

PRC Report Series 2018 – 2

Utilization of Health Services of Urban Primary Health Centres in Kerala

Dr. Sajini B Nair

Dr. Rajesh J Nair

Anilkumar K

Population Research Centre

Sponsored by

Ministry of Health and Family Welfare

Government of India

University of Kerala

Thiruvananthapuram

2018

CONTENTS

Foreword	i
List of Tables	ii
List of figures	iii
Executive summary	iv
1 Introduction	1
2 Objectives	6
3 Data and methodology	6
4 Findings and Discussion	8
4.1 Urban Primary Health Centres in Kerala	13
4.2 Functioning of UPHCs: Provider Perspective	35
4.3 Patient Satisfaction	48
5 Conclusion	61
References	66

Foreword

Urban Primary Health Centres were established under the National Urban Mission to cater to the needs of the urban poor population in India. Kerala implemented this initiative in the year 2014. UPHCs were placed in accordance with the urban population proportion in each district. Today, Kerala has 83 UPHCs distributed over all 14 districts. Changes have been made in service provision based on the needs of the population. The authors here attempts to document the level of utilization of services of UPHCs in the State, captures the successful implementation strategies and identifies the gaps in service delivery both in the provider and beneficiary perspective. The authors place on record sincere gratitude to the Secretary, Health and Family Welfare, Government of Kerala for permitting to carry out the study, State Programme Manager, NUHM, State Coordinator, NUHM and the team of Officers (UPHCs) for providing necessary support for carrying out the study. Sincere thanks are due all Medical Officers, JPHNs, and Staff of UPHCs in Thiruvananthapuram, Ernakulam and Kozhikode districts for cooperating with us and extending support in the successful completion of the study. Data analysis and report has been prepared by Dr. Sajini B Nair and Dr. Rajesh J Nair. The challenging task of collecting information needed for the study from selected UPHCs and beneficiaries from all the three districts and data processing was done by all the three Authors.

I appreciate the authors of the study Dr. Sajini B Nair, Social Scientist, and Dr. Rajesh J Nair, Field Investigator and Mr. Anilkumar K, Research Investigator of the PRC in successfully completing the study. The findings will definitely be of great use to Planners and Policy makers in understanding the performance of Urban Primary Health Centres in Kerala and frame strategies for the best utilization of services.

Kariavattom
March 2018

Dr. P Mohanachandran Nair
Director-in charge

LIST OF TABLES

Table No.		Page No.
1	Details of study area: Selected UPHCs in Kerala	7
2	Trends in urbanization, India and Kerala 1901-2011	8
3	District wise Urban Population distribution to total population, Kerala 2011	9
4	Number of Statutory Towns and slum reported towns, RGI 2011	10
5	District wise distribution of slum population in Kerala, 2011	11
6	Housing conditions and facilities in slums, RGI 2011	12
7	Number of UPHCs established in Kerala since 2013-14	13
8	Distribution of UPHCs in Kerala	15
9	Status of availability of facilities in UPHCs Kerala	16
10	Availability of human resources in the UPHCs in Kerala, (as on June 2017)	18
11	Service Utilization of UPHCs based on Total OP during 2016-18 period, Kerala	22
12	Services (New OP) provided in the UPHCs during 2016-18 period, Kerala	24
13	Services (Old OP) provided in the UPHCs during 2016-18 period, Kerala	25
14	NCD Services provided in the UPHCs during 2016-18 period, Kerala	26
15	Services provided in the UPHCs during 2016-18 period, Kerala	31
16	Number of UPHCs providing additional Services, Kerala 2016-18	34
17	Performance of selected UPHCs Kozhikode, 2016-18	36
18	Performance of selected UPHCs, Thiruvananthapuram, 2016-18	38
19	Performance of selected UPHCs, Ernakulam, 2016-18	40
20	Mean Population covered by JPHN and the general characteristics of the population served	42

21	Work experience of JPHNs in UPHC	43
22	Utilization and awareness of the UPHC by the community as per the JPHN	44
23	Reasons for non-utilization of UPHC services	45
24	District wise community level activities carried out by selected UPHC	47
25	Opinion of JPHN about increase in the utilization of UPHC services through outreach activities	48
26	Background Characteristics of selected UPHCs in Kerala	49
27	Percentage distribution of respondents by their background characteristics	51
28	Awareness about UPHCs and Utilization of Services.	52
29	Percentage distribution of respondents utilizing UPHC services by type of illness	53
30	Satisfaction with services available in UPHC	53
31	Reason for Dissatisfaction on services	54
32	Percentage distribution of respondents by service expected from UPHCs	55
33	Overall rating of satisfaction by background characteristics of beneficiaries and UPHCs	58
34	Multivariate Regression analysis showing the odds of Satisfaction of Beneficiaries on UPHC services	60

LIST OF FIGURES

Figure No.		Page No.
1	Utilization of UPHC services	20
2	District wise monthly average total OP in UPHCs	23
3	District wise monthly average new OP per UPHCs	24
4	District wise monthly average old OP in UPHCs	25
5	District wise monthly average NCD attendance in UPHCs	27
6	District wise percentage change in average NCD attendance in UPHCs	28
7	Monthly Average Services rendered per UPHC, 2016-18, Kerala	32
8	Overall rating of satisfaction levels of Beneficiaries on UPHC services	57

Executive Summary

Kerala has recorded the highest increase in urban growth rate for any state in India during 2001-11 which has thrown open heavier challenges to the health system in catering to the health care needs of the population. The urban poor in the State face challenges like rising incidence of Non Communicable Diseases, social exclusion, lack of information and assistance, ineffective outreach, lack of standards and norms for urban health care delivery system and very expensive private health care facilities. Urban Primary Health Centres under the National Urban Health Mission were established to cater to the health needs of the urban poor. Here the study attempts to understand the utilization of health care services of Urban Primary Health Centres in Kerala based on the quantum of services provided as evident from NUHM Official Statistics and the functioning of the UPHCs in the Health care Provider's perspective and assess the beneficiary satisfaction in health care services rendered. Four UPHCs each with atleast one UPHC each located in slum, urban rich and coastal area from three districts Kozhikode, Thiruvananthapuram and Ernakulam based on location of UPHCs, the hierarchy in establishment and the terrain.

An appraisal of the slum population and their living conditions reveal the need for health care facilities. Thrissur district with 4 UPHCs fall short of catering to the needs of the slum population as it has the maximum slum population and also has equivalent urban proportion as Ernakulam and Thiruvananthapuram districts. The total OPD attendance shows that over 1.6 million people used the services of the UPHC in the State in 2016-17 which is roughly 31 percent of the population (2011) where the UPHCs are placed (considering the limitation of the study in using Census 2011 population as base population). A definite upward trend in utilization is observed from the data available for the period April-January 2017-18 period. Utilization of UPHC services increased from 314 per 1000 population to 396 per 100 population from 2016-17 to 2017-18. Wayanad district with just one UPHC appear on top with regard to utilization of services here. Over 3 lakhs persons are screened every year in the UPHCs of the State for NCDs. Since all the services are provided free of cost people utilize this service well. Thrissur district shows the highest utilization of NCD services among the district. Urban population in Kannur and Idukki also appear on top in the list of districts where NCD attendance is higher.

Inorder to render uninterrupted service to the people the need for eliminating manpower shortage has to be prioritized. The lack of stability in postings of Medical Officers as evident from the lesser experience in the selected UPHCs, the larger population covered by the JPHNs and lack of Lab Technicians are issues to be tackled.

An assessment in the provider perspective reveals that, among the different reasons for the lesser utilization of the centres, location of the UPHC is pointed by majority of the JPHNs. Re-location for giving better service to the urban poor could be attempted so that people in each ward may approach the nearby centers. Beneficiary level satisfaction of services reveal that more than 90 percent of the patients are satisfied on OPD services which includes timing of OP, time spent by doctor, treatment received for their illness etc.

Infrastructure facilities and service of Staff are also good as assessed from satisfaction levels. One in four patients have expressed their dissatisfaction at availability of diagnostic facility. Labs have become non functional either due to absence of lab technician, or power supply problems like lack of insulation or lack of infrastructure facilities including space. Only one in 10 are dissatisfied with availability of medicines which were mostly the NCD drugs which are in great demands and lack of supply of these drugs at times. Overall the performance of UPHCs are reflected in the satisfaction level of patients in all the three districts.

Out of the three districts selected, Ernakulam district is better off in functioning of UPHCs as only a few patients suggested improvement in facilities. The need for Family Planning services from UPHCs have been reported by a substantial proportion of the beneficiaries. The study findings portray the good utilization of UPHCs in Kerala. Elderly population heavily depends on these centres to avoid long queues in the referral hospitals or the higher costs in the private sector. More stress to pediatric care could perhaps attract treatment of children at these centres. There is good NCD attendance in the UPHCs in the State due to the higher incidence of hypertension and diabetes. Medicine distribution for NCDs are on great demand and supplies need to balance the demand. UPHCs in Ernakulam district set an example with additional facilities like ECG, Palliative care and Mental health care which raised the satisfaction levels of beneficiaries compared to the other districts under study. Such facilities could be extended to all UPHCs. Every successful health programme are the result of commitment of the health care providers. Their demands for better remuneration and better facilities need attention. On the beneficiary side, the higher expenditure incurred for treatment in the private sector often tempts the urban poor to the utilize the UPHC services. So facility level preparedness is a key aspect and has to be carefully demand oriented. We found great demand for services especially among the aged urban poor who mostly struggle to manage their health problems. The UPHCs in the State form a good platform for such demands.

Utilization of Health Care Services in Urban Primary Health Centres in Kerala

1. Introduction

Rapid urbanization has been taking place in India. Wide regional disparities in urban growth also exist extending from the Northern region of India to the Southern region. The National Capital Territory of Delhi is the most urbanized State in India with 97.5 percent urban population. The Union territory of Chandigarh with 97.25 percent urban population is not far behind. Parallel to this a notable instance of rapid urbanization has happened in Kerala where the urban population grew from 25.9 percent in 2001 to 47.7 per cent which is the highest growth for any State. Tamil Nadu however continues to be the most urbanized State among the major States with 48.4 percent urban population. Kerala overtook Maharashtra (45.2 percent) in 2011 in terms of the urban percentage to total population. However, being a larger State, in terms of absolute number of persons, Maharashtra continues to lead with 50.8 million persons. Uttar Pradesh follows with 44.4 million, followed by Tamil Nadu at 34.9 million. With regard to numbers, India's urban population grew from 25.8 million in 1901 to 285.4 million in 2001 an increase of more than ten times. India's urban population is about 377 million in 2011 (Registrar General of India, 2011). The share of India's population living in urban areas increased from 27.81 percent to 31.16 percent in the 2001-2011 intercensal period.

Urbanization is undoubtedly an indicator of development. Growth of commercial activities inflated the Indian economy resulting in increased resource utilization, efficient services on the one end and social and cultural integration on the other end. As the urban growth continued, there was increased competition for development which strained the resource availability. This triggered negative effects. Increased urban density resulted in unemployment and proliferation of slums leading to adverse health outcomes. In India, the latest statistics show that around 65 million people live in slums (Registrar General of India, 2011). This has been an increase from 52 million in 2001. The number of slum households in Notified Slums is 49.65 lakh, in 'recognized

Slums' it is 37.96 lakhs and in 'identified Slums' it is 49.88 lakhs adding to 137.49 lakh HHs. With over 11 million of its residents in slums, Maharashtra has the highest slum population; 4.6 million of them in 'identified' slums. Andhra Pradesh follows with over 10 million in slums, and West Bengal and Uttar Pradesh have over 6 million slum residents each. Over 1 million of Delhi's 1.7 million slum residents live in 'identified' slums. If the proportion of slum households in the different states are analysed, Andhra Pradesh tops the list with 35.7 percent of the urban HHs being slum HHs. In Chhattisgarh percentage of the slum HHs to urban HHs is 31.9 percent followed by Madhya Pradesh with 28.3 percent. At the bottom end of the list of major state in this regard is Kerala where 1.5 percent of urban HHs are slum HHs. In Assam this percentage is 4.8. States/Union territories not reporting Slums, Census 2001 are Himachal Pradesh, Sikkim, Arunachal Pradesh, Nagaland, Mizoram, Manipur, Daman and Diu, Dadra and Nagar Haveli and Lakshadweep. But in 2011 only Manipur, Daman and Diu, Dadra and Nagar Haveli and Lakshadweep have not reported any slums.

Studies have invariably shown that life in slums is associated with increased vulnerability to disease (Smith et al. 2003). Risk of respiratory diseases, asthma, tuberculosis and other infectious diseases has been related to high population density (Marsh et al. 2000; Harpham 2009: 109). Slums are characterized by deep poverty which is often a result of unrealistic and inadequate urban planning. Poverty influences people's health status as less income is related to less access to basic health-related goods and services (Alsan et al. 2008). Basic service provisions are either absent or inadequate in slums. Lack of drinking water, clean, sanitary environment and adequate housing and garbage disposal pose series of threats to the health of slum dwellers, women and children. Subramanian et al. (2003) showed that not only absolute income, but also the extent of income inequality within a neighbourhood, had an impact on health status. Pande (2005) pointed out 5 broad classifications of proximate causes of ill health in urban slums. They were lack of adequate basic services – clean toilets/bathing units/garbage disposal/drinking water; lack of information - about proper state owned and managed medical benefits; mistreatment and bad behaviour - at government hospitals that result in a higher number of home-births or that which compel the poor to

avail private treatment alternatives; inadequate food intake and low levels of nutrition that weakens the immune system thereby making the body prone to infections and lack of financial resources to ensure sustained medical attention for skin disorder or joint pains.

Yet another persistent problem in the slums has been the low utilization of health services. Utilization of healthcare services is poor in urban slums even though physical accessibility is present. Social and cultural barriers are more common in slums where healthcare services are not reachable. Home deliveries and unsafe deliveries are still widely prevalent in slums. Skilled birth attendants are not reaching to those who need them the most. Accessibility to healthcare services of slum population must be taken into account in the district health planning process (Pahwa and Sood, 2013). Gupta and Guin 2015 hold that urban slums are under-served by government facilities, with private providers and facilities scoring high on perceptions about quality

The Planning Commission of India in 2008 in their Eleventh Plan document has recognized that there has been an increase in the number of urban poor, and that the civic authorities have a daunting task in responding to their health and infrastructural needs. Despite the presence of Government hospitals and other health care facilities in the urban areas, the slum dwellers have limited access to these facilities. Gupta and Mondal (2014) observed that the initiatives to address urban health concerns have been limited and fragmented in the country, and the Government has no proper implementation plans for the urban health and lack of evidence-based policies continues to be a main feature of urban health. But now the specific focus under the National Urban Health Mission (NUHM) is already in place in the urban areas envisaging improvement in the health status of the urban population in general, particularly the poor and other disadvantaged sections. The establishment of the Urban Primary Health Centers has been the initial step to provide primary health care. Urban primary health care is actually centered around the principles of equity, responsiveness, efficiency and effectiveness. Health care is delivered through U-PHC which besides providing Primary

Care at the facility, would also provide care to the people at their door-step through outreach services.

The functions of Urban Primary Health Centres are:

1. To provide comprehensive primary health care to the community through the Urban Primary Health Centre and ensuring fulfilment of service guarantees and client satisfaction
2. To achieve and maintain an acceptable standard of quality of care through optimal utilization of resources
3. Involvement of the community in its management, so that the services are more responsive and sensitive to the needs of the community and right of every individual to access care in a facility with dignity
4. Increased utilization of services leading to positive health outcomes
5. Providing integrated reproductive, maternal, newborn, child & adolescent (RMNCH+A) health services and other services under national health Programmes in accordance with protocols with required competency
6. Establishing assured referral linkages
7. Monitoring quality of service delivery and establishing a process for improvement of quality
8. Creating conducive work environment for the staff
9. Training the service providers for necessary behavioural and technical skills

Principles –

1. Services should be available in the proximity of target population
2. Focus on the preventive and promotive care besides delivery of committed services under National Health Programme.
3. Services are designed keeping the interest of poorest and marginalised section of the urban population
4. Outreach services are integral part of the Urban Primary Health System
5. Minimizing cost of care and out of pocket expenditure
6. First port of care at U-PHC is expected to perform ‘Gate-keeping’ function in term of curative services at District and Medical College Hospitals, which are already over-burdened.

