HEALTH CARE SYSTEM IN KERALA : A CASE OF PRIMARY HEALTH CENTRES IN KOZHIKODE DISTRICT

BY

A. V. GEORGE

Thesis submitted to the University of Calicut
for the award of the Degree of
DOCTOR OF PHILOSOPHY

DEPARTMENT OF ECONOMICS
UNIVERSITY OF CALICUT
Dr. JOHN MATTHAI CENTRE
THRISSUR 680618

1999

Declaration

I declare that the thesis submitted by me is a record of the research work done by me and that it has not previously formed the basis for the award of any degree, diploma, fellowship or any other similar title.

A. V. GEORGE

Dr. B. Alwin Prakash
Professor

Department of Economics
University of Calicut
Dr. John Matthai Centre
Aranattukara P.O
Thrissur 680618

Certificate

Certified that the thesis entitled ***HEALTH CARE SYSTEM IN KERALA: A CASE OF PRIMARY HEALTH CENTRES IN KOZHIKODE DISTRICT*** *is a bonafide record of research work done by Sri. A. V. George under my guidance and supervision. The thesis has not been previously submitted for any other degree or diploma*

THRISSUR

DR. B. ALWIN PRAKASH

CONTENTS

Acknowledgements

The author wishes to express his gratitude and appreciation to the following persons who have significantly contributed to the completion of this thesis.

Dr. B. Alwin Prakash for his constant encouragement and assistance throughout the course of this work as Guide. His faith in my ability to complete this mission was a great source of support.

Dr. D.P. Nair for his unfailing moral support and valuable suggestions.

Principal, Calicut Regional Engineering College for permitting me to register for Ph.D programme and carrying out the work.

Prof. K. Mohandas, Director, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Trivandrum for his very kind understanding which kept the work alive.

Dr. Jolly Jose, my wife, who stood by me steadfastly during all sorts of difficult period. She gave a lot of time and provided crucial suggestions at every stage without which this thesis could not have been completed.

Joyichayan and Hubert for the patient help and co-operation.

Doctors, JPHN, JHI, HI, LHI and Members of the sample households.

My indebtedness to my paternal uncle Rev. Dr. Stanislaus M. Fernandez S.D.B. for his love is beyond anything words can convey.

LIST OF TABLES

9

10

List of Figures

List of Maps

Chapter 1

INTRODUCTION

National governments all over the world are striving to expand and improve their health care services. Health and human resource development are integral components of the overall socio-economic development of a nation. It is keeping this in view that health has been declared a fundamental right in many countries. This implies that the State has a responsibility for the health of its people and central to this is the choice of methods for providing health services.

Health is influenced by a number of factors such as food, housing, basic sanitation, social practices, measures to control environmental hazards and communicable diseases. Therefore the concept of health should extend beyond the narrow limits of medical care. India is a signatory to the Alma Ata declaration, which aims at achieving 'Health for All by the year 2000 AD'. The Government of India has adopted a policy, based on 'Primary Health Care' to achieve this end. Primary Health Care is a person's first point of contact with formal health services.

A landmark in the development of health policy was the International Conference on Primary Health Care which took place in 1978 in Alma Ata, attended by delegations from 134 Governments and by representatives of UN System Organizations, other agencies and NGOs.

It is community, not hospital based, and covers minor ailments, first aid, and nutritional problems and immunizations. The 'Primary Health care' has been defined as "essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford in the spirit of self-reliance and determination". Health care covers a broad spectrum of personal health services ranging from health education and information through prevention of disease, early diagnosis and treatment and rehabilitation. The term health care delivery system implies organisation, delivery, staffing, regulation and quality control.

Two major viewpoints have emerged as important in recent years in the discussion on delivery of health services: One that health services should be organised to meet the needs of the entire population of the society. Health services should cover the full range of preventive, curative and rehabilitative services. Health Services are thus seen as part of the basic social services of a country. Two, it is now fully realised that the best way to provide health care to the vast majority of underserved rural people and urban poor is to develop effective 'primary health care' services supported by an appropriate referral system.

1.1 Overview

The Primary Health Centres form the institutional core of the rural health services infrastructure and were conceived as nuclei from which health services would radiate, through subcentres, over the countryside. They are designed to function as important components of the overall economic and social development programmes. However gross underutiliszation of this governmental health care centres are noticed. This leads to the situation where a major proportion of a family's income is being absorbed by the private sector. The question regarding the deficiencies in the primary health centres, therefore, becomes crucial.

In Kerala also, Primary Health Centres (PHCs) are the basic institutions delivering primary health care to the rural population. Kerala, in the deep south of the Indian sub continent, is noted for its high physical quality of life indices which is acclaimed as "good health at low cost". So far no significant studies have been done in Kerala on the supply and demand of health services offered through the primary health centres. A study of the health care system with special reference to a selected Community Health Centre, a Primary Health Centre and a Sub Centre in the Kozhikode district of Kerala is, therefore, attempted.

Table 1.1: Physical Quality of Life Indices - A Comparison, 1991

Indicator	Kerala	India	Developing Countries	Developed Countries
Percapta GNP (in $)	261	310	700	17777
Adult literacy	89.8	52.2	65	95
Life expectancy (in years)	70.5	58.6	62	76
Infant mortality (per 1000)	17	91	75	14
Birth rate (per 1000)	19.8	30.5	30.4	13.8

Source: Kerala Economic Review (1994)

World Bank : 1994

Kerala's achievements, particularly in terms of the physical quality of life indicators (PQLI), exceed not only the national average and that of the less developed countries, but are also at par with standards of developed countries. And this was achieved with a per capita income which is lower than the Indian average.

1.2. Review of Literature

It was the European Conference on Rural Hygiene convened at Geneva by health organisations of the League of Nations in 1931 which called for the establishment of Rural Health Centres[1]. In India, between 1931 and 1939, for the first time, seven model health units were established in parts of the country on experimental basis with the assistance of Rockefeller Foundation. In 1943, the first serious attempt to work out an integrated system of health services was made in India by the Health Survey and Development Committee, generally referred to as the Bhore Committee.Though it was set up by the British colonial authority, it was greatly influenced by aspirations of the Independence Movement. In fact, several of its influential members had been in the forefront of the struggle for Independence.The Committee's impact is also clearly seen in the shaping of health services in independent India. The Committee was a fully representative body consisting of nine officials, including the Minister of Health, the Director-General of the Indian Medical Service, some Surgeons-general from leading Provinces and 16 non-officials, including private practitioners of international fame and members of the Central Legislature[2].

---

1. League of Nations Health Organisation Publications 1931.

2. National Planning Committee 1949; Report

The guiding principles adopted by the Bhore Committee were :

1. No individual should be denied adequate medical care because of inability to pay for it.
2. The health services should provide, when fully developed, all the consultant,laboratory and institutional facilities necessary for proper diagnosis and treatment.
3. The health programmes must, from the beginning,lay special emphasis on preventive work
4. Medical relief and preventive health care must be urgently provided as soon as possible to the vast rural population of the country.
5. The health services should be located as close to the people as possible to ensure the maximum benefit to the communities served.

The Bhore committee's recommendations stressed the primary health care to be a universal comprehensive health care service freely accessible to all without any cost to the user, with the lowest health care delivery unit (primary health unit) serving a 10,000 to 20,000 population with 75 beds, 6 doctors (including medical, surgical and obstetrics and gynecology specialists), 6 public health nurses, 2 sanitary inspectors, 2 health assistants,20 hospital nurses, 3 hospital social workers, 6 midwives, 3 compounders and others. With this structure, curative,preventive and promotive services would be provided as an integrated service by a fulltime salaried staff who would reside at the PHC site.

The Primary Health Centres launched as part of the Community Development Programme Organisation in 1952 signified the putting into practice of the concept of community participation and intersectoral development for health care.

The Government of India in its policy of Health For All by 2000 AD has envisaged a still further expansion and strengthening of the rural health infrastructure with all existing PHCs to be upgraded to Community Health Centres with basic specialities. The Working Group on Health For All by 2000 AD recommended a PHC for 30,000 population or for 20,000 in hilly/tribal and desert areas, and it should be fully equipped to render promotive, preventive and curative services. One subcentre is to be set up for 5,000 population or for 2500 population in hilly, tribal regions with one male and female multipurpose worker and one part time attendant.

Table 1.2 : Rural Health Norms - Level of Achievements

(All India)

(As on 30.06.96)

	Indicator	National Norms	Achievements
1.	Rural population (1991) covered by a:		
	* Sub Centre	3000 - 5000	4737
	* Primary Health Centre (PHC)	20000 - 30000	28755
	* Community Health Centre (CHC)	About 1 lakh	2.6 lakhs
2.	Number of Sub Centres per PHC	6	6.1
3.	Number of PHCs per CHC	4	9.0
4.	Rural Population (1991) covered by a:		
	* MPW (F)	3000 - 5000	4700
	* MPW (M)	3000 - 5000	10103
5.	Average Rural Area (Sq.Km) covered by a:		
	* Sub Centre	..	23.60
	* PHC	..	143.26
	* CHC	..	1292.14
6.	Average Radial Distance (Kms) covered by a:		
	* Sub Centre	..	2.74
	* PHC	..	6.75
	* CHC	..	20.28
7.	Average Number of Villages covered by a:		
	* Sub Centre	..	4.42
	* PHC	..	26.87
	* CHC	..	342.25

Source: Rural Health Statistics in India, DGHS, New Delhi.

In India, it is only recently that we have fully realised the potential of our human resources and a separate Ministry of Human Resources, bringing together health, education, youth affairs and sports has been created. The country has made great strides in the health delivery system and major infectious diseases have been eradicated or controlled. The national health care network has 206 medical colleges, 17,764 hospitals, 21,853 primary health centers, 1,32,727 subcenters, 4,06,966 qualified allopathic doctors and almost a similar number of doctors of the Indian system of medicine. The need of the day is to be able to reach out to remotest villages of India, benefits of modern health care delivery system so that the national health indices of mortality and morbidity, which are still poor compared to any developed country, can be improved to a satisfactory level by 2000 AD.

In India, 56 per cent of hospitals and 49 per cent of dispensaries were owned by private organisations in 1998. Furthermore, it was thought that figures for private ownership were even greater as information on clinics and nursing homes which exhibited strong private ownership were not available[3]. It was estimated that about 73 per cent of qualified physicians in the allopathic system were in private practice and only 27 per cent worked in public service.

---

3. Bhat R (1991). The private health care sector in India: Some policy concerns Research paper No.54. Takemi Programme in International Health. Boston. Harvard School of Public Health.

A household survey in a rural district of Maharashtra, Duggal and Amin[4] found that 77 per cent of illness episodes were presented to private practitioners and hospitals compared to only 13 per cent to government facilites. In another study (Viswanathan and Rohde 1990) it was shown that 65 per cent diarrhoeal cases sought medical treatment, 80 per cent of these cases went to private practitioners and only 10 per cent to goverment health facilities. In terms of health expenditures, Nichter[5] found that 82 poor families in South Kanara district of Karnataka spent 7 per cent of their family expenses on health, 60 per cent of which was spent for private consultations and drugs.

During recent years economists, government officials and policy makers have evinced increasing interest in the economic aspects of health care functioning. An evaluation of their studies points to the analytical aspects of the growth and development of health services and discussion of factors influencing their availability and accountability to different segments of the population.

Kerala has been quoted very often as a Model for the developing world in health - related issues and is often made out as the best example of achieving good health status without corresponding economic development. Many studies

---

4. Duggal R, Amin S. Cost of Health Care: A Household survey in an Indian District, F.R.C.H, Bombay, 1989; p. 25, 53, 82.

5. Nichter M (1980): Health expenditure report USAID (Mimeo), New Delhi.

have shown that in the case of Kerala, food intake is insufficient, nutritional status is low, protein and caloric intake is scanty and living standards are at low level[6].

Panikar[7] in his study on the health care in Kerala, reached the following conclusion.

"Kerala's achievements in the health field becomes all the more significant and of great relevance to low income countries when viewed against levels of per capita income, per capita expenditure on health and medical infrastructure measured in terms of bed-population ratio and doctor-patient ratio which are even lower than in some other Indian states."

An exceptional decline in mortality rates in Kerala which is half the all-India level has been attributed to widespread accessibility to medical care in the State, high utilisation of the health services by the people and wide coverage of inoculations among infants and children[8]. The demand for these health services and their wide utilisation have in turn been supported by high levels of female education . Krishnan attributes the decline in mortality to

---

6. Panikar P.G.K. and Soman C.R (1984): Health Status of Kerala, Centre for Development Studies, Trivandrum.
7. Panikar, P.G.K. (1979): Resources not the Constraint on Health Improvement: A case study of Kerala, Economic and Political Weekly, Vol. 14, pp. 1803-09.
8. Krishnan TN (1985) Health Statistics in Kerala State, India in Halstead et al: (ed) Good Health at Low Cost, The Rockfeller Foundation, New York.

health care provided by the Government, especially immunisation services. An interesting hypothesis to explain the complementary development of demand for health services and the provision of the services through the concept of 'social intermediation in conjunction with the development of health infrastructure' is offered by Kabir and Krishnan[9]. Social intermediation refers to changing the social and behavioural environment by modifying the social conditions governing relationships within and between different segments of society as determined by ownership rights to economic assets, especially land, the caste structure and gender attitudes. The provision of health facilities took place first in Malabar. But the authorities failed to note that utilisation depends on many factors in addition to physical access. Hence no demand was generated for health care thus failing to sustain services. But in Travancore the Government took measures to overcome the biases against use of health system created by caste and gender considerations. With the Royalty itself providing the lead, the upper, and later, lower castes adopted western medical practices, both curative and preventive. Along with education health care became a sought - after service. Once an effective demand was created the Government, communal and missionary organisations catered to it.

---

9. Kabir, M. and Krishnan, T.N (1992), Social Intermediation and Health Transmission: Lessons from Kerala, Working paper No: 251. Centre for Development Studies, Trivandrum.

A review of the development of the health care infrastructure in Kerala and its distribution across sub-regions of the State vis-a-vis the rate of infant mortality suggests that the IMR has responded favourably to the expansion of health and medical services. The impact of the expansion of medical care facilities and the increasing exposure of the people to them are felt in prompt therapeutic attention on the event of morbidity episodes. Zachariah and Patel[10] found that in Kerala both neonatal and infant mortality were universally related to the level of education of the mother. Zachariah, examining fertility decline in Kerala, hypothesises that various politico-economic reasons such as land reforms, increased farm wages and unfavourable land-man ratio have diminished the worth of land as an asset and increased the worth of personal attributes, namely education and health. This resulted in an increase in the demand for both. This is a valuable hypothesis as it serves to explain how the demand for health and educational services was generated.

Nag[11] in his comparative study of Kerala and West Bengal on the different impact of social and economic development on mortality comes to a similar conclusion and confirms that the better access of the rural population to the

---

10. Zachariah K C and Patel Sulekha (1982): Trends and determinants of infant and child mortality in Kerala, World Bank, Washington.

11. Moni Nag (1983): Impact of Social and economic development on mortality, Comparative Study of Kerala and West Bengal", Economic and Political Weekly, Annual Number.

health facilities has been primarily responsible for the higher level of utilisation of the facilities and for lower mortality in Kerala as compared to West Bengal. This has been explained on the basis of greater bargaining power of the rural poor, better communications network and higher levels of female education.In Kerala intervention by the Government in the health sector was prevention - oriented and more widespread while in West Bengal it was curative and Calcutta - biased. Thus according to Nag the lower infant mortality level in Kerala can be attributed to its higher social development. The relative roles of education and better health services are thought to work synergistically in decreasing the IMRs in Uttar Pradesh and Kerala.

There have been very few studies of institution - based health care services. The Indian Council of Medical Research conducted a study evaluating the adequacy of facilities, human power and quality of family welfare services offered by 398 primary health centers, selected across 18 States and 1 Union Territory. Another comparative study undertaken by the Operations Research Group in 3 States examined functioning of primary health centre/sub centre, its coverage, quality of service and main bottlenecks, perceptions of people about functioning of PHC/SC and reasons for not utilising it (Khan, ME & Tamang AK, 1987). The International Institute of Population Studies also conducted a study in 3 States on the quality of family welfare services.

The study examined the perception of clients and provides on equity of family planning services provided and the relationship between perception of quality and utilisation of services. (Verma K.R, Roy T.K, Saxena P.L, 1994)

The classification of Kroeger[12] was used to assess factors influencing utilisation of health services: characteristic of the subjects, the disorder and the service.

Cortinovis et al (1993) argued that developed country socio-economic classifications based on income, occupation and literacy are inappropriate in developing countries because of structural and economic heterogenity between the countries. However, many studies in developing countries do use income or occupation or socio-economic indicators but tailor them according to the local situation[13] (Berman et al. 1987). Others use a combination of more than one variable, such as occupation, ownership of land and educational level, to classify socio-economic status (Cortinovis et al. 1993: Ramachandran and Shastri 1983: Amin et al 1989)

---

12. Kroeger A. (1983): Anthropological and socio medical health care research in developing countries. Social Science and Medicine 17 (3): 147-61.
13. Berman, P. and Khan, M. E. (1993) : Paying for India's Health Care, Sage Publications, New Delhi.
14. Cortinovis, I. Vella, V., Ndiku. J, (1993) Construction of Socio economic index to facilitate analysis of health data in developing countries. Social Science and Medicine 36(8) : 1087 - 97.

Heller[15] found that households with higher income levels shifted their demand from public to private clinics in Malaysia. A community -based study in a rural village in Malaysia showed that utilisation of private clinics by adults aged 18 years and above increased significantly as income increased. The percentage of respondents who visited traditional practitioners decreased as income increased.

Health needs at different ages influence utilisation patterns. A study by Benyoussef[16] and Wessen (1974) in Tunisia found a "U" shape utilisation rate with peaks at both extremes of age : this was explained by the high morbidity rates in the very young and the elderly.

Source of finance is one barrier to use of private health care providers in developing countries. Third party payment mechanism, such as health insurance coverage, are poorly developed. Ron et al[17] (1991) reviewed health insurance schemes in 14 developing countries and reported that in most countries public services were utilised to deliver services under the scheme.

---

15. Heller, P.S. (1982): A Model of the Demand for Medical and Health Services in Peninsular Malaysia, Social Science and Medicine, Vol. 16. No. 3, pp: 267-284.

16. Benyoussef, A., Wessen, A.F., (1994). Utilization of health services in developing countries, Tunisia Social Science and Medicine 8(5) ; 287 - 304.

17. Ron, A., Abel - Smith, B., Tamburi, G. (1991). Health insurance in developing countries : the social security approach. Geneva : International Labour Office.

In a study among villagers attending a rural clinic in Malaysia, Heggenhougen[18] (1979) found that most people used the public clinic for minor problems and presented their more serious health problems directly to a private physician.

In Kenya, Mwabu (1986) reported that different illnesses gave rise to different consultation patterns. He found that although Government clinics were more frequently visited on first consultation, villagers visited private mission clinics for diseases like diarrhoea, malaria,leprosy and tuberculosis.

A few studies on patient satisfaction in developing countries have exposed the weakness of public services and higher patient preference for private health care. Long waiting times, shortage of drugs and poor attitudes of nurses and physicians were among the complaints about public facilities in a study in Mali[19]. In Malaysia , 90 per cent of the patients bypassed the community clinics manned by community nurses to seek treatment at health centres, district hospitals and private clinics where doctors were available (MOH 1988).

---

18. Heggenhougen, H.K., (1979). Attitudes on health care of villagers attending a rural clinic in Malaysia. Medical Journal of Malaysia XXXIV (2) : 108 - 15

19. Ainsworth M. (1983) The demand for health and schooling in Mali: Results of community and service provider survey. World Bank Discussion Paper 1983-7, Washington DC.World Bank.

Patient perceptions on the quality of services provided by doctors might be one reason for this finding. Annis[20] (1981) reported poor utilisation of Government health posts due to understaffing, badly underequipped services and poor quality of services in rural Guatemala.

In most developing countries , public services are usually highly subsidised and private health care is often expensive. The high utilisation rate in private sector facilities , despite the high charges , has been used as evidence that demand for services was not primarily determined by the price of care.

The Study carried out by the Centre for Development Studies[21] attributes the high level of the health status of the population of Kerala to the spread and accessibility of medical care in the State. This is attributed to a location matrix that has provided an effective catchment area for its health system.

An examination of the spread of facilities in the three national regions of the State (the low land,the midland and the high land) shows that the spread is highly correlated with death and infant mortality rates; the smaller the catchment area, lower the mortality rates. Similar relationship is seen while comparing the

20. Annis, S. (1981). Physical access and utilization of health services in rural Guatemala. Social Science and Medicine (15) D : 515 - 23.

21. Centre for Development Studies (1975): Poverty, Unemployment and Development Policy; A Case Study of Selected Issues with reference to Kerala, NewYork, United Nations.

areas that were part of the erstwhile Malabar with Kerala. This study reveals an important aspect of Kerala's settlement pattern which helps explain in part why Kerala is different from the rest of India in its health status.

Panikkar and Soman[22] suggested that morbidity in Kerala is high, while mortality decline has been significant. The average death rate in Kerala stood at 8.48 per mille, as against 15.70 for all the states taken together. The study also attempted to relate socio-economic factors, public policy and situations of other sectors to health. On analysing Kerala's performance, they find the health care system to be the principal factor in the improvement of Kerals's health status. The public and private sector health care services have shown a steady growth with the household expenditure on health exceeding that of Government. On assessing the approach of Government towards provision of health services, they suggest that it should direct its attention towards more basic requirements and that the nature of intervention required need to be revised according to changes in the characteristics of the society. Investing in people's health and their environment is a pre - requisite for sustainable development.

---

22. Panikar P.G.K. and Soman C.R (1984): Health Status of Kerala, Centre for Development Studies, Trivandrum.

T. P. Kunji Kannan's attempt to estimate the family health expenditure at the micro level is a study based on a survey of a locality - Vengeri in Kozhikode district.

The study conducted by Kerala Sastra Sahithya Parishad[23] sought to link up the health status with socio-economic and environmental variables. It also made a survey of all the health institutions of the State.

According to the KSSP study conducted in rural Kerala among 10,000 households, as high as 83 per cent of the households knew about the primary health centre. However only 39 per cent households reported that they were going there for health care. The actual utilisation of public health services in terms of illness episodes turned out to be still less. For acute illness only 23 per cent used Government health facilities.

The World Health Organisation Survey of Primary Health Centers in India data was gathered from 139 PHCs. It was found that referral to hospital was only one per 1,000 PHC attendances, that only 10 per cent of the 139 PHCs received visits from a hospital consultant, and that 70 per cent of the PHCs performed less than one laboratory test every other day. Takulia H.S. in a study entitled "The Health Centre Doctor in India" which was conducted in different PHCs in six States in India revealed that curative services were considered as

---

23. Kannan, K.P., et al, (1991) 'Health status in Rural Kerala - A Study of the Linkages between socio economic status and Health status' Integrated Rural Training Center, of Kerala Sastra Sahitya Parishad.

basic activity of the PHC, while preventive activity such as mother and child health, sanitation, communicable diseases control were not given any importance.

