultation for patient's benefit:** In every consultation, the benefit to the patient is of foremost importance. All physicians as engaged in the case should be frank with the patient and his attendants.
- 3.3 Punctuality in consultation:** Utmost punctuality should be observed by physicians in making themselves available for consultations.
- 3.4 Statement to patient after consultation:** All statements to the patient or his representatives should take place in the presence of the consulting physicians, except as otherwise agreed. The disclosure of the opinion to the patient or his relatives or friends shall rest with the medical attendant.
- 3.4.2** Differences of opinion should not be divulged unnecessarily but when there is irreconcilable difference of opinion the circumstances should be frankly and impartially explained to the patient or his relatives or friends. It would be open to them to seek further advice as they so desire.

3.5 Treatment after consultation: No decision should restrain the attending physician from making such subsequent variations in the treatment if any unexpected change occurs, but at the next consultation, reasons for the variations should be discussed/explained. The same privilege, with its obligations, belongs to the consultant when sent for in an emergency during the absence of attending physician. The attending physician may prescribe medicine at any time for the patient, whereas the consultant may prescribe only in case of emergency or as an expert when called for.

3.6 Patients referred to specialists: When a patient is referred to a specialist by the attending physician, a case summary of the patient should be given to the specialist, who should communicate his opinion in writing to the attending physician.

3.7 Fees and other charges:

- 3.7.1** A physician will clearly display his fees and other charges on the board of his chamber and/or the hospitals he is visiting. Prescription should also make clear if the physician himself dispensed any medicine.
- 3.7.2** A physician will write his name and designation in full along with registration particulars in his prescription letter head.

Note: In government hospital where the patient load is heavy, the name of the prescribing doctor must be written below his/her signature.

4. Responsibility of physicians to each others
5. Duties of physician to public and to paramedical profession

6. UNETHICAL ACTS

A physician will not aid or abet or commit any of the following acts which shall be construed as unethical.

- 6.1 Advertising:** Soliciting of patients directly or indirectly by a physician, by a group of physicians or by institutions or organizations is unethical. A physician will not make use of his/her (or his/her name) as subject of any form or manner of advertising or publicity through any mode either alone or in conjunction with others which is of such a character as to invite attention to him or to his professional position, skill, qualifications, achievements, attainments, specialities, appointment, associations, affiliations or honours and/or of such character as would ordinarily result in his self-aggrandizement. A physician will not give to any person, whether for compensation or otherwise, any approval, recommendation, endorsement, certificate report or statement with respect of any drug, medicine, nostrum remedy, surgical, or therapeutic article, apparatus or appliance or any commercial product or article with

respect of any propriety, quality or use thereof or any test, demonstration or trial thereof, for use in connection with his name, signature, or photograph in any form or manner of advertising through any mode nor shall he boast of cases, operations, cures or remedies or permit the publication of report thereof through any mode. A medical practitioner is, however, permitted to make a formal announcement in press regarding the following:

- On starting practice
- On change of type practice
- On changing address
- On temporary absence from duty
- On resumption of another practice
- On succeeding to another practice
- Public declaration of charges.

6.1.2 Printing of self-photograph or any such material of publicity in the letter head or on signboard of the consulting room or any such clinical establishment will be regarded as acts of self-advertisement and unethical conduct on the part of the physician. However, printing of sketches, diagrams, picture of human system shall not be treated as unethical.

6.2 Patent and copyright: A physician may patent surgical instruments, appliances and medicine or copyright applications, methods and procedures. However, it will be unethical if the benefits of such patents or copyrights are not made available in situations where the interest of large population is involved.

6.3 Running an open shop (dispensing of drugs and appliances by physicians): A physician should not run an open shop for sale of medicine for dispensing prescriptions prescribed by doctors other than himself or for sale of medical or surgical appliances. It is not unethical for a physician to prescribe or supply drugs, remedies or appliances as long as there is no exploitation of the patient. Drugs prescribed by a physician or brought from the market for a patient should explicitly state the proprietary formulae as well as generic name of the drug.

6.4 Rebates and Commission

6.4.1 A physician will not give, solicit or receive nor will he offer to give solicit or receive, any gift, gratuity, commission or bonus in consideration of or return for the referring, recommending or procuring of any patient for medical, surgical or other treatment. A physician will not directly or indirectly, participate in or be a party to act of division, transference, assignment, subordination, rebating, splitting or refunding of any fee for medical, surgical or other treatment.

6.4.2 Provisions of para 6.4.1 shall apply with equal force to the referring, recommending or procuring by a

physician or any person, specimen or material for diagnostic purposes or other study/work. Nothing in this section, however, will prohibit payment of salaries by a qualified physician to other duly qualified person rendering medical care under his supervision.

