Principles and Practice of Community Medicine

2nd Edition

Asma Rahim

Foreword
Thomas V Chacko

JAYPEE

Contents

SECTION 5: General Epidemiology

SECTION 6: Infectious Disease Epidemiology

SECTION 7: Principles and Practice of Immunization

SECTION 8: Communicable Diseases

SECTION 9: Noncommunicable Diseases

SECTION 10: Medical Sociology

SECTION 11: Demography and Health Information

SECTION 12: Family Planning

SECTION 13: Maternal and Child Health

SECTION 14: Nutrition

SECTION 15: Towards a Healthy Environment

SECTION 16: Occupational Health

SECTION 17: Genetics and Health

SECTION 18: Role of Biostatistics in Medicine

SECTION 19: Medical Entomology

SECTION 20: Emerging and Re-emerging Infectious Diseases

SECTION 21: Hospital Hygiene

SECTION 22: Miscellaneous

SECTION 2: Primary Health Care and Its Implementation

Chapter 4

Concept of Primary Health Care

PRIMARY HEALTH CARE: HISTORICAL PERSPECTIVE

Primary health care in India dates back to the Vedic period. In the Indus Valley Civilization as far back as 3000 BC, one finds evidence of well-developed environmental sanitation program, such as underground drains, public baths in the cities, etc. '*Arogya*' or 'health' was given high priority in daily life and this concept of health included physical, mental, social and spiritual well-being. During the middle of the 18th century, the British Government in India established medical services, which were primarily meant for the benefit of the British nationals, armed forces and a few privileged civil servants. But the vast majority of the native population was denied access to the western medicine. However, the basis for organization of health services in India through the primary healthcare approach in modern time, was laid by the recommendations of the '*Health Survey and Development Committee*' (Bhore Committee) in 1946. The Community Development Program was launched in October 1952 as the first integrated all-round rural development program. It was proposed to establish one primary health center (PHC) for each community development block. Since 1975, the World Health Organization (WHO) had been developing the concept of achieving health for all by 2000 AD. In the International Conference on Primary Health Care, jointly organized by the WHO and UNICEF in Alma Ata, USSR in 1978, this concept of HFA by 2000 AD was endorsed and it was further stated that primary health care would be the key to attaining this target. The Alma Ata Declaration spelt out the minimum essential components of primary health care and the supportive activities needed for their successful implementation.

HEALTH AS A FUNDAMENTAL HUMAN RIGHT

Health is defined as a "state of complete physical, mental and social well-being and not merely an absence of disease or infirmity".

Health is a fundamental human right. Attainment of highest level of health is an important social goal. This is the essential concept of primary health care.

ROLE OF COMMUNITY AND HEALTH SERVICES IN ATTAINING PRIMARY HEALTH CARE

Health services should meet the health needs of the community through the use of available knowledge and resources.

An ideal health system should satisfy the following criteria:

- Health services should meet the needs of entire populations and not merely selected groups
- In a developing country like India with majority of population being under served rural and urban poor, effective provision of health service can be achieved only by implementing 'primary health care'.

Primary health care is the first level of contact of the individuals, the family and the community with the national health system bringing health care as close as possible to where the people live and work. It constitutes the first element of the process of continuing health care, and this should get full support from the rest of the health system. This support would be required in the following areas:

- Consultation on health problems
- Referral of patients to local or other specialized institutions
- Supportive supervision and guidance
- Logistic support and supplies.

LEVELS OF HEALTH CARE

Health care services are described at three levels (Fig. 4.1).

1. *Primary care level*: Primary health center, subcenter.
2. *Secondary care level*: District hospital, community health center.
3. *Tertiary care level*: Medical colleges, superspecialty hospitals.

CONCEPT OF PRIMARY HEALTH CARE

Concept of primary health care gained importance at the 'Alma ata' conference in the year 1978.

DEFINITION

Primary health care is—

"Essential health care made universally accessible and acceptable to individuals through their full participation and at a cost the community and country can afford."

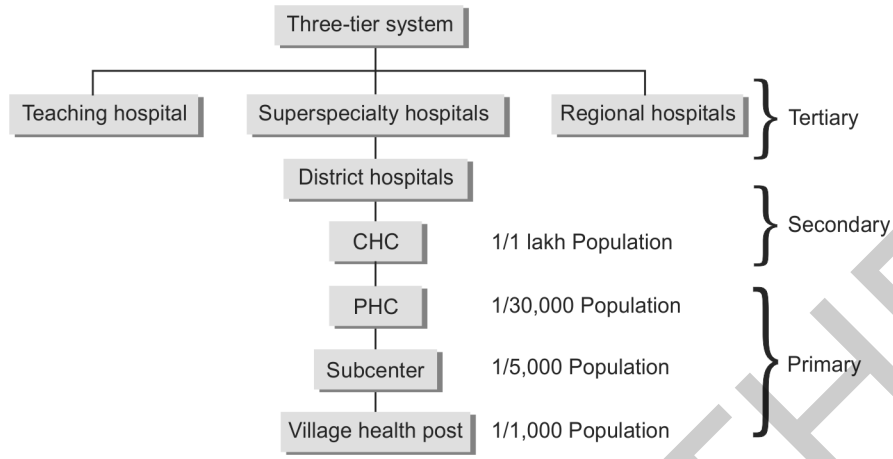

Fig. 4.1 Three-tier system of health care

Abbreviations: CHC, community health center; PHC, primary health center

ESSENTIAL COMPONENTS/ELEMENTS OF PRIMARY HEALTH CARE

For effective primary health care, the following 'eight essential components' are to be implemented in an integrated manner:

1. Education of people about prevailing health problems and method of preventing and controlling them
2. Promotion of food supply and the proper nutrition
3. Adequate supply of safe water and basic sanitation
4. Maternal and child health care, and family planning
5. Immunization against major infectious diseases
6. Prevention and control of locally endemic diseases
7. Appropriate treatment of common diseases and injuries
8. Provision of essential drugs.