Discrimination against the poor and the oppressed, poor quality of medicines (only red water), lack of medicines, overcrowding and often rude behaviour of the staff were some of the charges that had been levelled against most of the Government dispensaries, as per the study conducted by Debabar Banerji.

Complaints about medicines and over-crowding and long wait are made even against the best of the PHCs studied by Banerji.

1.3. The Problem

The understanding of the Government health institutions - the primary health centers - as it emerges from our review emphasises the peculiar nature and position of these lowest health care delivery units within the larger frame work of the health delivery system of the country. The image of the primary health centers in rural areas is very poor. In fact primary health centers are regarded by the people as being synonymous with family planning centres. The doctors do run out - patient Department clinics at primary health centres but the supplies and services are so inadequate that the clientele is automatically restricted in numbers. Hence, it is not surprising that the National Sample Survey Organisation in its 42nd Round Survey on health care utilisation found that of all routine ailments treated in rural areas only 5 percent were treated in primary health centers.

The remaining either went to city public hospitals and dispensaries (20 perc ent) or to private practitioners (59 percent) and private hospitals (16 percent). Another feature of the PHCs is that there are a number of health programmes imposed by the Centre (and gladly accepted by the States because of the money that come with it) without understanding the ground realities, especially the health care demands of the population.

The organised sector has the ability and means to raise demands on the State to meet their social needs like health care, education and water supply. Also, the officials of the State are located in the urban areas and hence have a vested interest in giving primacy to its development. The rural areas lack this clout and are subject to programmes that may not necessarily meet their demands. Health facility statistics show that even after 45 years of planned developments, rural areas have 31 percent of hospitals, 10 percent of beds and 25 percent of qualified allopathic doctors (40 percent all system doctors) to serve the 75 percent of population which resides in village.

When the Community Development Programme was launched in the year 1952, Kerala also started implementing the scheme by establishing a number of primary health centers and community development blocks throughout the State. This venture of developing the rural health infrastructure continues and is still in progress. The latest effort in this regard is conversion of every third primary health centre in to 30 - bed referal hospital known as Community Health Centre.

The health services being offered through the primary health centers are of curative, preventive and promotive dimensions. The variety of services offered have been mentioned earlier . But studies have shown that people are dissatisfied with the services they get from the primary health centre

Generally they link primary health centre to a place from where family planning services are offered. People complain that they do not receive any needed medication in times of illness instead they are just supplied with medicines like paracetamol and the carminative mixture. In Kerala, the key institutions for the delivery of primary health care are primary health centres. Very few studies have been done in Kerala on the extent of services and satisfaction of the people in relation to the functioning of the primary health centre system.

In a study on status of primary health centre in Kerala, information was collected through field survey in 3 districts viz, Trivandrum, Kottayam and Malappuram. But in this study utilisation and access to health services has not been studied. Health facility awareness and availing have been recorded. It is with the intention of taking a fresh look at the state of primary health care delivery system that this study `Health Care System in Kerala - a case of Primary Health Centres in Kozhikode District.' is attempted.

1.4 Objectives

The objectives of the present study are:

1. To examine the factors that influence the demand for health services and the determinants of use of health care services in primary health centres.
2. To analyse the type of health services provided and utilisation of health services, offered through primary health centres.
3. To make an analysis of health services expenditure of a primary health centre.

1.5 Plan of the study

Chapter 2 discusses the theoretical and methodological issues in health care system giving a model for health care utilization. Anderson's health care utilization model is adopted in this study and as per the model the individual determinants affecting the health service utilization are probed in detail. Kozhikode district was selected for making detailed study of the health service delivery of that particular district. Among the primary health centres of Mukkom CHC, the PHC at Cheruvadi was selected as it is identical to other PHC's in its facilities, staffing and infrastructure. The PHC at Cheruvadi was selected to study the linkages between CHC and PHC as it comes under Mukkom CHC. So also Pannikode subcentre which is typical of a sub centre and which comes under Cheruvadi PHC is selected to find out the linkages between PHC and subcentre.

Chapter 3 traces the health centre development in India and discusses the PHC concept and growth over various Five year plans. The chapter further describes the organisational framework of the Government health care sector in Kerala.

Chapter 4 discusses the demand for health services, its accessibility across social classes and examines the utilisation of these facilities by the population.

The study mostly depends on primary data based on a survey conducted in a community health centre, a primary health centre and in a subcentre. An analysis of health services expenditure of a primary health centre is also attempted in the chapter.

Chapter 5 deals with the analysis of the study, the findings thereof and discussion related to the findings. The supply of health services in the studied CHC, PHC and Sub Centre is described and analysed.

Finally Chapter 6 contains the conclusion of the investigation reported in this study.

Chapter 2

THEORETICAL FRAMEWORK

2.1 Issues

Health is at the very centre of the concerns of an individual. Within the family, this concern for health is mutually shared by the individuals forming the group. The head of the family bears the responsibilities for the attainment and maintenance of the health of its individual members. At the next stage, the community becomes the guardian of the health of its members. The individual, the family, the community and the State can be seen as partners sharing the unavoidable responsibility to make available healthy life to all.

The concept of 'health' cannot be seen in a narrow sense as a state of sheer absence of diseases. Instead, it should be seen in a broad spectrum where health is viewed as an integral well being of the individuals (Mathur,1995). This holistic perception of health is well defined by WHO : 'health is a state of complete physical, mental (or emotional) and social well being of a person and not mere absence of diseases'. The old ways of measuring health status which included indices like mortality rates, particularly infant mortality rate (IMR) and life expectancy appear to be strongly in need of re-examination today in the context of the holistic perception of health. Thus, presently, health status indices include in addition to the aforesaid measures, variables such as drinking water, sanitation,morbidity (Berg,1973; Cemper 1984).

The most useful indicators of health status can be grouped in three categories viz 1) Nutritional Status 2) Morbidity 3) Mortality. Nutritional status can be estimated in several ways. The percentage of newborn babies who have a low birthweight - less than 2500 grams - is widely used. Anthropometric measurements, such as weight for age, height for age , weight for height and mid upper arm circumference are also commonly used for assessing nutritional status of infants and young children. Poor nutritional status is indicated by the percentage of children who are classified as suffering from mild, moderate and severe malnutrition.

Morbidity indicators are generally based on the disease - specific incidence or prevalence rates for the common and severe diseases such as malaria, diarrhoea and leprosy. A simple method for assessing morbidity is to analyse the pattern for all ages together and to derive the ten commonest causes of ill health. A more accurate method is to analyse each major age group separately. Mortality indicators are mainly, the crude mortality rate for all ages , infant mortality , 1-4 year old child mortality, maternal mortality and the disease - specific mortality rates.

Access to health care is very unevenly distributed around the world. Normally, the health status of the populations of countries reflects their economic

situation though there are remarkable differences in the performance and in the costs of health systems, even among countries with similar per capita incomes. The United States, for example, has the highest per capita health expenditure in the world. Yet about 37 million Americans have no health insurance at all.

A comparison of the developed countries and developing countries with respect to some of these health status indicators would reveal that wide disparities exist between these two group countries in mortality rates, particularly IMR and in life expectancy.

GNP per capita is the total GNP divided by the number of residents of a particular country. It is a measure of average wealth.

The infant mortality rate, measured as the number of deaths in the first year of life per, 1000 live births, is often used as a key indicator of socio - economic development. This may appear odd because it concerns a death rate, and moreover, one that only applies to infants. However, we can look at it as an indicator of health. Furthermore, the fact that it only applies to infants should not worry us. Firstly, infant mortality is correlated with adult mortality. And more importantly, young children are most vulnerable to adverse socio - economic or environmental conditions.

Life expectancy at birth is another indicator of mortality. Like infant mortality, it reflects the average standard of living of a society, or more precisely, the average con ditions which secure the survival of people.

Table 2.1. Health expenditure, life expectancy and mortality world wide 1990.

Region	Health expenditure percapita (in US$)	Health expenditure in % of GDP	% of world population	Life expectancy at birth	Infant mortality rate (per 1000)
Sub Saharan Africa	24	4.5	9.68	52	17.5
India	21	6.0	16.13	58	12.5
China	11	3.5	21.53	69	4.3
Other Asia	61	4.5	12.97	62	9.7
Latin America and Caribbean	105	4.0	8.43	70	6.0
Middle East North Africa	77	4.1	9.55	61	11.1
Central and Eastern Europe	142	3.6	6.57	72	2.2
Industrialised Market Economies	1860	9.2	15.15	76	1.1
World	323	8.0	100	65	9.6

Sources: World Bank and ILO

Notwithstanding the advanced levels of human development of Kerala, the question that arises is whether the fruits of the human development are fairly shared by all segments of population. Balanced development of a region would mean that the society gets the benefit and every member of the society enjoys the fruits of the development process.

2.2 Theoretical Framework

Anderson's model for health service utilization

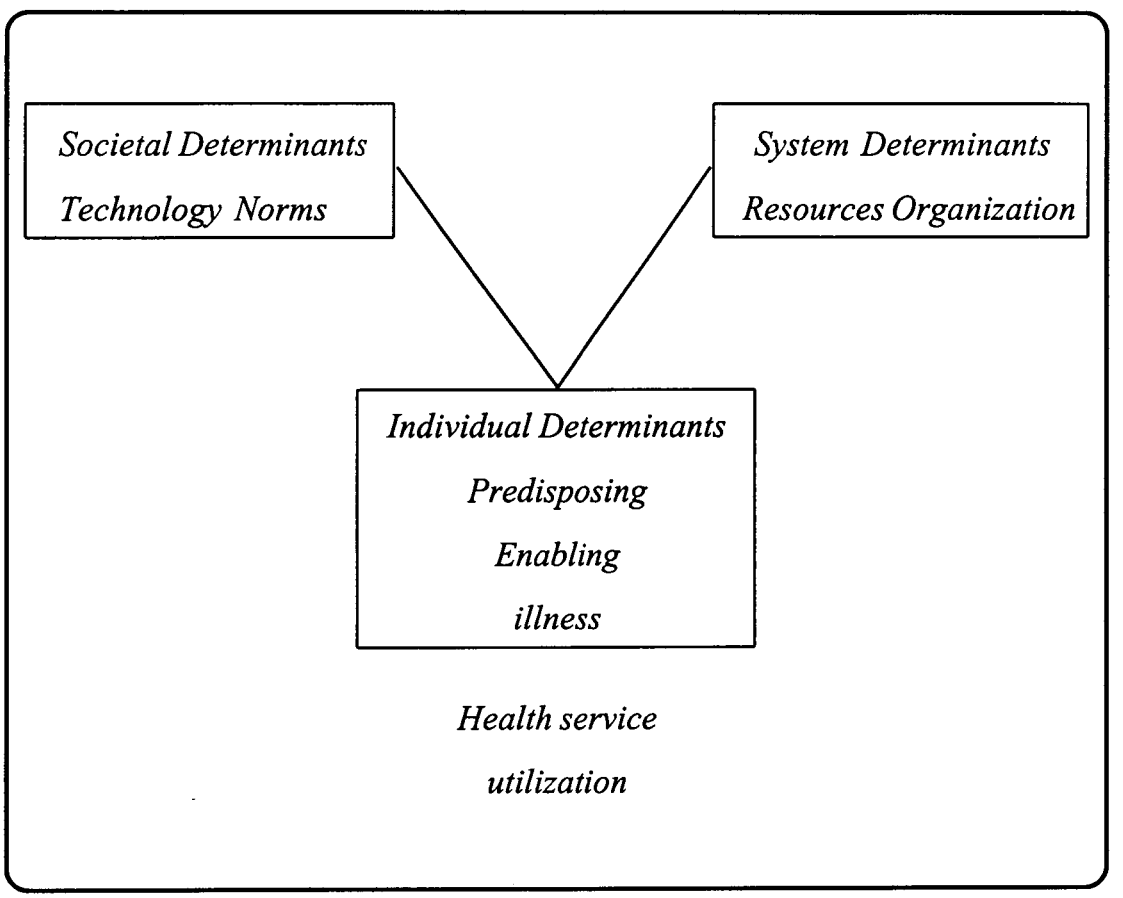
Anderson and his colleagues have set out a model for health care utilization called the structural model for health care utilization. In this model, three sets or determinants have been proposed that influence health service utilization.

Societal and system determinants are postulated to influence individual determinants which directly impinge on service use. Social determinants include the current state of knowledge as well as people's attitude and belief about health and illness. The factors operate either directly to influence the individual determinant or indirectly through their influence on the system factors.

System factors include health service resources (both volume and distribution) and organization of the health services. However, it is the individual

determinants that are directly related to health service utilization (figure 2.1).

Figure 2.1: Factor *s* affecting health service utilization according to Anderson's model.



Individual determinants of health service utilization are further subdivided into three main categories according to the Anderson Model (Figure 2.2)

Figure 2.2

Predisposing	**Enabling**	**Illness level**
Demographic	**Family**	
Age	income	**disability**
Sex	insurance	symptoms
Marital Status	(type of access to care)	
Social Structure		diagnoses
Education	**Community**	general health
Race		
Occupation	facilities	**Evaluated**
Family size	Cost of service	
Ethnicity	region	symptoms
Religion	(urban, rural)	diagnoses
Beliefs		
Values		
Attitudes		
Knowledge		

Individual determinants of health services utilisation according to Anderson's model

1. Predisposing variables, which are further subdivided into

   a. Demographic factors, such as age, sex and maritial status and,

   b. Social structure, such as education,occupation, family size, religion and beliefs (eg. values, attitudes and knowledge.)

2. Enabling Variables, on the other hand, are the conditions which permit the individual to use health services.

   a. Family factors, such as income, health insurance type and accessibility

   b. Community factors such as, availability, cost of service and residence.

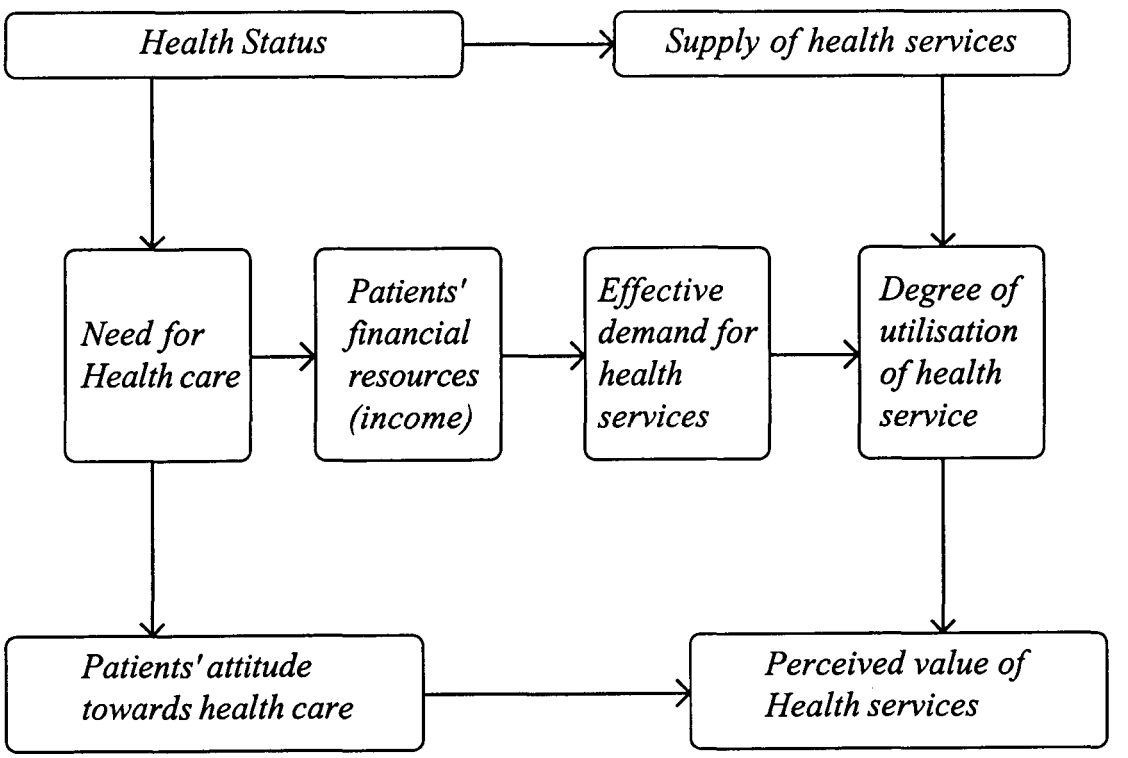
3. Illness level is probably the most direct factor related to health service use. It includes:

   a. Perceived disability, symptoms and diagnoses and general health:

   b. Evaluated health condition by health personnel (symptoms and diagnoses).

Anderson's health care utilization model depicts the various determinants that influence the utilisation of health services, namely societal determinants, system determinants and individual determinants. Whereas the following model deals with the process of health care utilization.

Figure 2.3 : Model of the Health Care Utilisation Process



The starting point for the process of the utilisation of health care is the health status of the people of a given community. The health status generates the need for health care. The need for health care influences in some way the attitude of an individual (who becomes a patient) towards the health care he receives.

But the need for it is only one factor influencing the individual's (patient) attitude about health care. Another, and probably more important factor, is the perceived value of health services which are offered to him and are used by him. In other words, the behaviour of an individual towards health care partially depends upon the need for such care (eg. its intensity, duration) but to a greater extent upon his evaluation of the health services needed by him and available to him.

The need for health care plus economic factors create an effective demand and this seems to be one of the two decisive factors contributing to the utilisation of health services.

Another factor is undoubtedly the supply of health services. This term covers not only the quantity, kind and quality of health services, but also their economic feasibility (prices of services) and physical accessibility to the patients (distance, transportation facilities, office hours). Thus the degree of utilisation of health services is finally dependent upon two basic factors; the supply of health services coming from different input resources and the effective demand for health services whose primary source is health conditions of the people which generate their needs for health services, supported economically by their financial resources.

The indigenous traditional health systems viz. the Ayurvedic and the Unani systems had in effect, functioned as viable 'Primary health care' systems. These systems have served the needs of the people of India for centuries and they have a great deal in common in both the diagnostic and therapeutic aspects of medical care. However these traditional systems have, for quite sometime past, been falling increasingly into disarray. The progress of modern, so called 'scientific medicine' has led to a devaluation of the traditional health system. It has, in fact, created a widespread fascination for the new ways of dealing with ill-health and excessive mortality levels among the unwary masses.

Health occupies third position in the family budget next only to food and shelter and thus involves the related problems of allocation and decision - making. Also health care is a commodity and traded too (though not in the same manner as we do with other commodities). Health itself is not tradeable in the sense that it cannot, strictly, be bought or sold in a market. All these aspects require analysis from the economic perspective. Health economics deals with (a) the role of Government (b) Uncertainty in health care (c) wide - ranging difference in knowledge, information and perception (asymmetry) and (d) externalities.

From the supply point of view, health care produces primarily health but also other "outputs". From the demand standpoint, people want to improve their health status, so they demand health care. The reason they want better health is presumably because of the desire to enjoy life to a fuller extent than would be the case with less health.

2.3. Health Services in India

The method of provision of health services appropriate to a country is specific to the existing socio-economic conditions, the approach of the population to health care and the health care priorities of the country. Hence the appropriate method of providing health care could vary across countries.

The health care systems of India may be defined as the industry which provides health services (health activities) so as to meet the health needs and demands of individuals and the community. It is represented by the five major sectors or agencies which differ from each other by the health technology applied and by the source of funds for operations. These are :

1. **Public Agencies :**

   (1) Primary Health Centres

   (2) Hospitals - Rural Hospitals

   District Hospitals

   Specialist Hospitals

   Teaching Hospitals

   (3) Health Insurance Schemes :

   Employees State Insurance

   Central Government Health Scheme

   GIC Schemes

   (4) Other Agencies :

   Defence Services

   Railways

2. **Private Agencies**

   (1) Private Hospitals, Polyclinics, Nursing Homes and Dispensaries

   (2) General Practitioners and Clinics

3. **Indigenous Systems of Medicine**

   Ayurveda and Sidha

   Unani

   Homeopathy

   Naturopathy

   Unregistered Practitioners

4. **Voluntary Health Agencies**

5. **Vertical Health Programmes**

In India, responsibility of health care is assigned to individual State Governments. Within the same policy framework, different States have adopted different strategies for provision of health care.

Most of the studies conducted in various States show a high utilisation of private health services

Table 2.2 : Percentage of Utilization of Private (Modern) and Public Health Services

	Maharashtra	M.P	Bihar	Gujarat	Tamil Nadu	Kerala	All India	
							Rural	Urban
Private Health Sector (Modern)	83.45	70.97	57.6	23.1	35.7	48.6	54.25	57.54
Public Health Sector	9.07	15.52	24.4	53.8	61.5	28.8	36.21	26.96

The Primary Health Centre forms the institutional core of the rural health services infrastructure. The first primary health centres were established in October 1952 as a part of a broader strategy for rural development through community development programme (S. N. Bhattacharyya, 1970). It was proposed that 5,400 PHCs would be set up, providing one centre per community development block. The PHCs were conceived as nuclei from which health services would radiate, through subcentres, over the countryside. Their operational responsibilities covered

(i) Medical Care

(ii) Control of communicable diseases

(iii) Promotion of mother and child health

(iv) Collection of vital statistics

(v) Provision of water supply and promotion of environmental sanitation

(vi) Conducting school health programmes and

(vii) Providing family planning services

Although designed to function as important components of the overall economic and social development programmes, there appears to be the gross underutilization of the primary health centres. This leads to the situation where the major proportion of a family's income is being absorbed by the private sector. The questions regarding the deficiencies in the governmental system, therefore, become extremely important. Once the deficiencies are identified, it would be necessary to devise ways to correct them. Some of the fundamental questions that need be examined are :

1. Can health care services through the primary health centres be reorganised to serve as many people as possible ? Are its activities co-ordinated and comprehensive ?

2. Will the services reach the people they should serve ? How much attention is given to identifying and meeting the needs of the least healthy members of the local population ?

3. Does the health centre meet the health needs of the area ?

4. How much interaction is there between the various units providing health care, including non - governmental and private clinics ?

5. What should be the target of services from the people's point of view ?

6. How much money needs to be spend ?

7. How much money is being spent in offering each services ?

8. What are the inadequacies in resources and funding ?

9. What is the extent of availablity of doctors and other workers to serve in the interior areas ?

10. How local resources could be utilized and what are the possible alternatives. Co - operatives ?

11. Can an alternative model for financing of primary health centres or for resources generation for health can be evolved out through studying / interviewing community leaders, healers, officials and representatives from community (Banerji, D, 1985).