7. Continuous learning organization with skill building and upgradation.

8. Continual improvement and client focus

UPHC are placed for every 50,000 – 60,000 population. There are no beds as inpatient facility is not aimed to be provided, the location ought to preferably be within a slum or near a slum within half a kilometer radius, catering to a slum population of approximately 25,000 – 30,000. OPD services are provided as prescribed under RCH II National Health Programmes Referral Services. Basic laboratory services are provided. Outreach Services is the responsibility of the ANM. Through outreach activities preventive and promotive healthcare services are rendered at the household level through regular visits & outreach sessions. The frequency of outreach activities is set at a minimum of one routine outreach session in every area per month and special outreach sessions (for slum and vulnerable population) once in a week by the ANMs covering slum/ vulnerable populations in partnership with other health professionals (doctors/ pharmacist/technicians/nurses; government or private). It will include screening and follow-up, basic lab investigations (using potable/disposable kits), drug dispensing and counseling.

Land & building for UPHC and other such infrastructure would be given free of cost by the State Government. However, often land/ rented building near slum & vulnerable inhabitation is not easily available. The option of co-locating the AYUSH Centre with U-PHC wherever possible is explored.

The Manpower requirements include:

Medical Officer – 1 I/C , Medical Officer – 1 part time, Staff Nurse – 3, LHV – 1, Pharmacist – 1, Lab Technician – 1, ANM – 3-5, Public Health Manager/ Mobilization Officer -1, Support Staff – 3, M & E Unit – 1

Why Kerala?

Among the major States in India, Kerala has always occupied a unique position in many development indicators. Urbanization in Kerala is not limited to the designated cities and towns. The absence of a distinctive rural-urban demarcation unlike other Indian States has always been a unique feature noticeable only in Kerala. Except for the few larger cities, a more or less urban rural continuum can be seen. But a quantum jump in

the urban population proportion of about 90 percent during 2001-11 in Kerala which is the largest for any state has been a surprising phenomenon. This has thrown open heavier challenges to the health system in catering to the health care needs of the population.

The urban poor in the State face challenges like rising incidence of Non Communicable Diseases, social exclusion, lack of information and assistance, ineffective outreach, lack of standards and norms for urban health care delivery system and very expensive private health care facilities. So following the Government of India's thrust on improving urban health during the 12th five year plan, Kerala too embarked upon setting up of Urban Primary Health Centres under the National Urban Health.

Given the specific guidelines to be followed in the implementation of UPHCs in India under the NUHM, an understanding of the situation of preventive and promotive care provided in the UPHCs in the State of Kerala is the subject of study here.

2. Objectives

The main objectives of the study are:

- To understand the utilization of health care services of Urban Primary Health Centres in Kerala based on the quantum of services provided as evident from NUHM Official Statistics
- To understand the functioning of the UPHCs in the Health care Provider's perspective and assess the beneficiary satisfaction in health care services rendered.

3. Data and Method

Kerala has established 83 UPHCs spread over 14 districts. Following the criteria of one UPHC for every 50000-60000 population Ernakulam and Thiruvananthapuram districts have the highest number of UPHCs and Wayanad has the least number. Three districts are selected: Kozhikode, Thiruvananthapuram and Ernakulam in consultation with the State NUHM after a brief review of the location of UPHCs, the hierarchy in establishment of the UPHCs and the terrain. The selected UPHCs in the three districts of Kozhikode, Thiruvananthapuram and Ernakulam cater to very large population. So

Ernakulam and Thiruvananthapuram with higher urban population proportion and maximum number of UPHCs and Kozhikode district with 10 UPHCs formed the primary sampled area. Four UPHCs each from these districts with atleast one UPHC each located in slum, urban rich and coastal area formed the secondary sampling unit.

Table 1: Details of study area: Selected UPHCs in Kerala

District	Coastal	Urban Rich	Slum
Kozhikode	Payyanakkal Kunduparamba (<i>partial</i>)	Ponnamkode	Veliyancheripadam Kunduparamba (<i>partial</i>)
Thiruvananthapuram	Vettukad	Nanthencode	Rajaji Nagar, Chalai
Ernakulam	Mangattumukku Pandikudy	Kadavanthara (<i>Partial</i>)	Kadavanthara (<i>partial</i>) Kaloor

Payyanackal UPHC in Kozhikode has the typical characterization of a coastal centre. Kunduparamba is also situated nearby coastal area. Veliyancheripadam centre is located within the slum and Ponnamkode is a hilltop centre which serves the urban rich. The selected UPHCs in Thiruvananthapuram district are Vettukad, a coastal one, Nanthencode located among the urban rich area and Rajaji Nagar within a slum, typical to what the programme defines. Chalai UPHC is located in an area which engulfs a slum and also typical traditional Kerala middle class colonies in the vicinity of a huge market. In Ernakulam district two of the selected centers are littoral namely Mangattumukku and Pandikudy. Both Kadavanthara and Kaloor are situated nearby slums. Half the catchment population of Kadavanthara is urban rich. An additional UPHC was included in the realm of provider perspective which is Munderi, the lone urban centre in Wayanad. It has all the features of a private clinic with all facilities. MOs and JPHNs of the selected UPHCs were included in the sample population for assessing the provider perspective. So the sample includes 12 MOs of the UPHCs and 50 JPHNs from these 12 UPHCs. Every UPHC has 4-5 or in some cases more JPHNs depending on the population of the area. The third level of study group was the beneficiaries who visited these UPHCs for health care. One of the main health problems typical to Kerala is the rising incidence of NCDs. The health System in the State has been quite in responding to the needs of the urban population by fixing one day weekly

for NCD screening. So for capturing the beneficiary perspective, one OP day and one NCD day was fixed for interview in each UPHC. Such an approach helped us capture information from 1157 beneficiaries.

4. Findings and Discussion

Before assessing the implementation status of UPHCs under NUHM in Kerala, a clear understanding of the urban scenario in Kerala is attempted here.

Urban Scenario in Kerala

The State of Kerala has recorded the highest increase in urban growth rate for any state in India during 2001-11. If the trend in urban population growth rate is examined, one can find that since 1901, there has been a steady increase in urban population percentage to total population in Kerala

Table 2: Trends in urbanization, India and Kerala 1901-2011

Year	Percent Urban	
	India	Kerala
1901	10.8	7.1
1911	10.3	7.3
1921	11.2	8.7
1931	12.0	9.6
1941	13.9	10.8
1951	17.3	13.5
1961	18.0	15.1
1971	18.2	16.2
1981	23.3	18.7
1991	25.7	26.4
2001	27.8	25.9
2011	31.2	47.7

Kerala was just around 14 percent urbanized at the time of formation as a State. During a gap of forty years, i.e in 1991, Kerala (26.4 percent) overtook the National average of 25.7 percent. In 2001 the growth in urban population was below the India rate but a sharp jump occurred in 2011. This growth has mostly been the result of growth in number of towns. Class I Census Towns with a population of 100000 and above

increased from 2 in 1941 to 10 in 2001. The number of Municipalities grew from 27 in 1961 to 54 in 2011. A steady increase in Class II towns occurred finally numbering to 29 by 2011. The total number of Class III towns in 2011 is 254 which is again an unprecedented big increase of almost two and a half times that from 2001. Similar trend is observed in the case of Class IV towns (population 10000 – 19999) also. There has been an increase in Class V towns (population 5000 – 9999) also during 2001-11 period from 15 to 61. The number of Class VI towns (less than 5000 population) increased from one to eight during 2001-11. So we find that the Class I and Class II towns of Kerala show a decline in population growth whereas Class III towns that border the Class I and Class II towns are growing. Majority of the urban population in Kerala is concentrated in Class I towns. The higher order towns of Kerala are seen to be growing by amalgamating surrounding areas showing the spreading nature in urbanization.

A district wise analysis shows that Kannur district has remained the most urbanized district during two census decades 1991 (50.8 percent) and 2001 (50.35 percent) closely followed by Ernakulam (around 48 percent) although in terms of sheer numbers, Ernakulam district tops the list of states with highest urban population.

Table 3: District wise Urban Population distribution to total population, Kerala 2011

District	Percentage Urban
	2011
Kerala	47.70
Kasaragod	38.94
Kannur	65.04
Wayanad	3.86
Kozhikode	67.15
Malappuram	44.18
Palakkad	24.09
Thrissur	67.17
Ernakulam	68.07
Idukki	4.69
Kottayam	28.63
Alappuzha	53.96
Pathanamthitta	10.99
Kollam	45.05
Thiruvananthapuram	53.66

In 2011, Ernakulam district achieved the status of being the most urbanized district in Kerala (68 percent) pushing Kannur to 4th place (65.04 percent) after Thrissur (67.17 percent) and Kozhikode (67.15 percent). Ernakulam district has the highest number of Statutory towns (9), Kannur and Thrissur follows the list with 7 Statutory towns each. There has been no increase in the number of statutory towns in any of the districts during 2001-11. Wayanad remains the least urbanized district with the urban population percentage to total population hovering around just 4 percent during 1911 to 2011. Idukki is second in this category with around 5 percent of its population urban. Apart from Idukki and Wayanad, Pathanamthitta is another district where urban proportion has decreased during the 1991-2011 period. From 13 percent in 1991, the percentage of urban population decreased to 10 percent in 2001 and showed a marginal increase to 11 percent in 2011. The fourth district in the bottom five district list is Kottayam. The urban proportion decreased from 17.6percent in 1991 to 15.4 percent in 2001 and later almost doubled in the 2001-11 period to reach 28.6 percent.

One adverse consequence of rapid urbanization or rather what is called over-urbanization in the proliferation of slums. Out of the 59 statutory towns reported in Kerala in 2011, 19 towns have reported existence of slums which means 32.2 percent of the towns in Kerala have slums. There are 45417 households and the total slum population is over 2 lakhs in the State.

Table 4: Number of Statutory Towns and slum reported towns, RGI 2011

	Statutory Towns	Slum reported towns	% slum reporting towns to total statutory towns
KERALA	59	19	32.2

The challenge here is to sort out ways to cater to the needs of this slum population. Urban areas in Kerala have no shortage of private hospitals and clinics. But they are seldom used by the urban poor as meeting the high expenses is out of question for the

slum dwellers. To understand the gravity of the problem of distribution of slums we now look at the district wise distribution of urban population in the State.

Table 5: District wise distribution of slum population in Kerala, 2011

	No. of Households	Total Slum Population	Males	Females
Kasaragod	1101	6321	3048	3273
Kannur	278	1501	718	783
Kozhikode	9511	53448	25530	27918
Palakkad	3404	15238	7419	7819
Thrissur	20166	82082	39588	42494
Ernakulam	2332	8120	4110	4010
Alappuzha	2380	10104	4814	5290
Kollam	2991	12640	6149	6491
Thiruvananthapuram	3254	12594	6053	6541
Kerala	45417	202048	97429	104619

There has been an increase in population of slums during the period 2001-11. The slum population increased by 1.27 lakhs. Yet another problem that needs focus is the quality of life of the urban poor who live in these slums. Any attempt to improve the health situation has to consider the living conditions. What pulls down the slum population from the rest of the urban population is the lack of basic amenities and proper housing. Table 6 draws inference on this important aspect that needs consideration in any attempt to address the health situation.

Almost 30 percent of the slum population does not have access to safe drinking water, and over one third of the slum households have poor sanitary conditions like improper drainage facility. The housing characteristics, availability of basic amenities and the assets speak of the living conditions of people in the society. Nearly 6 percent of the slum households have houses in dilapidated condition, 14.2 percent of the houses with roofs made of temporary material. The proportion of houses with walls made of temporary materials is 57.2 percent. About 12 percent of the slum households have

floor made of temporary materials. Also 3.6 percent of the households do not have access to electricity.

Table 6: Housing conditions and facilities in slums, RGI 2011

Housing condition	Percent	Availability of facilities	Percent
Dilapidated Houses	5.6	Without Safe Drinking Water	30.4
Roofs made of Temporary materials	14.2	Without Bathing facility	9.8
Walls made of Temporary materials	57.2	Without drainage system	37.6
Floor made of Temporary materials	11.6	Poor or No Latrine facility	9.1
Not having electricity	3.6	Without any Assets*	4.7

* Assets here includes Radio/transistor, Television, Telephone/mobile phone, Bicycle, Scooter/Motorcycle/Moped, Car/Jeep/Van

Based on the data available from the Census reports some indicators that reflect the health and hygienic aspects of the slums are picked out and analyzed. Good hygiene needs to be maintained to build up individual and environmental health so that diseases do not spread. As per UN/WHO, the types of water supply for drinking that are considered as safe for drinking are: piped water into dwelling, public tap; bore/tube well; protected well; protected spring; rainwater collection and bottled water.

Overall 30.4 percent of the slum households in Kerala do not have access to safe drinking water. The slum HHs without bathing facility within the premises is considered here for indication the HHs without bathing facility which is 9.8 percent in Kerala. The slum HHs without drainage facility within the premises is considered here for indication the HHs without drainage facility. Nearly two in five slum HHs in Kerala do not have drainage system to wash away the waste water. The HHs in the slum settlements that use report using open pit without slab, open drain, night soil removed by human, night soil removed by animals and no latrine facility within premises are considered as having no latrine facility. In Kerala, among the slum population, 9.1 percent of the slum HHs does not have proper latrine facilities. The Census data on

slums have collected general economic condition of slum HHs in the form of possession of assets. Assets here include Radio/transistor, Television, Telephone/mobile phone, Bicycle, Scooter/Motorcycle/Moped, Car/Jeep/Van. Deprivation of any asset is 4.7 percent I Kerala.

4.1 Urban Primary Health Centres in Kerala

With rapid urbanization in Kerala, the lack of basic amenities such as safe water and sanitation, socio-economic issues, influx of migrant labourers, under conditions of high density of population are identified to be the key issues creating health issues in urban areas. The presence of an estimated 25 lakh migrant workers across major cities in the State has been fueling the spread of communicable diseases and emergence of new diseases. So the implementation of the Urban Primary Health Centres to address the problems of the urban poor was a much awaited step. The first phase of NUHM in Kerala was implemented in February 2014.

Table 7: Number of UPHCs established in Kerala since 2013-14

Districts	No of UPHCs Functional			
	2013-14	2014-15	2015-16	2016-17
Thiruvananthapuram	2	11	2	0
Kollam	1	3	0	0
Pathanamthitta	0	1	0	0
Alappuzha	2	2	0	0
Kottayam	1	2	0	0
Idukki	0	1	0	1
Ernakulam	0	12	3	0
Thrissur	1	3	0	0
Palakkad	1	4	0	0
Malappuram	1	6	0	5
Kozhikode	10	0	0	0
Wayanad	1	0	0	0
Kannur	1	3	0	1
Kasaragod	1	1	0	0
Total	22	49	5	7

The five Corporations: Thiruvananthapuram, Kochi, Kollam, Thrissur and Kozhikode saw UPHCs functioning in the urban areas during the first phase. Also 10 municipalities: Neyyattinkara, Alappuzha, Pathanamthitta, Kottayam, Thodupuzha, Manjeri, Palakkad, Kannur, Kasaragod, and Kalpetta received UPHCs in the first phase. Since then the number of UPHCs have been increasing. During 2013-14, 22 UPHCs were established. During 2014-15, 49 UPHCs were added. Five UPHCs were established in 2015-16 and 7 during 2016-17. Today Kerala has established 83 UPHCs in the State spread all over its 14 districts to cater to the needs of the urban population. They are located mostly in the Corporations and Municipalities.

Providing primary health care is the basic objective of the UPHCs. Apart from this focus on primary health care, urban immunization has been given specific importance. Fixed-day immunization clinics in UPHCs, outreach camps, and follow-up to ensure that children complete the immunization schedule are envisaged through this effort. Screening of migrant workers in urban areas is given emphasis given the changing health situation. The Health Department Officials opine that providing the migrant workers health cards is in progress because most migrant women and children require interventions in nutrition, ante-natal care, and immunization. Yet another focus area has been adolescent health and gender issues as the socio-economic situations in urban slums often fuel issues of gender violence, discrimination, and adolescent abuse. Ward health committees work closely with school teachers and counselors in urban areas.

Now we look at the distribution of UPHCs in the State. The names of the UPHCs are furnished in Table 8 from which this study has selected twelve UPHCs on a sample basis.

In Thiruvananthapuram and Kollam districts, 80 percent of the UPHCs (12 each) are located in Corporations and 20 percent (3 each) in Municipalities. In Kozhikode district too this proportion is maintained (8 out of 10 in Corporations and 2 in Municipalities). In Kollam district 75 percent of the UPHCs (3 out of 4) are located in Corporation area and remaining in Municipality.