PRINCIPLES OF PRIMARY HEALTH CARE

- ***Equitable distribution***
- ***Intersectoral coordination***
- ***Community participation***
- ***Appropriate technology***

Equitable Distribution

Health equity is achieved when every person has the opportunity to 'attain his/her full health potential' and no one is "disadvantaged from achieving this potential because of social position or other socially determined circumstances." Health services or primary health care should be equally distributed to people irrespective of their socioeconomic status (*rich or poor, urban or rural*). Primary healthcare aims to shift the provision of healthcare system from urban areas to rural areas where three-fourths of the people live.

Community Participation

Involvement of individuals, families and communities in promotion of their own health and welfare. Community participation can be defined as involvement of people of a community in projects to solve their own problems. People cannot be forced to participate in projects that affect their lives, but should be given the opportunity wherever possible. This is a basic human right and fundamental principle of democracy. Community participation can take place during any of these activities such as:

- *Needs assessment*: Expressing opinions about desirable improvements, prioritizing goals and negotiating with agencies
- *Planning*: Formulating objectives, setting goals, criticizing plans
- *Mobilizing*: Raising awareness, mobilizing resources within the community
- *Training*: Participating in training activities to enhance communication, construction, maintenance and financial management skills
- *Implementing*: Community is actively involved in the implementation of programs. There is a sense of ownership within the community
- *Monitoring*: Community is involved in the appraisal of work done, recognizing the work done and reappraisal of needs.

There are incentives and disincentives for community participation.

Incentives

Incentives could be in the form of:

- Motivation of people to work together towards a common good cause
- Social, traditional or religious obligations for mutual help
- Genuine community participation—where the community recognizes a genuine need to participate
- Remuneration in cash or kind.

Disincentives

- Unfair distribution of work or benefits among community members

- Highly individualistic society with no sense of community
- Feeling that government should provide all facilities
- People being treated as helpless by the government and the community tends to act so.

Community participation can be noted in India during emergency relief programs.

Intersectoral Coordination

A close look at the eight essential elements of primary healthcare reveals that this cannot be provided by health sector alone. Provision of primary health care involves in addition to the health sector, all related sectors, viz. agriculture, animal husbandry, housing, communication, public work, etc.

Some suggested outline of the activities of different sectors towards attaining health care are noted below.

Agriculture, Irrigation and Engineering

These sectors can help in the following:

- Growing more food locally—cereals, pulses, oil seeds, vegetables, fruits, etc.
- Identifying water resources for drinking and other purposes
- Providing seeds for kitchen garden and community garden
- Educating the people for composting
- Their extension workers could also educate people on health problems and about health and family planning practices.

Animal Husbandry

The workers of this department could help in:

- Developing poultry farms, procuring milking cows/ buffalos
- Immunizing domestic animals and cattles against rabies
- Preventing zoonotic diseases
- Promoting health education.

Cooperatives and Banks

This sector can provide funds for:

- Setting up farms for poultry, fisheries, milk, vegetables, fruits
- Community composting, soak pits, community gardens, etc.
- Drug procurement and supply
- Health insurance.

Education

This department can help through school and college education and adult education programs in following:

- Health education covering nutrition, use of safe water, personal hygiene and environmental sanitation
- Education about various health problems in the community, and their prevention and control
- Early diagnosis of tuberculosis, leprosy, malaria, scabies, visual, and physical handicaps
- Immunization against the communicable diseases
- Disposal of waste water and excreta, by constructing soakage pits and composting
- Population education, educating on advantages of small family
- Providing first-aid and treatment of minor ailments and imparting knowledge of local health resources.

Social and Women's Welfare

This department can help in:

- Mobilizing women, *mahila mandals*, mother's club, etc. for propagation of health nutrition practices, special nutrition programs for vulnerable groups, maintenance and use of water resources; proper disposal of excreta, composting, kitchen garden, etc.
- Educating mothers on maternal and child care
- Spreading the knowledge about the communicable diseases, and their prevention and control, treatment of minor ailments and the use of available healthcare facilities.

Panchayats

These institutions have a very important role in providing funds and giving organizational, administrative and other support for:

- Nutrition programs, kitchen and community gardens, water supply, community latrines, waste disposal, composting, soakage pits
- Providing building for health posts, creches, subcenters, etc. for MCH and FP activities
- Opinion building, motivation, decision- making through peer pressure
- Propagating messages on health problems and practices, family planning, etc. through group meetings, circulars, posters
- Procurement and supply of essential drugs
- Mobilizing transport and other support for referral services.

Communication

This department has a very important role in organizing information, communication and education activities for motivating people towards adopting positive health practices and small family norm.

Rural Development

This department has potential to support and contribute in various ways such as:

- Environmental sanitation
- Development of rural communication
- Developing income generating schemes for poverty elimination.

Appropriate Technology

This is one of the key principles of primary health care. The term 'appropriate technology' has been defined as technology that has the following features:

- *Scientifically sound*
- *Effective and simple to use*

- *Acceptable to those who apply*
- *Acceptable to those who use*
- *In tune with the local culture*
- *Capable of further development*
- *Based on self-reliance*
- *Easily understood by people and health volunteers*
- *Easily affordable to the community.*

Sanatorium vs Home Care in Tuberculosis Treatment

Another outstanding example of change in technology is that of the control of tuberculosis. Until the 1960s, the standard treatment was rest in a sanatorium, with the addition of chemotherapy as it developed. As a result of studies carried out in the tuberculosis center in Chennai, India, it proved possible to administer chemotherapy effectively at home, and a suitable course of treatment was eventually endorsed by a WHO expert committee. Since then, the technology for home care has been updated in light of advances in knowledge that can be applied effectively through PHC and it has progresses to the DOTS regime under RNTCP.