Table 2.3 : Governmental health care infrastructure in Kerala, 1994

a. Medical Institutions in Kerala

	No.	%	Beds	%
Hospitals	148	13.57	27872	74.30
Primary Health Centres	924	84.69	5228	13.94
Community Health Centres	51	4.67	2816	7.51
Dispensaries	53	4.86	154	0.04
TB Centres / Clinics	22	2.06	448	1.19
Leprosy control unit / Leprosy Sanitorium	15	1.37	993	2.65
Total	1213	100.00	37511	100.00

b. Other systems of Medicine (Ayurveda and Homeopathy) 1091 3259

c. No. of Medical and Para medical personnel in the Health Service Department 22963

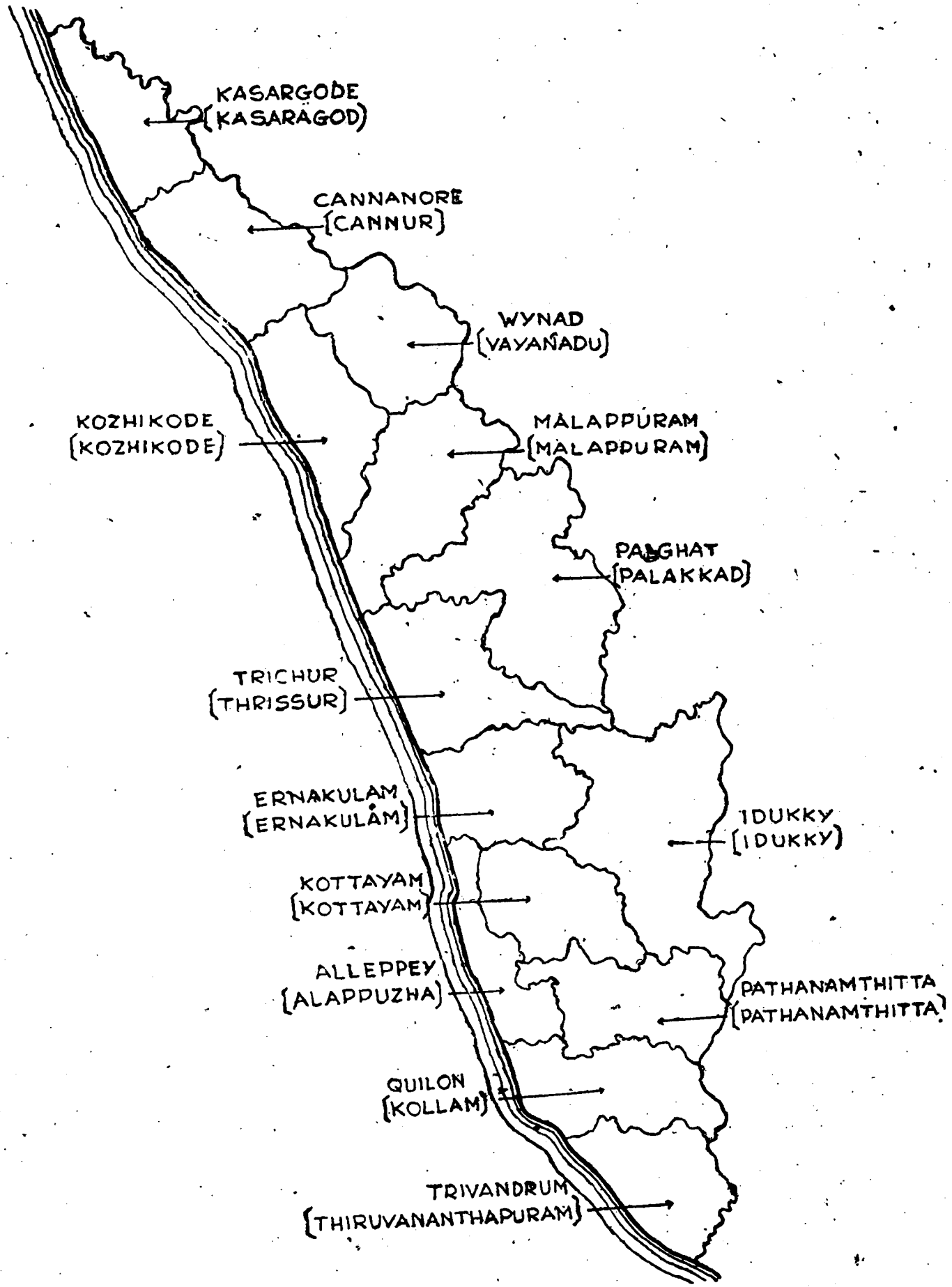
Source : Kerala Economic Review, 1994

2.4 Methodology

In view of the fact that the vast majority of our rural populace does not have the benefit of proper health care despite the Government's efforts, and that the rural people still display a wide gap in their health status as compared to their urban counter parts, an analytical study to explore and identify the health care system in Kerala with special reference to selected primary health centres of Kozhikode district assumes relevance and importance. The present study mostly depends on primary data based on a survey conducted in a community health centre, a primary health centre and in sub centre areas in the Kozhikode district. The primary data were supplemented with qualitative data collected through group discussions and personal interviews. Officers at the district and the State - levels had been personally interviewed, wherever possible.

There are 14 districts in Kerala. Of these a district is selected to make a detailed and systematic enquiry of the health services delivery of that particular district. The reason in selecting Kozhikode district was that the investigator was more familiar with the district as he was residing there. Moreover the health services development will be typical of any other district in Kerala.

MAP OF KERALA SHOWING OLD AND NEW NAMES OF DISTRICTS (NEW NAMES IN BRACKETS)



Kozhikode is one of the three cities of Kerala. It is developed and the standard of living, transport and communication network, employment opportunities, facilities including medical facilities like hospitals, health centres and dispensaries are better than elsewhere in the erstwhile Malabar region.

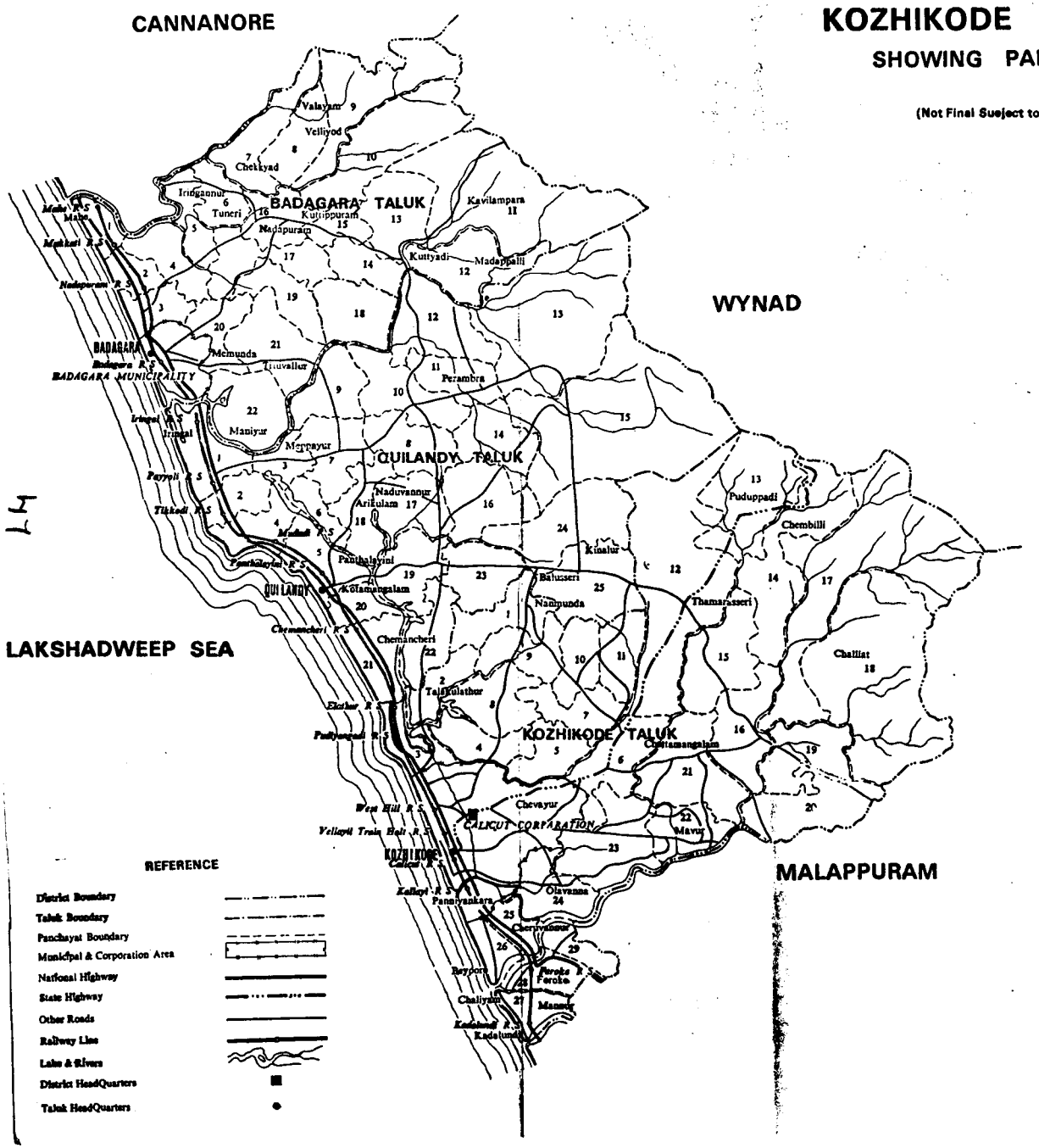
The rural population of Kozhikode district is agriculture - based. More than half of the district's income is from agriculture and allied sectors. Kozhikode district has population of around 2.7 million (1991 Census). The district covers an area of around 2345 square kilometres which is divided into three Taluks (administrative divisions). The allopathic medical facilities in the district comprise public hospitals. In addition, there are 6 community health centres, 66 primary health centres and approximately 300 subcentres in the public sector to provide primary health care services. The second medical college of the State is in this district.

Mukkom CHC is similar to other CHCs in the district by way of its staffing facilities and infrastructure. Therefore Mukkom CHC was selected for the study. Among the PHCs of Mukkom CHC, the PHC at Cheruvadi was selected as it is identical to other PHCs in its facilities staffing and infrastructure .

KOZHIKODE DISTRICT

SHOWING PANCHAYATS

(Not Final Sueject to Alterations)



REFERENCE

- District Boundary
- Taluk Boundary
- Panchayat Boundary
- Municipal & Corporation Area
- National Highway
- State Highway
- Other Roads
- Railway Line
- Lake & Rivers
- District HeadQuarters
- Taluk HeadQuarters

LIST OF PANCHAYATS

BADAGARA TALUK

1. AZHIYUR
2. ONCHIAM
3. CHORODE
4. ERAMALA
5. EDACHERI
6. THUNERI
7. CHEKKIAD
8. VALAYAM
9. VANIMEL
10. NARIPPATTA
11. KAVILUMPARA
12. MARUTHONKARA
13. KAYAKKODI
14. KUTTIADI
15. KUNNUMMAL
16. NADAPURAM
17. PURAMERI
18. VELAM
19. AYANCHERI
20. VILLIAPPALLY
21. THIRUVALLUR
22. MANIYUR

QUILANDY TALUK

1. PAYYOLI
2. THIKKODY
3. THURAYUR
4. MOODADI
5. QUILANDY
6. KEEZHARIYUR
7. MEPPAYYUR
8. NOCHAD
9. CHERUVANNUR
10. PERAMBRA
11. KOOTHALY
12. CHANGAROTH
13. CHAKKITTAPPARA
14. KAYANNA
15. KOORCHUNDU
16. KOTTUR
17. NADUVANNUR
18. ARIKKULAM
19. MULLIYERI
20. CHENGOTTUKAVU
21. CHEMANCHERI
22. ATHOLY
23. BALUSSERI
24. PANANGAD
25. UNNIKULAM

KOZHIKODE TALUK

1. NANMANDA
2. THALAKKULATHUR
3. ELATHUR
4. KAKKODI
5. KURUVATTUR
9. KUNNAMANGALAM
7. MADAVOOR
8. CHELANNUR
9. KAKKUR
10. NARIKKUNNI
11. KIZHAKKOTH
12. THAMARASSERY
13. PUTHUPPADI
14. KODENCHERI
15. OMASSERI
16. MOKKAM
17. THIRUVAMBADI
18. KOOTARANJI
19. KARASSERI
20. KODIYATHUR
21. CHATHAMANGALAM
22. MAVOOR
23. PERUVAYAL
24. OLAVANNA
25. CHERUVANNUR NALLALAM
26. BEYPORE
27. KADALUNDI
28. FEROKE
29. RAMANATTUKARA

A few important socio - economic and environmental characteristics of the households were selected initially by this investigator to divide the households into different groups. The characteristics selected to capture socio-economic status were per capita income, educational level, religion and caste, occupation, housing condition, drinking water and sanitary facility. So also Pannikode subcentre which is typical of a subcentre and which comes under Cheruvadi PHC is selected to find out the linkages between PHC and subcentre. The PHC at Cheruvadi was selected to study the linkages between CHC and PHC as it comes under Mukkom CHC.

At a stretch he observed for 15 to 20 minutes and during this observation he recorded, whatever he had observed, in his diary of observation. He carried out his observation throughout the day in different health centres. He made observations of various activities in a health centre without his presence getting revealed.

For the purpose of this study informal interviews were held with medical officers, health inspectors, junior public health nurses and the people residing in the locality.

Interviews were held according to the convenience of the respondents. After self-introduction, the purpose of the interview was mentioned, it was conveyed

to them that the investigator would ensure confidentiality of the information sought from them.

As far as possible the conversation was made into an informal and free discussion. The interviewee was encouraged to talk on various aspects of the topic of interest. Questions were open - ended and as a result they allowed free flow of responses.

Conscious efforts were made by the interviwer to avoid himself dominating the interaction process. But at the same time he had to gently direct the conversation in such a way that deviation from the topic of interest was minimised.

During the initial stages of the study the investigator had observed junior health inspectors and junior public health nurses at work. In the next stage, where he started interviewing them. To ensure validity and reliability of the data secured he had cross-checked the information obtained with the district - level officers of immunisation, mother and child health and other national control programmes viz. tuberculosis, leprosy and blindness.

The investigator used a semi-structured interview with the medical officer in charge of each centre to describe how far the duties and responsibilities are carried out by them in relation to their job function and constraints they faced while discharging their duties. They were asked to describe the process of care

in that institution with respect to waiting time for various services, area of shortage of supplies, perceived patient preferences for the facility and referal patterns to and from other providers. The interviewer had to probe the other probable reasons or determining factors of particular problems experienced by the medical officer.

As regards interview of JPHN and LHI were concerned, questions included those pertaining to mother and child health and family welfare. The HI and JHI were asked about environmental sanitation and control of communicable diseases. The patient interview was designed to capture information in relation to the extent of services received and the pattern of demand and patient satisfaction with the care received. The questionnaire used for the purpose was addressed not only to the health aspects but also to the socio-economic profile of the household and the environmental aspects.

The investigator collected basic information about the community from family register of the health/subcentre in which basic information about all the households that come under each centre is registered. The basic information included income status, occupation of the family members, religion, type of house, source of water supply and type of latrine.

By going through this register, the basic information about the community was collected. From analyis of this information he got an understanding of the stratification of households on the basis of income, education, housing, living

conditions and religion. For his study, he selected households from the low, middle and higher socioeconomic group. He conducted home visits to these families interviewed both husband and wife, observed the family members and the family situation with special focus on their health problems, how much they spend for treating health problems and the constraints they faced in meeting the cost of medical care and how do they interact with the health service system. In addition, he collected similar information from households of the middle and upper socio-economic households. To sum up, the data was secured through informal in - depth interviews, observation, record review and group discussions.

Chapter 3

PRIMARY HEALTH CENTRES

3.1 Health centres in India - Origin

The remains of one of the world's first teaching hospitals lay in the isolated valley of Nalanda, in northern Bihar. The 2000 - year - old rock - walled outline of the floor plan suggests physical arrangement similar to that of hundreds of rural health centres. Several rooms appear to have been used for in - patient care, a larger section was reserved for out - patient treatment.

The classics of Ayurvedic Medicine speak of the ancient practitioners attempting to achieve a high degree of integration of preventive and curative care which is a principal goal of modern health centre service.

The present development of the health centre in India originated from public health activities which began in the mid - 19th century in Europe and the United States with the purpose of providing maternal and child health and other personal preventive services. Clinical care for the medically indigent was provided by charitable and public dispensaries. The terms used for health centres vary widely, ranging from the dispensary, clinic or polyclinic as a place mainly for curative care, to the health station or health post as a place where the main activity is to promote public health.

The first publication to set forth the regionalised health centre concept in detail was the Lord Dawson of Penn Report in 1920.

During 1929 Government launched comprehensive public health improvement programmes in collaboration with Rockefeller Foundation which included among other things propaganda to educate masses in health matters, the collection of accurate vital statistics , the opening of laboratories for research work and for the analysis of water, milk and food stuff, the control and prevention of infectious diseases, the medical inspection of school children, the organisation of health units to carry on intensive and comprehensive work for the improvement of public health, the investigation of incidence of hookworm, yaws, leprosy, elephantiasis and other diseases and starting of regular campaigns for supervision (Census of India 1931) . Health units were started in India outside seven large cities, Delhi, Madras, Bangalore, Lucknow, Trivandrum, Pune and Calcutta.

Also important in the origin of the health centre movement in India were isolated demonstration projects associated with general rural development programmes. One of the earliest was started by Rabindranath Tagore and his colleagues at Sriniketan and Shantinikethan in Bengal. Mahatma Gandhi's efforts

to improve the health of villagers in the viicnity of Sevagram Ashram in Central India are well known.

3.2 PHC concept and growth over Five Year Plans

The primary health centre forms the nucleus of the health activities in the area, and the primary health centre (PHC) concept implied delivery of integrated health services through an appropriate institutional framework to the smallest unit of population possible. The PHC is the core institution of the rural health services infrastructure in Kerala as in other States. The first PHCs were established in October 1952 as a part of the Community Development Programme. This programme represented the official strategy for integrated rural development initiated in the first five year plan. The concept of rural health services delivery through the PHCs was in line with recommendations of the Bhore Committee in 1946 and the National Planning Committee's sub committee on national health.

The Health Survey and Planning Committee (Mudaliar Committee) which submitted its report in 1962 (Government of India 1962) making an assessment of the PHC scheme, said :

" The primary health centre programme as it has developed bears no resemblance to that visualized by the Bhore Committee. The programme needs

to be radically revised". What the Mudaliar Committee recommended was consolidation rather than expansion; that staffing of existing PHCs should be strengthened to reach the level recommended by the Bhore Committee.

The Committee recommended that no new PHCs should be opened without a full complement of staff and that treatment of non - PHC population should be through mobile service from district and taluk centres rather than through poorly equipped primary health centres.

Table 3.1 : Rural Health Infrastructure

Sub Centres, PHCs and CHCs

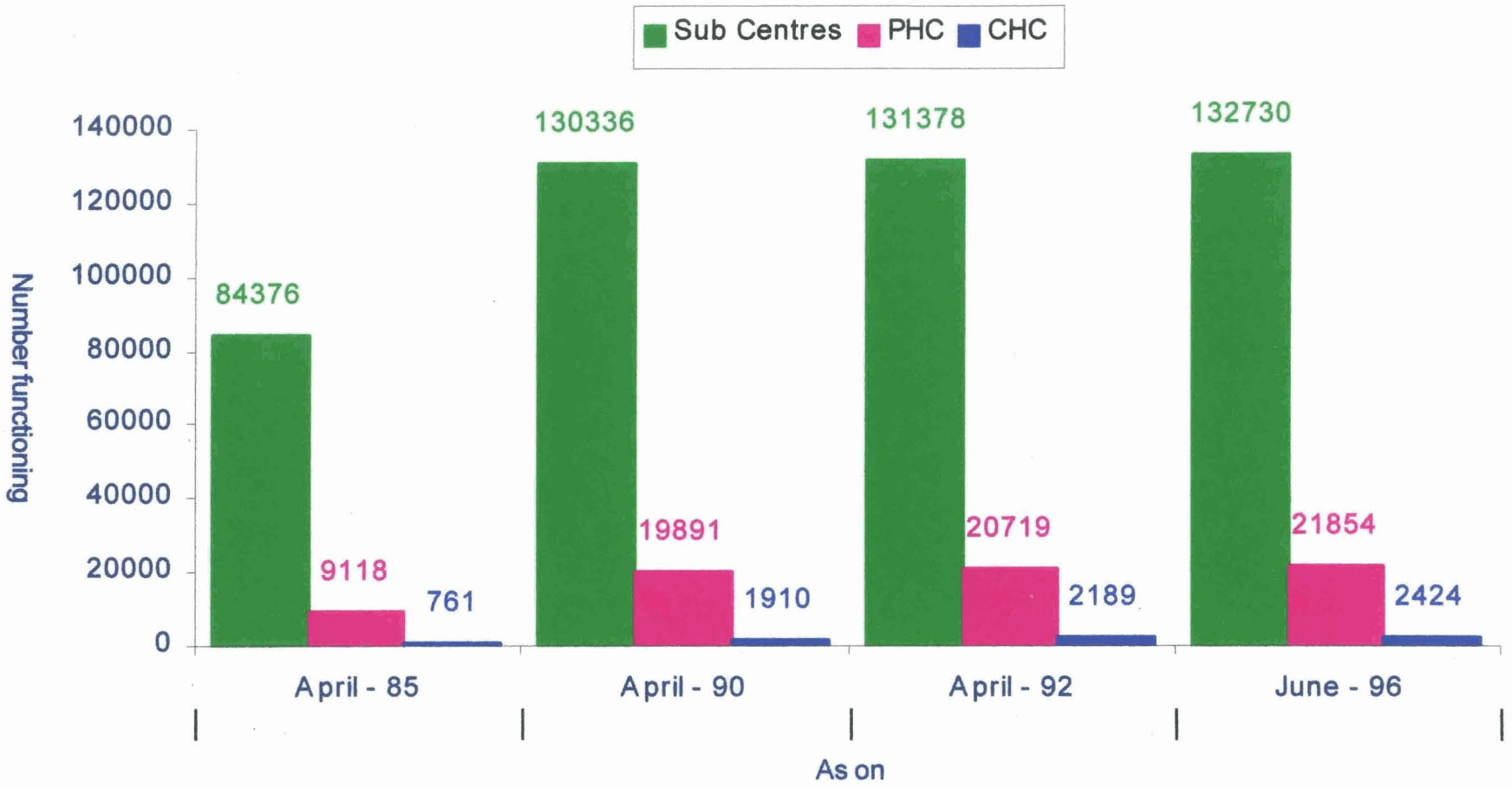
Health Institutions	Number as on 1.4.85	Seventh Plan		Number as on 1.4.90	1990-91		1991-92		Number as on 1.4.92
		Target	Achvt.		Target	Achvt.	Target	Achvt.	
Sub Centres	84376	54612	45960	130336	-	648	-	394	131378
PHCs	9118	12392	9863	18981	1396	1469	1021	269	20719
CHCs	761	1523	1149	1910	281	159	272	120	2189

Health Institutions	Eighth Plan Target	1992-93		1993-94		1994-95	
		Target	Achvt.	Target	Achvt.	Target	Achvt.
Sub Centres	17030	--	6	--	202	--	209
PHCs	4450	759	311	640	176	780	330
CHCs	1269	259	94	164	39	157	69

Health Institutions	1995-96		Number as on 1.4.96	1996-97	
	Target	Achvt.		Target	Achvt. (up to June 1996)
Sub Centres	--	932	132727	--	3
PHCs	601	317	21853	601	1
CHCs	206	33	2424	206	--

Source: Rural Health Statistics in India, DGHS, New Delhi.