6.5 Secret remedies: The prescribing or dispensing by a physician of secret remedial agents of which he does not know the composition, or the manufacture or promotion of their use is unethical and as such prohibited. All the drugs prescribed by a physician should always carry a proprietary formula and clear name.

6.6 Human rights: The physician will not aid or abet torture nor will he be a party to either infliction of mental or physical trauma or concealment of torture inflicted by some other person or agency in clear violation of human rights.

6.7 Euthanasia: Practising euthanasia will constitute unethical conduct. However on specific occasion, the question of withdrawing supporting devices to sustain cardiopulmonary function even after brain death, shall be decided only by a team of doctors and not merely by the treating physician alone. A team of doctors shall declare withdrawal of support system. Such team shall consist of the doctor-in-charge of the patient, CMO/MO in-charge of the hospital and a doctor nominated by the incharge of the hospital from the hospital staff or in accordance with the provisions of the Transplantation of Human Organ Act, 1994.

7. MISCONDUCT

The following acts of commission or omission on the part of a physician will constitute professional misconduct rendering him/her liable for disciplinary action:

7.1 Violation of the regulations: If he/she commits any violation of these regulations.

7.2 If he/she does not maintain the medical records of his/her indoor patients for a period of 3 years as per regulation 1.3 and refuses to provide the same within 72 hours when the patient or his/her authorized representative makes a request for it as per the regulation 1.3.2.

7.3 If he/she does not display the registration number accorded to him/her by the State Medical Council or the Medical Council of India in his clinic, prescriptions, certificates, etc. issued by him/her or violates the provisions of regulation.

7.4 Adultery or improper conduct: Abuse of professional position by committing adultery or improper conduct with a patient or by maintaining an improper association with a patient will render a physician liable for disciplinary action as provided under the

Indian Medical Council Act, 1956 or the concerned State Medical Council Act.

- 7.5 **Conviction by court of law:** Conviction by a court of law for offences involving moral turpitude/criminal acts.
- 7.6 **Sex determination tests:** On no account sex determination test shall be undertaken with the intent to terminate the life of a female foetus developing in her mother's womb, unless there are other absolute indications for termination of pregnancy as specified in the Medical Termination of Pregnancy Act, 1971. Any Act of termination of pregnancy of normal female foetus amounting to female foeticide shall be regarded as professional misconduct on the part of the physician leading to erasing from panel, besides rendering him liable to criminal proceedings as per the provisions of this Act.
- 7.7 **Signing professional certificates, reports and other documents:** Registered medical practitioners are in certain cases bound by law to give, or may from time to time be called upon or requested to give certificates, notification, reports and other documents of similar character signed by them in their professional capacity for subsequent use in the courts or for administrative purposes, etc.
- 7.8 A registered medical practitioner will not contravene the provisions of the Drugs and Cosmetics Act and Regulations made thereunder. Accordingly, prescribing steroids/psychotropic drugs when there is no absolute medical indication; selling schedule 'H' and 'L' drugs and poisons to the public except to his patient; in contravention of the above provisions shall constitute gross professional misconduct on the part of the physician.
- 7.9 Performing or enabling unqualified person to perform an abortion or any illegal operation for which there is no medical, surgical or psychological indication.
- 7.10 A registered medical practitioner will not issue certificates of efficiency in modern medicine to unqualified or non-medical person.
Note: The foregoing does not restrict the proper training and instruction of bonafide students, midwives, dispensers, surgical attendants, or skilled mechanical and technical assistant and therapy assistants under the personal supervision of physicians.
- 7.11 A physician should not contribute to the lay press articles and give interviews regarding diseases and treatments which may have the effect of advertising himself or soliciting practices; but is open to write to the lay press under his own name on matters of public health, hygienic living or to deliver public lectures, give talks on the radio/TV/internet chat for the same purpose and send announcement of the same to lay press.
- 7.12 An institution run by a physician for a particular purpose such as a maternity home, nursing home, private hospital, rehabilitation centre or any type of training institution, etc. may be advertised in the lay press, but such advertisements should not contain anything more than the name of the institution, type of patients admitted, type of training and other facilities offered and the fees.
- 7.13 It is improper for a physician to use an unusually large signboard and write on it anything other than his/her name, qualifications obtained from a university or a statutory body, titles and name of his speciality, registration number including the name of the State Medical Council under which registered. The same should be the contents of his prescription papers. It is improper to affix a signboard on a chemist's shop or in places where he does not reside or work.
- 7.14 The registered medical practitioner will not disclose the secrets of a patient that have been learnt in the exercise of his/her profession except:
 - In a court of law under order of the presiding judge;
 - In circumstances where there is a serious and identified risk to a specific person and/or community; and
 - Notifiable diseases.In case of communicable/notifiable diseases, concerned public health authorities should be informed immediately.
- 7.15 The registered medical practitioner will not refuse on religious grounds alone to give assistance in or conduct of sterility, birth control, circumcision and medical termination of pregnancy when there is medical indication, unless the medical practitioner feels himself/herself incompetent to do so.
- 7.16 Before performing an operation the physician should obtain in writing the **consent** from the husband or wife, parent or guardian in the case of minor, or the patient himself as the case may be. In an operation which may result in sterility the **consent** of both husband and wife is needed.
- 7.17 A registered medical practitioner will not publish photographs or case reports of his/her patients without their permission, in any medical or other journal in a manner by which their identity could be made out. If the identity is not to be disclosed, the consent is not needed.
- 7.18 In the case of running of a nursing home by a physician and employing assistants to help him/her, the ultimate responsibility rests on the physician.
- 7.19 A physician will not use touts or agents for procuring patients.
- 7.20 A physician will not claim to be specialist unless he has a special qualification in that branch.
- 7.21 No act of *in vitro* fertilization or artificial insemination will be undertaken without the **informed consent** of the female patient and her spouse as well as the donor. Such consent will be obtained in writing only after the