Table 8: Distribution of UPHCs in Kerala

District	Urban Population	Name of UPHCs
THIRUVANANTHAPURAM (15)	17,71,596	1.VETTUKAD, 2.KALIPPANKULAM, 3.SECRETARIAT (RAJAJI NAGAR), 4.THRIKKANNAPURAM, 5.POOVATHOOR, 6.VATTIYOORKAVU, 7. CHALAI, 8.CHAKKAI, 9.KANNAMMOOLA, 10.PALKULANGARA, 11.NANTHANCODE, 12.MUTTADA, 13.MAMBAZHAKKARA, 14.CHAIKKOTTUKONAM, 15.ATTUKAL.
KOLLAM (4)	11,87,158	1.VAADI, 2.ULIYAKOVIL, 3.MUNDACKAL, 4.KARUNAGAPPALLY,
PATHANAMTHITTA (1)	1,31,613	1.PATHANAMTHITTA
ALAPPUZHA (4)	11,48,146	1.CHERAVALLY, 2.MULLATHU VALAPPU, 3.MANGALAM, 4.NEHRUTROPHY
KOTTAYAM (3)	5,65,393	1.PERUNNA, 2.VELOOR, 3.PERUMBAIKADU
IDUKKI (2)	52,045	1.PARAKKADAVU, 2.KATTAPANA
ERNAKULAM (15)	22,34,363	1.KENNADIMUKKU, 2.THAMMANAM, 3.KADAVANTHRA, 4.VATTEKUNNAM, 5.ELAMANTHOPPU, 6.PANDIKUDY, 7.MOOLAMKUZHY, 8.MANGATTUMUKKU, 9.KUTHAPADY, 10.PONNURUNNI, 11.CHALIKKAVATTOM, 12.VENNALA, 13.CHAMPAKKARA, 14.EDAKOCHI, 15.KALOOR
THRISSUR (4)	20,96,406	1.GOSAYIKUNNU, 2.KACHERY, 3.ANAPUZHA, 4.V R PURAM
PALAKKAD (6)	6,76,810	1.SOUTH PANAMANNA, 2.KOLUPULLY, 3.VENNAKKARA, 4.DIARA STREET, 5.ALANGODE, 6.PANNAKKAD
MALAPPURAM (11)	18,17,211	1.MANGALASSERY, 2.ANNARA, 3.KOORIYAD, 4.PONNANI, 5.VETTEKODE, 6.ERAVIMANGALAM, 7.NILAMBUR, 8.KONDOTTY, 9.TIRURANGADI, 10.PRARAPANANGADI, 11.TANUR
KOZHIKODE (10)	20,72,572	1.KANNADIKAL, 2.VELIYANCHERIPAADAM, 3.KALLUNIRA, 4.NADERI, 5.KUNDUPARAMBA, 6.KINASSERY, 7.KANNANCHERI, 8.PAYYANAKKAL, 9.PONNAMKODE, 10.CHELAVOOR
WAYANAD (1)	31,580	1.KALPETTA
KANNUR (5)	16,40,986	1.MAITHANAPPALLY, 2.KOOVODE, 3.KOLASSERY, 4.MUTHATHI, 5.MATTANNOOR
KASARAGOD (2)	5,09,047	1.PULIKUNNU, 2.KANHANGAD

Thrissur district has 50 percent of the UPHCs each are in Corporations and Municipalities. But this district has only 4 UPHCs although it has the highest slum population in the State. In Kannur district, only one UPHC is located in UPHC area and the remaining 4 are in Municipalities. Kerala has till date only 6 Corporations and

hence the rest of the UPHCs are placed in Municipalities. Overall 45.8 percent of the UPHCs are located in Corporations in the State (38 out of 83).

Table 9: Status of availability of facilities in UPHCs Kerala

No.	District	No. of UPHCs (2016-17)	No. of UPHCs functioning in Rented Buildings	No. of Labs (16-17)
1	Thiruvananthapuram	15	1*	14
2	Kollam	4	1	4
3	Pathanamthitta	1	0	1
4	Alappuzha	4	0	4
5	Kottayam	3	0	3
6	Idukki	2	1	0
7	Ernakulam	15	0	6
8	Thrissur	4	0	4
9	Palakkad	5	1	5
10	Malappuram	12	9	7
11	Kozhikode	10	1	9
12	Wayanad	1	0	1
13	Kannur	5	1	5
14	Kasaragod	2	2*	2
	KERALA	83	17	65

* Functioning in building given by Church in Thiruvananthapuram andin Kasaragod

Ernakulam is the most urbanized district in the State has the highest number of UPHCs in Kerala (15). Thiruvananthapuram district, the capital of Kerala with 53.7 percent urban population too has an equal number of UPHCs. The most populated state of Malappuram has 12 and Kozhikode and Thrissur districts having the same urban population proportion after Ernakulam district has 10 and 4 UPHCs respectively. On the other hand, Wayanad district with just 3.9 percent urban population has one UPHC and Idukki district with 4.7 percent urban population has 2 UPHCs.

Package of services

The services being provided through the UPHCs are uniform. Daily Afternoon OP (from 2.00 p.m. to 8.00 p.m.) is the set OP time. Primary health care is rendered through basic diagnostic services and dispensing, Routine outreach by JPHNs, Routine Immunisation, Disease Surveillance activities, Family Welfare Services, Environmental sanitation, Advocacy & Networking activities, Special outreach sessions(camps), Health

education and Enabling the implementation of other national and state level health programmes.

For the convenience of the population certain UPHCs located mostly in coastal areas have different OP timings, usually 9am to 4pm.

Human Resource at UPHC

1. Medical Officer - 2 (One full time and one part time)
2. Staff Nurse - 2
3. Pharmacist - 1
4. Lab technician - 1
5. JPHN(ANM) - 5
6. Support staff - 2

There is a State Health Society under the Chief Secretary and the State Mission and a State Mission Directorate at the State level. At the district level, there is District Programme Management and Support Unit to monitor the activities. An urban health team has been established at the state level comprising a State Consultant (Monitoring and Evaluation), Urban MIS Manager and State Urban Health Finance Manager.

The human resources posted in the 83 UPHCs in Kerala are provided here. The placement status of Medical Officers keeps changing. As in June 2017, all the UPHCs in the State have a Full Time Medical Officer except Ernakulam District as per the statistics available. But these UPHCs are functional uninterrupted with Part Time Medical Officers. So 97.6 percent of the Posts of MOs are filled. The State NUHM is quite prompt in keeping these posts filled and quick replacements are made against vacant posts. But only 67.5 percent of the Part Time MOs were filled as in June 2017. However it is learned that more vacancies have been filled later on.

Table 10: Availability of human resources in the UPHCs in Kerala, (as on June 2017)

No.	District	No. of UPHCs	Medical officer (Full Time)	Medical officer (Part Time)	Staff Nurse	Lab Technician	Pharmacist	JPHN	LHV	MAS
1	Thiruvananthapuram	15	15	15	30	14	15	53	1	0
2	Kollam	4	4	2	8	4	4	23	1	32
3	Pathanamthitta	1	1	1	2	1	1	4	0	8
4	Alappuzha	4	4	4	8	4	4	23	1	0
5	Kottayam	3	3	3	6	3	3	19	0	0
6	Idukki	2	2	1	4	0	1	5	0	0
7	Ernakulam	15	13	8	30	9	14	70	2	0
8	Thrissur	4	4	4	9	4	4	38	0	90
9	Palakkad	5	5	0	7	5	4	13	1	0
10	Malappuram	12	12	2	24	10	12	38	1	0
11	Kozhikode	10	10	10	20	9	10	29	0	97
12	Wayanad	1	1	0	3	1	1	3	0	0
13	Kannur	5	5	4	10	5	5	20	0	19
14	Kasaragod	2	2	2	5	2	2	5	0	0
In position		83	81	56	166	71	80	343	7	246
Approved			83	83	180	83	83	415	9	1048
Percentage filled			97.6	67.5	92.2	85.5	96.4	82.7	77.8	23.5
Vacancy			2	27	14	12	3	72	2	802

As regards the Staff Nurses, 92 percent of the posts are filled. Although 65 out of 83 UPHCs have a lab facility, there is great demand for functional laboratories in the UPHCs where it has not been established. But 71 Lab Technicians have now been placed to render lab services to the urban needy population. Over 96 percent of the posts of Pharmacists are in position in the UPHCs.

Out of 415 approved posts of JPHNs in the UPHCs in the State, 83 percent is filled. Seven out of 9 posts of LHVs are filled. Constitution of Mahila Arogya Samitis is in progress in the State although the pace has been quite slow. Kerala was granted formation of 1048 MAS but only nearly one fourth is in place. The authorities claim that the institution of MAS has now been prioritized so as to complete the process this year.

Data consolidation is a pre-requisite for assessing the performance of UPHCs. Although all the 83 UPHCs have been mapped in HMIS, data on service utilization in UPHCs is not complete as some UPHCs fail to update the service details for various reasons. However every UPHC maintains registers on services provided. This information has been consolidated by State NUHM for assessing the performance of the UPHCs. Information pertains to Total OP, New and Old OP which speaks about the level of utilization of services. Since providing primary health care is the main objective of the UPHCs, minor ailments are managed here. So we accounted for the quantum of services rendered like injections, wound dressings, immunization and nebulization which are provided by every UPHC in the State.

With regard to other services like minor sutures, IVF, ECG, mental health management, dental health, incision and draining (I & D), catheterization, IUD insertion etc, not all UPHCs are equipped. So an appraisal of the number of UPHCs equipped to provide the above mentioned 'other' services are accounted here in this study.

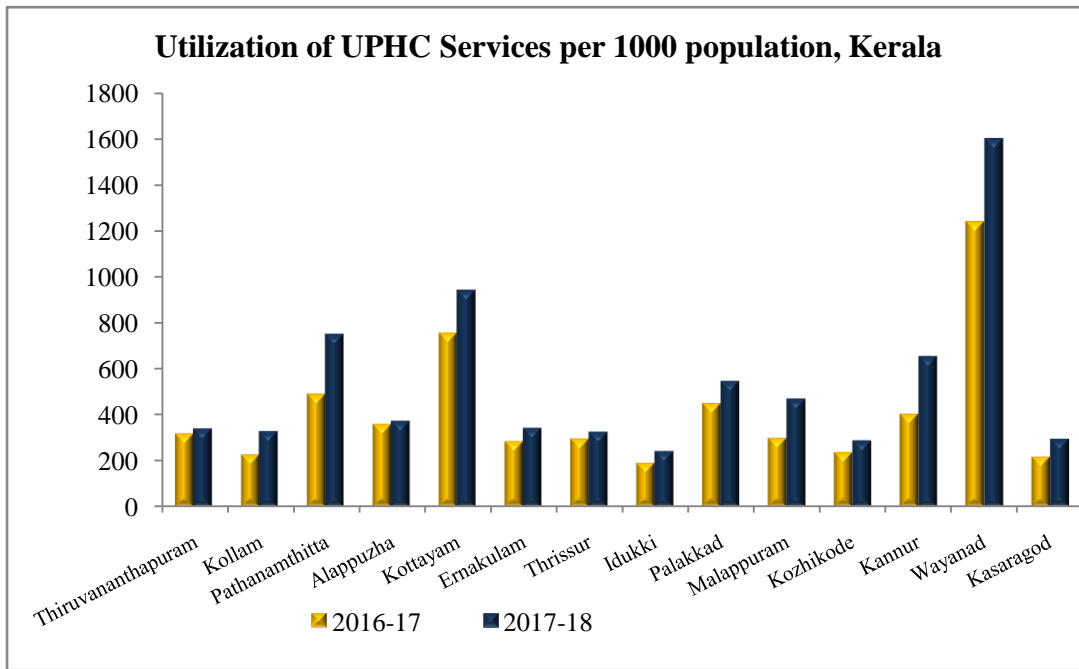
UPHCs are placed in every Corporation /Municipality based on the population size. Table provides information on the population of such Corporations/Municipalities to provide a base population to assess the utilization levels. Ernakulam, Thrissur, Kozhikode and Kannur districts have over two-thirds of its population living in urban

areas and Thiruvananthapuram district follows closely in this regard with over half its population urban. But, as mentioned earlier, the growth of Class I cities has not been the only process that contributed to massive urban growth in Kerala. It has been the growth of Class II towns that inflated the urban population in the State. So when we pick up the population of Corporations and Municipalities in the districts in Kerala, where the UPHCs are presently located to care for the urban poor in particular, we find that Thiruvananthapuram district with 12 UPHCs placed in Corporations and 3 in Municipalities have the highest population (9.19 lakhs) followed by Ernakulam (7.9 lakhs), Kozhikode (6.97 lakhs) and Malappuram (6.51 lakhs).

As per the present establishment of the UPHCs in various districts based on the urban population of the respective Corporation/Municipality population in each district we estimated the average population served per UPHC. The districts that surpass the criteria of one UPHC for every 50,000 to 60,000 population are Thrissur, Kollam, Kasaragod, Alappuzha and Kozhikode and require more UPHCs.

Now a look at the Total OP which is indicative of the utilization level as provided in Table shows that over 1.6 million people used the services of the UPHC in the State in 2016-17 which is roughly 31 percent of the population (2011) where the UPHCs are placed (considering the limitation of the study in using Census 2011 population as base population). A definite upward trend in utilization is observed from the data available for the period April-January 2017-18 period. Utilization of UPHC services increased from 314 per 1000 population to 396 per 100 population from 2016-17 to 2017-18.

Figure 1: Utilization of UPHC services



Wayanad district with the least urban population and which has one UPHC in its urban Municipality Kalpetta has the highest utilization (over utilization observed as base population is that during 2011). Even if we assume that a 6.6 percent growth in urban population of Wayanad district during 2001-11 continues, the urban population in Kalpetta municipality would be only about 34 thousand which is still lesser than the population using the services. So the better performance of the UPHC in Wayanad is unquestionable. Next to Wayanad is the performance of UPHCs in Kottayam district where utilization is 942 per 1000 population during 2017-18. Pathanamthitta, Kannur and Malappuram also show better performance.

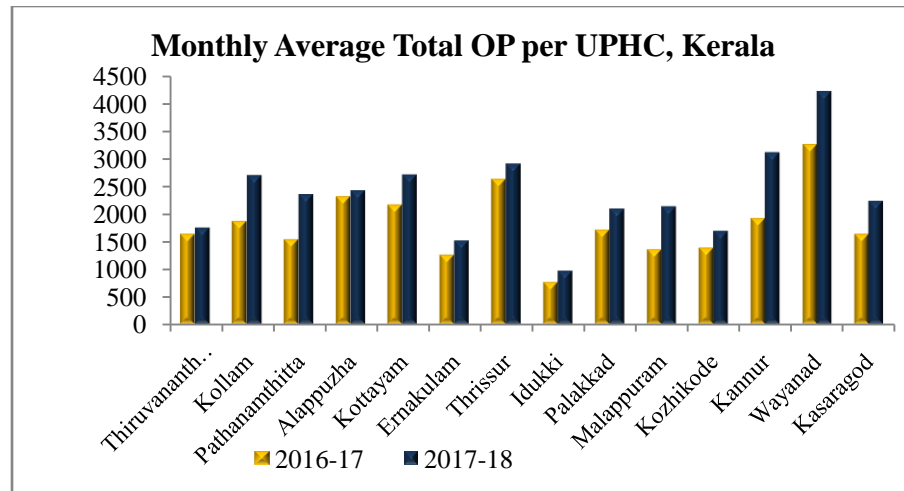
Percentage increase in utilization is observed to be highest in Kannur district (62 percent). Malappuram (57 percent), Pathanamthitta (53.3 percent) and Kollam (44.3 percent) also show better increase in utilization over the period 2016-17 and 2017-18. On the other hand only 4.4 percent increase is observed in Alappuzha district, nearly 7 percent only in Thiruvananthapuram district and 10.6 percent in Thrissur district which requires careful intervention. However an assessment of average monthly Total OP attendance per UPHC provides scope for better performance appraisal.