The control of tuberculosis by appropriate technology delivered through PHC is an outstanding example of cost effectiveness in health care.

Other Examples

- Use of oral rehydration solution in the place of parenteral therapy (in diarrhea)
- Growth chart maintenance for under five children
- Low-birth-weight neonatal care—simple household methods of thermal control (e.g. using thermocol boxes)
- Rainwater harvesting
- Production of *gobar gas*
- The effective use of appropriate technology helps in bridging the urban-rural, rich-poor gap existing in the health sector. Even the most vulnerable and weak sections will gain advantage from the use of appropriate technology suited to local needs.

PRIMARY HEALTH CARE IN INDIA

It can be seen, therefore, that research and development are essential to identify and generate appropriate health technology. Much research and development is required to develop new and improved drugs and vaccines, to devise better and simpler diagnostic techniques, and to arrive at an understanding of those human factors that affect the proper use of appropriate technology. Even if appropriate health technology is available and the health infrastructure properly organized to apply it properly, in the final analysis its proper application will depend on the understanding of people in general and health workers in particular.

IMPLEMENTING PRIMARY HEALTH CARE AT VARIOUS LEVELS (FIG. 4.2)

Village Level

- Village health guides
- Local *dais* (trained birth attendants)
- Integrated child development services (ICDS) scheme.

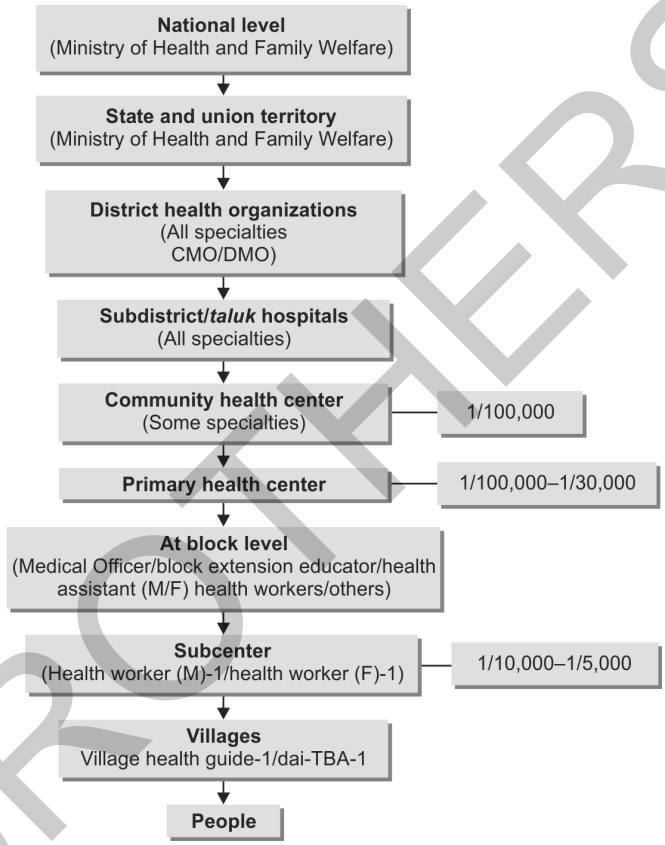

Fig. 4.2 Health system infrastructure

Village Health Guide

Prior to 2002, village health guides with aptitude for social service were selected from the local population. Village health guide scheme was introduced on 2nd October 1977. *The union health ministry decided to discontinue the centrally sponsored village health guide scheme from April 1, 2002, in view of its failure to achieve its objectives.*

Local Dais

Goal under family welfare program is to train all under trained *dais* in rural areas. This involves training all local *dais* (*traditional birth attendants*) on maternal and child health, sterilization and obstetric skills.

Training Details

- *Duration*: 30 working days, 2 days in a week
- *Place*: PHC/Subcenter/MCH center. TBA accompanies the multipurpose health worker female.
  Multipurpose worker (MPW) or auxiliary nursing midwife (ANM) conducts at least two deliveries supervised by MPW or ANM under aseptic precautions.
- TBA receives a delivery kit and certificate at the end of training program.

Functions of a *Dai*

- Conduct aseptic deliveries
- Provide postnatal care of women
- Family planning.

Anganwadi Worker–ICDS Scheme

One anganwadi worker is for a population of 400–800.

Each ICDS project has about 100 workers.

Selection and training: They are selected from the local community. Training is done on health, nutrition and child development. Duration of training is four months.

Functions

- Health check-ups
- Immunization
- Supplementary nutrition
- Health education
- Nonformal preschool education
- Referral services.

Honorarium: Salary of *Anganwadi* workers is the lowest in the country. With workers demanding better pay since years, Government has decided to increase their pay scale in the 7th Pay commission.

States of Kerala and Andhra Pradesh have already revised the pay scales of ICDS workers.

Rates in Kerala are—₹ 10,000 for workers and ₹ 7000 for *anganwadi* helpers and in Andhra Pradesh—₹ 7000 for *anganwadi* workers and ₹ 4500 for helpers.

Beneficiaries: Children below 6 years, other women (15–45 years), lactating mothers and adolescent girls.

Accredited Social Health Activist (ASHA): She is a worker under the National Rural Health Mission (2005–2012).

ASHA would act as a bridge between the ANM and the village and be accountable to the *panchayat*.

She will be an honorary volunteer receiving performance-based compensation. One ASHA covers a population of 1,000.

Guidelines for selection

- ASHA must primarily be a woman resident of the village married/widowed/divorced, preferably in the age group of 25–45 years.
- She should be a literate woman with due preference in selection to those who are qualified up to 10 standard wherever they are interested and available in good numbers. This may be relaxed only if no suitable person with this qualification is available.
- ASHA will be chosen through a rigorous process of selection involving various community groups, self-help groups, *Anganwadi* Institutions, the Block Nodal officer, District Nodal Officer, the Village Health Committee and the *Gram Sabha*.