Rural Health Infrastructure (All India)



Source : Rural Health Statistics in India, DGHS, New Delhi

Table 3.2 : Number of Sub - Centres, PHCs and CHCs Functioning as on 30-06-96

Sl. No.	State/UT	Sub Centre	PHCs	CHCs	Date of Latest Report
1.	Andhra Pr.	7894	1283	46	31-03-95
2.	Arunachal Pr.	223	47	9	30-06-96
3.	Assam	5280	619	105	31-03-95
4.	Bihar	14799	2209	148	31-03-95
5.	Goa	175	21	5	30-06-96
6.	Gujarat	7284	957	185	30-06-96
7.	Haryana	2299	397	63	30-06-96
8.	Himachal Pr.	1908	246*	50*	30-06-96
9.	J&K	1700	335	45	29-02-96
10.	Karnataka	7993	1459	224	31-03-96
11.	Kerala	5094	959	54	31-03-96
12.	Madhya Pr.	11936	1376	190	30-06-96
13.	Maharashtra	9725	1695	295	30-06-96
14.	Manipur	420	72	16	30-06-96
15.	Meghalaya	337	88	10	30-06-96
16.	Mizoram	261	38	6	30-06-96
17.	Nagaland	244	33	5	31-03-95
18.	Orissa	5927	1056	157	31-03-96
19.	Punjab	2852	484	105	31-03-96
20.	Rajasthan	8692	1572	256	30-06-96
21.	Sikkim	147*	24	2	30-06-96
22.	Tamil Nadu	8681	1436	72	31-03-96
23.	Tripura	537	63	11	30-06-96
24.	Uttar Pr.	20153	3761	262	31-03-96
25.	West Bengal	7873	1556	89	31-03-95
26.	A&N Islands	96	17	4	30-06-96
27.	Chandigarh	12	--	1	30-06-96
28.	D&N Haveli	34	6	--	30-06-96
29.	Damam & Diu	19	4	2	30-06-96
30.	Delhi	42	8	--	30-06-96
31.	Lakshadweep	14	7*	3	30-06-96
32.	Pondicherry	79	26	4	31-03-96
	All India	132730	21854	2424	

-- : Nil

* : Under Clarification

Source: Rural Health Statistics in India, DGHS, New Delhi.

However the majority of primary health centres were established by the mid - 1960s. The launching of the National Malaria Eradication Programme and the adoption of the extension approach to the Family Planning Programme provided a major boost to this development.

The Auxiliary Nurse Midwife (ANM) (one for every 10,000 population) was responsible for maternal and child health work and family planning work among women. Every four ANMs were supervised by a Lady Health Visitor. A family planning Health Assistant (one for 20,000 population) did family planning work among men and every four health assistants were supervised by a Block Extension Educator, who was responsible for family planning extension and communication work for the entire population of the PHC. A Basic Health Worker (one for every 10,000 population) mainly did malaria surveilance work, preparing blood slides and providing presumptive malaria treatment to fever cases. Every four basic health workers were supervised by a Health Inspector. Usually, there were two medical officers who provided medical care at the daily out - patient clinics and at the PHC hospital which had 6-20 beds. From the Fifth Plan (1974-79) onwards, the rural health care delivery system was made a part of the minimum needs programme (MNP) in order to ensure increased accessibility to health services in the rural area, correction of regional imbalances in health services,

further development of referral services by removing deficiencies in district and subdivisional hospitals intensification of control/eradication of communicable diseases, quantitative improvement in the education and training of health personnel and development of referral services through provision of specialist care in rural areas. The Plan also initiated the multi - purpose workers (MPW) scheme to retrain the uni - purpose paramedical personnel with the objective of integrating their functions in a single worker.

The Sixth Plan adopted the revised norms for the rural health care infrastructure. The Plan envisages the setting up of a 30 - bed rural hospital known as the Community Health Centre (CHC) covering a population of 1 lakh. The earlier policy regarding the CHC was one of upgrading one out of every 4 PHCs into a rural hospital. The new CHCs are to provide mainly specialized curative services in gynaecology, paediatrics, surgery and medicine.

The PHC has a network of subcenters each serving a population of 5,000 and 2,500 in hilly areas as per the revised norms. It is manned by one male multi - purpose health worker and one female multi - purpose health worker.

The female worker (the new name given to the ANM) provides maternal and child health and family planning services to women. MCH services comprise registration of women for antenatal and postnatal care, distribution of iron and

folic acid tablets to pregnant women, deliveries, advice on diet, immunization of infants and children with BCG, DPT, Measles, Polio vaccine distribution of Vitamin A and treatment of minor ailments.

The male health worker is expected to prepare and maintain a register of vital events and eligible couples, family planning advice, undertake house - to - house malaria surveillance and immunization.

The PHC is the referral point for emergency cases and complications. To reduce work - load due to large population, additional PHCs and subsidiary health centres for every 30,000 population by strengthening the already existing rural dispensaries are envisaged.

In addition, rural population can avail of hospital facilities of increasing size and ascending levels of sophistication at the taluk/tehsil hospitals, district hospitals, general hospitals, teaching hospitals and hospital providing facilities for super specialities in medical care in postgraduate institutes.

There has been a strengthening of the supervision of PHCs at the district level. The PHCs have become part of a total network of health services. Since the First Plan, there has been a consistent annual increase in their number and also of subcenters under them.

Community Health Centre (CHC) is a referral centre for 4 primary health centres in the rural area. CHC will have in - patient facility and there are at least 4 specialists, a surgeon , a physician, gynaecologist and a paediatrician. Community Health Centre is to provide a secondary level curative care in the rural area and caters to a population of 1 to 1.2 lakhs. This is roughly the population of a block and there should be a community health centre for every block. I deally CHC's must have a bed strenght of 30. It acts as a mini referral hospital in the peripheries. At present there are only 54 community health centres in Kerala whereas the actual requirment is around 200.

Information about rural primary health care infrastructure and average rural population covered is presented in table below.

Table 3.3 : Rural Primary Care Infrastructure and Average Rural Population Covered As on 30-6-96

Sl. No.	State/UT	Number Functioning			Average Rural Population Covered by a		
		Sub Centre	PHC	CHC	Sub Centre	PHC	CHC (in lakhs)
1.	Andhra Pr.	7894	1283	46	6159	37896	10.6
2.	Arunachal Pr.	223	47	9	3381	16041	0.8
3.	Assam	5280	619	105	3774	32191	1.9
4.	Bihar	14799	2209	148	5069	33962	5.1
5.	Goa	175	21	5	3943	32859	1.4
6.	Gujarat	7284	957	185	3715	28280	1.5
7.	Haryana	2299	397	63	5398	31257	2.0
8.	Himachal Pr.	1908	246	50	2475	19194	0.9
9.	J&K	1700	335	45	3458	17550	1.3
10.	Karnataka	7993	1459	224	3887	21295	1.4
11.	Kerala	5094	959	54	4205	22334	4.0
12.	Madhya Pr.	11936	1376	190	4260	36949	2.7
13.	Maharashtra	9725	1695	295	4976	28552	1.6
14.	Manipur	420	72	16	3170	18493	0.8
15.	Meghalaya	337	88	10	4287	16417	1.4
16.	Mizoram	261	38	6	1425	9784	0.6
17.	Nagaland	244	33	5	4104	30343	2.0
18.	Orissa	5927	1056	157	4627	25970	1.7
19.	Punjab	2852	484	105	5010	29522	1.4
20.	Rajasthan	8692	1572	256	3905	21590	1.3
21.	Sikkim	147	24	2	2513	15394	1.8
22.	Tamil Nadu	8681	1436	72	4237	25614	5.1
23.	Tripura	537	63	11	4349	37071	2.1
24.	Uttar Pr.	20153	3761	262	5533	29648	4.3
25.	West Bengal	7873	1556	89	6271	31729	5.5
26.	A&N Islands	96	17	4	2143	12100	0.5
27.	Chandigarh	12	-	1	5516	-	0.7
28.	D&N Haveli	34	6	-	3728	21125	-
29.	Daman & Diu	19	4	2	2844	13511	0.3
30.	Delhi	42	8	-	22596	118627	-
31.	Lakshadweep	14	7	3	1614	3228	0.1
32.	Pondicherry	79	26	4	3681	11185	0.7
	All India	132730	21854	2424	4737	28768	2.6

Source: Rural Health Statistics in India, DGHS, New Delhi.

Table 3.4 : Health Man Power in Rural Area (As on 30.06.96):

Sl. No	Category	Required*	Sanc-tioned	In Position	Vacancy (S-P)		Vacancy (R-P)	
					Num-ber	%	Num-ber	%
1.	ANM	154584	140751	133773	6993	4.97	22989	14.87
2.	MPW (M)	132730	71165	62229	8936	12.56	71504	53.87
3.	HA (F)/LHV	21854	21658	18904	3512	16.22	5155	23.59
4.	Health Asst. (M)	21854	18323	15745	2584	14.1	9760	44.66
5.	Doctor at PHC	21854	32074	26930	5150	16.06	2378	10.88
6.	Specialists:							
	a) Surgeon	2424	1366	738	628	45.97	1686	69.55
	b) Obs & Gyn.	2424	1150	588	562	48.87	1836	75.74
	c) Physician	2424	1131	645	486	42.97	1779	73.39
	d) Paediatrician	2424	858	526	332	38.69	1898	78.3
	Total Specialists at CHC	9696	4763	2751	2012	42.24	6982	72.01
7.	Radiographer	2424	1596	1288	308	19.3	1269	52.35
8.	Pharmacist	24278	21790	20022	1816	8.33	6053	24.93
9.	Lab. Technician	24278	12371	9711	2681	21.67	14595	60.12
10.	Nurse Midwife	38822	16754	12683	4083	24.36	27281	70.27
11.	BEE	..	6287	5621	666	10.59	-	

* : *As per norms for existing Infrastructure.*

@ : *Ignoring States with surplus number.*

Sub Centres with or without ANM or/and MPW (M):

Total Number of Sub Centres	Without ANM	Without HW (M)	Without both ANM & MPW (M)
132730	6717	26655	3952

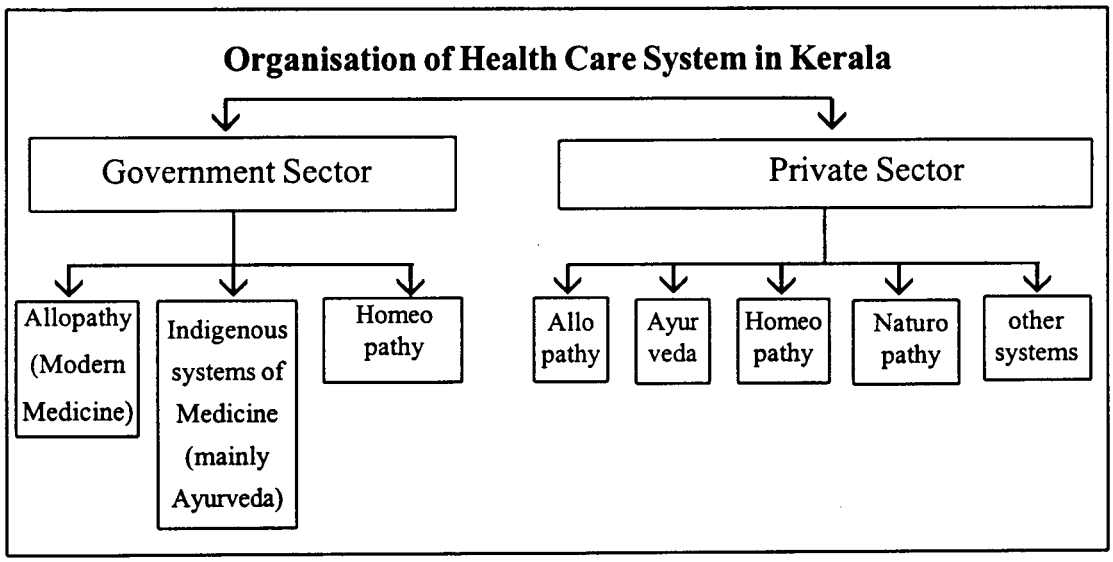
PHCs without Doctors:

Total Number of PHCs	Number of PHCs with Number of					No Lab Tech.	No Phar macist
	4+ Doctors	3 Doctors	2 Doctors	1 Doctor	No Doctor		
21854	362	758	4191	8128	1271	6994	1218

Source: Rural Health Statistics in India, DGHS, New Delhi

3.3. Health Care System in Kerala - Organisation

Figure 3.1



The Organisational framework of the Government sector

A health service system consists of an organisational structure which sustains a network of institutions for providing health services to the population and other institutions for providing support to the service institutions through education, training, research and evaluation. These institutions require different types of personnel for performing their functions.

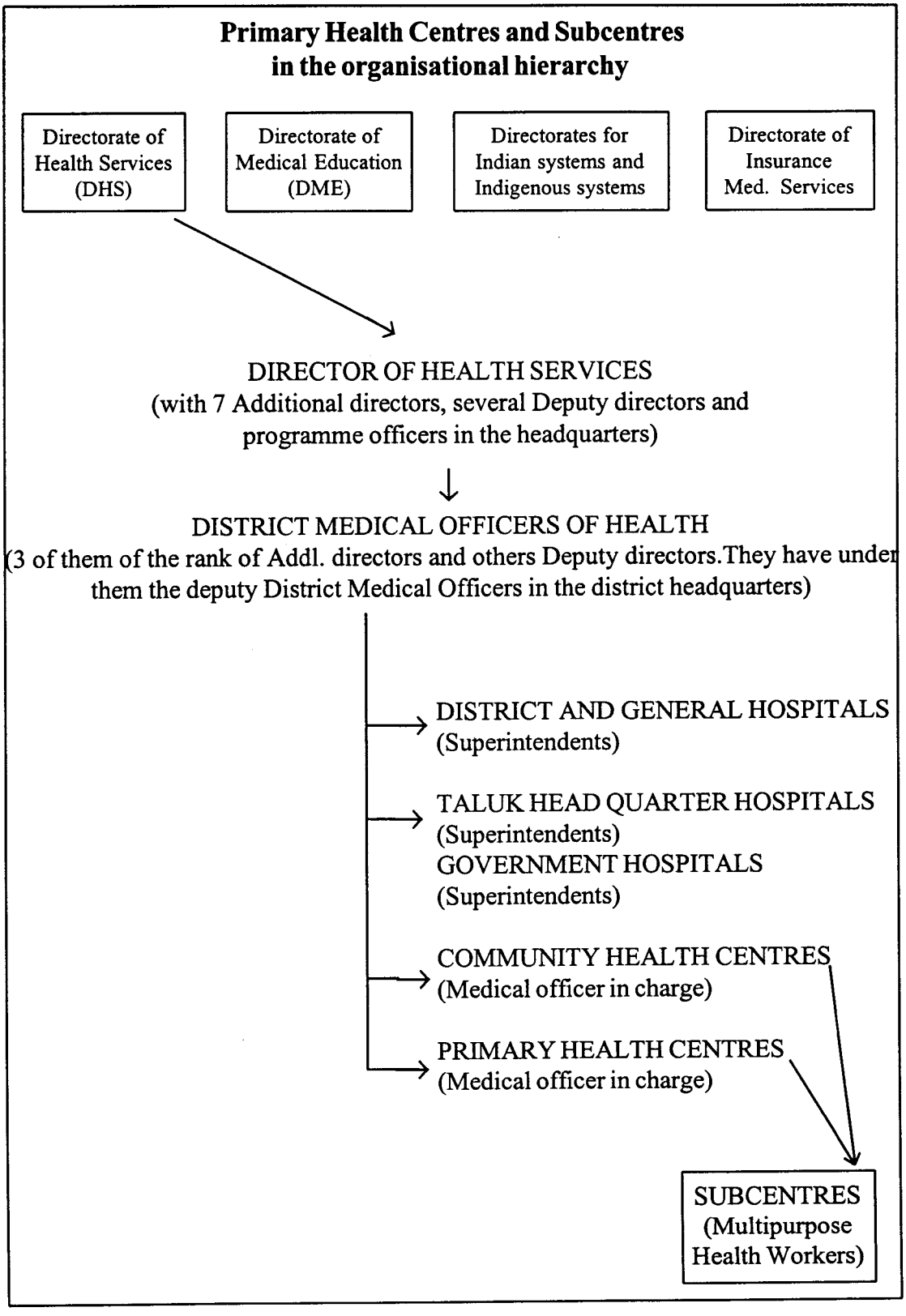
Administratively, Kerala is divided in to 14 districts which are demarcated into smaller Tehsils or Taluks for revenue purposes and Community Development Blocks for development planning and implementation (Government of India, 1983; India 1982- A Reference Annual, New Delhi Publication Division.)

Under the Constitution, provision of health services is principally the responsibility of Governments of the States. Kerala's Department of Health and Family Welfare is headed by a Minister of Cabinet rank and an IAS officer who functions as Secretary in charge of administration. The Minister of Health is responsible to the State Cabinet headed by the Chief Minister and the Cabinet is collectively responsible to the State Legislature.

Similar to the Directorate General of Health Services at the Central Government, there are State directorates of health and family welfare headed by a Director of Health Sevices. Below him are additional, deputy and assistant directors for individual programmes.

The Office of the District Medical Officer (DMO) serves as the nerve centre for integrating almost all State-financed health activities in rural areas. He is assisted by two deputy district medical officers, District Malaria Officer and District Leprosy Officer to look after the concerned programmes in the district. There is a District Immunisation Officer in all the districts of Kerala to look after the immunisation activities in the district. Kerala has district hospitals in all the districts of the State where the curative services are provided. In almost all the district hospitals there are specialist care available like paediatrics, ENT, Ophthalmology,Obstrectis and Gynaecology, General Surgery and general medicine.

Figure 3.2


Primary Health Centres and Subcentres
in the organisational hierarchy
Directorate of Health Services (DHS)
Directorate of Medical Education (DME)
Directorates for Indian systems and Indigenous systems
Directorate of Insurance Med. Services
DIRECTOR OF HEALTH SERVICES
(with 7 Additional directors, several Deputy directors and programme officers in the headquarters)
DISTRICT MEDICAL OFFICERS OF HEALTH
(3 of them of the rank of Addl. directors and others Deputy directors.They have under them the deputy District Medical Officers in the district headquarters)
DISTRICT AND GENERAL HOSPITALS
(Superintendents)
TALUK HEAD QUARTER HOSPITALS
(Superintendents)
GOVERNMENT HOSPITALS
(Superintendents)
COMMUNITY HEALTH CENTRES
(Medical officer in charge)
PRIMARY HEALTH CENTRES
(Medical officer in charge)
SUBCENTRES
(Multipurpose Health Workers)

Conceptually, the public sector health system is designed to be a hierarchial model with the super speciality hospital / teritary care hospitals (Medical Colleges) at the apex followed by secondary care hospitals (the district hospitals: General Hospital and Women & children and the Taluk Hospitals. The Community Health Centre (CHC) represents the primary care hospitals. Below the community health centers are the primary health centers (PHC) which are designed to operate mainly as ambulatory care facilities and to provide health education, immunisation and family planning services.

The super speciality and tertiary care hospitals operate on a referral basis. In theory, a patient first contacts a physician at the primary health centre - level and from there is referred to the appropriate level if in - patient care is needed. In practice, however, patients often bypass the primary health centers and go directly to secondary or teritiary care hospitals(emergency cases) for initial assessment and treatment.

As a result there is severe overcrowding at the upper level facilities and the PHC and some of the CH - level facilities are operating well below intended capacity. The number and type of health care institutions in the Government sector have been on the rise since the formation of the State of Kerala and the increase in the total number of allopathic health care institutions is more than three and a half times between 1955-56 and 1987-88 which is significantly higher than the population increase of around two times.

Table 3.5: Health Care Institutions in the Kerala Government Sector: Modern Medicine

Year	Hospital	Dispen saries	PHC	SHC	(a) others	Grant in aid insti-tutions	Total
1955-56	59	150	51	4	6	33	303
1965-66	101	217	155	1	3	13	490
1975-76	135	552	163	-	27	9	886
1985-86	151	520	294	-	34	23	1015
1987-88	135(b)	188(c)	572	79	67	25	1066

(a) Includes MCH centres, TB centres and clinics, Leprosy centres and Community Health Centres

(b) The decrease is due to the conversion of some hospitals in to CHC's.

(c) The decrease is due to the conversion of a number of dispensaries in to PHC's

Table 3.6 : Comparative Statistics on Health Care:

Kerala State Government Sector, 1987

	Modern Medicine	Indigenous Systems of Medicine (Ayurveda)	Homeopathy
Institutions	1,066	805	207
Doctors	3,514	708	303
Beds	36,479	1,869	700
Paramedical staff	10,543	1,025	327

* refers to Kerala Sastra Sahitya Parishad 1987 survey published data

Table 3.7 : Primary Health Care Infrastructure in Kerala

and Average Population covered as on 30-6-96

Number functioning			Average population covered by a		
Sub centre	PHC	CHC	Sub centre	PHC	CHC (in lakhs)
5094	959	54	4205	22334	4.0

3.4 Primary Health Centres: Expectations and Constraints

As the health centre is responsible for maintaining and restoring health of a defined population, it should be accessible and capable of meeting the local health problems and priorities and make adjustments according to change in health situations. The health centre must also promote discussion and communication about health with the community and other sectors viz education, agriculture, animal husbandry, social welfare and co-operatives.

Health problems have psycho-social determinants. Therefore, a comprehensive approach is required in providing service to each patient taking in to account whatever support may be available from the family and community. To attain this, nurses, doctors, community workers, educators, political workers and other professionals must work in multi - disciplinary teams with common objectives. The health centre tries to integrate curative, preventive and community development activities.

Health promotional activities through adoption of healthy life styles and the participation of people in the maintainance of their own health should be encouraged. This must also help the people to adjust effectively with the rapidly changing health situations.

Health centres should provide rapid access to the clinical referral system and other social support systems available. These centres can contribute to high quality care, can be provided close to where people live in an efficient, affordable and culturally acceptable way.

To meet the above expectations, the following obstacles must be overcome. Most often health centres fail to provide primary health care to its people due to the undue emphasis given to vertical programmes like Centrally - sponsored family welfare, communicable disease control and nutrition. There are serious managerial problems which health centres face like inadequate team work, inadequate technical and managerial support and serious weaknesses in the development and implementation of action plans.

Another major obstacle is inadequate resources and authority due to inadequate allocation of resources. Poor morale of the staff and lack of skills like problem - solving and communication are a serious constraint.

The quest for equity in health still remains unattainable with the primary health care facilities provided being inadequate. Kerala has a higher per capita expenditure on health than a number of States. The State is now spending Rs. 175 per head on health.