Table 11: Service Utilization of UPHCs based on Total OP during 2016-18 period, Kerala

Districts	No. of UPHCs	Population of Corporation/ Municipality	Population* served per UPHC	Total OP**		Service Utilization per 1000 population		% increase in utilization	Monthly average Total OP per UPHC	
				2016-17	April-January 2017-18	2016-17	2017-18		2016-17	2017-18
Thiruvananthapuram	15	919282	61285	293203	261291	319	341	6.9	1629	1742
Kollam	4	392443	98111	89463	107590	228	329	44.3	1864	2690
Pathanamthitta	1	37538	37538	18381	23484	490	751	53.3	1532	2348
Alappuzha	4	309625	77406	111042	96562	359	374	4.4	2313	2414
Kottayam	3	103059	34353	77663	80924	754	942	25.0	2157	2697
Ernakulam	15	792073	52805	225996	226371	285	343	20.2	1256	1509
Thrissur	4	425672	106418	125879	115967	296	327	10.6	2622	2899
Idukki	2	94691	47346	18191	19214	192	243	26.7	758	961
Palakkad	5	228280	45656	102528	104168	449	548	21.9	1709	2083
Malappuram	12	651150	54263	194984	255303	299	470	57.1	1354	2128
Kozhikode	10	697608	69761	166067	168296	238	289	21.6	1384	1683
Kannur	5	284212	56842	114779	154905	404	654	62.0	1913	3098
Wayanad	1	31580	31580	38983	42060	1234	1598	29.5	3249	4206
Kasaragod	2	179736	89868	39212	44436	218	297	36.0	1634	2222
KERALA	83	5146949		1616371	1700571	314	396	26.3		

**Population (as per Census 2011) of Corporations and Municipalities where the UPHCs are placed divided by the number of UPHCs in the district.. **Average calculated for 10 months for the period 2017-18*

Figure 2: District wise monthly average total OP in UPHCs



Once again Wayanad district with only one UPHC tops the list of districts (Figure 2). Its quite noteworthy that all the districts show better utilization during 2017-18 compared to 2016-17 which is the result of successful implementation of different health programmes and intervention by the State NUHM. When the monthly average OPD attendance of all the UPHCs taken together in Kannur district is over 3000, it is only 961 in Idukki district which has the second least urban population. Ernakulam and Thiruvananthapuram districts fair relatively poorer although these districts have the maximum number of UPHCs in the State.

UPHCs document the number of new OP attendance and old OP attendance. The new OP attendance is indicative of the improved utilization of the UPHC services. Tables 10 and 11 draw inference in this regard. One can observe that the number of New OP cases are definitely more than the old OP attendance. The performance of districts with regard to new and old OP attendance is as expected same as indicated in the total OPD attendance. The average monthly new OPD attendance per UPHC is double that of old OPD attendance in most of the district. Increase in utilization is evident during 2017-18 when compared to 2016-17.

Table 12: Services (New OP) provided in the UPHCs during 2016-18 period, Kerala

Districts	New OP**		Service Utilization per 1000 population - - New OP		% increase in utilization New OP	Monthly average per UPHC	
	2016-17	April-January 2017-18	2016-17	2017-18		2016-17	2017-18
Thiruvananthapuram	193457	168513	210	220	4.5	1075	1123
Kollam	55577	63213	142	193	36.5	1158	1580
Pathanamthitta	11079	15193	295	486	64.6	923	1519
Alappuzha	62771	59222	203	230	13.2	1308	1481
Kottayam	46607	49133	452	572	26.5	1295	1638
Ernakulam	104881	101144	132	153	15.7	583	674
Thrissur	62230	45484	146	128	-12.3	1296	1137
Idukki	8896	11639	94	147	57.0	371	582
Palakkad	77167	76624	338	403	19.2	1286	1532
Malappuram	152735	201787	284	450	58.5	1061	1682
Kozhikode	99441	108813	143	187	31.3	829	1088
Kannur	74503	101807	262	430	64.0	1242	2036
Wayanad	37429	38927	1185	1479	24.8	3119	3893
Kasaragod	31959	37439	178	250	40.6	1332	1872
KERALA	1018732	1078938	202	257	27.1	1023	1300

**Population (as per Census 2011) of Corporations and Municipalities where the UPHCs are placed divided by the number of UPHCs in the district.. **Average is for 10 months for 2017-18*

Figure 3: District wise monthly average new OP per UPHCs

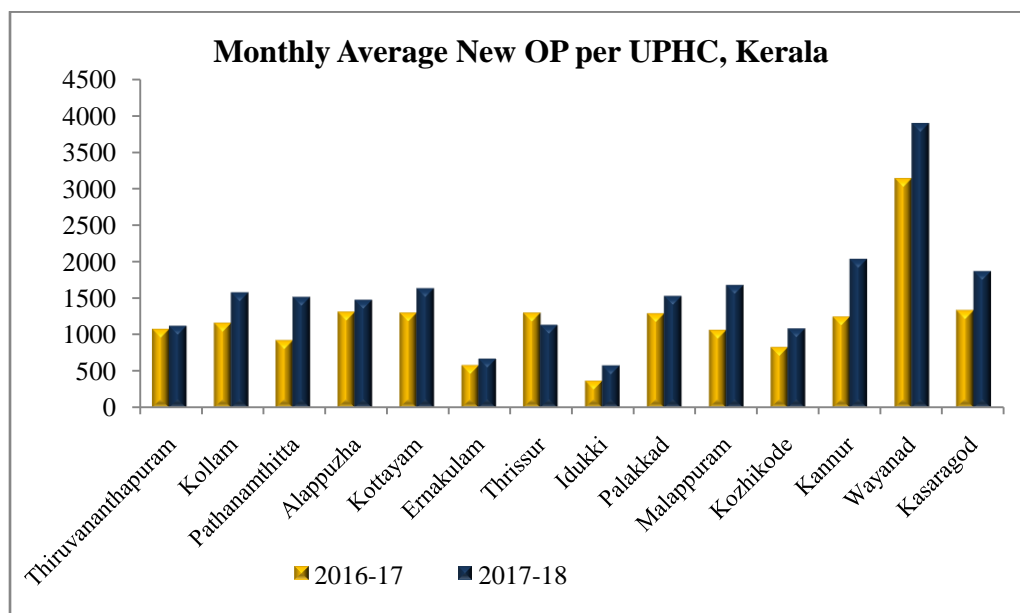
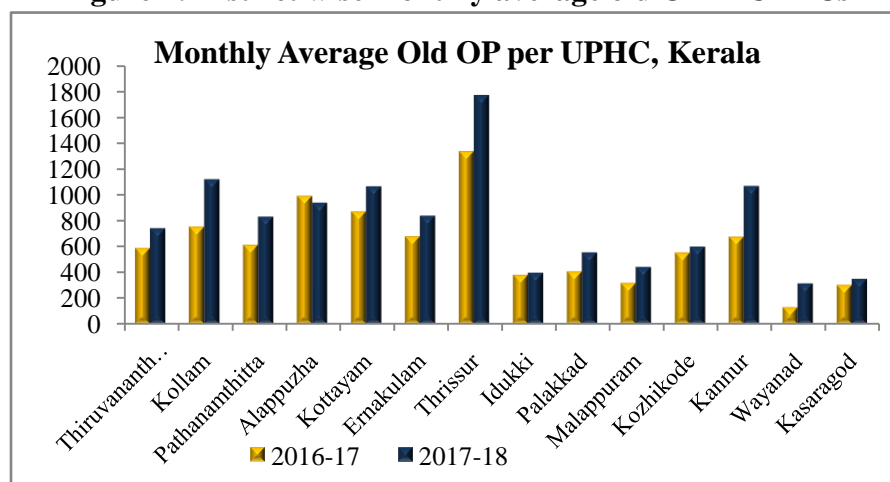


Table 13: Services (Old OP) provided in the UPHCs during 2016-18 period, Kerala

Districts	Old OP**		Service Utilization per 1000 population - Old OP		% increase in utilization Old OP	Monthly average per UPHC	
	2016-17	April-January 2017-18	2016-17	2017-18		2016-17	2017-18
Thiruvananthapuram	104994	110778	114	145	26.6	583	739
Kollam	35913	44568	92	136	48.9	748	1114
Pathanamthitta	7302	8281	195	265	36.1	609	828
Alappuzha	47171	37340	152	145	-5.0	983	934
Kottayam	31101	31781	302	370	22.6	864	1059
Ernakulam	121074	125135	153	190	24.0	673	834
Thrissur	63649	70483	150	199	32.9	1326	1762
Idukki	9095	7928	96	100	4.6	379	396
Palakkad	24354	27545	107	145	35.7	406	551
Malappuram	45364	52867	84	118	39.8	315	441
Kozhikode	66027	59518	95	102	8.2	550	595
Kannur	40276	53098	142	224	58.2	671	1062
Wayanad	1554	3133	49	119	141.9	130	313
Kasaragod	7233	6959	40	46	15.5	301	348
KERALA	605107	639414	120	152	26.8	608	770

**Population (as per Census 2011) of Corporations and Municipalities where the UPHCs are placed divided by the number of UPHCs in the district.. **Average is for 10 months in 2017-18*

Figure 4: District wise monthly average old OP in UPHCs



One of the targets of the State Health Systems is management of NCDs in the State. Kerala has been in the forefront in prevalence of NCDs especially hypertension and diabetes. But the State has never fallen short of efforts in managing the newer health challenges. UPHCs cater to this aspect by dedicating atleast one day for exclusively screening for NCDs. Huge turn over for NCD screening is evident from Table 13.

Table 14: NCD Services provided in the UPHCs during 2016-18 period, Kerala

Districts	NCD**		Monthly average NCD attendance per UPHC		% increase in utilization NCD
	2016-17	April-January 2017-18	2016-17	2017-18	
Thiruvananthapuram	53578	57236	298	382	28.2
Kollam	28808	18996	600	475	-20.9
Pathanamthitta	996	1235	83	124	48.8
Alappuzha	18107	14971	377	374	-0.8
Kottayam	7870	8508	219	284	29.7
Ernakulam	45992	57239	256	382	49.3
Thrissur	28315	26305	590	658	11.5
Idukki	7160	10591	298	530	77.5
Palakkad	16835	16565	281	331	18.1
Malappuram	15590	22352	108	186	72.0
Kozhikode	27673	27529	231	275	19.4
Kannur	35466	29215	591	584	-1.2
Wayanad	3648	3474	304	347	14.3
Kasaragod	7704	5968	321	298	-7.0
KERALA	297742	300184	299	362	21.0

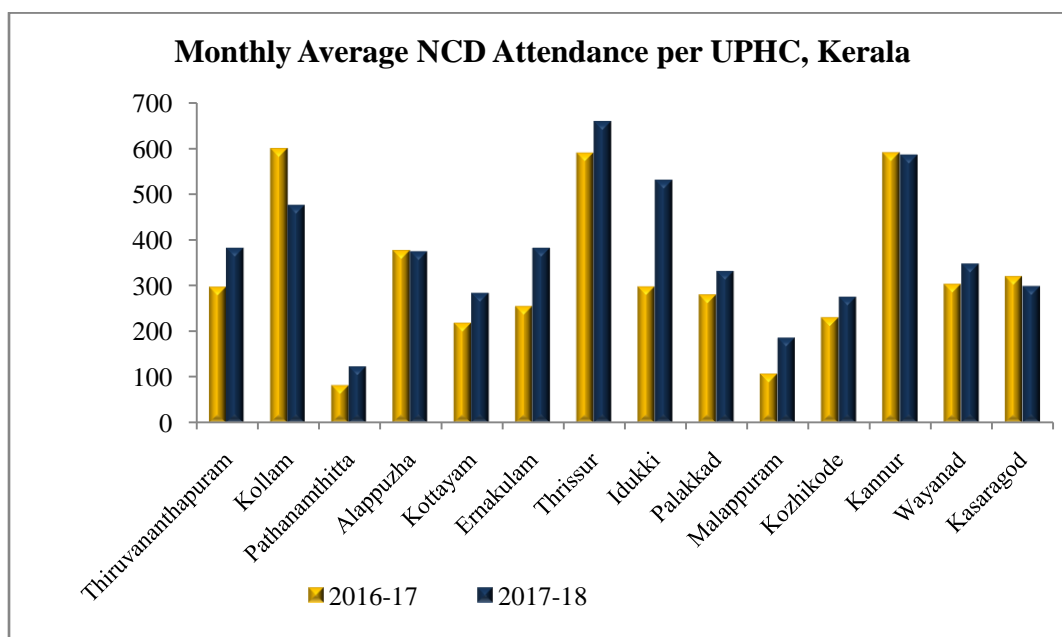
**Population (as per Census 2011) of Corporations and Municipalities where the UPHCs are placed divided by the number of UPHCs in the district.. **Average calculated for 10 months for the period 2017-18*

Over 3 lakhs persons are screened every year in the UPHCs of the State for NCDs. Since all the services are provided free of cost people utilize this service well. Studies show that Kerala reports a prevalence of diabetes as high as 32.9 percent compared to

the national average of 20.3 percent (NFHS 4, 2016). The survey reported more diabetes in men in urban regions than rural areas. When 13.7 percent of the urban men were diabetic, the corresponding proportion was 12.6 percent in rural areas. Hypertension was higher among men (5.6 percent) than women (4.8 percent) in urban areas.

According to the latest report of Kerala health services, one in three persons are becoming diabetic in Kerala and 33.39 percent of the total population of Kerala is suffering with diabetes. According to data available every month around 87000 new cases are reported. The number of women is equally at risk in Kerala (Kerala Health Services report, 2016). Earlier in a large multi-centre study involving almost 20,000 subjects, the prevalence of diabetes in Thiruvananthapuram was 17 percent (Mohan et al, 2006).

Figure 5: District wise monthly average NCD attendance in UPHCs

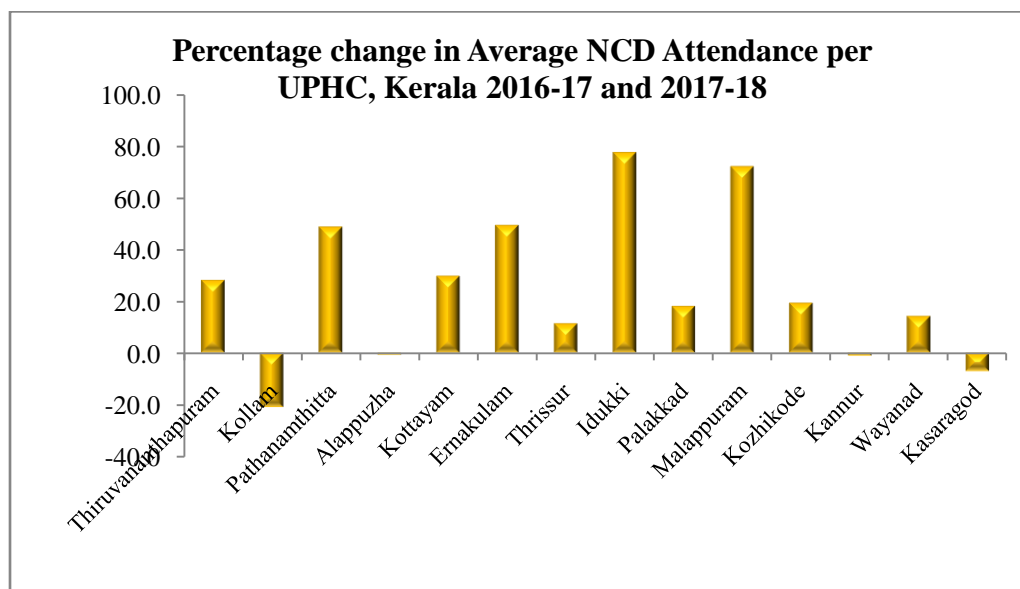


If the monthly average NCD attendance per UPHC in the 14 districts is observed, Pathanamthitta district appears to have lesser problems of NCDs in the State as lesser numbers turn out for NCD screening although this UPHC is better placed in terms of utilization of UPHC services as reflected in the Total OPD attendance discussed

earlier. Malappuram district also shows lesser turn out for NCD screening after Pathanamthitta.

Thrissur district shows the highest utilization of NCD services among the district. Urban population in Kannur and Idukki also appear on top in the list of districts where NCD attendance is higher. Overall increased utilization of NCD services in UPHCs can be observed from 2016-17 to 2017-18.

Figure 6: District wise percentage change in average NCD attendance in UPHCs



The percentage change in NCD attendance has slightly declined during 2016-17 to 2017-18 in Kannur, Alappuzha, Kasaragod and Kollam districts (under reporting of data received for consolidation may be weighed here).

The UPHCs in Kerala, as part of preventive care are equipped to provide good care for managing various ailments. The number of injections given, would managed as reflected in the number of wound dressings, immunization services provides and management of respiratory problems as evident from the number of nebulizations are all indicative of the health care provided in the UPHCs. Table 14 Draws inference on these aspects which were available in the registers maintained in the UPHCs.