Services

- Universal immunization
- Referral and escort services for reproductive and child health (RCH)
- Construction of household toilets
- Other healthcare delivery programs
- Facilitate preparation and implementation of the village health plan along with *anganwadi* worker, ANM, functionaries of other departments, and self-help group members, under the leadership of the village health committee of the *panchayat*. She will be given a drug kit containing generic *ayurveda*, *yoga*, *unani*, *siddha* and homeopathy (AYUSH) and allopathic formulations for common ailments. ASHAs will receive performance-based incentives for promoting universal immunization, referral and escort services for reproductive and child health (RCH) and other health care programs, and construction of household toilets.

Training details: ASHA will have to undergo series of training episodes to acquire the necessary knowledge, skills and confidence for performing her spelled out roles:

- Induction training of ASHA to be of 23 days in all, spread over 12 months
- On the job training would continue throughout the year.

Roles and responsibilities of ASHA

- Empowered with knowledge and a drug-kit to deliver first-contact health care, every ASHA is expected to be a fountainhead of community participation in public health programs in her village
- ASHA will be the first port of call for any health-related demands of deprived sections of the population, especially women and children, who find it difficult to access health services
- ASHA will be a health activist in the community who will create awareness on health and its social determinants and mobilize the community towards local health planning and increased utilization and accountability of the existing health services
- She would be a promoter of good health practices and will also provide a minimum package of curative care as appropriate and feasible for that level and make timely referrals
- ASHA will provide information to the community on determinants of health such as nutrition, basic sanitation and hygienic practices, healthy living and working conditions, information on existing health services and the need for timely utilization of health and family welfare services
- She will counsel women on birth preparedness, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception and prevention of common infections including reproductive tract infection/sexually transmitted infections (RTIs/STIs) and care of the young child
- ASHA will mobilize the community and facilitate them in accessing health and health-related services available at the *anganwadi*/subcenter/primary health centers, such as immunization, antenatal check-up (ANC), postnatal check-up, supplementary nutrition, sanitation and other services being provided by the government
- She will act as a depot older for essential provisions being made available to all habitations such as oral rehydration therapy (ORS), iron folic acid tablet (IFA), chloroquine, disposable delivery kits (DDK), oral pills and condoms, etc.

Chapter 5

Healthcare Delivery in India

PRIMARY HEALTH CENTER

Evolution

The concept of primary health center (PHC) is not new to India. The Bhore Committee in 1946 gave the concept of a PHC as a basic health unit to provide as close to the people as possible, an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care.

The concept of primary health center was suggested by **'Bhore committee' (1946)**. National Health Policy (1983) set norms for the primary health centers. In order to provide optimal level of quality health care, a set of standards called Indian Public Health Standards (IPHS) were recommended for primary health center (PHC) in early 2007. There are 23,887 PHCs functioning in the country as on March 2011 as per Rural Health Statistics Bulletin, 2011. The number of PHCs functioning on 24×7 basis are 9,107 and number of PHCs where three staff nurses have been posted are 7,629 (*as on 31-3-2011*).

The PHCs are the cornerstone of rural health services a first port of call to a qualified doctor of the public sector in rural areas for the sick and those who directly report or referred from subcenters for curative, preventive and promotive health care. It acts as a referral unit for six subcenters and refer out cases to community health centers (*CHCs-30 bedded hospital*) and higher order public hospitals at subdistrict and district hospitals. It has 4–6 indoor beds for patients.

National Health Policy norms for primary health centers exists.

- ***One PHC is for every 30,000 rural population in general***
- ***One PHC is for every 20,000 population in hilly, tribal and backward areas.***

Functions

From service delivery angle, PHCs may be of two types, depending upon the delivery case load—**Type A and Type B**.

1. *Type A PHC*: PHC with delivery load of less than 20 deliveries in a month.
2. *Type B PHC*: PHC with delivery load of 20 or more deliveries in a month.

All the following services have been classified ***as Essential*** (*minimum assured services*) or ***Desirable*** (*which all states/UTs should aspire to achieve at this level of facility*).

- *Medical care including provision of essential drugs, which includes*:
  - **Outpatient services:** A total of 6 hours of outpatient department (OPD) services out of which 4 hours in the morning and 2 hours in the afternoon for 6 days in a week.
    Minimum OPD attendance is expected to be 40 patients per doctor per day. In addition to 6 hours of duty at the PHC, it is desirable that MO PHC shall spend at least 2 hours per day twice in a week for field duties and monitoring.
  - **24 hours emergency services:** Appropriate management of injuries and accident, first aid, stitching of wounds, incision and drainage of abscess, stabilization of the condition of the patient before referral, dog bite/snake bite/scorpion bite cases, and other emergency conditions. These services will be provided primarily by the nursing staff. However, in case of need, Medical Officer may be available to attend to emergencies on call basis.
  - **Referral services.**
  - **In-patient services (*6 beds*).**
- *MCH including family planning*:
  - Antenatal care
  - Intranatal care (*24-hour delivery services both normal and assisted*)
  - Identification and basic first-aid treatment for postpartum hemorrhage (PPH), eclampsia, sepsis and prompt referral.
  - Postnatal care
  - Newborn care
  - Care of the child
  - Family welfare
  - Nutrition services (*coordinated with ICDS)*
  - School health
  - Adolescent healthcare.
- Promotion of safe drinking water and basic sanitation
- Prevention and control of locally endemic diseases such as malaria, kala azar, Japanese encephalitis, etc.
- Collection and reporting of vital events
- Health education and behaviour change communication (BCC)
- Other national health programs
- Physical medicine and rehabilitation (PMR) services
- Training of health guides, local *dais*, health assistants

- Basic laboratory and diagnostic services-essential laboratory services including:
  - Routine urine, stool and blood tests (*Hb%, platelet count, total RBC, WBC, bleeding and clotting time*)
  - Diagnosis of RTI/STDs with wet mounting, Gram stain, etc.
  - Sputum testing for *Mycobacterium* (*as per guidelines of RNTCP*)
  - Blood smear examination—malarial
  - Blood for grouping and Rh typing
  - Rapid diagnostic kit (RDK) for *Pf malaria* in endemic districts
  - Rapid tests for pregnancy
  - RPR test for Syphilis/YAWS surveillance (*endemic districts*)
  - Rapid test kit for fecal contamination of water
  - Estimation of chlorine level of water using (rapid test kits) include this reagent
  - Blood sugar desirable
  - Blood cholesterol
  - Electrocardiogram (ECG).
- *Other activities*: Selected surgical procedures such as no scalpel vasectomy, vasectomy, tubectomy, MTP and other minor surgical procedures
- Involvement in ROME program (*reorientation of medical education*).