patient is provided, at her own level of comprehension, with sufficient information about the purpose, methods, risks, inconveniences, disappointments of the procedure and possible risks and hazards.

7.22 Research: Clinical drug trials or other research involving patients or volunteers as per the guidelines of ICMR can be undertaken, provided ethical considerations are borne in mind. Violation of existing ICMR guidelines in this regard will constitute misconduct. **Consent** taken from the patient for trial of drug or therapy which is not as per the guidelines will also be construed as misconduct.¹²

7.23 If a physician posted in rural area is found absent on more than two occasions during inspection by the head of the district health authority or the chairman, *Zila Parishad*, the same will be construed as a misconduct if it is recommended to the Medical Council of India/State Medical Council by the state government for action under these regulations.

7.24 If a physician posted in a medical college/institution both as teaching faculty or otherwise will remain in hospital/college during the assigned duty hours. If he is found absent on more than two occasions

during this period, the same will be construed as a misconduct if it is certified by the principal/medical superintendent and forwarded through the state government to Medical Council of India/State Medical Council for action under these regulations.

Table 1.4 depicts major health problems in India in 2025.

8.1 to 8.7 Punishment and Disciplinary Action

If the medical practitioner is found to be guilty of committing professional misconduct, the appropriate Medical Council may award such punishment as deemed necessary or may direct the removal altogether or for a specified period, from the register of the name of the delinquent registered practitioner. Deletion from the register will be widely publicized in local press as well as in the publications of different medical association/societies/bodies.

Other Attributes for Good Doctor–Patient Relationship Being Kind

- **A friendly word, a smile**, a hand on shoulder or some other sign of caring often means more than anything else you can do. Treat others as your equals.

Table 1.4: Major health problems in India in 2025

Total population in 2025	1463.9 million
1. Total disease burden in terms of DALYs	
a. Noncommunicable diseases (NCDs) with rising burden accounted for	58% of total DALYs share
b. Infectious, maternal, nutritional diseases accounted for	32% of total DALYs
c. Injuries accounted for	10% of total DALYs
2. Causes of death	
a. NCDs cause approximately	67% of all deaths
b. Infectious, maternal, nutritional diseases account for approximately	23% of all deaths
c. Injuries accounts for approximately	10% of all deaths
3. Mortality Rates are declining	
Neonatal mortality	19
Infant mortality	24
Under-5 mortality	29
Maternal mortality	88
Crude death rate	6.4
4. Disabilities burden is high besides premature deaths	
5. Underweight, stunting and severe acute malnutrition rates are unacceptably high	
6. With rising life expectancy and demographic changes (e.g., ageing population) rising demand for services for aged persons	
7. Rising urban population	
8. Risk factors, such as high blood pressure, tobacco use, unhealthy diet, air pollution and physical inactivity are major contributors to NCDs burden in India	
9. Threat of outbreak prone diseases and pandemic remains	
10. Climate changes—global warming, air pollution, natural disasters, zoonotic diseases and vector-borne diseases are other challenges.	

India has undergone a major epidemiological transition with NCDs overtaking infectious diseases as leading cause of morbidity and mortality.

- **Treat the sick as person/people:** Be especially kind to those who are sick or dying, and be kind to their families. Let them see that you care.
- **Have compassion:** Kindness often helps more than medicine. Never be afraid to show you care.
- **Practice what you teach** (or who will listen to you) people are more likely to pay attention to what you do than what you say.