Since the number of UPHCs placed in the districts is based on population, the monthly average service provided per UPHC is comparable. Such an assessment

shows that during 2017-18, over 100 injects are administered for management of ailments per month in the UPHCs in Kerala. Pathanamthitta, Kollam and Thiruvananthapuram UPHCs fare better in this regard.

Substantial proportion of UPHCs are located in coastal areas, Kerala having a long coastal line along the western part. Fishing is the main occupation of the people in the coastal regions and we found that cuts and wounds caused during fishing are managed in these UPHCs to a great extent. Similarly those located in the Slums are always prone to injuries and wounds among unruly mob. So the number of wound dressings is assessed here. About 85 people have undergone wound management procedures on an average in every UPHC in the State during 2017-18. Thiruvananthapuram, Kollam, Pathanamthitta, Kasaragod and Wayanad districts appear on top in the list of districts in this regard.

Immunization service is rendered both at the UPHCs and in the wards assigned to the UPHCs catchment area. The Area MO or the Part Time MO is responsible chiefly for rolling out the immunization activities at the field level. The JPHNs are assigned the responsibility of identifying children for immunization, organize camps for immunization and on other instance route these children to the UPHCs for immunization.

One limitation encountered during consolidation of immunization is that the number of children immunized in the area provided by UPHC JPHN is accounted by the hospitals in the catchment area or in the account of JPHNs in the Municipalities. So data on complete immunization is not captured in the UPHCs. Yet ignoring this aspect, we find that every month, on an average 95 immunizations is carried out per UPHC in the State in Kerala. Wayanad, Ernakulam, Pathanamthitta and Kollam fare better compared to other districts.

Data reporting on immunization is not complete in Malappuram district for many reasons. First, immunization turnout is generally less, second some UPHCs do not render immunization service and third data is not properly documented. Increase in

Immunization services in every UPHC in the district during the period 2017-18 compared to 2016-17 is a notable aspect.

Respiratory problems managed as evident from the number of nebulizations performed are also captured here. Kasaragod district shows the highest number of average monthly nebulizations done per UPHC (188 in 2017-18) Wayanad, Pathanamthitta and Kannur districts too have monthly average nebulizations above one hundred. Palakkad, Ernakulam and Alappuzha districts show only an average around 30 nebulizations per month. One aspect to be considered in assessing the number of nebulizations is the number of UPHCs having the facility for nebulization. All UPHCs do not have this facility. So such an assessment is not intended to compare the performance between districts but to understand the performance of UPHCs in general in management of respiratory problems. This huge population would have been otherwise flowing to the tertiary level hospitals for seeking care.

Table 15: Services provided in the UPHCs during 2016-18 period, Kerala

Districts	Monthly Average Injections per UPHC**		Monthly Average Wound Dressings per UPHC**		Monthly Average Immunization@ per UPHC**		Monthly Average Nebulization per UPHC**	
	2016-17	2017-18	2016-17	2017-18	2016-17	2017-18	2016-17	2017-18
Thiruvananthapuram	155	204	120	135	74	90	58	66
Kollam	166	257	93	118	95	140	54	87
Pathanamthitta	172	275	138	177	157	144	88	131
Alappuzha	189	184	69	108	71	83	97	106
Kottayam	123	159	94	94	75	99	72	38
Ernakulam	21	16	21	28	99	166	22	34
Thrissur	78	94	92	135	52	72	48	66
Idukki	71	111	63	61	50	81 [#]	21	27
Palakkad	84	58	46	45	24	22	26	33
Malappuram	47	74	30	67	5	5	27	61
Kozhikode	10	26	44	59	30	38	17	32
Kannur	46	66	67	85	70	65	72	109
Wayanad	88	101	136	185	134	160	117	117
Kasaragod	57	66	105	179	67	74	112	188
KERALA	79	101	65	85	61	95	44	61

*Population (as per Census 2011) of Corporations and Municipalities where the UPHCs are placed divided by the number of UPHCs in the district.. **Average calculated for 10 months for the period 2017-18

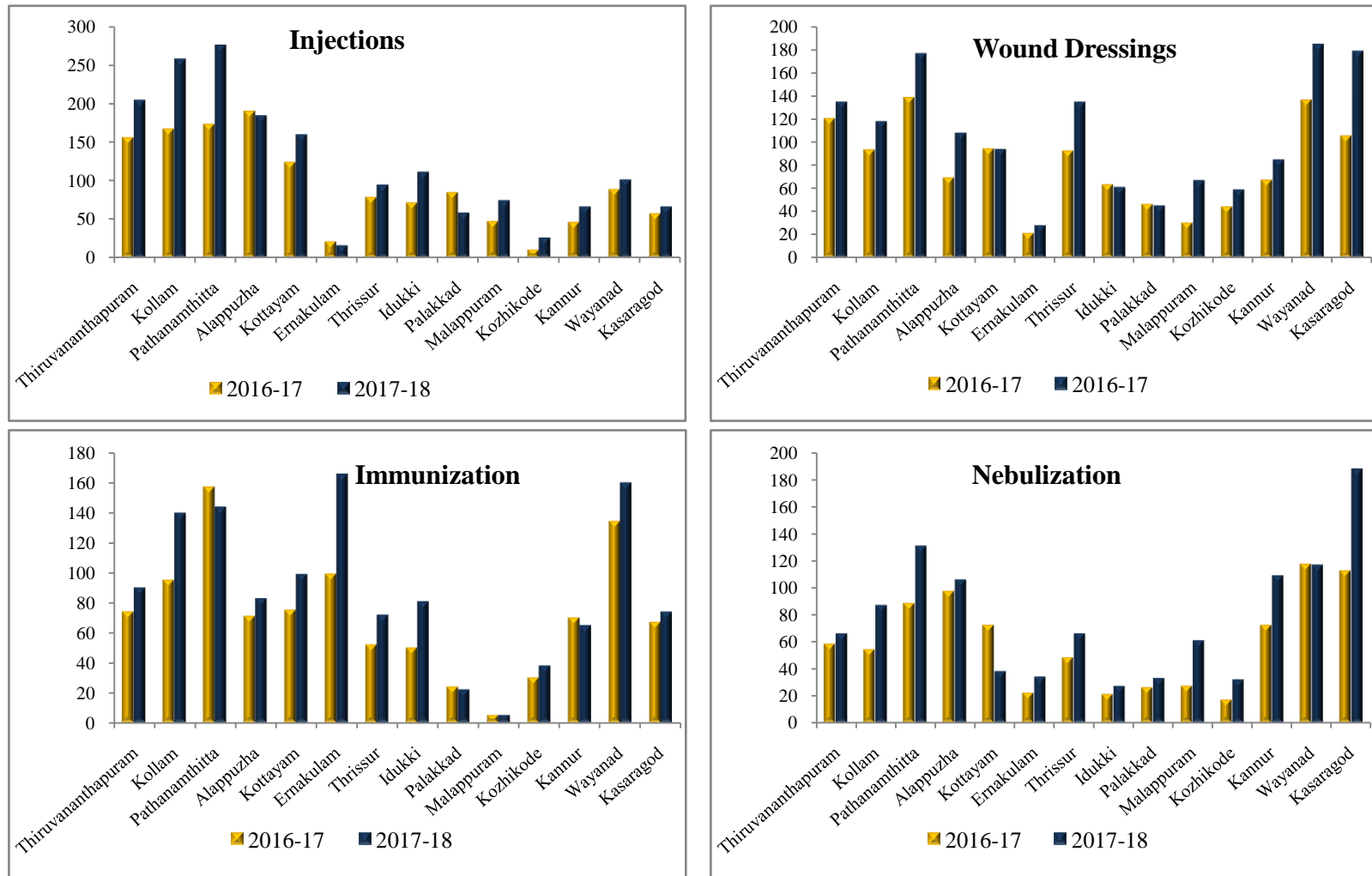
@ Immunization data under reported in certain districts (Kollam, Idukki, Kozhikode, Palakkad and Kannur district)

Immunization services in the area provided by UPHC JPHN are accounted by the hospitals in the catchment area or in the account of JPHNs in the Municipalities. So complete immunization data is not captured in the UPHCs

[#] Data excluding MR Camp count

Note: Data reporting in Malappuram on immunization is not complete

Figure 7: Monthly Average Services rendered per UPHC, 2016-18, Kerala



UPHCs located in various districts are provided necessary support based on the requirements of the population where the UPHC is located. Services assessed so far are uniformly available in all the UPHCs in general. But the additional services provided by certain UPHCs are accounted in the following section. Some UPHCs are capable for providing mental health OPD also. Some provide Dental care, other have ECG facility, most of the UPHCs are equipped to manage minor sutures, some have IVF administration facility and the most recent service is the palliative care.

Minor suture facilities are provided in 9 out of 15 UPHCs in Thiruvananthapuram, 4 in Malappuram, 3 in Alappuzha and the only UPHCs in Wayanad and Pathanamthitta district. IVF facility is available in 8 out of 15 UPHCs in Thiruvananthapuram district and 3 in Malappuram. Incision and draining facility is rendered in 2 UPHCs each in Thiruvananthapuram and Malappuram districts. No facilities listed in Table ... are provided in UPHCs in Kollam, Kottayam, Thrissur, Idukki, Palakkad and Kasaragod districts. One UPHC each provides catheterization service. Since Kerala is a rapidly ageing society, palliative care is rendered in every ward either at homes at the primary level, through the PHCs, CHCs at the secondary level and tertiary care is provided by the SDH/District level hospitals. These services have been more in the rural areas. But NUHM and other Governmental programmes have extended it to the urban areas. The efforts under NUHM are visible in Ernakulam district where 11 out of 15 UPHCs are providing palliative care in the UPHCs catchment areas through the JPHNs. Studies show the emergence of mental health problems among the population. So here we find that 6 out of the 15 UPHCs in Ernakulam district also cater to the mental health problems. Two UPHCs in Kannur district have started providing dental care as oral health is a much bigger issue these days. Also 3 UPHCs in again in Ernakulam district has ECG facility. IUD insertions under family planning are provided in 5 UPHCs in Kozhikode district. These aspects briefed above are indicative of how the NUHM has been strengthening the UPHCs in the State to cater to the needs of the population.

Table 16: Number of UPHCs providing additional Services, Kerala 2016-18

Districts	Minor Procedures -Suture	IVF	Incision & Draining	Catheterization	Palliative care	Mental health	Dental Care	ECG	IUD insertion
Thiruvananthapuram	9	8	2	-	-	-	-	-	-
Kollam	-	-	-	-	-	-	-	-	-
Pathanamthitta	1	-	-	-	-	-	-	-	-
Alappuzha	3	-	-	1	-	-	-	-	-
Kottayam	-	-	-	-	-	-	-	-	-
Ernakulam	2	-	-	-	11	6	-	3	-
Thrissur	-	-	-	-	-	-	-	-	-
Idukki	-	-	-	-	-	-	-	-	-
Palakkad	-	-	-	-	-	-	-	-	-
Malappuram	4	3	2	1	-	-	-	-	-
Kozhikode	-	-	-	-	-	-	-	-	5
Kannur	-	-	-	-	-	-	2	-	-
Wayanad	1	-	-	-	-	-	-	-	-
Kasaragod	-	-	-	-	-	-	-	-	-

4.2 Functioning of UPHCs: Provider Perspective

An appraisal of the functioning of selected UPHCs in the 3 districts extracted from a detailed discussion with the concerned Medical Officers of the Centres is included in this section. Four UPHCs selected in Kozhikode district include Ponnampcode, Kunduparamba, Veliyancheripadam and Payyanakkal. Ponnampcode UPHC located in a urban rich area functions from 1pm to 7 pm, has 8 wards as its catchment area catering to over sixty thousand population approximately. Both urban poor and middle income groups reside in the UPHC area. Kunduparamba UPHC caters to both coastal and slum area has 5 wards. Three wards are near and 3 are located far away from the UPHC. Veliyancheripadam located in a slum area on the other hand has 3 wards inclusive of a migrant camp area and Payyanakkal UPHC has 3 wards with one ward having more than 10000 population.

In all the three UPHCs except Kunduparamba, the MOs in regular position are new and has less than one year service here. There are 2 SNs, One Pharmacist and Lab Technician and Attender each in these UPHCs. The number of JPHNs vary by the number of wards. When there are 8 in Ponnampcode UPHC, there is only 3 JPHNs in Payyanakkal, 5 in Kunduparamba and 3 in Veliyancheripadam.

The services provided in these UPHCs include regular OP, NCD management, immunization, wound dressings, first degree burns management, nebulization and ANC (TT and IFA). All the four UPHCs have support from the public and ward Councilor.

According to the MOs, there is great demand for management of minor surgeries, ortho problems, and facilities like x-ray and ECG although the public is aware that the UPHCs cater to the primary health care needs of the population. Since the untied funds are not given to UPHCs, many problems in functioning have been reported. Water supply problem (Payyanakkal and Ponnampcode), lack of medicines during increased OP attendance due to inability to make local purchase (all UPHCs), lack of stationeries like registers, paper, printing cartridge, UPS for computer, etc are some of them. Usually the staff of the UPHCs contribute to meet the daily needs for functioning due to non-availability of untied funds. The felt need of the population of the area is

Gynaec OP, ortho and Paediatric care OP once in a week atleast apart from the services that are provided presently.

Generally the elderly population depends heavily on the services provided by the UPHC inspite of the presence of MCH, two Super specialty hospitals in Ponnampcode area.

An appraisal of the performance of the four UPHCs based on total OP and other services are provided here.

Table 17: Performance of selected UPHCs Kozhikode, 2016-18

UPHC	Total OP		NCD attendance	
	2016-17	2017-18*	2016-17	2017-18*
Ponnampcode	7029	8634	1741	850
Kunduparamaba	23415	21714	3521	2334
Veliyancheripaadam	9976	10803	3132	2844
Payyanakkal	15132	17009	3211	3205

*2017-18 - April to January

Kunduparamba UPHCs shows relatively more utilization which can perhaps be attributed to its catchment area which includes both slum and coastal area. Payyanakkal located in the coastal area also has higher utilization. The NCD attendance reported is almost around 3000 during 2016-17 except Ponnampcode.

- Ward distribution is reported to be problematic at Veliyancheripaadam UPHC and attempting redistribution of wards would increase service utilization. NCDs are managed with OP and no specific days are allotted at Veliyancheripaadam UPHC. In Ponnampcode UPHC, NCD is screened with OP on Mondays, Wednesdays and Fridays.
- Public support in the functioning of UPHCs, support from Ward Councilors, residents associations etc are visible
- Medicine distribution need to be streamlined as local purchase is not possible without fund for the UPHC (untied fund not sanctioned). At times of great demand, shortage of medicines, especially NCD drugs, Insulin etc is problematic.

- Shortage of stationery items to run the daily activities of UPHC often is met from Staff contributions. So untied fund is very much essential
- Payyanakkal UPHC faces shortage of staff as the MO on regular duty manages the area activities also. JPHNs here report problems in covering their area.
- UPHCs selected here offers additional services like IUD insertions under FP services which is not rendered in other UPHCs
- The MOs report demand for management of arthritis, Gynaec services, Pediatric services etc. Demand for lipid profile tests, thyroid function test etc is also reported.

The UPHCs selected in Thiruvananthapuram district are Vettukad UPHC located in a coastal area, Rajaji Nagar in a slum, Chalai UPHC located within a colony and a slum and Nanthancode UPHC located in an Urban rich area. Vettukad UPHC serves 3 wards with one ward almost 6 km away and another 4 km away. The catchment area of Rajaji Nagar incorporates 4 wards with the ward where the UPHC is located having over ten thousand population and the rest of the three wards with over 8000 population each. Chalai UPHC area includes 3 wards covering more than ten thousand population and the fourth one catering to a population of over 8000. Nanthancode UPHC also has 3 wards as its catchment area with a population of around ten thousand. Two of the assigned wards are located more than 5km away.

The Medical Officers posts in all selected UPHCs are filled but a change occurred during the time of survey in Rajaji Nagar and Vettukad UPHCs. The other two UPHCs have MOs serving in the UPHC for more than 2 years. SNs, Pharmacists, JPHNs posts are adequate. Since lab is non functional in Rajaji Nagar and Chalai UPHC, there is no Lab Technician. In Nanthancode UPHC the post of lab technician is vacant for more than 6 months which affects the proper service.

With regard to the services rendered in the selected UPHCs, all the services as per mandate are provided. In those UPHCs where lab is functional, the public satisfaction is more.