PHCs are not spared from issues such as the inability to perform up to the expectation due to:

- Nonavailability of doctors at PHCs
- Even if posted, doctors do not stay at the PHC
- Inadequate physical infrastructure and facilities
- Insufficient quantities of drugs
- Lack of accountability to the public and lack of community participation
- Lack of set standards for monitoring quality care, etc.

Citizen Rights Charter

A citizen charter for patient rights is set in each PHC. This charter clearly defines access to services, standards of services, services available, patients rights, medical facilities not available, complaints and grievance addressal and responsibilities of patients.

Every PHC should have a ***Rogi Kalyan Samiti*/Primary Health Center's Management Committee** for improvement of the management and service provision of the PHC (*as per the Guidelines of Government of India*). This committee will have the authority to generate its own funds (*through users' charges, donation, etc.*) and utilize the same for service improvement of the PHC (Table 5.1). The PRI/Village Health Sanitation and Nutrition Committee/*Rogi Kalyan Samiti* should also monitor the functioning of the PHCs.

SUBCENTERS

In the public sector, a subhealth center (subcenter) is the most peripheral and first point of contact between the primary healthcare system and the community. A subcenter provides interface with the community at the grass-root level, providing all the primary healthcare services. As subcenters

Table 5.1 Manpower in a primary health center

Staff	*Type A*		*Type B*	
	Essential	*Desirable*	*Essential*	*Desirable*
Medical Officer (MBBS)†	1		1	1*
Medical Officer (AYUSH)‡		1**		1**
Accountant-cum-data entry operator	1		1	
Pharmacist	1		1	
Pharmacist AYUSH		1		1
Nurse-midwife (Staff nurse)	3	+1	4	+1
Health worker (Female)	1***		1***	
Health assistant (Male)	1		1	
Health assistant (Female)/lady health visitor	1		1	
Health educator		1		1
Laboratory technician	1		1	
Cold chain and vaccine logistic assistant		1		1
Multiskilled group D worker	2		2	
Sanitary worker-cum-watchman	1		1	+1
Total	**13**	**18**	**14**	**21**

*If the delivery case load is 30 or more per month, one of the two medical officers (MBBS) should be female.
** To provide choice to the people wherever an AYUSH health facility is not available.
***For subcenter area of PHC
†MBBS, Bachelor of Medicine, Bachelor of Surgery.
‡AYUSH, *Ayurveda*, *Yoga*, *Unani*, *Siddha* and Homeopathy
Source: Available from: http://*nrhm.gov.in/nhm/nrhm/guidelines/indian-public-health-standards.html*

are the first contact point with the community, the success of any nation wide program would depend largely on the well functioning subcenters providing services of acceptable standard to the people.

Norms

- ***One subcenter is for every 5,000 population in general***
- ***One subcenter is for every 3,000 population (hilly, tribal, backward areas).***

Subcenters have been categorized into two types (types A and B) taking into consideration various factors namely catchment area, health seeking behaviour, case load, location of other facilities such as PHC/CHC/FRU/hospitals in the vicinity of the subcenter. ***Type A subcenter*** will provide all recommended services except that the facilities for conducting delivery will not be available here.

If the requirement for delivery services goes up, the subcenter may be considered for upgradation to ***Type B*** *(as per the Indian public health standards 2012)*.

Staff Recommended

One ANM is essential and two ANMs are desirable to split the population between them and one of them provides outreach services and the other is available at the subcenter. One health worker (male) is essential. Their work is supervised by male and female health assistants. Sanitation services should be provided through outsourcing on part time basis.

Services

At the subcenter, services provided may be categorized as essential and desirable.

Essential Services

- Antenatal care
- Intranatal care
- Postnatal care
- Child health including newborn care
- Immunization
- Family planning and contraception
- Safe abortion services (MTP)
- Curative services with prompt referral
- Adolescent health care
- School health services
- Control of locally endemic diseases
- Disease surveillance (IDSP)
- Village health and nutrition days
- National health programs (*Communicable and noncommunicable diseases*).

Desirable Services

- AYUSH treatment as per local needs
- Once a month clinic by PHC medical officer
- Water and sanitation
- House to house surveys.

Subcenter should be ideally located within the village for providing easy access to the people and safety of the female health worker. ***As far as possible no person has to travel more than 3 km to reach the subcenter.*** In the typical layout of the subcenter, the residential facility for health worker female is included.

Support Services

- *Laboratory*: Minimum facilities for urine pregnancy testing, estimation of hemoglobin by using a approved hemoglobin color scale (*only approved test strips should be used*), urine test for the presence of protein and sugar by using Dipsticks should be available.
- *Electricity*: Wherever facility exists, uninterrupted power supply has to be ensured for which inverter facility/solar power facility is to be provided. Generator facility is made available at type B subcenters.
- *Water*: Potable water for patients and staff, and water for other use should be in adequate quantity. Towards this end, adequate water supply and water storage facility (*over head tank*) with pipe water should be made available especially where labour room is attached. Safe water may be provided by use of technology such as filtration, chlorination, etc. as per the suitability of the center. Water source for subcenter to be provided by the *panchayat* and where there is need, a tube well with fitted water pump may be provided. For continuous water supply the option of rain water harvesting and solar energy for running the pumps, etc. may be explored.
- *Telephone*: At type B subcenters, landline telephone facility should be provided.
- *Assured referral linkages*: Either through government/ *public private partnership* (PPP) model, for timely and assured referral to functional PHCs/FRUs in case of complications during pregnancy and child birth.
- *Toilet*: Toilet facility for use of patients/ attendants and subcenter staff must be provided in all subcenters. In case of type B subcenter, additional one toilet facility each in labour room and ward room are also to be provided. Regular cleaning of toilets should be ensured.