Note: Ten competencies of Chapter 1 are thematic in nature, applicable to the entire subject of community medicine and rest of the topics/chapters and national health programmes. These competencies build a theme on the subject. Most of these competencies are overlapping and inter-related. Challenge for teacher is to organize lesson plans in such a manner that it links a competency to specific national health programme as described in the textbook.

PRINCIPLES AND PRACTICE OF MEDICINE IN HOSPITAL AND COMMUNITY

The approaches in clinical medicine and community medicine are distinct. The purpose of this elucidation is not to undermine the discipline of clinical medicine or hospitals, but to emphasize that the ‘medicine as a social science’ has much wider scope and bigger responsibility. The preventive and social medicine/community medicine specialists have to be best physician first to accomplish the tasks in the community. The areas and skills of two disciplines are clear cut and distinction has been drawn between the two to enhance the understanding of students in community medicine. Clinical medicine and preventive and social medicine (community medicine) need each other and interdepend and inter-relate in many of the critical areas; however, the approach differs (Table 1.5).

The prevention is not the monopoly of preventive and social medicine alone the ‘preventive outlook and attitude

Table 1.5: Principles of practice of medicine in hospital and community

Areas/outlook	Clinical medicine	Community medicine/preventive and social medicine/public health
Focus	Treats individual/disease	Treats community (holistic approach), prevents spread of disease
Concern	Sick persons (individual)	Both sick and healthy people (entire community)
Responsibility	Of those who come to seek help	Whole community (defined community)
Goal	To relieve symptoms, signs (pain) and to cure patient	• To eliminate and eradicate disease • To reduce incidence and prevalence of diseases
Skills/competence	Clinical skills	Epidemiological, biostatistic and managerial skills
Treatment/prescription	Treats patients with pills, drugs, injections and therapeutics	• Treats causes through national health programmes • Treats environments—safe water—safe excreta disposal • Raises community immunity by mass immunization • Mass treatment like MDA for filaria—mass deworming, vitamin A prophylaxis • Iodized salt • DOTS (directly observed treatment, short course chemotherapy) • Health legislation and behaviour change communication
Workstation	Hospitals and special clinics	Health centres, community/institutions
Teaching training	Bedside—patient side	In the community
Diagnostic and evaluation tools	Uses clinical parameters (treatment success rate)	• Uses epidemiological tools: – Surveys, surveillance and outbreak investigations – Health records and epidemiological studies – Reduction of disease, death, and disability rates
Requirement	Patient compliance and cooperation	Community participation/community organization
Intersectoral coordination	Mainly health sector	Intersectoral coordination is essential between health, ICDS, education, development and agriculture
Results	Quickly achieved and visible	Takes longer time to see the results
Laboratory	Hospital wards	Community

of mind’ applies equally to all branches of medicine and its specialities. All branches of clinical medicine—surgery, obstetrics and gynaecology, paediatrics or any of their sub-specialities, aim at early diagnosis and prompt treatment and application of health promotive and preventive aspects in their respective speciality.

REFERENCES

1. National Medical Commission—Revised competency based medical education curriculum (CBME) guidelines 2024, Dwarka Pocket-14, Sector 8, New Delhi.
2. Medical Council of India. Competency based undergraduate curriculum for Indian Medical Graduate. Vol. 1. Dwarka. New Delhi ICI—2018.
3. Lal S. Strengths, weaknesses, opportunities and threats analysis of competencies and building skill pyramid in the subject of Community Medicine. *Indian J. of Community Med* 2021;46:173–7.
4. Lal S, Integration of medical education with healthcare delivery system in India for competency based Learning. *Indian J Community Med* 2018;43:251–4.
5. WHO: WHO at 70-working for better health for everyone, everywhere. News release, 5 April 2019/GENEVA.
6. UNICEF the state of the world’s children 2017 and 2019. Children in a digital world UNICEF for child.
7. Ministry of Drinking Water and Sanitation 2018 *Swachh Bharat Mission*—Gramin.
8. Ministry of Housing and Urban Affairs 2018 *Swachh Bharat Abhiyan*—Urban.
9. WHO world conference on social determinants of health. Rio political declaration on social determinants of health. Rio de Janeiro, Brazil, 21 October 2011.
10. GOI National Health Policy 2017. MOH and FW, Government of India, New Delhi.
11. UNDP. Human Development Report 2021 and special Report of 2022, 2023 and 2024.
12. Lal S, Sehgal P. Integration of attitude, ethics and communication competencies into competency-based UG curriculum. *Indian J of Community Med* 2022; 47:4–7.
13. Lal S, Sehgal P. Learning Practice of health management through existing health action plans under National Health Mission (NHM). *Indian J Community Med* 2022; 47:309–12
14. Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations (Amended upto 8th October 2016). MCI, Pocket-14 Sector 8, Dwarka, New Delhi.