The State has done well in building the basic health infrastructure. However it cannot be said that the PHCs are adequately equipped for fulfilling the key areas of primary health care like nutrition, immunisation, first aid, maternal and child health, sanitation and water supply, supply of essential drugs and control of endemic diseases.

There is large - scale absenteeism by the essential staff and a certain percentage of sanctioned posts remains unoccupied. The popular perception of the quality of services rendered by the PHC system is low. The general complaint is about lack of facilities for proper medical care. It is to be remembered that the poorer sections of the society are still dependent on the Government hospitals only.

PHC in Kerala needs to be studied so as to explore the effective demand for health services and the supply of health service and interlinkages between the two. From the economist's point of view the investigator also plans to make an attempt to study the expenditure pattern of the health care per consumer and the costing of health services.

Chapter 4

DEMAND FOR HEALTH SERVICES

This chapter provides an analysis of demand for health services in PHCs and utilization of the health care facilities by beneficiaries and gives a brief account of Governmental expenditure on PHCs. Broad issues on health improvement are discussed and some definitional problems stated in the beginning. The improvement in health standards directly increases human well-being, reduces mortality and morbidity and augments the potential for economic and social development . Income growth is not the sole goal of development, but economic growth spurs improvements in wellbeing.

It may be said that on an average higher incomes lead to better health of the population; the population is likely to avoid hunger and illiteracy. This may be interpreted as income growth promoting human development. Public provision of essential goods and services - clean drinking water, sanitation, health care, elementary education leads to improved social outcomes. Here exist a relationship between economic growth and life expectancy. The main channels by which growth promotes human development in a typical developing country are through its impact on income, poverty and public provisioning of health services.

Our theoretical framework - the health care utilization model depicting various determinants that influence the utilization of health services and the subsequent model dealing with the process of health care utilization analyses factors influencing the health status of the people of a given community which generate the need for health care. The need for health care plus economic factors form an effective demand for health services. For the demand for health services to exist the population must be aware of benefits of health care institutions. It is the health consciousness of the people that plays the crucial role in the health status of the region. It is pertinent to note that even with a high prevalence rate and incidence rate Kerala shows low levels of duration of illness (Kumar 1993). This should be attributed to the people's awareness about health facilities. In 1987 - 88, 29.3 million were treated by the allopathic public health system. The numbers who received treatment from the Ayurveda and homeopathic systems were 16.7 and 9.5 million respectively. The ratio of the total number of persons treated to the total population of the State thus works out almost to two. The most important determinant of health services awareness is the level of education or extent of literacy especially of the woman. Indicators of the health status of as a whole show up with improvements in the physical quality of life of the two groups - women and the rural population. Since women face grave risks during pregnancy and childbirth and are able to observe early symptoms of disease

among children, an increase in their awareness would benefit them and their children.

Table 4.1 - Literacy rates - 1981

	Total			Urban			Rural		
	Population	Male	Female	Total	Male	Female	Total	Male	Female
India	36.23	46.89	24.82	57.4	65.83	47.82	29.65	40.79	17.96
Kerala	70.42	75.26	65.73	76.11	80.1	72.2	69.11	74.13	64.25

Source: Occasional Paper No.1 of 1987, Office of the Registrar General of India p.21

Table 4.1 clearly brings out the crucial advantage that Kerala enjoys in the field of literacy in the case of females and rural population.

There has been an increasing awareness in the health economics literature that the application of the conventional theory of demand to health and health care is misleading. The economist's concept of demand is rooted in the notion of what a person is able and willing to pay. Demand is seen to reflect both the strength of the person's desire to receive the service, that is the value placed on it, and the amount that will have to be sacrificed in order to do so. However, the immediate relevance of this concept of "demand" may be far from clear in these countries whose basic health services are provided free or at subsidised prices. A community's demand for primary health care or potable water supply depends on what that community is prepared to sacrifice in money, time, inconvenience and incidental costs. Health care is a heterogenous commodity. Information on the form of health care necessary for its investment effects is required to allow the consumer to evaluate net utility and make rational choices.

4.1 Analysis of demand

Results of the survey of households are presented. This study was based on the primary data generated through household survey conducted at Mukkom Community Health Centre, Cheruvadi Primary Health Centre and Pannikode Subcentre area. The questionnaire pertained not only to health aspects but also the socio-economic profile of the identified households and environmental as-

pects. Information on similar items, obtained from different sources, was analysed for similarities and differences. Self-administered questionnaires from health workers and medical officers furnished details about infrastructure facilities and services rendered at health centres. This was compared with the information collected personally from the health centres. This information was also compared with details collected from household survey. The information collected was of a qualitative nature which was then coded in to numbers by drawing up certain codes basically inferred from information volunteered by informants.

The sample size was limited to 72 households. The sample was selected according to the systematic random sampling in which the sample consisted of the units numbered as

i, i+k, i+2k-------, i+(n-1) k

Where i = 1, k = 30 and n= 72

The schedule (Household survey) appended as Al purpoted to obtain the following information from identified households.

a) Demographic particulars which involved collecting information about the composition of the family, income, level of education and occupation particulars.

b) Environmental particulars which involved collecting information about the type of house, water supply and sanitation facilities.

c) Details of illness of the population studied.

d) Details of the immunization status.

Demographic Particulars

Households were divided into socio-economic status (SES) groups. Characteristics selected to reckon socio-economic status were income, educational level and housing condition. The grouping of households and the selection of characteristics were in line with the Anderson's health care utilisation model and as per that model invidual determinants and system determinants affecting the health service utilisation are probed in detail.

a) Family Size: The average household size of our sample of 72 beneficiary households was 6 with only 22 percent of the households having less than 3 persons (Table 4.1). The range of our sample household size stands at between 2-10.

Table:4.2. Distribution of beneficiary households by family size

Number of family members	Number of households	Percentage
2-3	16	22
4 -5	5	7
6 -7	32	44
8 -9	15	21
9-10	4	6
Total	72	100

b) Income: Figures relating to income are those reported by informants. This is not the best way of estimating income. Notwithstanding its imperfections, figures are accepted on the presumption that the problem of underreporting bias is evenly distributed across households. The rationale for selecting income is that it may have an influence on health status because to be poor means to have low purchasing power for buying goods and services including health services. Households were ranked in to three categories viz low, middle and high.

Monthly income less than Rs 500

Monthly income Rs 501 - 1,500

Monthly income greater than Rs 1,501

Table: 4.3 Distribution of households by income

SES category	Number of households	Percentage
Low (< Rs. 500/-)	31	43
Middle (Rs. 501-1500)	27	38
High (> Rs. 1501)	14	19
Total	72	100

c) Level of education: Progress in education and especially female education has contributed significantly towards the progress in health status of Kerala (Kannan 1988; Bhat M and Irudaya Rajan, 1990). Therefore the categorisation is as follows:

Low - At least one member of the household attended elementary school and none having education above elementary level.

Middle - At least one member studied in the high school .

High - More than one member having education above high school.

The results are given in Table 4.4.

Table:4.4. Distribution of households by level of education

SES category	Number of persons	Percentage
Low (elementary School)	26	36
Middle (high school)	37	51
High (college/polytechnic)	9	13

d.) Occupation: The most important occupational category among heads of the sample households was casual labour. Casual labour included both skilled and unskilled labour. Of the 72 households, 42 heads of households were casual labour, 22 engaged in cultivation.

Table. 4.5 Occupational distribution of workers

Category	Number of workers
Cultivators	22 (31)
Allied Agricultural activities	17 (24)
Agricultural labourers	13 (18)
Cottage, household industries	11 (15)
Trade and commerce	3 (4)
Others	6 (8)
Total	72 (100)

Source : Block records, Office of the Block Development Office

Note: Figures in brackets represent percentages

e) Land holdings: Of the 72 sample households, 3 were landless, and 47 households were having landholdings below 50 cents. There were only 7 sample households with more than 1 acre of land (Table 4.6)

Table 4.6. Landholding pattern of beneficiary households

Size of holdings	Number of households
Nil	3
upto 50 cents	47
between 51 cents & 1 acre	15
> 1 acre	7
Total	72

The excessive pressure of population on land has resulted in fragmentation of holdings in to uneconomic holdings. This indicates that small and marginal farmers constitute the majority.

f) Housing condition: The criterion for housing condition considered was the type of roof.

SES 1 - If roof was made of grass, thatch, sheet, etc

SES 2 - If roof was made of tiles

SEs 3 - If roof was made of concrete

Table 4.7 Demographic and social characteristics of the study population by SES status

Variable		Socio economic status		
		1	2	3
Informant	head of family	13	7	5
	wife	18	14	3
	son	4	6	0
	daughter	0	2	0
Type of house				
	thatched	10	4	0
	tiled	9	20	23
	terrace	0	1	5
Source of water supply				
	pipe	0	4	9
	well	17	24	4
	public well	12	2	0
Type of toilet				
	none	21	8	0
	pit latrine	19	5	4
	septic tank	0	5	10

Morbidity pattern

Attempts were made to assess the prevailing morbidity pattern. Data for this were collected from patients attending OPD during the 3day observation period and OPD register maintained at the CHC and PHC. The demand for health services is stemming from the morbidity pattern of the population studied as shown in table 4.8.

Table 4.8 Frequency of illness at the time of interview by sex

Sl.No	Illness	Sex	
		male	female
1	Diarrohoea	-	4
2.	fever	8	15
3	Chicken pox	1	2
4	Conjunctivitis	3	4
5	Bronchial Asthma	10	17
6	Cardiac diseases	3	1
7	Tonsilitis	6	2
8	Allergy	2	7
9	Peptic ulcer	5	6
10	Tuberculosis	3	1
11	Headache	7	14
12	Rheumatic complaints	1	1
13	Abdominal pain	2	9
14	Epilepsy	0	2
15	Mental diseases	1	3
16	Worm infection	21	26
17	Dysentery	11	9
18	Others	25	27

Higher morbidity levels exert greater demands on the health care system. Merely increasing the health care facilities may not be a solution. The solution lies in making investments in the right areas as problems may be more due to lack of proper food and living conditions, than just poor educational status and low use of health care facilities.

The demand for public health facilities could also be seen from tables 4.3 to 4.7 which expose the lack of amenities like protected water supply, lack of sanitary latrine, education etc. The greatest demand for health services is seen in times of illness when it is found that the medical care facilities provided by the governmental health care delivery system is quite insufficient. This is in relation to the health care provided by CHCs, PHCs and Subcentres.

An analysis of data in the outpatient and inpatient registers of the CHC shows that on an avarage 4,000 to 5,000 patients in a month get treated in the out patient department and around 100 patients in a month are treated as inpatients.

Table 4.9 Percentage share in the utilisation of health services by sector and socio -economic status

Socio economic status	Health Centre	Private	Other
Low	38	48	14
Middle	31	56	13
High	22	65	13

Reasons given for the perceived preference for private health care institutions were many. Mukkom CHC is situated in town area where there are seven doctors engaged in private practice and also there are three private hospitals.

Table: 4.10 Response by households on good things about Community Health Centre service by socio economic status

Item	Low	Middle	High
No comments	15	7	6
Good treatment	21	14	5
Good manners/ co-operation	5	7	3
Full time doctor/ staff	4	2	2
Availability of medicines	39	15	14
Inexpensive	21	10	3
Nearness	0	0	0
For immunisation	19	9	10
For minor illness	1	0	0

Table 4.11. Response by households on factors hindering utilisation of CHC services by socioeconomic status

Item	Low	Middle	High
No comments	9	5	4
Waste of time	18	11	13
Complaints related to medicine	55	13	5
Non-availability of doctor	7	4	11
Poor attention and care	8	3	9
No neatness	7	3	13
No facilities	0	0	0
Do not give medicines	3	1	16
Lack of medicines and equipment	0	0	0

Table 4.12. Determinants of CHC service utilisation

Variables	Precentage
Satisfaction	
Yes	72.7
No	27.3
Nature of illness	
Acute	31.1
Chronic	68.9
Illness	
Mild	63.7
Severe	36.3
Severity of Illness	
Serious	21.0
Not serious	79.0

Money spent for treatment

Data concerning the cost of treatment which included cost of medicine, fee to doctors and travel cost were collected. It is found that per capita expenditure for treatment is rather high.

Table. 4.13 Percapita annual expenditure for treatment and its percentage to percapita annual income by SES

Status (1)	percapita expenditure (Rs) (2)	percapita income (Rs) (3)	(2) as % share of (3) (4)
SES 1	430	2155	20.0
SES 2	582	3900	14.5
SES 3	563	6242	9.0

The percapita expenditure on treatment as well as the percentage share of it to per capita income are found to be high. The lowest socioeconomic group spends 20 per cent of their per capita income for treatment.

Of the 72 households surveyed, the majority belonged to the low socio-economic status with a meagre monthly income of Rs 500 and below. This shows that their purchasing power is very low. If the educational status is analysed, it could be inferred that the majority are in the middle and low educational status. The percentage of subjects who have studied in high schools is considerably high. However, those who have education above high school level is a lower percentage. By and large the positive relationship between income and health care utilisation holds true. However behavioural patterns that determine the actual process of utilisation are varying. The fact that the majority of beneficiaries have the influence of educated members in the family points to increased chances for health care utilisation especially in times of morbidity.

It must be noted that major proportion of households surveyed use water from wells that is unprotected. Several of these wells turn dry during January to May till the next monsoon. Higher rate of diorreahal diseases reported during months of June-July-August could be related to the unprotected water supply to which they depend on. The presence or the absence of latrine shows that majority of households are using insanitary latrine and good number of them resort to open air defaecation. This leads to high incidence of parasitic and helminthic infections.

Although educational status is fairly good, it does not bring a decline in the fertility pattern as shown by table 4.2 where the family size is large having 6 to 10 members. Perhaps the factors that play a major role in the high fertility rate may be their low economic status, religious customs and insanitary living conditions which also lead to high morbidity.

Analysis of the morbidity pattern reveals that there is a wide spectrum of diseases. Among diseases reported, worm infections, dysentery, bronchial asthma and fever have high incidence rate. Probably the low incidence of diarrhoea may be due to the specific season of the year in which the study was undertaken when such diarrhoeal outbreaks are rare.

When responses of beneficiaries in relation to services offered by the community health centre were analysed, it was seen that the majority of them agreed that the health centre stocked medicines and treatment was inexpensive and of a certain standard. A good number of them visited the health centre for immunisation. It may be noted that there were no responses to show people's antipathy for health centres.

As regards factors hindering utilisation of health centre services, the majority of them have responded that they have complaints related to the supply of medicines. On further probing, it was revealed that only very few medicines

were available at the centre and that they had to buy the rest from outside, most of them being expensive. Other responses "going to health centres is a waste of time and the doctor is not available". The investigator's observation also confirms the finding that a few medicines are supplied by health centres and doctors are available only from 9.00 a.m to 1 p.m and during other times patients have to visit them either in their quarters or private clinics.

On analysis of the factors influencing the ulilization of services in the PHC, it could be seen that 73 percent of respondents are satisfied with services offered by the health centre. The majority of them visit the centre for treatment of minor illness. A good proportion of the patients who visit PHC has diseases of chronic nature. Probably the poor purchasing power and poor sanitary facilities make them live in continued morbidity.

4.2 Analysis of health services expenditure

The health status of Kerala owes its present state in large measure to Government spending. While Government expenditures on health are available, information on household expenditure are not generally available. Per capita expenditure on public health shows that it is only marginally higher in Kerala compared to the average expenditure of all States.

Estimates of expenditure on health services are essential information for health policy planning. Money is a convenient way of adding together the quantity of resources of different types (for example, manpower, equipment and supplies) just as mortality and morbidity rates are convenient ways of aggregating the extent of health needs.

In the case of delivery of services through PHCs, expenditures on health services may be found in the budget of the Department of Health which is responsible for health services. The possible analysis on how the health budget is spent revealed that the directly identifiable outlays on the control of communicable diseases and on primary health care amounted to only 20 percent of the health and medical budget.

Health care encompasses a multitude of services and programmes, ranging from maintaining clean water and sanitation to organ transplants. Using economic principles, we can subdivide health care into threee major categories: public, merit and private. According to economic theory, it is socially optimal for the Government to finance and possibly to provide the first two type of services; while it may be more efficient for the private sector to finance and provide the third.These concepts are simple but very powerful in mobilizing human emotion and reasoning in support of public funding for health services.

Most of public health and preventive measures are public goods. Examples include disease eradication campaigns by means of immunisation or programmes to provide clean water, sanitation, vector control, water pollution control and mass health education. These are considered to be public goods because their benefits accrue to all members of society.

There are several types of merit goods. One type consists of services whose consumption produces greater social benefit than private benefit, such as family planning. Another type produces externalities such as vaccination. Social externalities are the effects on the health of the general public of decisions made by individuals about their own medical care. These effects may be positive or negative and are external to the individual making the decision. For example, the treatment or immunisation of one person protects the health of others. Conversely, a person's decision not to seek treatment for an infectious disease can result in many healthy people becoming infected. Since the price of care deters people from seeking it, it makes sense to provide it free of charge. Thus if social externalities associated with use or non-use of specific health care services are significant, they provide sufficient reason for public funding of these services.A third type of merit goods includes services possessing significant

interpersonal utility values such as emergency services for trauma patients and basic health services for vulnerable people.

Health and health outcomes can, in one sense, be viewed as outcomes which are produced by a process involving capital (hospitals and equipment), labour (doctors, nurses, other health personnel) and a lot of consumables (medicines, bandages, dressings and such). The inputs that we use, whether they are buildings, equipment, consumables, time or labour, can be collectively thought of as costs, because they are the sacrifices we make to achieve the outputs.

Economists define cost as the value of resources used to produce something, including a specific helath service or a set of services. When a resource, such as man, money, material or time is used for some purposes the opportunity of using the same elsewhere is lost. Hence the cost of using this resource for this particular purpose is the relinquishment of its next best alternative use. This is the economic cost or opportunity cost.

Capital costs are generally one-time commitments. But any capital investment, buildings, machinery or such, has a useful life span. So the opportunity cost of the capital can be thought of as equivalent to the value of the returns foregone by locking up the money in this investment, for the period of life of the project.

As health service is a public utility, it should be provided to all needy persons from an equity point of view. Inputs of health services are of different kinds: they include, on the one hand, overhead expenditure on PHC building, equipment and furniture, and on the other hand direct expenditure on salaries of medical officers and on the other type of health service personnel.

In theory the expenditure of PHC services can be broken down into administrative cost, cost of curative services, care services and preventive services. It is not however practical to distinguish between services provided with the aim of effecting a cure and the provisions of services to persons for whom cure is not a likely prospect. Similarly preventive services to some extent merge into curative services. Preventive services which can usually be separately identified for costing purposes include :

1. Antenatal and postnatal services
2. Immunization
3. Action for the control or eradication of communicable diseases.

Some of the activities can readily be costed when staff are wholly engaged in the activity. But when the staff are engaged in both preventive and curative work, estimates need to be made based on how staff actually spend their time with an approprate allocation of supplies and overhead costs.

It is difficult to measure the output of the health sector, as the concept of output is ambigious. Primary health centre, Cheruvadi, was selected for making an analysis of health services expenditure. The PHC has two medical officers, supervisory staff like the lady health inspector and the health inspector, field staff including six junior public health nurses and two junior health inspectors and emergency staff including a pharmacist. A clerk alongwith the supporting staff consisted of a driver, an ophthalmic assistant, a peon and a class IV staff.

The PHC has seven subcentres. One of these subcentres is based at Cheruvadi PHC itself. There is a separate PHC building from which various health and family welfare activities are carried out. The building has four rooms, one room each for doctor, lady health inspector, pharmacist and stores. It has been noted that the largest component of the health expenditure has been pay and allowances. If this has resulted in better service to beneficiaries then it cannot be faulted. Consumers of health care need to receive better service as a result of expenditure on personnel of the health centre.

Items of cost included in the study are cost of equipment like delivery tables, refrigerator, sterilizer, weighing machines, small equipment, laboratory equipment and cost of supplies like drugs, vaccines, syringes and catguts. Only the depreciated value of these equipment except small equipment and laboratory

equipment is accounted as the cost for the year. As regards the cost of supplies, the whole of it is treated as the cost for the year since it is a recurring item. When expenditure on medicines, equipment and construction are reduced, all consumers of health centre services will stand to lose, but the worst affected will be the poor who would have received these facilities free of cost and who are denied access to these due to their inability to pay for them.

Cost of transport consists of cost of pay and allowances to the driver, cost of diesel, cost of repairs which are recurring costs and the whole of these costs are treated as costs for the year. The cost of purchase of the vehicle is capital non - recurring cost and only depreciated amount is added to the total cost.

The cost of building and land are not taken into account in this study. The land belonged to the Government. The maintanance charges are met by the public works department and amount spent is not included in the PHC budget.

The ice lined refrigerator in the PHC was purchased for Rs 13,000 seven years ago. If this money had been invested in a bank, it would have yielded a monthly return depending upon the prevailing interest rate. This is the opportunity cost of capital and it should be applied to all capital costs such as buildings, land and equipment. The other element in the cost of capital is depreciation. The loss in value of equipment and buildings with use or passage

of time is called 'depreciation'. For any useful comparison of costs, the one- time investment in capital has to be reduced to its annual equivalent. The process of attributing the total capital costs over the useful life of the capital equipment is called annuitization or amortization.

The health centre has vehicle which could be used for field visits by the medical officers/health inspector. Is it more economical to let them use this vehicle or reimburse them for their travel expenses? The right approach would be to take in to account the fuel and other operational expenditure for vehicles in comparison with the doctor's/ health inpector's travel claims. It is not necessary here to take in to account capital costs of the vehicles used.

Whether costing is crucial or not in the health setting? Costing may be important for many health facilities where the charges have to be related to costs. Even if the charges are set so as not to cover the full costs, one should be aware of the extent of the subsidy involved. Moreover, only if cost data is available is the health manager or administrator able to plan ahead for the future, with optimum use of available resources.

CLASSIFICATION OF COSTS BY INPUTS - PHC, CHERUVADI

Capital cost:

a)	Jeep		
b)	Equipment	:	delivery table, refrigerators, sterilizers, weighing machines, Xray machine
c)	Buildings, space	:	

Recurrent cost

a)	Personnel (all types)	:	
b)	Supplies	:	drugs, vaccines, syringes, catguts small equipment, laboratory equipments
c)	Jeep, operation & maintenance	:	diesel, lubricants, tyres, spare parts, registration & insurance
d)	Buildings, Operation & maintenance	:	electricity, water, heating, telephone, cleaning, repairs
e)	Operating cost		

To take advantage of the treatment available in the health centre, people need to travel to the centre and wait their turn. To do this, they may have to take time off from paid work and forfeit wages. Or they may sacrifice useful time at home. They may have to pay for public transport, consultations and medicines. Costs may also be incurred by people who go to the centre but receive no treatment (household costs). They may find that the health centre is closed, that the drugs they need are not in stock or that they cannot afford to wait.