Waste disposal: *Infection Management and Environment Plan Guidelines for Healthcare Workers for Waste Management and Infection Control in Subcenters* of Ministry of Health and Family Welfare, Government of India are to be followed. Standards for deep burial pit as per biomedical waste (Management and Handling) Rules, 1998 needs to be followed.

Subcenter Action Plan

At the subcenter, a team should be under the leadership of the health worker with the help of the members of the village. This involves estimation of requirement of each service based on identified needs and resources, and requirements. This will be worked out by the health worker and submitted for supply. The preparation of subcenter action plan is the first step in the process of decentralized planning.

Steps to Prepare Subcenter Action Plan

- Collect vital event information by population surveys.
- Calculate number of expected deliveries.

- Update eligible couple register, MCH register to compile community need assessment.
- Consult panchayat members, school teachers, *anganwadi* workers (AWWs), etc. to assess the felt needs of the community. MPHW (F)/ANM submits the annual subcenter action plan before the sector medical officer in the first meeting of April without fail.

Staff Pattern–Subcenter

- Health worker (female)/ANM—1
- Health worker male—1
- Voluntary worker—1.

COMMUNITY HEALTH CENTER

The community health centers (CHCs) constitute the secondary level of health care, designed to provide referral as well as specialist health care to the rural population. Indian Public Health Standards (IPHS) for CHCs have been prescribed under National Rural Health Mission (NRHM) since early 2007 to provide optimal specialized care to the community and achieve and maintain an acceptable standard of quality of care. The CHCs were designed to provide referral health care for cases from the primary health center level and for cases in need of specialist care approaching the center directly. There are 4809 CHCs functioning in the country as on March 2011 as per Rural Health Statistics Bulletin 2011.

Unlike subcenter and PHCs, CHCs have been envisaged as only one type and will act both as block level health administrative unit and gatekeeper for referrals to higher level of facilities. Four PHCs are included under each CHC thus catering to approximately 80,000 populations in tribal/hilly/desert areas and 1,20,000 population for plain areas. CHC is a 30-bedded hospital providing specialist care in medicine, obstetrics and gynecology, surgery, pediatrics, dental and AYUSH. X-ray and laboratory facilities are available (Table 5.2).

Service Delivery in CHCs (Based on Indian Public Health Standards)

OPD Services and IPD Services

- General medicine, surgery, obstetrics and gynecology, pediatrics, dental and AYUSH services. Eye specialist services (*one for every 5 CHCs*)
- Emergency services
- Laboratory services
- National health programs.

Every CHC has to provide the following services which have been indicated as essential and desirable.

- Care of routine and emergency cases in surgery
- Care of routine and emergency cases in medicine
- Maternal health
- Newborn care and child health
- Family planning
- Other national health programs (NHP)
- Adolescent healthcare.

Table 5.2 Manpower in a community health center (CHC)

Personnel	Essential	Desirable	Qualifications	Remarks
Block Public Health Unit				
Block Medical Officer/Medical Superintendent	1		Senior most specialist/GDMO preferably with experience in public health/trained in professional development course (PDC)	Will be responsible for coordination of NHPs, management of ASHAs training and other responsibilities under NRHM apart from overall administration/management of CHC, etc. He/she will be responsible for quality and protocols of service delivery being delivered in CHC
Public health specialist	1		1 MD (PSM)/MD [CHA (Community Health Administration)]/MD Community medicine or postgraduation degree with MBA/DPH/MPH	
Public health nurse (PHN)	1	+1		
Specialty Services				
General surgeon	1		MS/DNB (General Surgery)	
Physician	1		MD/DNB (General Medicine)	
Obstetrician and gynecologist	1		DGO/MD/DNB	
Pediatrician	1		DCH/MD (pediatrics)/DNB	
Anesthetist	1		MD (anesthesia)/DNB/DA/LSAS trained MO	Essential for utilization of the surgical specialties. They may be on contractual appointment or hiring of services from private sectors on per case basis

Source: Available from: http://*nrhm.gov.in/nhm/nrhm/guidelines/indian-public-health-standards.html*

DISTRICT HOSPITALS

District hospital is a hospital at the secondary referral level responsible for a district of a defined geographical area containing a defined population. Its objective is to provide comprehensive secondary healthcare services to the people in the district at an acceptable level of quality and being responsive and sensitive to the needs of people and referring centers. Every district is expected to have a district hospital. As the population of a district is variable, the bed strength also varies from 75 to 500 beds depending on the size, terrain and population of the district. Based on bed strength IPHS grades district hospitals into five:

1. *Grade I*: District hospitals norms for 500 beds.
2. *Grade II*: District hospital norms for 400 beds.
3. *Grade III*: District hospitals norms for 300 beds.
4. *Grade IV*: District hospitals norms for 200 beds.
5. *Grade V*: District hospitals norms for 100 beds.

A district hospital has the following functions:

It provides effective, affordable healthcare services (*curative including specialist services, preventive and promotive*) for a defined population, with their full participation and in cooperation with agencies in the district that have similar concern. It covers both urban population (district headquarter town) and the rural population in the district. It functions as a secondary level referral center for the public health institutions below the district level such as Sub-divisional hospitals, CHNs, PHCs and subcenters. District hospitals provide wide ranging technical and administrative support and education and training for primary health care (Table 5.3).