Table 18: Performance of selected UPHCs, Thiruvananthapuram, 2016-18

UPHC	Total OP		NCD attendance	
	2016-17	2017-18*	2016-17	2017-18*
Vettukad	38251	31148	6200	5683
Rajaji Nagar	17148	15716	2816	2816
Chalai	13443	11813	2709	2986
Nanthencode	9168	9216	1249	1361

*2017-18 - April to January

If we observe the utilization of services in terms of the total OP and NCD attendance, we find the Vettukad UPHC located in the coastal area to have recorded good performance although it has only 3 wards as its catchment area. Rajaji Nagar UPHC services are also used well by the slum population. The service rendered by the present part time MO who serves both these UPHCs is well appreciated by the public. Monthly OP average to 100 per day in Chalai UPHC. Since Nanthencode UPHC is situated in an urban rich area, the total OP is also relatively less. NCD attendance is also relatively high in Vettukad UPHC with over 6000 people utilizing its services during 2016-17.

Vettukad UPHC is presently functioning in a building given by the Church. Space is limited and waiting area for patients is not adequate. The part time MO manages Vettukad and Rajaji Nagar UPHC. The full time MO was relieved during the day of our visit. A new MO has taken charge here. The Area MO opined that there is great demand for services since it is a coastal area and people demand OP timing to be 8am to 3pm as most of them approach the Centre with injuries from fishing early in the morning itself.

- Rajaji Nagar and Chalai UPHC has electrical installation problems resulting in frequent power disruptions, short circuits and electric shocks. The former is a water logging area and floods during rainy season, whereas the latter does not have power supply exclusively for the UPHC. Immunization services are hence disrupted. Hence the power supply problem needs to be addressed.
- Nanthencode UPHC is put up in the first floor of a building located inside a market and some NCD patients complain of difficulty to get into the 1st floor.

- Lack of untied fund makes payment of electricity bill, camp organizations, local purchase of medicines at times of shortage difficult.
- In UPHCs located in urban rich area, constant and continuous supply of medicines is essential. Due to the presence of hospitals both private and Government like that around Nanthencode UPHC, people tend to be dissatisfied when there is shortage of medicines.
- The MO at Vettukad UPHCs reports the demand for more services among the public. The UPHC is located in a coastal area, population is mainly fisher folk and those from low income group, cases of injuries, cuts and wounds caused during fishing is more which raises the demand for minor surgeries, minor sutures etc. Even if they are referred to higher facilities, people show reluctance to go and return to the UPHCs for treatment.
- Demand for NCD drugs is more. People are regular to visit the UPHC to keep sufficient stock of medicines and come every 15 days. In UPHCs located in slums (Rajaji Nagar, Chalai) unruly mob tends to create problems if medicines are not provided.
- Need for Specialists atleast once in a month during camps is the felt need of the population.
- Infrastructure support like observation bed, Glucometer, basic testing facilities and improved waiting are reported from 3 out of 4 UPHCs in Thiruvananthapuram.

Of the four UPHCs selected in Ernakulam district, Kadavanthara UPHC cater to urban rich population and also a slum, Kaloore is located in a slum area, Pandikudy and Mangattumukku UPHCs cater to Coastal population. All the 4 wards under Kadavanthara have population above ten thousand. Pandikudy UPHC caters to the needs of people in 5 wards with two wards having population around ten thousand and 3 wards around 8700. Mangattumukku UPHC has 5 wards to serve each having population between nine to ten thousand. Kaloore UPHC catchment area includes 5 wards each with population around 11200. Kadavanthara UPHC is presently functioning in an open stage community hall in Chilavannoor ward. Earlier it was functioning in another ward under very poor conditions. Space is now limited, a public

toilet is being used. Kaloar UPHC is functioning presently along with a Homeo dispensary. The location of Mangattumukku UPHC is under Mattancherry hospital area with 2 CHCs and another UPHC in the vicinity. The Centre is functioning in a Corporation building with adequate facilities with both water and electricity supply. But a public toilet is used. ECG services are provided, observation bed is also there. So inspite of the presence of other hospitals, people turn out in large numbers for treatment here as the coastal population makes use of the services. Pandikudy UPHC functions with limited space and maintenance issues are reported. A good building is necessary here as utilization even under limited conditions is visible.

The present MOs in Pandikudy and Kadavanthara UPHCs have more than 2 years of experience in this UPHC and that in Kaloar and Mangattumukku are new. The Area MOs usually spend 3 days per week in the UPHC. All UPHCs have 2 SNs, 1 Pharmacist each, 5 ANMs each, one DEO, one support staff each. Since there is no lab presently at Pandikudy UPHC, there is no Lab Technician. All the other UPHCs have filled this post.

One feature of UPHCs in Ernakulam district is palliative care service which is not provided through any other UPHCs in Kerala apart from the routine services UPHCs are entitled to provide. Mental health is also given importance as Mangattumukku and Kaloar UPHCs provide mental health care. Dental care is also provided in this UPHC. ECG monitoring facility is also provided in 3 UPHCs in this district. Yet another advantage the UPHCs in Ernakulam district have is provision of untied fund which is presently not available in any other district. Here also, the entire untied fund is not allotted at once, instead a contingency amount is given to them and after utilizing the amount they can avail the balance.

Table 19: Performance of selected UPHCs, Ernakulam, 2016-18

UPHC	Total OP		NCD attendance	
	2016-17	2017-18*	2016-17	2017-18*
Pandikudy	15228	15793	5583	7613
Mangattumukku	9220	12868	2719	4798
Kaloar	16952	13490	3528	3182
Kadavanthara	9034	12259	5108	5196

*2017-18 - April to January

If the total OP attendance and the NCD attendance is analysed we find services of Kaloor UPHC to be better used. Pandikudy in the coastal area is also has higher utilization of services. Mangattumukku UPHC is not far behind in rendering service although the presence of CHCs and hospitals around it pulls it down a little. Service utilization is increasing steadily over the past 2 years. NCD attendance in all the UPHCs point to the health situation of the people. Over five thousand NCD attendance in a year reflects both the importance of primary care requirement and also the utilization level.

- Problems in distribution of catchment area under UPHC in Kadavanthara and Kaloor UPHC and hence area redistribution could increase service utilization further.
- Lab facility service has been disrupted in Pandikudy UPHC due to maintenance issues and building itself needs maintenance with more space.
- Due to high cost of medicines, if all medicines are provided from the UPHC, the OPD attendance could perhaps increase
- Infrastructure support is a requirement pointed out at Kadavanthara UPHC.
- There is great demand for pediatric and dental care in Kadavanthara UPHC area.
- All UPHCs are active in outreach camps, source reduction drives, palliative care and special camps.

Provider perspective - Junior Public Health Nurses (JPHN)

Urban health centers are as per guidelines, to situated in such places where the urban poor can easily approach for health care. During the initial period of the NUHM programme, the availability of building was an issue and most of the centers have been started at the available buildings which were used for other programmes. Hence, most of the urban PHCs are situated in urban rich areas. The DPMs of the selected districts pointed out that shifting the existing PHCs to other areas is very difficult due to political and regional pressure. In the present study, the selected centers are identified from coastal, slum and urban rich area to understand the difference if any in utilization.

NUHM has laid guidelines for working time, duties, population to be covered by JPHN. We reviewed the population covered by each JPHN under each UPHC.

The mean population in the selected wards in Kozhikode is 7682. Among them a quarter belongs to urban rich and another one fourth are middle class. About 40 percent of them are from either coastal or slums and hence is a mixed group of rich and poor. In Thiruvananthapuram the mean population under a JPHN is 9965. About 35 percent of the population is urban rich and another one fifth belongs to middle class. Nearly 29 percent of the covered population is slum dwellers and 14.3 percent are residents of coastal regions and slums.

Table 20: Mean Population covered by JPHN and the general characteristics of the population served

District	Mean Population under selected JPHNs	General Characteristics	%
Kozhikode	7682	APL-Upper class	33.0
		APL-BPL (Coastal/slum)	40.0
		APL-Middle class	26.7
Thiruvananthapuram	9965	APL-Upper class	35.7
		APL-BPL (Coastal/slum)	14.3
		BPL-Slum	28.6
		APL-Middle class	21.4
Ernakulam	10314	APL-Upper class	21.1
		APL-BPL	31.6
		APL-Middle class	15.9
		BPL (Coastal/Slum)	21.1
		BPL-Slum	21.0
Wayanad	6064	APL-BPL	100
Total	9242	APL-Upper class	28.0
		APL-BPL	32.0
		APL-Middle class	22.0
		BPL (Coastal/Slum)	18.0

In Ernakulam, the mean population covered by JPHN is 10314, the district having the highest urban population proportion. Highly densely population in each ward is very difficult for a JPHN to cover. One fifth of the population belongs to BPL slum and another one fifth belongs to either coastal or slums. About 21 percent of the population is upper class and 31 percent form a mixed group of APL and BPL category. In

Wayanad district, the mean catchment population under the wards of the JPHNs is 6064 and is a mix of both BPL and APL.

Majority of the JPHNs joined the UPHCs since its initiation (Table 19). Now those in the PSC rank list will be given appointment against vacancies in UPHCs. Among the selected JPHNs, 38 percent had worked in rural areas as JPHNs (mostly in PHCs or Taluk hospitals).

Table 21: Work experience of JPHNs in UPHC

Districts	JPHNs previous work experience in Rural health institutions in CHC/PHC/SC	Opinion of difference in nature of work at UPHC (%)*			
		Different work	Same work	More workload	No recognition from public
Kozhikode	50.0	0	80.0	0	20.0
Thiruvananthapuram	57.2	62.5	25.0	40.0	12.5
Ernakulam	31.6	33.3	66.7	0	0
Wayanad	0	0	0	0	0
Total	38.0	31.6	52.6	10.5	5.3

* Multiple response, may not add to 100%

About 57 percent of the JPHNs in Thiruvananthapuram have rural work experience followed by Kozhikode (50 percent) and Ernakulam (32 percent). The nature of work in the urban ward is little bit different from that in rural wards. In Thiruvananthapuram, more than 60 percent of them felt the current work is different compared to their previous one. At the same time, 81 percent of the JPHNs in Kozhikode felt that the present work is similar to their previous experience in rural area. In urban area recognition from the public is very difficult due to different reasons. These issues can be solved out by linking the Urban JPHNs with the FRUs/PP units of the major hospitals in their area.

In Kozhikode and Ernakulam the JPHNs in the UPHCs work in coordination with the PP units of Medical College hospital or General hospitals in their area. Condoms, E-pills, I-pills are provided to the beneficiaries collected from the PP units. Similarly, preference is given to those beneficiaries brought by the Urban JPHNs for female sterilization/IUCD in these hospitals. Such a combined work is not seen in

Thiruvananthapuram and hence the staff feels difficulty in working in the field. Monthly review meetings of urban JPHNs with the Public health wing of the tertiary level hospitals in Kozhikode provide positive inputs to the attitude and efficiency of the JPHNs.

Table 22: Utilization and awareness of the UPHC by the community as per the JPHN

Districts	Community's awareness on the presence of the UPHC in their area		Utilization of Services of UPHC	
Kozhikode	Yes	73.3	Yes	46.7
	No	26.7	Partial	33.3
			No	20.0
Thiruvananthapuram	Yes	57.2	Yes	71.1
	No	42.8	Partial	0
			No	28.9
Ernakulam	Yes	100	Yes	84.2
	No	0	Partial	0
			No	15.8
Wayanad	Yes	100	Yes	100
	No	0	Partial	0
			No	0
Total	Yes	78.0	Yes	60.0
	No	22.0	Partial	6.0
			No	34.0

Though different IEC are given through different media, utilization of the hospitals is comparatively less in some hospitals. For assessing the reasons for under utilization of the urban centers they were given different options. Ward assignment is pointed as the major problem. The catchment wards assigned to each UPHC may be far away from the UPHC. The presence of other hospitals (FRUs/Urban dispensaries/THQs/MCH) is also pointed as a reason for less utilization. The wards where the JPHNs are engaged is generally 5-7 kms away from the UPHC and people prefer to approach other hospitals due to lesser transport facilities, non-availability laboratories, non-availability of doctors etc.

An assessment of community's awareness of the presence of an UPHC was made. Three fourth of the JPHNs answered that the people in their area are aware of the presence of UPHC. This is very less in Thiruvananthapuram as only 57 percent of them pointed that the local people are aware of the existence of the centre. About 60 percent of the local people in the wards utilize the services of the centre. Generally people residing in the same ward of the UPHC or those residing in nearby wards utilize the services. In Wayanad, JPHNs assure full utilization of the UPHC by the catchment population. Ernakulam and Kozhikode also ensures proper utilization of services and it varies depending on the availability of laboratories, service of the Medical Officer etc.

Table 23: Reasons for non-utilization of UPHC services

Reason for not utilizing services of UPHC	Kozhikode	Thiruvananthapuram	Ernakulam	Wayanad
UPHC located far away	50.0	44.4	100	100
UPHC near MCH	50.0	0	0	0
Another UPHC nearby	0	11.1	0	0
Hospital nearby	0	33.4	0	0
Does not need service	0	11.1	0	0

Among the different reasons for the less utilization of the centre, location of the UPHC is pointed by majority of the JPHNs. When we discussed the issue of location with the concerned coordinators, they pointed that some UPHCs need to be re-located for giving better service to the urban poor, but it is not possible due to agitation from the local people. Some centers purely functions for the urban rich and are giving only NCD services to them. Ward re-distribution may be attempted so that people in each ward may approach the nearby centers. Due to the distance of the centre from their ward, patients approach higher facilities directly which increases the work load in FRUs as well as increases the non-utilization of UPHCs. Presence of other UPHCs or urban dispensaries in the nearby wards/same wards also decreases the utilization of the centre. The presence of another UPHC within a square km area is evident in Thiruvananthapuram, Ernakulam and Kozhikode. The urban rich are hesitant to attend the NCD clinics and do not believe in the quality of free medicines distributed through

the centre which is also a reason for non-utilization of the UPHCs situated in urban-rich areas. So awareness or sensitization programmes can be made effective although such limitations are likely to continue.

Working Time

Working time of JPHNs is from 9am to 4 pm. Usually 9am to 1pm is devoted to field visits and during 1pm to 4 pm they serve at the UPHCs. In some wards, based on the availability of SC building/room, JPHNs will spend time in the Centre and serve the local people. Only very less JPHNs have reported the availability of urban SC in their wards. The JPHNs usually are entitled to report at the UPHC and then move to their respective areas for outreach services. But it takes more time for travel and reduces the working time in their wards. Hence in some districts, the coordinators have allowed the JPHNs to directly go to their respective wards and then report the centre in the evening only.

Services provided by JPHNs in common as per guidelines and as assessed here are:

- Provide preventive and promotive healthcare services at the household level through regular visits and outreach sessions.
- Organize a minimum of one routine outreach session in their respective area every month.
- Special outreach sessions (for slum and vulnerable population) are also organized.
- They attend monthly meeting at U-PHC
- Organize Health & Nutrition day in collaboration with AWWs
- Provide support to Baseline survey and filling up of family Health Register
- Maintains records like Household Registers, outreach Camps registers
- Conducts Immunization and ANC clinics
- Facilitate data uploading of services provided by the UPHC in HMIS portal
- Render service on NCD days at the UPHC as there is huge turn out on NCD days when compared to OPD attendance, Kerala being forerunners in NCDs.

Table 24: District wise community level activities carried out by selected UPHC

Services	Kozhikode	Thiruvananthapuram	Ernakulam	Wayanad
Average number of ANCs per month	5	9	6	11
Average number of PNCs per month	5	8	6	13
Average immunization per month	20	30	26	23
Average number of Awareness programme conducted per month	5	2	4	3

Note: Average as reported by JPHNs.

JPHNs opine that they spend more time in the UPHCs on NCD. On rotation every JPHN has to spend one day in a month in the centre on NCD day. They prepare the registers and consolidate data on services rendered at the household level during the time they spend at the UPHCs. MCTS data uploading is done during this time. Those JPHNs who have the SC building facility can collect the required information like Aadhar and bank account details while spending time in the SC in the afternoon. Immunization activities are conducted at Anganwadi centers every week on rotation. The JPHNs has to collect the vaccines from the centralized vaccine store and vehicle will be available. The Medical officer will accompany the team. Other than routine immunization and NCD, JPHNs are assigned the duty of ANC and PNC visits. Average number of ANCs and PNCs covered by the JPHNs in a month is less than 10. ASHAs are available to very less number of JPHNs and they complained the difficulties to cover the urban area alone. In urban wards, people do not cooperate with such house-to-house visits and the presence of flats, where they need to seek prior permission to enter also decelerate the pace of area coverage. Every month JPHNs conducts awareness programmes on various programmes for the adolescents, breastfeeding mothers, pregnant mothers etc in the Anganwadi. These outreach programmes ensure more utilization of UPHC. In Ernakulam, 90 percent of the JPHNs opined that due to different community programmes utilization of the center has increased a lot. Only 65 percent of the JPHNs opined that community level activities increased the utilization in Thiruvananthapuram. They pointed that though people in the wards actively participate

in the community level activities that do not reflect in the utilization of UPHCs due to already mentioned problems.