Resources provided for the primary health care sector in the State, as Government expenditure forms a very minor part of the total budget outlays for the State. These resources has been spent on increasing the number of providers of health care without corresponding increase in productivity. This has resulted in considerable decline in productivity per employee. It therefore suggests that the increase in the share of expenditure of personnel has not increased the efficiency of the primary health centre. Health expenditure in our study showed that beneficiaries spent more money on many of the reported illnesses. Household survey has also estimated the cost of illness episodes on an individual basis. The survey has obtained information on how much is being spent on various components of expenditure incurred by households in making direct payment for doctors, medicines and other medical services.

Chapter 5

SUPPLY OF HEALTH SERVICES - STUDY OF HEALTH CENTRES

The analysis in the previous chapter pointed to a wide spectrum of diseases among the households surveyed. Behavioural patterns that determine the actual process of utilisation are varying. The majority of them found treatment in the health centre inexpensive and good. A good number of them visit the health centre for getting immunised. There are complaints related to the supply of medicines, other consumables and equipments that are used for treatment and care, inadequate facilities for investigation and the limited day-time availability of doctors. It is necessary to explore the effective demand for health services and the supply of health services offered through PHCs and interlinkages between the two.

In this chapter, a description of the supply of health services as offered by a community health centre, a primary health centre and a subcentre are given. Data are secured through observation, record review and informal interview of medical officers, junior health inspector, lady health inspector, junior public health nurse and pharmacist.

5.1. Community Health Centre, Mukkom

Mukkom Community Health Centre is one of the two community health centres in Kozhikode Taluk, the other one being Narikkunni Community Health Centre. Mukkom CHC covers a population of one lakh fifty thousand. The district headquarters at Malaparamba is 25 km from Mukkom CHC while the Cheruvadi Primary Health Centre is 10 km away. Mukkom panchayat has an area of 460.41 sq km.

Mukkom CHC is situated in Mukkom town. There are seven doctors engaged in private practice in the town area. There are nineteen medical shops, seven laboratories, X-ray units and three private hospitals. Mukkom CHC caters to five panchayats. There are 24,339 houses.

The CHC has six subcentres. The nearest subcentre is located about four km while the farthest is located about 11 km from the CHC.

The Centre has only 18 beds whereas the expected bed strength of a community health centre is a minimum 30. The CHC has two separate buildings from which various health and family welfare activities are carried out. (i) The operation theatre cum inpatient ward and (ii) OPD building.

The operation theatre is spacious. It has a separate room attached for sterilising surgical instruments and a wash basin corner. Equipment and other amenities made available include autoclaves, sterilisation drums and oxygen cylinder.

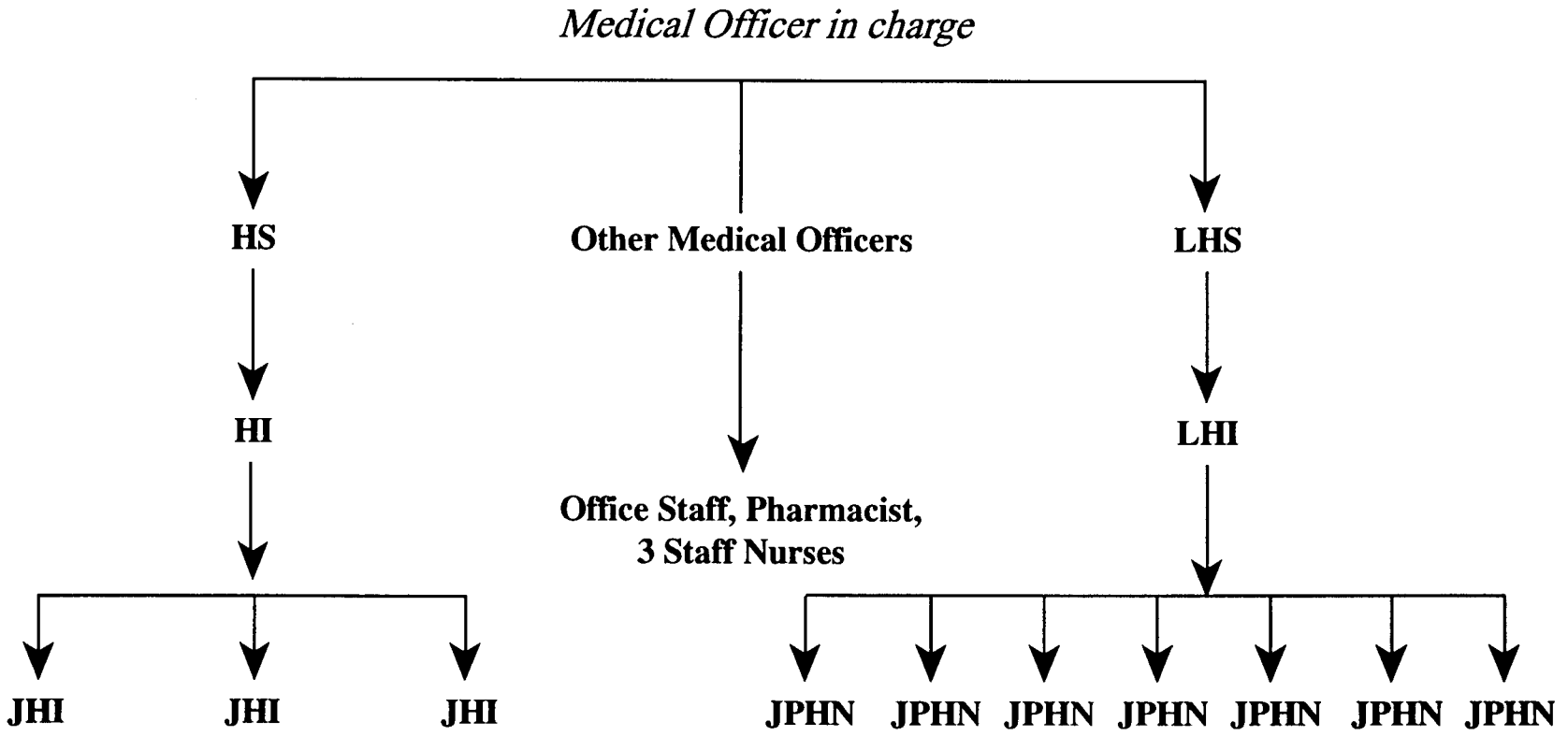
The maternity ward is a larger room compared to other wards. Wards have provision for ceiling fans. The doctor's duty room has an examination table, a working table for the doctor and a refrigerator. An ice-lined refrigerator is placed in the nurse's duty room.

The OPD building has provision for medical officer's duty room, dispensing room, dressing room, lab and an office. All outpatients are entertained by the medical officer on duty from his duty room. Patients visiting the CHC waited for the doctor outside on the veranda.

Manpower

The CHC has four medical officers, three staff nurses, a pharmacist, a nursing assistant, a part-time sweeper, two lab technicians, an ophthalmic assistant, a hospital attendant, a health supervisor, a lady health supervisor, a health inspector, a lady health inspector, three junior health inspectors, seven junior public health nurses, a driver, two clerks and a peon.

Figure 5.1 Mukkom CHC - Organisation Chart



Supervision of subordinate staff is through surprise visits, informed visits and through record supervision. The subordinate staff submit advance workplan to officers. Mostly supervisory visits from the district are to major PHCs only. Work coordination is achieved through holding meetings with the staff. Problems encountered by workers are poor morale due to lack of timely promotion, lack of timely payment of TA and other allowances and lack of direct supervision.

All medical officers were openly carrying out private practices. Their indulgence in private practice encroached upon the time of outpatients.

Performance in outdoor services

In order to assess the daily turnover of outpatients, their characteristics and types of sickness, an attempt was made to record the number of patients registered during the three-week observation period. Further, a randomly selected seven days of a month's attendance was recorded from OPD registers maintained at the CHC for the year 1991 and 1993.

While the 1991 record gave a daily turnover of 140 patients, the 1993 records put the figures at 165 patients.

An analysis of the prevailing morbidity pattern reveals that patients seeking medical care from the CHC were generally suffering from infective and parasitic

diseases, diseases of respiratory and digestive system, diseases of genito-urinary system and symptoms of ill-defined conditions such as fever, cold, cough and pyrexia.

Normally doctors have fixed OPD schedules and one of them by turn takes care of the daily OPD. Doctors are expected to reach PHC by 8.00 am and remain there till 1.00 p.m. There is no OPD in the evening or on Sunday. According to the schedule of medical officers, except the medical officer in charge, other medical officers are supposed to attend OPD for two days a week and the remaining four days for visiting subcentre falling under that CHC. Similarly the medical officer in charge was supposed to attend OPD at least for two days a week and in the remaining days he should make field visits and look after the administrative work according to his convenience.

A review of the past five years' record (1991-1995) indicated a steep increase in utilisation of indoor facilities at Mukkom CHC.

Inpatient Services

It was observed that indoor facilities of the CHC have been utilised especially by female patients and mothers for delivery. Coverage of mothers and children under immunization have shown a quantum jump. However, much more in these health services could have been possible through timely and efficient management of both manpower and resources.

The increasing trend in the number of indoor patients registered at the CHC is shown in the following table.

Table: 5.1 Trend in indoor patients registered in CHC.

Year	*No. of patients admitted*
1991-92	862
1992-93	987
1993-94	943
1994-95	1179
1995-96	1054

Among indoor patients registered during 1995, roughly one-third (31%) was children under 15 years of age. The occupancy rate of the indoor beds during July - August touched the highest figure and this higher utilisation rate was associated with the outbreak of viral fever in the area.

Supply of Medicines

Inadequate and unbalanced supply of medicines was the common complaint of this CHC. Discussion with doctors revealed that medicines were supplied neither according to the quantity needed by the CHC. This resulted in surplus of certain types medicines and shortages of other essential drugs. During OPD observations of the centre, doctors were often seen prescribing for purchases from outside. According to the medical officer,

``It is shameful on our part that being doctors we cannot issue proper medicines to a patient for his quick recovery. In a considerable number of cases we are compelled to ask even very poor patients to buy medicines from outside.'' Antibiotics and other emergency drugs were in perenial short supply. Centre receive adequate supply of analgesic, antipyretic and anti-diarrhoeal medicines. Shortages prevail on antibiotics especially in injectable forms. Patients were asked to buy medicines from open market. As a result patients, instead of utilising facilities at CHC, were either going to private clinics or using medical college hospital which is twenty kilometers away. During the days of observation, patients were given some of their required medicines from the CHC dispensary. Very few had to purchase from medical shops outside. Anti-malarial and anti-diarrhoeal drugs, analgesics, antibiotics, vitamins and iron tablets were available.

Discussion with the pharmacist confirmed the inadequate supply of medicines. The pharmacist was of the opinion that medicines supplied were quite inadequate. The supply of costly yet highly essential medicines like tetracycline, sulphaguanidine , ampicillin, streptomycin were very limited. Once the stock gets exhausted no further supply was usually made for a long time.

The assessment thus reveals a general inadequacy in the supply of medicines in the CHC. Stress was laid by the medical officer in charge during discussion for increasing the supply in syrup form for analgesic and antipyretic drugs like paracetamol, ampicillin (antibiotic) and anti diarrhoeal syrups. " We experience short supply of these" said he. The paediatric specialist also showed his concern for short supply of paediatric drug in syrup forms. 'Even labour-inducing medicines were sometimes not available' said the medical officer.

Maternal and Child Health Services (MCH)

Under MCH programme, the services offered include the registration of pregnant women, pre and post natal care viz. immunisation of mothers, distribution of iron and folic acid and assisting in delivery. MCH clinics are organised once a week and pregnant mothers and children are provided with required services. There is a lady doctor available at the CHC.

During the observation an attempt was made to assess the quality of services provided in these clinics through non- participant observation and listing of various

services given to mothers and children attending clinics. On an average 42 ante natal mothers register per clinic. All women in their advanced stage (8th or 9th month) of pregnancy were given tetanus toxoid (TT) injection and iron and folic acid (IFA) tablets.

Majority of women were subjected to pelvic examination. However certain preliminary things like measuring of height and weight or noting of previous pregnancy history were mostly avoided. Discussion with the CHC staff revealed that they measure height and weight only when they feel it is necessary . The staff, overburdened with child immunisation had no time to measure height and weight of all women.

Thus the observation shows that, the number of women receiving antenatal care are below what is expected and therefore there is scope of improvement as overall coverage is not satisfactory.

Post-natal follow-up visits (after delivery) are not offered by the lady health worker.

Immunisation coverage

The performance of the CHC in immunisation was quite satisfactory as generally it had achieved the assigned targets of immunisation against the six killer diseases (BCG, DPT, Polio, Measles, DT,TT).

Coverage for all vaccines in relation to the target is 100 percent and above. For measles vaccination, the coverage has been 90 percent. Universal immunisation was held every Wednesday and 94 to 150 children attend per clinic. An immunisation card was given to children at the time of their receiving the first dose of vaccine. Lot of efforts to achieve targets of immunisation through voluntary organisations, anganwadis and immunisation camps proved to be effective.

National Malaria Eradication Programme

All malaria cases in the CHC area were imported ones as reported by the health workers.

In 1990	-	8 cases
" 91	-	5 cases
" 92	-	No cases

At the district level, monthly incidence of malaria ranged from 21 to 57. All the cases were imported from neighbouring States.

JHIs collect blood smears during their house visits (active surveillance) and from all the patients with fever attending the CHC (passive surveillance). The programme also envisages measures like `contact smear collection' and DDT spraying in an area of 1 sq. km around a smear positive malaria case. It is reported that JHIs collect blood smears on an average 400 per month and administer presumptive treatment (with chloroquin) as stipulated in the programme.

Family Welfare Services

Mukkom CHC is one of the best centres of family planning. There are 18, 132 eligible couples. Majority of eligible couple here are with three children or below. It is seen that the major contraceptive method adopted and promoted by the health workers is `female sterilisation'. `Male sterilisation' is not promoted even by the JHIs. Among the temporary methods of contraception, intra-uterine devices are promoted by both the workers. Condoms are being promoted for contraception and as a tool for HIV/AIDS prevention.

Table: 5.2 Distribution of couples by Religion

Religion	Number of eligible couple	percentage
Hindus	7530	41.5
Christians	5426	29.9
Muslims	5176	28.5
Others	0	0
Total	18132	100

Table: 5.3 Distribution of couples by age of wife

Sl. No	Age in years	Number	Percentage
1	15 - 19	652	3.6
2	20 - 24	3358	18.5
3	25 - 29	4909	27
4	30 - 34	4088	22.5
5	35 - 39	3233	17.8
6	40 - 44	1892	10

Table: 5.4 Distribution of couples by total number of living children

Sl.No	No. of living Children	No.of couples	Percentage
1	0	1415	7.8
2	1	3677	20.2
3	2	5954	32.8
4	3	4273	23.5
5	4	1805	9.9
6	5	1008	5.5
	Total	18132	100

Table 5.5 Distribution of couples using different family planning methods by total number of living children

Number of living children	All women	Vasectomy	Tubectomy	IUD using	Nirodh	Oral pill	Total using FP	Non users
0	1415	-	-	4	138	35	177	1238
1	3677	61	134	615	578	293	1681	1986
2	5954	554	3105	331	469	271	4730	1224
3	4273	463	2924	113	143	63	3706	567
4	1805	247	1180	26	67	18	1838	267
5+	1008	119	637	2	20	7	785	223
Total	18,132	1444	7980	1091	1415	687	12617	5515

Table: 5.6. Distribution of couples using different family planning methods by age of wife

Sl.No	Age	All women	Vasectomy	Tubectomy	IUD	Nirodh	Oral pill	Non users	Using FP Total
1	15 - 19	652	-	3	38	76	32	503	149
2	20 - 24	3358	92	656	403	399	243	1565	1793
3	25 - 29	4909	229	2336	408	500	262	1174	3735
4	30 - 34	4088	377	2437	176	278	98	722	3366
5	35 - 39	3233	460	1545	60	121	42	1005	2228
6	40 - 44	1892	286	1003	6	41	10	546	1346
Total	18,132	18,132	1444	7980	1091	1415	687	5515	12617

The health workers are supposed to refer patients, with history of cough and expectoration lasting more than two weeks to the Centre which has facility for sputum examination. This is not found to be done. However, monthly four to five sputum positive cases turn up. Seventy percent of the sputum positive cases do not come to collect drugs after 9 to 10 drug collections. However, no follow up action is taken. Health workers do not have data of patients who do not come for drug collection regularly. The informants in households are unaware of sputum examination facility for the detection and treatment of TB available at the centre. A number of patients with TB were getting treatment either from the medical college hospital or from the TB centre. The district TB centre does not inform the CHC about those who are cured of TB or have completed treatment. The district TB entre is not serving the purpose of a nodal centre of TB control activities. It is also noted that there is no linkage with CHCand its infrastructure so as to offer backup referral and information related to prevalence of TB cases, those who are being treated, those who require continued treatment and those who are cured completely.

Discussion revealed the CHC workers' feeling that they were forced to take up this additional work without any additional remuneration.

Acute Diarrhoeal Diseases Control Programme

It uses the strategy of prompt detection of diarrhoea cases and correction of dehydration if any, with domiciliary oral rehydration therapy with Oral Rehydration Salt (ORS) and Home Available Fluids. (HAF)

The observation has been that no regular or periodic chlorination of wells is undertaken. There are no continuous health education programme. Actions are associated only with outbreak of diarrhoea.

National Programme for Control of Blindness

Under this programme, an ophthalmic assistant is working in the CHC. The activities offered are blindness survey, screening for eye defects among school children, organisation of eye camp for cataract extraction and other minor operations of the eye.

National Leprosy Eradication Programme

Calicut district is endemic for leprosy. The multi-drug therapy against leprosy is being introduced through health workers in the PHC. The personnel at the PHC level are trained to implement multi-drug therapy. But since the health workers have other targets related to family welfare and immunization, they are less interested in leprosy work.

School Health Programme

Under this, the only activity being carried out is immunization against tetanus for the school children at 5th standard and 10th standard. Other activities like physical examination of the school child, maintaining healthful school environment, remedial measures and follow up and health education are not being carried out.

Figure 5.2 Monthly plan for Community Health Centre, Mukkom for June 1994.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Antenatal Clinic	1 Under 5 Clinic Immunisation	2	3 PHC Meeting	4 Eye camp
5	6 DMO meeting & SC-1 & 2	7 ANC	8 Under 5 Immunisation	9 School health	10	11
12	13 ICDS + SC- 3	14 ANC	15 Under 5 Immunisation	16 Half day zonal	17 MSS	18 Mothers meeting
19	20 SC 4&5	21 ANC	22 Under 5 Immunisation	23 F P camp	24 MSS	25 Mothers meeting
26	27 ICDS & SC- 6&7	28 ANC	29 Under 5 clinic Immunisation	30	Full day zonal meeting	

5.2 Primary Health Centre, Cheruvadi

Cheruvadi PHC in Kodiyathur 'C' grade panchayat is one of the remote primary health centres located in Kozhikode taluk and is popularly known as Thengukuzhi hospital. The PHC area covers a population of 35,000 and four panchayats are served by the PHC. The district headquarters at Malaparamba is 35 km from the PHC while the Mukkom CHC is 10 km from it.

Religion-wise distribution shows that the dominant population is Muslim, followed by Hindus and then Christians. There is a tribal population of approximately 25 households. These inhabitants have very low nutritional status, educational status and health status. There are about 200 landless labourers here. The social problems identified include unemployment and alcoholism. The highly seasonal nature of agricultural labour puts a larger section in to poverty. Other categories of labour include rubber tappers and brick cutters.

The main public health problems are lack of protected water supply and lack of sanitary latrines. As majority of people here are poverty-stricken ,their health status and nutritional status are considerably low that make them prone to diseases. In certain pockets of the region like Chennamangaloor, a good number of muslim houses have a male member away in the Gulf countries. There are

6 lower primary schools, 5 upper primary schools and 2 high schools. Schemes like housing scheme for the landless and Jawahar Rozgar Yogana that aids in the construction of sanitary latrines are in operation. There are 9 anganwadis in the PHC area, 15 reading rooms, 3 mahila mandals and 2 youth clubs.

The PHC has 7 subcentres. One of these subcentres is based at Cheruvadi PHC itself. Out of the remaining 6 subcentres, the nearest subcentre is at Aalingal and is located at about 1.5 km while the farthest subcentre at Thottumukkum is located at about 9 km from the PHC. The Pannikode subcentre at Eranjimavu is 2.5 km away from the PHC. Altogether, four subcentres including Pannikode subcentre function in their own building.

No medical officer resides in the area although there are quarters constructed for the doctor, JPHN and LHI.

There is a separate PHC building from which various health and family welfare activities are carried out. This building has four rooms, one room each for doctor, LHI, pharmacist and the fourth a store room.

The office functions from the quarters meant for the medical officer in charge. All OPD patients are entertained by the medical officer on duty from his duty room. There are no inpatient services as the building meant for it has not yet become functional.

The PHC has a sanctioned post of two medical officers, supervisory staff like LHI and HI, field staff including six JPHNs and two JHIs and emergency staff including a pharmacist. The important post of a staff nurse was lying vacant for many years. The LHI is a less adequate substitute for a staff nurse but still some functions can be performed by her. A clerk along with the supporting staff consisted of one driver, an ophthalmic assistant, one peon and a class IV staff.

Performance in outdoor services

The PHC working timings including outdoor (OPD) services were fixed from 8 am to 1 noon. The doctor on duty has to stay sometimes even after this time to attend to outpatients. The daily turnover of OPD patients, their characteristics and types of sickness were observed during the three days field observation. The analysis showed that the turnover of patients is high on days when the medical officer in charge conducts the OPD and resultantly the clinical patient load is very high. The medical officer was able to spend on an average, less than 5 minutes with each patient.

Characteristics of patients

Out of the 147 patients who called at the PHC during 3 days of observation, about one-fourth were children (0-14 years age). While every second patient was an adult belonging to 25 - 45 age group, females were the great majority seeking medical assistance from the PHC.

As there are no other hospitals in the near vicinity, it is apparent that patients seek medical attention from the PHC. The PHC village itself contributed 50 percent of the total patients, while another 40 percent of the patients came from only areas concentrated within two kilometres radius of the PHC. It was noticed that people rush to one doctor Josettan, who runs a private clinic at Thottumukkum eight km away from the PHC. Although not a qualified doctor, his clinic always attract patients who have great faith in his clinical ability.

Cold chain equipment

The PHC has been provided with a heater, a refrigerator (185 lts), an iceline refrigerator and a cold box. However the field visit and observation revealed that the refrigerator was not in working condition. During the period of observation the ice line refrigerator was not kept in operation because of certain defects and therefore vaccines were kept in the cold box. The cold box however, does not maintain the temperature needed to ensure the potency of the vaccines.

The maintenance of cold chain was far from satisfactory, largely because of negligence on the part of field staff and lack of proper supervision. A test of knowlege revealed that they were poorly informed about the necessity and importance of maintaining the cold chain.

Transport

The jeep that the PHC has for carrying out family planning motivation at peripheral areas and for monitoring subcentres normally remains off the road for various reasons. According to the health workers, somehow the health inspector manages the vehicle on his initiative.