Table 5.3 Suggested norms for manpower—community health center

General Duty Officers			
Dental Surgeon	1		BDS
General Duty Medical Officer	2		MBBS
Medical Officer (AYUSH)	1		Graduate in AYUSH
Nurses and Paramedical			
Staff nurse	10		
Pharmacist	1	+1	
Pharmacist (AYUSH)	1		

Source: Available from: http://*nrhm.gov.in/nhm/nrhm/guidelines/indian-public-health-standards.html*

Services

Each district hospital should have a *Rogi Kalyan Samiti* (RKS)/ Hospital Management Committee (HMC) with involvement of PRIs and other stakeholders as per the guidelines issued by the Government of India. The RKS/HMC will have authority to raise their own resources by charging user fees and by any other means and utilize the same for the improvement of service rendered by the District Hospital. Regular meeting of RKS should be ensured (Table 5.4 and Box 5.1).

Table 5.4 Services available at district hospitals

Essential	**Desirable**
General specialties	**General specialties**
General medicine	Dermatology and venereology (skin and VD)
General surgery	Radiotherapy
Obstetric and gynecology services	Allergy
Family planning services such as counselling, tubectomy (both laparoscopic and Minilap), NSV, IUCD, OCPs, condoms, ECPs, follow-up services	Deaddiction center Physical medicine and rehabilitation services Tobacco cessation services
Pediatrics including neonatology and immunization, emergency (accident and other emergency)	Dialysis services
Critical care/intensive care unit (ICU)	
Anesthesia	
Ophthalmology	
Otorhinolaryngology (ENT)	
Orthopedics	
Radiology including imaging	
Psychiatry	
Geriatric services (10-bedded ward)	
Health promotion and counselling services	
Dental care	
District public health unit	
Development of telematics (DOT) center	
AYUSH	
Integrated counselling and testing center; STI clinic; ART center	
Disability certification services	
Services under other national health programs	

Abbreviation: AYUSH, *Ayurveda*, *Yoga*, *Unani*, *Siddha* and Homeopathy
Source: Available from: http://*nrhm.gov.in/nhm/nrhm/guidelines/indian-public-health-standards.html*

Box 5.1 Other desirable services at district hospitals
Other desirable services
Postpartum unit with following services in an integrated manner
• Postnatal services
• All family planning services, i.e. counselling, tubectomy (both laparoscopic and minilap), NSV, IUCD, OCPs, condoms, ECPs, follow-up services
• Safe abortion services
• Immunization
Superspecialties
May be provided depending upon the availability of manpower in state/UI
Cardiology
Cardiothoracic and vascular surgery
Gastroenterology
Surgical gastroenterology
Plastic surgery
Electrophysiology
Nephrology
Urology
Neurology
Neurosurgery
Oncology
Endocrinology/Metabolism
Medical oncology
Surgical oncology
Radiation oncology
Nuclear medicine specialist
Diagnostic and other paraclinical services
Blood bank with all allied facilities
Computed tomography (CT) scan
Magnetic resonance imaging (MRI)
Electroencephalogram (EEG)
Nerve conduction velocity (NCV)
Electromyography (EMG)
Visual-evoked potential (VEP)
Muscle biopsy
Angiography
Echocardiography
Occupational therapy

Source: Available from: http://*nrhm.gov.in/nhm/nrhm/guidelines/indian-public-health-standards.html*

Diagnostic and other Paraclinical Services

- Laboratory services including pathology and microbiology
- Designated microscopy center
- X-ray, sonography
- ECG.

Ancillary and Support Services

Following ancillary services shall be ensured:

- Medicolegal/Postmortem
- Ambulance services
- Dietary services
- Security services
- Waste management including biomedical waste
- Warehousing/Central store
- Maintenance and repair
- Electric supply (power generation and stabilization)
- Water supply (plumbing)
- Heating, ventilation and air-conditioning
- Transport
- Communication
- Medical social work
- Nursing services
- CSSD sterilization and disinfection
- Horticulture (landscaping)
- Refrigeration
- Hospital infection control
- Referral service.

FIRST REFERRAL UNITS

First referral units (FRUs) are primarily aimed at emergency obstetric care. Under the child survival safe motherhood program, the first referral units for emergency care were designated to all subdistrict community health centers (CHC), postpartum centers, and upgraded PHC. Population covered is 5 lakh (Fig. 5.1).

Package of Services

- *Outdoor patient department (OPD)*
  - Medical OPD
  - Surgical OPD
  - Pediatric OPD
  - Obstetrics and gynecology OPD
  - Dental care OPD.
- Indoor facility for above services
- Anesthetic services
- Neonatal care/obstetric care services
- *Investigative procedures*
  - Ultrasonography
  - X-ray
  - Pathology services.
- Control of epidemic, endemic and communicable disease program
- *All the national program in CHCs* is to be integrated with all the existing programs such as blindness control, iodine deficiency, integrated diseases surveillance project, etc.