Table 24: Opinion of JPHN about increase in the utilization of UPHC services through outreach activities

District	Any outreach activities conducted in the wards (%)	Has the outreach programmes improved utilization
Kozhikode	Yes – 100	Yes – 86.7
Thiruvananthapuram	Yes – 100	Yes – 64.3
Ernakulam	Yes – 100	Yes – 89.5
Wayanad	Yes – 100	Yes – 100

The JPHNs were asked about different problems they faced in the field as well as in the centre/SC. Less salary given to them is cited by a major share of JPHNs both in Ernakulam and Kozhikode. Lack of facilities in the SC is raised by all the JPHNs in Thiruvananthapuram and Kozhikode. They requested for one BP apparatus, Glucometer, first aid medicines in their SC. Non availability of Sub centre building in their ward is another issue faced by JPHNs. Along with these, location of UPHC is also pointed by them.

4.3 Patient Satisfaction

Patient satisfaction is identified as a good indicator of quality of health care services provided by a health facility. Any improvement in the service need to be based on the beneficiary perspective. The State NUHM has been identifying areas so as to improve the quality of service to the urban needy and poor sections who form a substantial proportion of the population. In the earlier section of the study we have clearly captured the demand for services in terms of the increasing OPD attendance in the UPHCs in Kerala. Here an attempt is made to capture the needs of the population who depend on the UPHCs for their health care needs.

Table 24 describes the study area and the characteristics of the population included for the study on a sample basis. Four UPHCs each from 3 different districts constitute the study area. Patients who visited the UPHC on a General OP day and one NCD

specific day were interviewed. Such a sampling technique yielded 363 beneficiaries in Kozhikode district, 383 from Thiruvananthapuram and 411 from Ernakulam. We had selected the UPHCs in such a way as to include UPHCs located in one slum area, one coastal area and one in urban rich.

So 31.4 percent of the selected beneficiaries are from Kozhikode, 33.1 percent from Thiruvananthapuram and 35.5 percent are from Ernakulam district. If the distribution of the study population by location of the UPHCs is assessed, beneficiaries from UPHCs located in urban rich area forms 43.2 percent, 30.9 percent are from UPHCs located in slums and 25.9 percent are from those in coastal areas. The slightly larger population in urban rich is due to the fact that location of UPHC Kadavanthara is such that it caters to urban rich and slum population. Since the sample includes 4 UPHCs in slums, UPHC Kadavanthara has been classified under urban rich.

Table 26: Background Characteristics of selected UPHCs in Kerala.

Population Characteristics			Name of UPHC		Percent
Districts	Kozhikode	Veliyancheripaadam		31.4 (363)	
		Payyanakkal			
		Kunduparamba			
		Ponnamkode			
	Thiruvananthapuram	Rajaji Nagar		33.1 (383)	
		Vettukad			
		Chalai			
		Nanthancode			
	Ernakulam	Kadavanthara		35.5 (411)	
		Kaloore			
		Mangattumukku			
		Pandikudy			
Total				1157	
Location of UPHCs	Coastal	25.9 (300)	No. of Aged members in the Household	No Aged	38.8 (449)
	Urban Rich	43.2 (500)		One	41.1 (476)
	Slum	30.9 (357)		Two or more	20.1 (232)
Distance of UPHC from Residence	<1km	52.6 (609)	No. of children in the Household	<=2	78.0 (704)
	1-2km	35.9 (415)		3 or more	22.0 (199)
	>=2km	11.5 (133)			
Income Category	APL	35.9 (415)	Type of Household	Nuclear family	56.4 (653)
	BPL	64.1 (742)		Joint family	43.6 (504)

Distance between the health facility and the residence is a major factor influencing utilization. Moreover it has already been highlighted that wards assigned under the UPHCs are not in all cases those that are near the UPHCs. Here we find that the patients who visited the UPHCs during our survey were more from the wards where the UPHC is located as 52.6 percent reside within one kilometer from the UPHC. Patients residing one in ten travel more than 2 kilometer to seek health care at the UPHC. This observation that utilization decreases with increasing distance points out the need for the location of UPHCs in areas where the urban needy population reside

If one observes the income category the characteristic feature of Kerala's rural-urban feature is discernible. About two in 3 respondents are from BPL income category and the rest are APL category. We find a mixed group in every location whether it is a coastal or an urban rich area. Only in slums we find people of BPL income category being concentrated. Since one of the key features of the present day UPHCs services is the importance it accords to management of NCDs. Studies have documented the prevalence of NCDs to be more among the aged population and those in their late adolescents. Also since Kerala is an ageing society, we tried to find out the proportion of households with aged members. Table 26 shows that 41.1 percent of the households have one aged member and one in five households have two or more aged members. The second dependent population group is the children. We find 78 percent of the households having 2 or less than 2 children and the rest 22 percent have 3 or more children. If we categorize the families as nuclear and joint families we find that more than half of the households are nuclear which is a characteristic feature of the present day families in the State.

The distribution of population by background characteristics is analysed in Table 27. One can observe that among those who utilize the UPHC services, over one in three are the aged population which is discernible from the higher turn out for NCD screening. An equivalent proportion is in their late adolescents when the onset of NCDs necessitates seeking primary health care. Representation of children and teenagers are relatively less. With regard to gender, females tend to utilize UPHC services more as one in three are females. Currently married group form a major share

(87.6 percent). Religious wise distribution of the sample population is similar to that of the State with Hindus forming just over half the respondents and over 20 percent each being Christians and Muslims.

Table 27: Percentage distribution of respondents by their background characteristics

Characteristics of respondents		Percent	Characteristics of respondents		Percent
Age of Respondent	10-19 years	2.6 (30)	Religion	Hindu	56.5 (654)
	20-29 years	8.0 (93)		Muslim	20.5 (237)
	30-39 years	14.6 (169)		Christian	23.0 (266)
	40-49 years	17.6 (204)	Education of Respondent	No formal Schooling	12.4 (144)
	50-59 years	21.0 (243)		1-10 years	67.1 (776)
	60+ years	36.1 (418)		>10 years	20.5 (237)
Gender of respondent	Male	33.6 (389)	Occupation of Respondent	Not working	72.3 (836)
	Female	66.4 (768)		Govt/Pvt Job/Retired	7.0 (81)
Marital Status	Never Married	7.0 (81)		Coolie	12.8 (148)
	Currently Married	87.6 (1013)		Driver	1.7 (20)
	Divorced\Separated\Widowed	5.4 (63)		Self employed	2.9 (33)
Total No. of respondents		1157	Total No. of respondents		1157

Educational background is classified as those having formal schooling and the number of years of schooling considering the population under study. We find 12.4 percent not having any formal schooling and this group is mostly the aged population. When 67.1 percent report having 1-10 years of schooling, one in five have more than 10 years of education inclusive of a good number of graduates and post graduates. As the UPHCs address the health care needs of the urban poor, we find that 72.3 percent of the respondents are non-working. Only 7 percent are Government/Private employees or Retired persons and this group is from the urban rich area where the UPHC is located. The rest of the group are either coolies or drivers are self employed who do not have a constant source of income.

Table 28: Awareness about UPHCs and Utilization of Services.

Variables		Percent	Variables		Percent
Source of Knowledge about UPHC	JPHN	1.2 (14)	Is this the first visit to UPHC	Yes	7.4 (86)
	Media	0.7 (8)		No	92.6 (1071)
	Relatives/Friends	43.7 (506)	Frequency of Visit	Weekly Once/Twice	5.5 (64)
	Other Patients	54.4 (629)		Monthly Once	70.4 (814)
OP Timing Convenience	Yes	98.3 (1137)		Monthly Twice	11.8 (137)
	No	1.4 (16)		Occasionally	7.2 (83)

Table 24 draws inference on the source of knowledge about the presence of an UPHC and the services provided and the level of utilization of services. Interpersonal communication is the major source of getting to know more about the UPHCs (97 percent) which indirectly indicates the fact that more people flow into the UPHCs after hearing about the services from other patients or relative and friends. The JPHNs and the media has a lesser role to play here. The designated OP timing of the UPHCs is 2-8pm and 98.3 percent of the respondents feel the OP timing to be convenient. Based on the needs of the population NUHM in the State has modified the OP timings especially in the coastal areas where the fisher folk return after fishing in the morning and such UPHCs function from 9am-4pm the effect of which is reflected in the proportion reporting the OP timings to be convenient.

An inquiry was made as to what proportion was coming for getting service for the first time and find that 7.4 percent of the beneficiaries were visiting the UPHC for the first time. Majority were usual visitors and out of these 70.4 percent takes service from the UPHC monthly once. About 12 percent report visiting twice in a month which according to the Pharmacist was for collecting NCD medicines which they give for every 15 days.

Table 29 draws inference on the distribution of respondents utilizing UPHC services by the type of illness for which they visited the UPHC during the time of survey. Since UPHCs render primary health care, we find that the patients approached for treatment of fever, fever and cough, NCDs like diabetes, hypertension, asthma, chest pain, thyroid problems, neuro problems and complaints of arthritis.

Table 29: Percentage distribution of respondents utilizing UPHC services by type of illness

	Type of Illness	Percent
Purpose of visit to UPHC	Fever	23.5 (272)
	Fever & Cough	22.7 (263)
	Hypertension/ Diabetes/Both	46.7 (540)
	Asthma	1.8 (21)
	Thyroid	2.2 (26)
	Chest Pain	1.3 (15)
	Neuro problem	0.5 (5)
	Arthritis	0.7 (8)

The primary objective of UPHC is rendering primary and promotive care and true to this aspect the illness for which treatment was sought is either fever (23.5 percent) or both fever and cough (22.7 percent) and hypertension/diabetes/both (46.7 percent). When 2.2 percent sought treatment for thyroid which is an emerging problem in the State, 1.8 percent reported availing treatment for asthma, 1.3 percent for chest pain and a few patients had neuro problems and arthritis.

Satisfaction on services rendered at the UPHC

Satisfaction on different services like availability of lab services, x-ray facilities, availability of medicines, diagnostic facilities, location of UPHCs based on distance from the beneficiaries residence and last but not the least and the most important factor, the satisfaction on services rendered by the health provider. Here we assess the satisfaction of all the beneficiaries in general first. This is measured based on one single question: “Are you satisfied with the health care services?”. This is a quick answer to a question.

Table 30: Satisfaction with services available in UPHC

Districts	Yes	No	χ^2 Value
Kozhikode	40.8	59.2	p<.001
Thiruvananthapuram	29.8	70.2	
Ernakulam	83	17	
Total	52.1 (603)	47.9 (554)	

Overall 52.1 percent of the respondents have expressed their satisfaction on services received from the UPHC. Significant differentials are observed in satisfaction levels by districts. Its more in Ernakulam (83 percent) and least in Thiruvananthapuram (29.8 percent). The reason for dissatisfaction (Table 31) like non availability of facilities, medicines, doctor's service etc has been captured. This is expressed as percentage of the total population.

Table 31: Reason for Dissatisfaction on services

Availability of Services	Yes	No
Medicines	89.5	10.5
Diagnostic services (Lab facility and X-ray)	74.8	25.2
OPD services	94.6	5.4
Infrastructure facilities	93.3	6.7
Distance from Residence	88.5	11.5
Service of Staff (Doctor, Nurse etc)	96.9	3.1
Total	1157	

Here we find that more than 90 percent of the patients have expressed their satisfaction on OPD services which includes timing of OP, time spent by doctor, treatment received for their illness etc. Infrastructure facilities and service of Staff are also good as assessed from satisfaction levels. One in four patients have expressed their dissatisfaction at availability of diagnostic facility because in 3 UPHC the labs are non-functional either due to absence of lab technician (Nanthencode UPHC in Thiruvananthapuram or power supply problems like lack of insulation (Rajaji Nagar and Chalai UPHCs in Thiruvananthapuram) or lack of infrastructure facilities including space (Kadavanthara and Pandikudy in Ernakulam). Only one in 10 are dissatisfied with availability of medicines which were mostly the NCD drugs which are in great demands and lack of supply of these drugs at times. Now with regard to distance, which is a major factor affecting utilization, just about 12 percent expressed dissatisfaction and such opinion came from UPHCs where ward redistribution is necessary.

Now among those who have expressed their dissatisfaction we examined the beneficiaries opinion on what more they expect from an UPHC or what improvements in services they expect because of which they expressed their dissatisfaction in all the three districts.

Table 32: Percentage distribution of respondents by service expected from UPHCs

Reason for dissatisfaction	Kozhikode	Thiruvananthapuram	Ernakulam	Total
Should get all medicines from the UPHC	24.2	24.2	7.1	22 (122)
Need X-ray	7.9	3.0	0	4.5 (25)
Lab should be functional on all days	15.8	2.2	0	7.2 (40)
Service should be available daily	7.0	0.4	0	2.9 (16)
Lab facilities should be improved	21.4	1.5	0	9.0 (50)
Emergency care should be provided	4.2	0.4	0	1.8 (10)
In-patient facility needed	10.2	3.0	0	5.4 (30)
Improve waiting area	0	19.3	0	9.4 (52)
Toilet facility needed	0	3.7	0	1.8 (10)
Telephone facility needed	7.0	0	0	2.7 (15)
Service should be on 24 x 7 basis	2.3	0	0	1.3 (7)
Lab facility needed	0	41.6	92.9	31.9 (177)
	215	269	70	554

Overall about 32 percent of the respondents in the study has suggested the need for a functional lab in the UPHCs where it is presently either non functional or lacks a lab technician. The other major suggestions for improvement in UPHC services were supply of all medicines from UPHC (22 percent), improved waiting area (99.4 percent), improved lab facilities (9 percent), lab to be functional on all days (7.2 percent), requirement of inpatient facility (5.4 percent), need X-ray facility (4.5 percent), demand for daily service (2.9 percent), need for emergency care (1.8 percent) etc.

Ernakulam district is better off in functioning of UPHCs as only 12.6 percent of the respondents suggested improvements and these suggestions were restricted to availability of lab because in two out of the four UPHCs selected in the area the labs

were non functional during the survey period. A few respondents wanted supply of all medicines. In Kozhikode district since all the UPHCs selected had functional labs need for a lab was not raised. In Thiruvananthapuram, two UPHCs, both in slums had difficulty in functioning of the lab. The present building at Rajaji Nagar is a low lying area and flooding is a constant problem during rainy seasons leading to short circuit. But the enthusiasm of the staff is reflected here as immunization services are rendered without interruption because the staff takes care to refrigerate the medicines properly and brings it at the time of immunization to the UPHC. In Chalai lab is non functional due to 2 reasons: lack of a lab technician and also lack of direct power supply exclusively for the UPHC. Presently the UPHC functions by sharing an electricity line from an adjacent building.

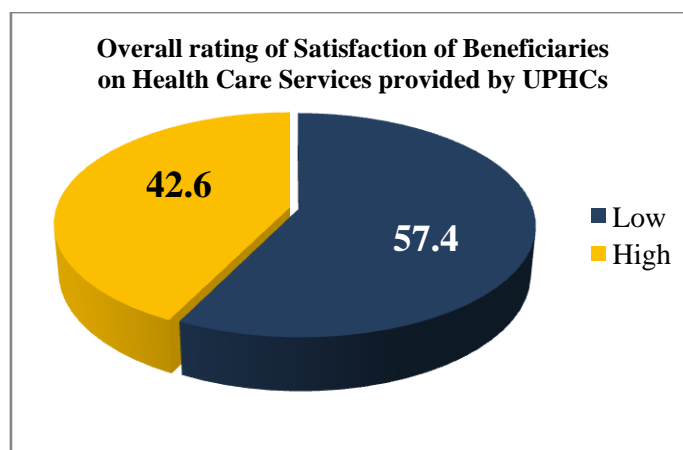
Improvement in lab facilities was suggested by 21.4 percent of the respondents in Kozhikode. Another 15.8 percent expressed the need for functioning of labs daily which shows the demand for services. One in four respondents each in Kozhikode and Thiruvananthapuram district wanted supply of all medicines from the UPHC. X-ray facility was requested by about 8 percent of the respondents in Kozhikode and 3 percent in Thiruvananthapuram. Seven percent of the respondents in Kozhikode wished if the UPHC service was available on all days. Inpatient facility was a necessity to one in ten patients in Kozhikode and 3 percent in Thiruvananthapuram. One in five respondents demanded improved waiting area during OP in Thiruvananthapuram which was mainly in Rajaji Nagar and Vettukad UPHCs. Some demanded telephone facility and some wanted toilet facility.