Even a minor repair could not be undertaken because of the delay in the usual administrative procedures, non-availability of funds for its repair at PHC-level and no clear understanding among the office of the DMO whether fund for repair would come from project or from regular resources available with district officials for repair of vehicles.

Equipment

In the room earmarked for LHI, there are autoclave, certain surgical instruments and weighing machine. Chemicals are made available for carrying out pathological test of malaria urine, stool and sputum. Many of the instruments provided to the JPHN were carelessly kept in a corner and were not being used. Perhaps she did not know how to use these equipment. This points to the fact that supply of equipment is not sufficient to ensure its utilisation.

Maternal and Child Health Services

The programme activities under MCH include immunisation and distribution of nutritional or vitamin supplements to mothers. Special mention may be made of the services or assistance extended to the health workers by the Mahila Swasth Sangh (MSS) since 1993. The various health workers acknowledged that they received good help and co-operation from the MSS unit which consisted of an Anganwadi worker, a member of Mahila Samajam as well as a school teacher. During the past few years there has been encouraging trend in antenatal services provided by the PHC.

Out of the 240 deliveries reported, 155 are institutional deliveries, 33 deliveries are attended by JPHN, 9 deliveries are attended by trained dais, but there are 7 deliveries attended by untrained midwives.

Family Planning Services

The age at marriage of females is very low. This finding points to the long and active reproductive years of such eligible couples are more. There exists an unfavourable attitude towards family planning. Non acceptors of family planning are more.

Eligible couples having two to four children outnumber others among the 14, 996 eligible couples of Cheruvadi PHC. A significant finding is that eligible couples having five or more children are 1688 in number. Among the family planning methods, oral centraceptives are least acceptable. There are few takers for vasectomy. As a method of family planning, vasectomy is accepted by very few eligible couples. The highest rate of acceptance of family planning method is for tubectomy or female sterilisation. Out of all the eligible couples, 9359 eligible couples are users of one or the other family planning method. In all, 5637 eligible couples are non-users of family planning methods and out of that non-users having five or more children are 787.

Performance in family planning shows an increasing trend in the acceptance of sterilisation and IUCD in health centre. A similar increase in the distribution of condom and pill was also observed.

Table : 5.7 Distribution of eligible couples by acceptance of family planning methods.

Number of living children	No. of eligible couple	No. of couples using different methods					Total Number of users	No. of couples not using any methods
		Vasec	Tub	IUD	CC	Oral pill		
0	1432	0	0	21	220	86	327	1105
1	2530	58	181	410	245	199	1093	1437
2	3469	263	1587	298	230	140	2518	951
3	3368	290	1818	190	186	110	2594	774
4	2509	191	1497	87	92	59	1926	583
5 or more	1688	132	661	40	45	23	901	787
Total	14996	934	5744	1046	1018	617	9359	5637

Positive malaria cases are not reported from Cheruvadi PHC area. In festival seasons few cases of malaria which are imported from neighbouring States due to the mobility of people are reported. It is to be noted seriously that vaccine preventable diseases like measles (14 numbers) and pertussis (6 numbers) are reported from Cheruvadi area. Diarrhoeal diseases reported in March were 42 cases, in April 32 cases, in May 30 cases, in June 47 cases. The higher incidence of diarrhoeal diseases in June is associated with the outbreak of monsoon

Table 5.8. Average Monthly workload in Cheruvadi PHC

Patients seen	2050
TREATMENT Antenatal checkups	91
Malaria slides taken	79
PREVENTIVE HEALTH Oral Polio vaccination	53
BCG Vaccination	41
DPT Vaccination	38
Measles vaccination	39
TT for pregnant women	44
NUTRITION Vitamin A solution	68
Iron and folic Acid tablets	65
Oral Rehydration Packets	150
FAMILY PLANNING Condoms dispensed	4050
Birth control pills (1 month supply)	39

About their reasons for not going to Cheruvadi PHC, the qualitative responses of the households are

Table 5.9. Reasons for not going to the PHC

Reasons	Respondents (percent)
No doctor	28
No medicine	51
No good treatment	17
No confidence	4
Total	100

Seventeen percent of the people do not go to PHC on the ground that they will not get any treatment like a proper checkup, laboratory facilities and inpatient treatment and 51 percent people complained that no proper medicine is available there. Doctor absenteeism discourages 28 percent of the people.

5.3 Sub Centre, Pannikode

This `grassroots - level institution' is a smaller unit under the Cheruvadi primary health centre, which constitute the first level of contact of the community with the health care delivery system in the region. A subcentre is supposed to enhance geographic and economic access of the rural community to the health care delivery system envisaged for 5000 population. The family welfare centre, Pannikode is better known as Eranjimavu centre which is about 2.5 km from the Cheruvadi PHC. The Kodiyathur panchayat office is 12 km away from here with little access to the villagers. There are two multipurpose health workers in the subcentre - a junior health inspector (JHI) and a junior public health nurse (JPHN) who make household visits. Both the JHI and the JPHN are supposed to work equally for national health programmes. None of the activities is specifically assigned to either of them. For example, the male worker (JHI) is supposed to work with equal enthusiasm for the child survival and safe motherhood (CSSM) programme and for the National Malaria Eradication Programme (NMEP). JHI does not have any subcentre accommodation in the field areas.

There is fairly good awareness about the location of the subcentre. More than 40 percent of households reported being visited by a JPHN / JHI in the previous four months. On clinic days at the subcentre an average number of 20 patients are seen and provided with a mix of services.

One obvious deficiency found in the subcentre is that the centre does not have baseline information about their beneficiaries. The lack of supplies and inconvenience of the subcentre affect its ability to serve public health.

There exists a 'subcentre committee' constituted to ensure community involvement in the activities of the subcentre. The JPHN is assigned the responsibility of constituting this people's committee comprising of the local leaders and is supposed to help in planning, executing and monitoring the activities of the subcentre.

There is no documented evidence for the functioning of a subcentre committee nor evidence to suggest that the committee is helping in the day-to-day activities of the centre. The committee discussed the arrangements for the pulse polio immunisation.

Activities of the Health workers

Both the Junior Public Health Nurse and the Junior Health Inspector are supposed to work equally for national health programme. The following tables summarise some of these activities in the subcentre.

Table 5.10. Certain key activities of Junior Public Health Nurse (JPHN)

(In 4 months of study - as reported by her)

Immunisation at the subcentre	2
School immunisation arranged	0
Children reported as fully immunised	19
Fully immunised from sub centre	9
Pregnant women detected	15
Pregnant women given service	7
Deliveries reported in the sub centre area	13
Deliveries in the subcentre	0
Hospital deliveries reported	12
Mothers meetings held	8

Table 5.11. Certain key activities of the Junior Health Inspector (JHI)

Presence at immunisation site	3
School immunisation	1
Pregnant women detected	6

Going by the population characteristics of the subcentre, the number of children immunised and the number of women receiving ante natal care seem to be below the expectation.

Table 5.12. Number of children received immunisation services in 4 months - By source

(House hold survey)

Immunisation services	No. of Children
a) Pulse polio	
Number immunised in 4 months	123
Percentage from government sources	100
Percentage from private sources	0
b) All other immunisations	
Number immunised in 4 months	60
Percentage from government sources	90
Percentage from private sources	10

The data suggests that of all the children immunised, almost 50 percent are from the subcentre or from outreach sessions arranged by the subcentre.

It is also seen that the Government sector is the major provider for immunisation services.

Antenatal services provided at the subcentre are different from the immunisation services. The subcentre does not have the facility of an examination couch. Also no facility to estimate blood haemoglobulin level. There is no functioning weighing machine. Facilities for routine urine analysis are limited. Private institutions are, therefore, approached for antenatal services.The midwifery kit lacks essential instruments to conduct delivery. As the JPHN is residing in the subcentre, she conducts home deliveries on call. The only antenatal services provided are by way of supplying iron and folic acid tablets and administration of injection. Literally there are no postnatal visits to the mothers in the area. Few deliveries have been reported which are conducted by untrained midwives.

Family welfare services

Major contraceptive method adopted is female sterilisation. Male sterilisation is not promoted even by the JHI. As revealed by the JPHN, achievement of family planning is difficult in this Muslim - dominated area. Immunisation level here is poor due to resistance. The argument is ' when the first child is not immunised, why to immunise the second child '?

Table 5.13. National Malaria Eradication Programme (NMEP)

Activity	JHI	JPHN
Fever cases seen / treated	62	0
Blood smears collected	62	0
Presumptive treatment given	61	0

JHI's collect blood smears and administer presumptive treatment (with chloroquin) as stipulated in the proforma. None of the patients with fever during survey period was either visited by a health worker or had blood smears taken.

The subcentre is not involved in any activity related to National Malaria Eradication Programme.

Many obvious public health programmes were not even noticed by the workers during their field work. An open pit with garbage, breeding mosquitoes, on the way of a male worker is never paid attention.

Health education activities

Health workers reported that no information, education and communication (IEC) activities are being conducted at the subcentre. A total of nine group talks in four months were organised in the subcentre.

The household survey revealed that an average 20 households were represented in each health education session held in the subcentre. It was observed that majority of informants attending health education sessions did not remember the subject discussed there. No audio visual aids were used. Sessions were in the form of classes. The element of health education is not getting the desired importance.

National Tuberculosis Control Programme

Surveillance measures depend fully on the work by the JHI / JPHN. But no work practically is going on in the subcentre. As shown by the records in the Mukkom CHC, there is no regular supply of drugs to the patients affected with tuberculosis and there is no defaulter action.

Acute Diarrhoeal Disease (ADD) Control Programme

The programme aims at reducing morbidity and mortality due to diarrhoeal diseases among under-five children.

Table 5.14. Activities of JHI/JPHN in Acute Diarrhoeal Disease Control Programme in three months - expressed as Median.

(As reported by the health workers)

Activity	JHI	JPHN
ADD Cases detected	6	11
ORS Packets distributed	10	1

It is evident that the health workers are involved in detection and management of ADD cases. Household chlorination of wells is not done periodically.

Important aspect is awareness about Oral Rehydration Solution (ORS). Above 50 percent and majority of informants who are aware of ORS think that it is available at PHC. Others think that it is available at the medical shop.

One of the main functions of a health centre is adequate provision of medical care. However the medical care offered through these centres does not satisfy the beneficiaries due to the inadequate supply of medicines, inadequacies in relation to other supplies and equipment that are used for treatment and care and inadequate facilities for investigation. Another pitfall in the supply of services is that the medical officers are available only for a limited time of the day.

Eventhough the health centres are accessible to people location-wise, the observation and survey by the investigator reveals that the CHC and PHC are not economically and socially accessible. This brings to light the point that the medical care available from health centres is less affordable to the beneficiaries. It is simply because most of the medicines that the beneficiaries need are not available in the PHC and instead they are prescribed to be bought from medical shops outside.

As regards maternal and child health services, the main activities are distribution of iron and folic acid tablets, administration of injection TT, conduct of deliveries and immunization of children against vaccine preventable diseases. The antenatal care and postnatal care as offered by the PHC shows further scope for improvement because antenatal health assessment and care, postnatal health assessment and care needs to be improved by strengthening the home visit and clinic services. As the awareness and utilisation of immunisation to children is high among the beneficiaries, this programme can be considered to be a success.

Immunisation programme receives abundant supply of financial and material resources from the UNICEF through the Government of India. The programme is given wide publicity through voluntary ogencies, anganwadis, rotary clubs and other agencies in the area. In addition, immunization clinic is conducted on every Wednesday which is celebrated as national immunization day. Above all, mass campaigns (immunization camps) are organised twice a month in the area with the help of voluntary agencies. It is worth mentioning that the awareness of childhood immunization ie. the number of doses to be given of different vaccines and the time of administration is wellknown to almost 90 per cent of mothers as reported by a survey conducted by the social and preventive department of the Medical College, Calicut.

Although the blood smear collection expected of each junior health inspector is not achieved, the incidence of malaria cases is very low. The cases reported are imported ones from the neighbouring States and such cases occur only during festival seasons like Onam and Ramzan. Since malaria is a disease which needs eradication through active and passive surveillance programmes, anti-mosquito measures, presumptive and radical treatment, these needs to be further stepped up. The malaria eradication activities are not active when compared to the expected level. As there could be a resurgence of malaria since the disease is not eradicated fully from the State, the health workers need to be continuously offering all the malaria eradication activities stipulated in the programme.

Female sterilization is the most widely accepted method of family planning. Other family planning methods that are adopted include intra-uterine contraceptive device, nirodh, oral pills and vasectomy. But among the eligible couples 30 per cent are non users of family planning. This points to the necessity for further strengthening of the information, education and communication (IEC) services offered by the health centres. Among the temporary family planning methods, as the acceptors of IUCD are only 6 percent, that of nirodh 8 percent, and that of oral pill only 4 percent. Such measures are to be promoted further. Only 44 per cent of the eligible couples have accepted tubectomy and 8 percent

have accepted vasectomy which means that 52 per cent have accepted permanent family planning methods. But the remaining 48 percent needs to be protected through temporary family welfare measures like IUCD, nirodh and oral pills. It can be concluded that the couples have children in the range of 0 to 3. An analysis of the expenses connected with various family welfare measures reveals that a major chunk of health care allocation is consumed by family planning services. For achieving small family norm, other measures like ensuring child survival facilities, improving public health measures through provision of protected water supply and sanitary latrine and improving access to health services may also be strengthened.

Activities for tuberculosis control are being carried out by the health centre. The patients with tuberculosis are supplied with anti-tuberculosis treatment. The problem encountered here is that patients do not take treatment regularly. Seventy percent of the sputum positive cases do not come to collect drugs, after 9 to 10 drug collections. No defaulter action is taken to ensure regular treatment of such patients. The health workers are not keen in taking defaulter action. This is because TB control activities are sidelined and only family welfare and immunization programme are given importance. Another pitfall is that there is no linkage between district TB centre and CHCs and PHCs.

The district TB centre does not inform the CHC about those who have completed treatment and those who need continued treatment.

Activities under the diarrhoeal diseases control programme are distribution of oral rehydration packets and health education. But the actions are only associated with the outbreak of diarrhoea. Measures directed towards primary prevention like ensuring protected water supply and provision of sanitary latrines and fly control measures are not stressed.

The health workers are not interested in activities related to leprosy eradication because their main concern and what is expected of them are just activities related to family welfare and immunization.

For successful implementation of the school health programme, a thorough and unhurried examination of the child and preparation of the health card which ensures monitoring and follow up is a necessity. All activities envisaged in the school health programme must be carried out by the PHC personnel in collaboration with school teachers and parents.

The primary health centre Cheruvadi, serves only outpatients although it is expected to function as a hospital with bed strength of minimum 6 patients. Unlike Mukkom CHC, the family welfare programme in the PHC is not that successful as there exist an unfavourable attitude among the eligible

couples towards family planning. The services that are implemented well here are only immunization, conduct of domiciliary delivery on call and outpatient medical care services. In terms of referral patterns, PHC Cheruvadi, did not report referring patients to community health centre nor to the Taluk / District hospital. Patients are referred to the Medical College depending on the service required. This tendency to bypass the CHC and Taluk hospital increases the overcrowding at the Medical College level facilities.

The Subcentre at Pannikode lacks facilities to conduct clinics. The midwifery kit lacks essential supplies and instruments. Therefore they are constrained to carry out such procedures. The JPHN and the JHI who are the front - level workers need monitoring of the work done by them and supervision which is totally lacking now.

Chapter - 6

CONCLUSIONS

Kerala has been quoted very often as a model for the developing world for its remarkable achievements in the field of health and family welfare despite having a low per capita income. An exceptional decline in mortality rates in Kerala which is half the national average has been attributed to widespread access to medical care in the State, high utilization of the health services by the people and wide coverage of immunizations among infants and children. The demand for these health services and their wide utilization have in turn been supported by high levels of female education. The decline in mortality is attributed to health care provided by the Government, especially immunization services. The public and private sector health care services have shown a steady growth with the household expenditure on health exceeding that of Government.

The Primary health centre forms the institutional core of the rural health services infrastructure. The first primary health centres were established in October 1952 as a part of a broader strategy for rural development through community development programme. The PHCs were conceived as nuclei from which health services would radiate, through subcentres, over the countryside.

They are designed to function as important components of the overall economic and social development programmes. However gross underutilization of this governmental health care centres are noticed. So far no significant studies have been done in Kerala on the supply and demand of health services offered through the primary health centres. A study of the health care system with special reference to a selected community health centre, a primary health centre and a sub centre in the Kozhikode district of Kerala was, therefore, attempted.

Conceptually, the public sector health system is designed to be a hierarchical model with the superspeciality hospital / tertiary care hospitals (Medical Colleges) at the apex followed by secondary care hospitals (the District hospitals: General Hospitals and Taluk Hospitals). The primary health centre represents the basic institution delivering primary health care to the rural population.

The study mostly depended on primary data based on a survey conducted in the area selected. The primary data was supplemented with qualitative data collected through group discussions and personal interviews. Officers at the district and the State-levels had been personally interviewed, wherever possible. The information collected was then coded into numbers by drawing up certain codes which basically inferred from the information volunteered by the informants in relation to the questions asked. The schedule used for household survey was

aimed at obtaining the demographic and environmental particulars from the identified households and to gather details of illness of the beneficiaries as well as their immunizations status.

Of the households surveyed , the majority belonged to low educational and socio - economic status. However the behavioural patterns that determine the actual process of health care utilization are varying. The majority of the households surveyed use water from unprotected wells. Higher rate of diarrhoeal diseases reported during rainy season could be related to the unprotected water supply. Insanitary latrine and open air defecation by a majority of households lead to high incidence of parasitic and helminthic infections.

Analysis of the morbidity pattern reveals that there is a wide spectrum of diseases. Among the diseases reported, worm infections, dysentery, bronchial asthma and fever have high incidence.

Analysis of the responses of the beneficiaries in relation to the services offered by the community health centre revealed that the health centre has medicines available, treatment there is inexpensive and that they get good treatment . A good number of them visit the health centre for getting immunized.

Complaints related to the supply of medicines was a major factor hindering utilization of health care services in the health centre. Very few medicines are available there and the rest have to be bought from outside and many of them are expensive.

On analysis of the factors influencing the utilization of services in the primary health centre, it could be seen that 73 per cent of the respondents are satisfied with the services offered by the health centre. Majority of them visit the centre for treatment of minor illness. A good number of the patients who visit PHC have diseases of chronic nature.

Mukkom CHC and Cheruvadi PHC have six subcentres and seven subcentres respectively. The CHC has only eighteen inpatient beds against the expected bed strength of a minimum thirty . The inpatient beds have not become functional in the PHC. The analysis of the OPD registers revealed that there is a daily turnover of 140-155 patients. The morbidity pattern shows that patients seeking medical care from the health centres were generally suffering from infective and parasitic diseases, diseases of the respiratory and digestive system, diseases of genito-urinary systems and symptoms of ill-defined conditions which groups various minor ailments such as fever, cold, cough and pyrexia.

Unlike the CHC, which is situated in the town area and have seven doctors engaged in private practice with three private hospitals, the PHC area does not have other hospitals or a private practitioner. The PHC village itself contributed 50 percent of the total patients, while another 40 percent of the patients came from only areas concentrated within two kilometers radius from the PHC.

Provision of medical care is one of the main functions of a health centre. However, the medical care offered through these centres does not satisfy the beneficiaries due to the inadequate supply of medicines, inadequacy in relation to other supplies and equipment which are used for treatment and care and inadequate facilities for investigation. A medical officer is available at OPD clinics for about five hours a day. As doctor was available at the OPD clinic for a fairly long time, the patients did not have to wait for a long time for consultation.

The indoor facilities of the CHC have been utilized especially by female patients and mothers for delivery. However, the average monthly turnover of indoor patients as well as the rate of utilization of inpatient beds was far below par. In some cases doctors themselves were discouraging patients to seek indoor facilities, largely because they did not want to take additional burden. The records in respect of inpatients are poorly maintained. There is a clear lack of interest among doctors to extend indoor facilities to patients.

Eventhough the health centres are accessible to population locationwise, the observation by the investigator points that the health centres are not economically and socially accessible. The medical care available through health centres is less affordable to the beneficiaries as many of the medicines that the patients need are not available in the health centre and are therefore to be bought from medical shops outside.

An analysis of the various supplies made to the health centres observed that equipped with thermocol box, the maintenance of cold chain was far from satisfactory, largely because of negligence on the part of field staff and lack of proper supervision. A test of knowledge revealed that they were poorly informed about the necessity and importance of maintaining the cold chain. Immunization requires proper storage and sterilization facilities. The materials and the equipment required for immunization are made available free of cost by the UNICEF through the Government of India, unlike the materials required for medical treatment.

As regards maternal and child health services, the main services offered were distribution of iron and folic acid tablets, administration of injection tetanus toxoid, assisting in delivery and immunization of children against vaccine-preventable diseases. Coverage of mothers and children under immunization have

shown a quantum jump. The antenatal as well as postnatal care as offered by the health centres shows further scope for improvement perhaps by strengthening the home visits and clinic services. Facilities required to provide prenatal care are more elaborate than that required for immunization though considerably less than that required for in-patient treatment.

The jeep that the health centre has for carrying out family planning motivation at peripheral areas and for monitoring subcentres remains off the road periodically. Even a minor repair could not be undertaken because of the delay in the usual administrative procedures, non-availability of funds for its repair at PHC - level and lack of understanding among the office of the District Medical Officer as to whether funds for its repair would come from project or from regular resources available with district officials for repair of vehicles.

The study examined subcentre as the first level of contact of the community with the health services and its role in bringing services related to the national health programmes to the doorsteps of the beneficiaries. The observation has been that the subcentre is bypassed and the beneficiaries go straight to the primary health centres. This defeats the very idea of the subcentre being the first level of contact with the health services.

The JPHN and the JHI did not know about record maintenance. Hence they failed to provide detailed information on health, maternal and child health and family planning performance.

The subcentre is quite limited in its ability to provide any services due to lack of supplies or limited presence in the community. On clinic days, in the subcentre, an average number of 20 patients are seen and provided with a mix of services.

The perception of the JPHN/JHI about various schemes in operation revealed their feeling that supervising authorities pursue some health programmes with excessive enthusiasm. This often results in enforced targets for some programme.

The State has witnessed a major shift in its administrative set-up by the implementation of the Panchayati Raj (the system of local self governments). The responsibility of maintaining subcentres now rests with the Panchayats (the local bodies) It is premature to evaluate Panchayati Raj and its contributions to the development of subcentres.

Subcentres are expected to function according to the consensus evolved in 'sub centre committees'. The study did not show any such phenomenon.

If subcentre committee is an indicator of 'community involvement', it can be concluded that community involvement is not up to the expected level in Pannikode and the 'Government - sponsored community involvement' is found to be lagging here.

The study focussed on the functioning of health centres in health behaviour of a rural area. The health team and the health centres have a decisive role in the delivery of primary health care in the area studied.