  Revised National Tuberculosis Control Program, National Vector-borne Disease Control Program, National Leprosy Elimination Program (free distribution of MDT), National Blindness Control Program are other programs. Under blindness control program eye surgeon is envisaged for a population of 5 lakh and diagnosis,

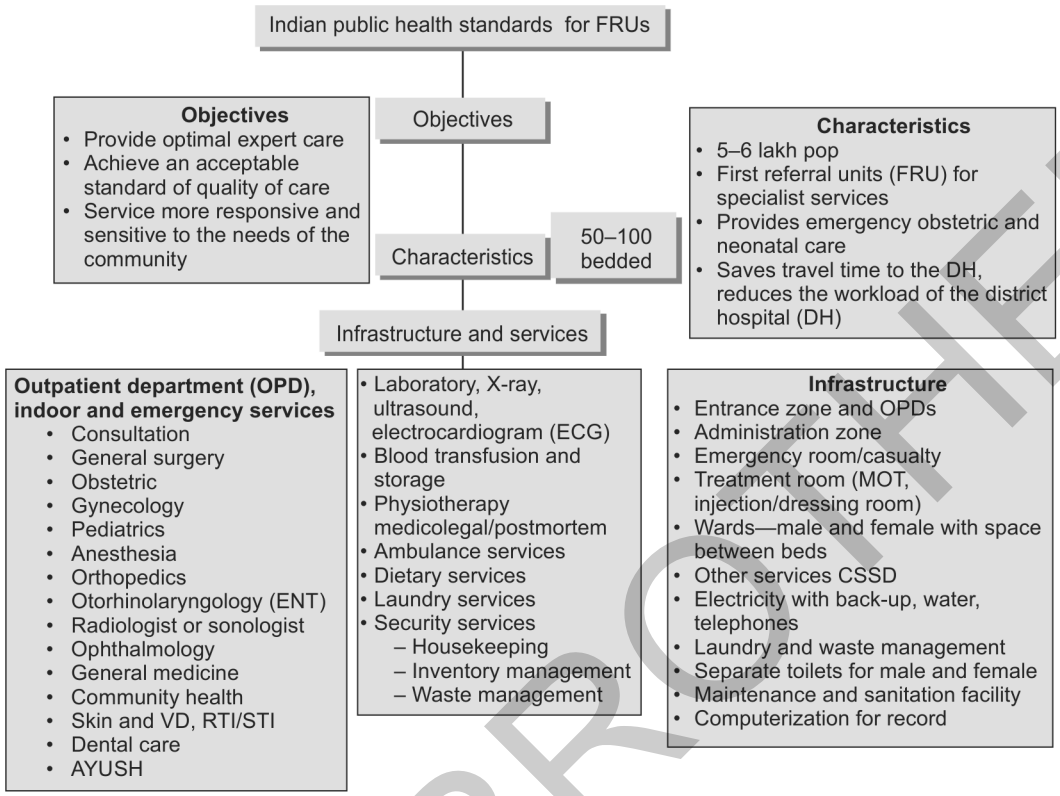

Fig. 5.1 First referral units

treatment of common eye diseases, refraction services and surgical services including cataract surgeries by intraocular lenses (IOL) implantation are done. Iodine Deficiency Disease Control Programme and Integrated Disease Surveillance Project (IDSP), includes diagnosis of malaria, tuberculosis, typhoid and tests for detection of fecal contamination of water and chlorination of water.

- *Reproductive and child health*:
  - Mother and child care
  - Universal immunization program for mother and child
  - Pre-, intra- and postdelivery services
  - Family welfare services including laparoscopic service (male and female sterilization)
- *Emergency services*:

  Medical emergencies—handling of all emergencies related to National Health Programs as per the guidelines for dengue hemorrhagic fever, cerebral malaria, etc.

  24-hour surgical emergencies including incision, drainage and surgery for hernia, hydrocele, appendicitis, hemorrhoids, fistula, handling of emergencies such as intestinal obstruction, hemorrhage, etc.

  24 hours delivery services including normal and assisted deliveries. Essential and emergency obstetric care including surgical interventions such as cesarean sections and essential emergency medical interventions.

  Other components are:
  - Newborn care
  - Routine and emergency care of sick children
  - Safe abortion services
  - Other medical interventions include nasal packing, tracheostomy, foreign body removal.
- Medicolegal services
- 24-hour ambulance service.

JOB FUNCTIONS OF PHC MEDICAL OFFICER

The **medical officer** of PHC is responsible for implementing all activities grouped under health and family welfare delivery system in PHC area. He/She is responsible in his/her individual capacity, and as over all incharge (Fig. 5.2). *The detailed job functions of medical officer working in the PHC are as follows.*

Curative Work

- Managing outpatient department and ensuring smooth running of the OPD.
- Management of emergency cases outside the normal OPD hours.
- Organize laboratory services within the scope of the laboratory for proper diagnosis of doubtful cases.
- Treatment of minor ailments at community level and at the PHC through the health assistants, health workers and others.

Principles and Practice of

Community Medicine

Salient Features

- Thoroughly revised and updated edition.
- Gives due consideration to the new trends in the medical education.
- Provides sufficient information on the health scenario in our country.
- Comprehensive textbook for the health professionals, students and teachers.
- Presentation of matter in a crisp and simple fashion.
- Caters to different learning styles.
- Contents simplified through flow diagrams and illustrations to make it a student-friendly textbook.

Asma Rahim MD DNB PSG-FAIMER Fellow is currently working as an Additional Professor in Community Medicine at the Government Medical College, Kozhikode, Kerala, India. Her stint in medical education started 16 years back; and, her passion for medical education and teaching has grown stronger over the years. She has the PSG-FAIMER fellowship in Medical Education from the Regional Institute, Coimbatore, Tamil Nadu, India, that helped her consolidate the position of the Convener at the MCI Regional Centre for Medical Education Technology at the Government Medical College, Kozhikode, from 2010 to 2014. Being a strong proponent of curricular changes and competency-based medical curriculum, she has been instrumental in setting the Skills and Simulation Lab at the Government Medical College, Kozhikode. Her academic areas of interest include medical education, research, publishing, community rheumatology, infectious diseases and immunization. She has published several research papers in national and international journals; and, also writes on social and health issues in popular dailies. She is deeply committed towards promoting social accountability in medical education. Her special areas of interest are patient safety and doctor–patient communication.

Available at all medical bookstores
or buy online at www.jaypeebrothers.com

JAYPEE BROTHERS
Medical Publishers (P) Ltd.
www.jaypeebrothers.com

Join us on facebook.com/JaypeeMedicalPublishers

Shelving Recommendation
COMMUNITY MEDICINE

ISBN 978-93-5270-034-9