Factors affecting health status is elicited with the help of several indicators, such as composition of the population, their income and educational status, morbidity pattern prevailing and some data on health influencing factors in the field of housing and sanitary conditions. It is believed that though our description is based on rough data, Mukkom CHC / Cheruvadi PHC/ Pannikode subcentre area does not differ from the rural area of Kerala in general.

Health behaviour was analyzed based on two questions : (1) Where do people go for medical care? Which function does the health centre have among the available sources? 2) What is the knowledge of, attitude towards and experience with the PHC?

Primary health centres, the first level of contact of community with the health services, are inadequate in infrastructure and other facilities. The awareness about these institutions in the community is adequate. But this awareness is more about the workers rather than about the institutions.

CHC Mukkom and PHC Cheruvadi do not differ much in the preventive and promotive care services offered. Differences are mainly in the curative services offered by them, viz, the number of doctors, number of beds and other curative facilities. In terms of field staff and field activities they are similar. Thus the Mukkom CHC offers curative services to a population of 1,50,000 but in terms of field activities it will cater to the population of the Grama Panchayat where it is situated, viz, 30,000 people.

Resources made available to the PHC are grossly inadequate. What the PHCs receive from the national public health expenditure is about one - third of the resources on a per capita basis.

In terms of the referral patterns, PHC Cheruvadi did not report referring patients to Community Health Centre nor to the Taluk/District hospital. Patients are referred to the Medical College depending on the service required. This tendency to bypass the CHC and Taluk hospital further increases the overcrowding at the Medical College level facilities.

Salaries take away two - thirds of the resources, ie. effective benefits that can accrue to people is very small and hence very few people from the catchment population benefit.

At the CHC - level, the physician staffing should be monitored to assure the right mix of physician skills in place for the CHC to serve its intended role in the public sector hierarchy. Specialists currently at the PHC level should be reallocated to the CHC level. In addition, the adequate staffing of attendants and nurses should be maintained to support the delivery of inpatient services at the CHC level.

Inadequate supply of essential drugs to the CHC/PHC has been a constant source of irritation for medical officers. The indent submitted by the health centre to district authorities should be strictly adhered to while supplying their quota of medicines.

The health workers (JPHN/JHI) are supposed to do 'multipurpose work', giving due importance to different components. But this message does not seem to have reached them properly. The JPHNs attach more importance to programmes associated with women and children and JHI are more occupied with Malaria eradication work and public health activities. The community is more aware ofthe acute diarrhoeal diseases control services available at the PHCs than the

provision of such facilities at subcentre. The health workers have no facilities to render services at the beneficiaries' doorsteps. This suggests the need to redefine the job responsibilities of JPHNs/JHIs. The Pannikode subcentre is the smallest unit in the hierarchial infrastructure in relation to the health care delivery system of this rural area. Its services are limited to immunization and offer of conventional contraceptives.

An important conclusion of analysis carried out so far is that the peripheral outposts for providing healthcare, needs to be well - equipped and its infrastructural facilities further strengthened, its health personnel better oriented to the various components of the primary health care and an attempt to place people's health in peoples hands through community participation may be intensely carried out. This would help in better mobilization of resources from the community itself for solving their health problems. People's planning and Panchayati Raj kindle hopes and aspirations, about placing people's health in peoples hands and thereby propagating primary health care to the rural masses.

HEALTH CARE SYSTEM IN KERALA - A CASE OF PRIMARY HEALTH CENTRES IN KOZHIKODE DISTRICT

(Information sought is strictly for acadamic purpose)

SCHEDULE (HOUSEHOLD SURVEY)

1. Name of informant

   (a) Age (b) Sex: M/F (c) Educational status

   (1. Illiterate 2. Up to 5 years of schooling 3. 5-10 years 4. College 5. Technically qualified 6. Professional 7.Others)

2. Type of house

3. No of family members - other details

Name			
Relationship with head			
Age			
Male/Female			
Married or not			
Employment			
Source of income			

3. Do you have a CHC / PHC / Sub centre in your locality?

   (1. Yes 2. No 3. Don't know)

4. History of past illness

   a) What all illnesses?

   b) From where was the treatment obtained?

   c) What treatment?

   d) Expense incurred

5. How many members in the family have ailments during the past four months?

   Details

6. What treatment did you receive?

7. Any difficulty you experienced in the place of treatment?

8. Expense incurred

   a) towards travel

   b) whether daily wage lost

   c) medicine and travel

   d) fees to doctor

9. About CHC / PHC / Sub centre

   a) What services do you get from the staff here?

   b) What all services do you expect from them?

      (i) from doctor

      (ii) from staff nurse

      (iii) from JPHN, JHI

1h

10. Did any health worker from the Centre visit your house during the past four months?

    (1. Yes 2. No 3. Don't know)

11. If the answer is yes, What services do you get from the health workers?

12. What is your opinion about the treatment and approach you received from the doctor?

13. What services do you get from the CHC / PHC/ Sub Centre when you visit there?

14. Deficiencies noticed

    a) About treatment obtained

    b) About maternal and child health

    c) About immunisation services

    d) About family welfare

    e) About tuberculosis control

    f) About manpower

    g) About supplies and equipments

15. What other services do you expect from the CHC / PHC / Sub Centre.

INTERVIEW SCHEDULE OF MEDICAL OFFICERS IN THE HEALTH CENTRES

1. Name :

2. Age :

3. Qualification :

   a) Year of acquiring the

      highest qualification :

   b) Any other degree/ diploma. :

4. Professional experience :

   i) Years of experience in the PHC's :

   ii) Years of experience in the PHC's

      as charge Medical Officer :

   iii)Previous positions held :

5. Place of residence :

   Native of urban/rural

6. Religion: Caste:

7. Marital status Husband/wife's employment

   Qualification

8. How do you envisage your functions. ?

(i) Administrative (ii) Financial (iii) Professional

(iv) Supervision, Co-ordination and control.

9. How many hours you spend rendering curative service?

Specified days, Specified time.

Frequency of field inspections or sub centre visits, supervising feeding in Anganwadis.

10. How often do you conduct various clinics at PHC or sub centre on prescribed dates - Antenatal Clinics, Child Clinics, Well Baby Clinic etc.?

11. How often do you attend to school health duties on prescribed dates?

What are the steps you take for implementation of various health programmes?

12. What control measures you take for control of communicable diseases such as chicken pox, gastro enterits, dysentry, typhoid etc. ?

13. What are the services you render in connection with Family Planning?

14. How do you (i) arrange, supervise and co-ordinate programmes for environmental sanitation?

(ii) Implement, supervise and co-ordinate immunisation programmes

(iii) Detect, treat and prevent malnutrition especially among children and mothers and render necessary nutrition services and conduct nutrition education.

15. How often do you attend conferences at various levels? How often you hold staff meetings at PHC ?

16. How often do you attend to emergency cases at the residence of the patient and give necessary emergency treatment and advice ?

17. What are the problems with the present organisational set up of PHC ? How it needs to be placed in a better way ?

18. During the course of implementation of programme what difficulties you encounter

    Poor staffing, work load, lack of clear direction, lack of adequate supplies, lack of co-operation of colleagues, superiors, health centre staff, public any other,

19. What are your suggestions to improve the public health care offered through the primary health centres ?

Questionnaire (Male worker JHI)

PANNIKODE SUB CENTRE OF CHERUVADI PHC

1. Please furnish the following details regarding the sub centre

   (a) Total population

   Males ☐ Females ☐

   (b) No of children under 5

2. Do you have an area map?

   (1. Yes 2. No 3. Don't know)

3. How many registers do you maintain?

4. How many immunisation clinics were conducted in the centre in the past four months?

5. How many pregnant women had been detected and referred to the JPHN by you during the past four months.

6. Please furnish the number of contraceptive acceptors, promoted by you in the past four months.

7. How many cases of diarrhoea in children had been detected by you during the past four months?

8. How many cases of Acute Respiratory Infection in children were detected by you during the past four months?

   How many of them were referred to PHC /CHC?

9. How many blood smears were collected by you for 'Malaria Surveillance' during the past four months?

10. How many public health problems were handled by you during the past four months? What were they?

Questionnaire (Female worker - JPHN)

PANNIKODE SUB CENTRE OF CHERUVADI PHC

1. Please furnish the following details regarding the sub centre

   (a) Total Population

   Males ☐ Females ☐

   (b) Number of children under 5

2. Do you have an area map?

   (1. Yes 2. No 3. Don't know)

3. Is the "Peoples' committee" formed in the sub centre?

   (1. Yes 2. No 3. Don't know)

4. How many registers do you maintain?

5. (a) How many immunisation clinics were conducted in the centre in the past four months?

   (b) How many children under one year of age got fully immunised during the past four months?

   (c) How many of them were immunised from the sub centre?

6. How many antenatal cases had been registered in your sub centre clinic during the past four months period?

7. Please furnish the details of centraceptive methods promoted by you during the past four months.

8. How many mothers' meetings were arranged by you during the past four months?

9. How many patients with cough and other respiratory symptoms were referred by you to the PHC / CHC to rule out TB in the past four months?

10. How many group talks were organised by you during the past four months?

80

BIBLIOGRAPHY

Abel Smith.B (1972): ***Health priorities in developing countries: The economist's contribution***. International Journal of Health Services, vol.2, Number 1.

Abel smith, B (1976). ***Value for money in health services***. Heinemann, London.

Ainsworth M. (1983) ***The demand for health and schooling in Mali: Results of community and service provider survey.*** World Bank Discussion Paper - 7; Washington DC.World Bank.

Akin J.S, et al., (1985) ***The Demand for Primary Health Services in the Third world***, Rowman and Allanheld, NJ.

Amin R, Chowdhury SA, Kamal GM, Chowdhury J. (1989): ***Community health services and health care utilisation in rural Bangladesh***. Social Science and Medicine 29(12): 1343-9.

Anderson R, Newman JF (1973): ***Societal and individual determinants of health care utilisation in the US***. Milbank Memorial Fund Q.; 8: 132-142.

Annis S (1981). ***Physical access and utilization of health services in rural Guatemala***. Social Science and Medicine (15) D : 515 - 23.

Antia, N.H. (1981) : ***Health for all : A reaffirmation.*** Economic and Political Weekly, Vol. XVI, No. 33, August 15, pp. 1363 - 64

Banerji, D. (1977) ***Formulating an Alternative Rural Health Care System for India: Issues and Perspectives,*** in Naik, J.P. (ed): An Alternative System of Health Care Service in India: some proposals, Bombay, Allied publishers, pp. 31-47.

Banerji, D. (1973) : ***Health behaviour of rural population - Impact of rural health services***. Economic and Political Weekly, Dec. 22, pp. 2261-68.

Banerji, D. (1984) : ***Breakdown of Public Health System.*** Economic and Political Weekly, Vol. 19, Nos. 22-23, June, pp. 881-882.

Banerji, D (1985) ***Health and Family Planning Services in India***, Lok Paksh, New Delhi.

Benyoussef. A, Wessen A.F. (1994) ***Utilization of Health Serices in Developing Countries*** - Tunisia. Social Science and Medicine 8(5) : 287 - 304.

Berman P, Brotowasisto, Nadjib, Sakai S, Gani A (1989): ***The cost of Public primary health care services in rural Indonesia***, Bulletin of the World Health Organisation, 67(6) 685-694.

Berman, P. and Khan, M.E. (1993): ***Paying for India's Health Care***, Sage Publications, New Delhi.

Bhat R (1991). ***The private health care sector in India: Some policy concerns***. Research paper No.54. Takemi programme in International Health. Boston. Harvard School of Public Health.

Bhattacharyya. S.N. (1970): ***Community Development: An Analysis of the Programme in India***, Calcutta, Academic Publishers.

Borkar.G. (1961): ***Health in Independent India***, Revised Edition, New Delhi, Ministry of Health.

Bose, A. and P. B. Desai (ed.) (1983): ***Studies in Social Dynamics of Primary Health Care***, Delhi, Hindustan Publishing House.

Centre for Development Studies (1975): ***Poverty, Unemployment and Development Policy; A Case Study of Selected Issues with reference to Kerala,*** NewYork, United Nations.

Cortinovis, I., Vella, V., Ndiku., J (1993) ***Construction of socio - economic index to facilitate analysis of health data in developing countries***. Social Science and Medicine 36(8) : 1087 - 97.

Culyer, A., (1989) ***The Normative Economics of health care finance and provision,*** Oxford Review of Economic Policy, vol-5. no.1.

De ferranti, D (1985): ***Paying for Health Services in Developing Countries - An Overview***, World Bank Staff Working Papers, No. 721, The World Bank, Washington D.C.

Drummond, M.F (1980). ***Principles of economic appraisal in health care***. Oxford University Press.

Drummond, M.F, Stoddart GL, Torrance GW (1987). ***Methods for the economic evaluation of health care programmes***, Oxford: Oxford University Press.

Duggal R, Amin S. (1989) ***Cost of Health Care: A Household survey in an Indian Distric***t, F.R.C.H, Bombay, p. 25, 53, 82.

Dutton D (1986): ***Financial, Organisational and Professional factors affecting health care utilisation,*** Social Science and Medicine 23 (7): 721-35.

Dutt, P.R (1965) : ***Rural Health Services in India: Primary Health Centres***, 2nd Edition, New Delhi, Central Health Education Bureau.

Ellis, R.P, Maguire T.G (1993) : ***Supply side and demand side cost sharing in health care***. Journal of Economic Perspectives, 7; 135-151.

Feldstein, Paul J (1983): ***Health Care Economics***, New York, John Wiley and Sons.

Fiedler JL. (1981): ***A review of literature on access and utilisation of medical care with special emphasis on rural primary care***. Social Science and Medicine 15 (c): 129-42

George M.J. (1987) ***Report of the Health Services Research Project (HSR-IND - 001) on Status of Primary Health Care in Kerala***, India, Directorate of Health Services.

2h

Gilson L. (1988) ***Government health care charges: Is equity being abandoned?*** Evaluation and planning centre for Health care publication No.15. London : London School of Hygiene and Tropical Medicine.

Gilson L, Alilio M, Heggenhougen K (1994): ***Community satisfaction with primary health care services: an evaluation undertaken in the Morogoro region of Tanzania***. Social Science and Medicine 39 (6): 767-80

Green A (1987) ***The role of non - governmental organisations and the private sector in the provision of health care in developing countries***. International Journal of Health Planning and Management 2: 37-58.

Green, Andrew (1992): ***An Introduction to Health Planning in Developing Countries,*** Oxford, Oxford University Press.

Griffin CC, (1989) ***Strengthening health services in developing countries through the private sector***, International Finance Corporation Discussion paper No.4, World Bank, Washington DC.

Government of India: ***Health Survey and Development Committee (Bhore Committee), (1946)***: Report Delhi, Manager of Publications.

Government of India (1977): ***Health Care Services in Rural Areas: Revised Plan,*** New Delhi, Ministry of Health and Family Welfare.

Government of India: ***Health Statistics of India,*** Directorate General of Health Services, New Delhi, Various Issues.

Government of India (1992): ***Morbidity and Utilisation of Medical Services***, NSS 42nd round (1986-87), Sarvekshana, Vol. XV, No:4, New Delhi.

Government of Kerala (1987) ***Administration Report***, Department of Health Services, Trivandrum.

Government of Kerala (1989) ***Health Profile of Kerala.***

Heggenhougen H.K, (1979). ***Attitudes on health care of villagers attending a rural clinic in Malaysia.*** Medical Journal of Malaysia XXXIV (2) : 108 - 15.

Heller, P.S. (1982): ***A Model of the Demand for Medical and Health Services in Peninsular Malaysia***, Social Science and Medicine, Vol. 16. No. 3, pp: 267-284.

Homan R.K, Thankappan K.R: ***An examination of public and private sector health care providers in Thiruvananthapuram district***, Kerala, UNDP/GO1/ IDRC Research project, Centre for Development Studies, Thiruvananthapuram.

Indian Council of Medical Research and Indian Council of Social Science Research (1976): ***Alternative Approaches to Health Care:*** Report of a Symposium, October 27-30, 1976, New Delhi, ICMR.

Indian Council of Social Science Research and Indian Council Medical Research (1981): ***Health for All: An Alternative strategy*** - Report of a study Group set up jointly by ICSSR and ICMR, Pune, Indian Institute of Education.

Jelly, D. and Madly, R.J. (1984): ***Primary Health Care in Practice : A Study in Mozambique***, Social Science and Medicine, Vol. 19, No. 8, pp. 773-81.

Kabir, M. and Krishnan, T.N (1992), ***Social Intermediation and Health Transmission: Lessons from Kerala***, Working paper No: 251. Centre for Development Studies, Trivandrum.

Kannan, K.P. et al (1991) , ***Health and Development in Rural Kerala,*** Kerala Sastra Sahitya Parishad.

Kannan, K.P., et al (1991) ***Health status in Rural Kerala - A study of the Linkages between socio economic status and Health status,*** Integrated Rural Training Center, Kerala Sastra Sahitya Parishad.

Kekki P. (1980) ***Analysis of relationship between the availability of resources and the use of health services in Finland.*** Medical Care ; 1228-1240.

Krishnan TN (1985) ***Health Statistics in Kerala State,*** India in Halstead et al: (ed) Good Health at Low Cost, The Rockfeller Foundation, New York.

Kroeger A. (1983): ***Anthropological and socio medical health care research in developing countries.*** Social Science and Medicine 17 (3): 147-61.

Lee, K (1982). ***Public expenditure, health services and health.*** In public expenditure and social policy (ed. A. walker) pp. 73-90, Heinemann, London.

Ludbrook, A., Lowson, K.V., Steele, A (1986) ***Studies in appraisal in health care:*** Vol.2, Oxford University Press.

Luce, B.R (1982). ***Cost-benefit and cost-effectiveness in health care: principles, practice and potential.*** Health Administration Press, Ann Arbor, Michigan.

Moni Nag (1983): ***Impact of Social and economic development on mortality, Comparative Study of Kerala and West Bengal***, Economic and Political Weekly, Annual Number.

Mooney, G.H., Russell, E M., and Weir, R.D (1979) ***Choices for health care.*** Macmillan, London.

Mushkin, S.J. (1973): ***Health as Investment***, in Cooper, M.H. and A.J. Culyer (ed.): Health Economics, Middlesex, Penguin Books, pp. 93-134.

Mc Pake B. (1993) ***User charges for health services in developing countries: a review of the economic literature.*** Social Science and Medicine 36(11): 1397-405

Naik, J. P (1977): ***An Alternative System of Health Care Services in India: Some Proposals,*** Bombay, Allied publisher.

National Institute of Health and Family Welfare (1978): ***Training Capabilities of Primary Health Centres in India,*** New Delhi, (NIHFW Technical Report Series No.1)

National Planning Committee, Sub-committee on National Health (1948): Report *(Sokhey Committee Report),* Ed. by K.T.Shah, Bombay, Vora

Nichter M (1980): ***Health expenditure report*** USAID (Mimeo), New Delhi.

Olson M ed (1981): ***A New approach to the economics of health care,*** American Economical Enterprise Institute for Public Policy Research, Washington.

Panikar, P.G.K. (1979): ***Resources not the Constraint on Health Improvement: A case study of Kerala,*** Economic and Political Weekly, Vol. 14, pp. 1803-09.

Panikar P.G.K. and Soman C.R (1984): ***Health Status of Kerala***, Centre for Development Studies, Trivandrum.

Pascoe GC (1983). ***Patient satisfaction in primary health care: a literature review and analysis.*** Evaluation and program planning 6: 185-210.

Prescott, Nicholas and Jeremy Warford (1983): ***Economic Appraisal in the Health Sector*** in Lee, Kenneth and Anne Mills ed. Oxford, Oxford University Press.

Qadeer, I (1985) : ***Social Dynamics of Health Care : The Community Health Workers Schemes in Shahdol District,*** Socialist Health Review, Vol. II, No:2, pp. 74-83

Raman Kutty, V(1987) ***Socio-economic factors in Child Health Status: a Kerala Village study.*** Unpublished M Phil dissertation, Centre for Development Studies, Trivandrum.

Raman Kutty, V (1989) ***Women's education and its influence on attitudes to aspects of child care in a village community in Kerala.*** Social Science and Medicine : 29, 11

Roemer MI (1991). **National Health system of the world.** Volume 1: The Countries. New york: Oxford University Press.

Roemer M1, Roemer JE (1982). ***The social consequences of free trade in health care: a public health response to orthodox economics.*** International Journal of Health sciences 12 (1):111-29.

Ron, A., Abel - Smith B, Tamburi G (1991) ***Health insurance in developing countries : the social security approach.*** Geneva : International Labour Office.

Satia JK et al. (1987) ***Study of health care financing in India.*** Indian Institute of Management, Ahmedabad.

Scot, B, Halstead, Julia, A, Kenneth. S, Waren (1985) ***Good Health at Low Cost,*** conference report, the Rockfeller Foundation, New York.

Sidel, V.W. and R. Sidal (1975): ***The Health Care Delivery System of the People's Republic of China***, pp. 1-13 in Newell, K.W. (ed.): Health by the People, Geneva, World Health Organisation.

Seggal MM, (1983). ***Planning and politics of Resource Allocation for Primary Health Care: Promotion of meaningful National policy;*** Social Science and Medicine, vol-17, No 24, 1947-60.

Srikantan, K. and G.E Rupert Samnel (1981): ***Communication System between District Health Office and Primary Health Centre,*** Health and Population: Perspectives and Issues, Vol. 4, No. 1, pp. 66-78.

Sein UK, Tun UB, Sein UTT et al. (1983) ***Utilisation of Rural Health Centres in Burma,*** Rangoon.

Talwar, P.P. Sharma G.D. (1980) ***Some determinants of effectiveness of sub-centre services in Uttar Pradesh,*** Lucknow, India, Population Centre, India Population Project.

Thankappan, K.R Ramankutty, V (1990) ***Immunisation coverage in Kerala and the role of the Integrated Child Develoment services programme,*** Health Policy and Planning ,5,3.

William C. Hsiao: (1995) ***Abnormal economics in the health sector,*** Health policy 32: 125-139.

Wibulpol praset S (1991): ***Health status, health policy objectives, health services infrastructure and utilisation in Thailand.*** Unpublished report.

31

World Health Organisation (1983) : ***Report of the Expert Committee on New Approaches to Health Education in Primary Health Care***, Geneva, October 12-18. Geneva, World Health Organisation (WHO Technical Report Series No. 690)

World Health Organisation (1975). ***Health Economics,*** publ. Health pap. WHO 64.

World Health Organisation (1978): ***Primary Health Care: Report of the International Conference on Primary Health Care***, Alma Ata, USSR, September 6-12, Geneva, World Health Organisation.

Whaley, R.F. and Hashim T.J. ***A Text Book of World Health - A Practical guide to global health care.*** The Parthenon Publishing group, London pp. 46-47.

Yoder R.A (1989): ***Are people willing and able to pay for health services?*** Social Science and Medicine vol. 29, No.1 (pp. 35-42). Oxford.

Zachariah K C and Patel Sulekha (1982): ***Trends and determinants of infant and child mortality in Kerala,*** World Bank, Washington.

NBH305