Overall the performance of UPHCs are reflected in the satisfaction level of patients in all the three districts. UPHC services are being utilized by a large population. Urban poor are greatly benefitting from the UPHC services and even a suggestion at some places to shift the UPHC has made the mob violent.

Now the overall satisfaction levels is found out by cumulating the satisfaction of services of staff (health care professionals), satisfaction on diagnostic services available, that on infrastructure facilities, that on medicine availability, distance from UPHC to the residence and satisfaction on OPD services. This indicates a degree or

rating of satisfaction rather than a 'Yes' or 'No' where many aspects are masked. The cumulative score is classified as 'Low' and 'High' satisfaction by taking the mean value. The low values do not indicate that they are not satisfied. But they are dissatisfied with a few services. We have already seen that dissatisfaction is mostly related to the diagnostic services and lack of lab facilities and the beneficiaries in fact need these services. But that on health care providers service, timing etc are good. Satisfaction thus classified shows that 42.6 percent of the beneficiaries have 'high' overall satisfaction and 57.4 percent have 'low' satisfaction.

Figure 8: Overall rating of satisfaction levels of Beneficiaries on UPHC services



The background characteristics of respondents are linked to the rating of satisfaction which is examined here. Age, sex, religion and marital status of the respondents, type of family, income category, education and occupation, also household size, have the likelihood of being associated with the satisfaction rating. Apart from this, the district, location of UPHC and the distance of UPHC from the residence are expected to influence the satisfaction levels.

Here we find satisfaction level to be low more among the 30-59 age group (61.5 percent). The young (<30 years) and the elderly have similar rating as over 47 percent has rated the satisfaction as 'high'. There is no significant variation in rating the satisfaction on UPHC services by gender. However with regard to marital status, over 43 percent of the never married and currently married women have 'high' satisfaction on UPHC services which is only 30 percent among divorced/separated/widowed

persons. Infact this group of persons living without spouse greatly depends on the UPHC services and are frequent visitors to the UPHC and hence have suggested improvements in diagnostic, lab and infrastructure facilities. Satisfaction levels do not vary by religion.

Respondents from joint families (46.4 percent) tend to assign ‘high’ satisfaction levels more when compared to those from nuclear families (39.7 percent). The same finding is discernible if we assess by the number of members or household size. As the number of members in the family increase, the burden on the families on meeting health expenditure increases and dependence of UPHCs which deliver treatment free of cost increases. Although there is not much variation in association between income category and rating of satisfaction levels, 46.5 percent of the beneficiaries from APL category have given ‘high’ rating as against 40.4 percent among BPL families.

Table 33: Overall rating of satisfaction by background characteristics of beneficiaries and UPHCs

Variable	Satisfaction		Variable	Satisfaction		Variable	Satisfaction	
	Low	High		Low	High		Low	High
Age (in years)			Marital Status			Religion		
<30	52.8	47.2	Never Married	56.8	43.2	Hindu	57.8	42.2
30-59	61.5	38.5	Currently Married	56.7	43.3	Christian	54.4	45.6
>=60	52.6	47.4	Divorce/Separated/ Widowed	69.8	30.2	Muslim	59.0	41.0
Age Mean ± SD = 51 ±15.7	χ ² = 9.22*			χ ² = 4.23			χ ² = 1.18	
Sex			Type of Family			Income Category		
Male	59.6	40.4	Nuclear	60.3	39.7	APL	53.5	46.5
Female	56.2	43.8	Joint	53.6	46.4	BPL	59.6	40.4
	χ ² = 1.21			χ ² = 5.32*			χ ² = 4.02*	
Education of respondents			Occupation of Respondents			No. of members in the Household		
No formal Schooling	68.1	31.9	Not Working	55.5	44.5	1-2	63.8	36.2
1 – 10 years	57.0	43.0	Govt./Pvt/Retired	67.9	32.1	3-4	59.3	40.7
More than 10 years	52.3	47.7	Coolie/Driver/Self employed	60.4	39.6	5 or more	53.6	46.4
	χ ² = 9.25**			χ ² = 5.78*			χ ² = 6.25*	
Location of UPHCs			District			Distance of UPHC		
Urban Rich	54.7	45.3	Kozhikode	64.5	35.5	<1 Km	56.7	43.3
Coastal	53.6	46.4	Thiruvananthapuram	73.1	26.9	1-2 Km	44.8	55.2
Slum	65.0	35.0	Ernakulam	36.5	63.5	>=3 Km	100	0
	χ ² = 12.27***			χ ² = 119.5***			χ ² = 125.7***	
Number	1157		Number	1157		Number	1157	

Rating of satisfaction on services as 'high' is more among the educated (more than 10 years of schooling) than those without any formal schooling. If we observe the difference in rating by occupation more non working respondents have given higher rating (44.5 percent) whereas only 32 percent of the Govt/Private/Retired persons have assigned 'high' rating.

Table 33 also draws inference on how the satisfaction level/ ratings change by district, location of UPHCs and the distance of the UPHC from residence. All these variables show significant variation at 1 percent levels. Ernakulam district that provides more services have more beneficiaries assigning 'high' satisfaction followed by Kozhikode and Thiruvananthapuram districts. If the location of UPHCs is considered, lesser proportion of beneficiaries from UPHCs where utilization of service is more like one that is located in slum tend to give a 'high' satisfaction for services. This could perhaps be due to the dependence on the UPHC services as we found more suggestions on improvement of facilities from this group of people. Around 45 percent of those from coastal areas and urban rich areas have expressed high satisfaction on services.

The predictors of expressing high satisfaction of UPHC services are examined here. The dependent variable is dichotomous and coded as '0' for 'Low satisfaction' and as '1' for 'High satisfaction'. The confounding factors that revealed significant χ^2 association with demographic and socio-economic variables are included in the binary logistic regression model. These variables are age and sex of respondent, household size, location of UPHC and the District.

Compared to respondents aged <30 years, those aged 30-59 years are 21 percent less likely to express high satisfaction (OR: 0.792, CI: 0.524-1.199) and those respondents aged 60 years or more are almost 9 percent more likely to express high satisfaction. Odds of having high satisfaction of services from UPHCs among female respondents is 1.24 compared to males. Respondents from households with 3- 4 members are 3 percent less likely to have high satisfaction compared to those from HHs with 1-2 members (OR: 0.971, CI: 0.637-1.479). But respondents from HHs with 5 or more members are 30 percent more likely to have high satisfaction on UPHC services than

those from HHs with 1-2 members (OR: 0.262, CI: 0.858-1.970). Location of UPHCs selected was from urban rich area, coastal and slum areas. Here we find that compared to those respondents using services located in a urban rich area, those using services in coastal area are 22 percent less likely to express high satisfaction and those using services from UPHC located in slum area are 32 percent less likely to have high satisfaction levels. This is perhaps linked to the fact that such population heavily depends on the UPHCs services and tends to be less satisfied when they do not get the services they expect from the UPHCs given their inability to afford higher costs in private hospitals. Utilization of UPHC services is also noted to be greater in UPHCs located in coastal and slum areas.

Table 34: Multivariate Regression analysis showing the odds of Satisfaction of Beneficiaries on UPHC services

Co-variates	β	OR	SE	CI (P-value)
Age (< 30 years reference) (.070)				
30-59	-0.233	0.792	0.212	0.524-1.199 (.271)
>=60	0.084	1.088	0.227	0.698-1.697 (.709)
Sex of child (Male as reference) (
Female	0.217	1.242	0.137	0.950-1.625(.113)
Household size (1-2 members reference) (0.088)				
3-4	-0.030	0.971	0.215	0.637-1.479 (.891)
>=5	0.262	1.300	0.212	0.858-1.970 (.216)
Location of UPHC (Urban Rich area as reference) (.093)				
Coastal	-0.128	0.880	0.159	0.645-1.200 (.419)
Slum	-0.374	0.688	0.176	0.488-0.971 (.033)
District (Kozhikode as reference) (.000)				
Thiruvananthapuram	-0.323	0.724	0.175	0.514-1.019 (.064)
Ernakulam	1.167	3.213	.156	2.368-4.360 (.000)
Number of cases included in the model				1157
-2loglikelihood = 1440.74, χ^2 p<.001				

Keeping Kozhikode district as reference category we find that respondents in Thiruvananthapuram district are 28 percent less likely to have high satisfaction of services ($p = 0.064$) and those from Ernakulam district are 3 times more likely that those from Kozhikode district to rate their satisfaction on UPHC services as high ($p = 0.000$).

So multivariate regression analysis statistically justifies the findings stated earlier in bivariate association that the background characteristics of respondents like education, occupation, marital status or income category do not significantly influence rating of satisfaction levels. But elderly population who use services more and female respondents tend to have higher satisfaction levels. Other than these, invariably the location of the UPHCs influences the satisfaction level. Also as we found earlier, Ernakulam district which has better services in the UPHCs raises the satisfaction levels if the beneficiaries than those in Thiruvananthapuram or Kozhikode districts.

5. Conclusion

Kerala is a rapidly urbanizing State. Urban health problems are also plenty. The primary health care needs of the urban poor are catered to by UPHCs established in the Corporations and Municipalities to some extent. The study finding point out to the greater utilization of services in the UPHCs located in the slums and coastal areas which indicate the demand for health care services among the urban poor. But a comparison of distribution of UPHCs dealt with earlier and slum population (as discussed in the first section) point to need for more UPHCs in districts like Thrissur which has the maximum slum population and has only 4 UPHCs presently. Slum population also have poor living conditions and as discussed earlier more than one third of the slum households do not have drainage facility, a similar proportion lack safe drinking water and more than half of the households have poor housing conditions. These aspects pose to be a challenge to improve the urban health especially among the urban poor. So greater focus needs to be on the slum population and also the coastal population who have similar poor living conditions, so that they get primary health care as delivered by the UPHCs.

Inorder to render uninterrupted service to the people the need for eliminating manpower shortage has to be prioritized. The lack of stability in postings of Medical Officers as evident from the lesser experience in the selected UPHCs, the larger population covered by the JPHNs and lack of Lab Technicians are issues to be tackled.

Issues regarding salary hike according to the new pay revision, provident fund contribution for those getting more than 15000 salary etc need to be solved. Such action could boost the morale of the staff in rendering better service. In the absence of untied fund they contribute proportionately to accumulate fund for daily needs arising in the UPHC. Such gestures are indicative of the commitment of the staff in the functioning of UPHCs. Service delivery can be improved tremendously if untied funds are provided to the UPHCs which would enable them to meet the expenses like local purchase of medicines at times of extreme shortage, registers, computer accessories, stationery, providing drinking water to patients at the OP and other unforeseen expenses that disrupt service delivery.

An assessment in the provider perspective reveals that, among the different reasons for the lesser utilization of the centres, location of the UPHC is pointed by majority of the JPHNs. When we discussed the issue of location with the concerned coordinators, they pointed that some UPHCs need to be re-located for giving better service to the urban poor, but it is not possible due to agitation from the local people. Some centers purely functions for the urban rich and are giving only NCD services to them. Ward redistribution may be attempted so that people in each ward may approach the nearby centers. As the distance of the assigned wards from the UPHC increases, utilization of services of the UPHC decreases. Due to the distance of the centre from their ward, patients approach higher facilities directly which increases the work load in FRUs as well as increases the non-utilization of UPHCs. Presence of other UPHCs or urban dispensaries in the nearby wards/same wards also decreases the utilization of the centre. The presence of another UPHC within a square km area is evident in Thiruvananthapuram, Ernakulam and Kozhikode.

The urban rich are hesitant to attend the NCD clinics and do not believe in the quality of free medicines distributed through the centre which is also a reason for non-utilization of the UPHCs situated in urban-rich areas. So awareness or sensitization programmes can be made effective although such limitations are likely to continue. So the problem of improper ward assignment requires attention to improve service delivery. Such anomalies can be solved by meaningful coordination between the DPM

and the health units of Corporation/Municipalities. Restructuring of wards is essential so that work load in the referral hospitals can be reduced as we find good utilization of UPHCs mostly in the slum and coastal areas. In Kozhikode monthly coordination meetings of Corporation health authorities, DPM unit and PP unit of tertiary hospitals are planned and all the issues in the wards are discussed. Such a pilot activity in Kozhikode may be replicated in all the other corporations.

Among the different issues the JPHNs face in the field, distance between the UPHC and the assigned wards has been mainly pointed. Difficulties in the field were cited more by the JPHNs of Thiruvananthapuram district. In Ernakulam and Kozhikode due to the combined health care activities with the PP units of major hospitals, the JPHNs are gaining public support. The higher population, presence of floating population and migrants increases the difficulties in the field. Due to frequent change in the rented houses, their area survey remain incomplete.

Yet another problem raised by the JPHNs is the lack of identity. Services rendered by them are documented in the higher facilities. The JPHNs in the UPHCs work in coordination with the other JPHNs under the municipality or district or Taluk hospitals. They provide family planning services and distribute condoms, Mala-D, E-pills etc collected from the PP unit. The patients taken to the PP unit for IUD insertion by the UPHC JPHNs are also given special preferences. A proper coordination between hospitals in the area and UPHC is needed. The satisfaction of area activities in Ernakulam and Kozhikode is better than that of Thiruvananthapuram. In Kozhikode, Ernakulam and Wayanad where we visited the rapport between UPHCs and the other public health hospitals functioning in the area is fine. But in Thiruvananthapuram district such a coordination is not seen and it affects the quality of services in the area especially in FP.

Beneficiary level satisfaction of services reveal that more than 90 percent of the patients are satisfied on OPD services which includes timing of OP, time spent by doctor, treatment received for their illness etc. Infrastructure facilities and service of Staff are also good as assessed from satisfaction levels. One in four patients have expressed their dissatisfaction at availability of diagnostic facility. Labs have become

non functional either due to absence of lab technician, or power supply problems like lack of insulation or lack of infrastructure facilities including space. Only one in 10 are dissatisfied with availability of medicines which were mostly the NCD drugs which are in great demands and lack of supply of these drugs at times.

Overall the performance of UPHCs are reflected in the satisfaction level of patients in all the three districts. UPHC services are being utilized by a large population. Urban poor are greatly benefitting from the UPHC services and even a suggestion at some places to shift the UPHC has made the mob violent. Out of the three districts selected, Ernakulam district is better off in functioning of UPHCs as only a few patients suggested improvement in facilities. In Suggestions for better functioning of UPHCs as expressed by the beneficiaries include: improvement in lab facilities, need for functioning of labs daily which shows the demand for services, supply of all medicines from the UPHC, X-ray facility, UPHC service should function on all days, inpatient facility, improved waiting area during OP, telephone facility and some wanted toilet facility. The overall ratings and the statistical association as expressed in the odds ratios affirm the importance of providing continuous, good and demand based services to the people.

The need for Family Planning services from UPHCs have been reported by a substantial proportion of the beneficiaries. Study finding point to higher unmet need for FP services among the currently married women (15-49 years) in urban areas (14.3 percent) than rural (13.8 percent) in Kerala (NFHS 4, 2015-16). Unmet need for spacing methods also depict similar situation. So UPHCs could be made a delivery point for distribution of FP methods to cater to the needs of the urban poor.

Some suggestions for the improvement in functioning of UPHCs as discernible from the Provider perspective assessment made from interviews with 12 Medical Officers. Since our selection of UPHCs has been slum, coastal area and urban rich, the findings could perhaps be generalized for UPHCs with similar locations. The suggestions are:

- Medicine distribution need to be streamlined as local purchase is not possible without fund for the UPHC (untied fund not sanctioned). At times of great

demand, shortage of medicines, especially NCD drugs, Insulin etc is problematic.

- The MOs report the existing demand for management of arthritis, Gynaec services, Pediatric services etc. Demand for lipid profile tests, thyroid function test etc is also reported. Meeting these demands would increase utilization of UPHC services
- Lack of untied fund makes payment of electricity bill, camp organizations, local purchase of medicines at times of shortage difficult. So availability of untied fund may be prioritized.
- In UPHCs located in urban rich area, constant and continuous supply of medicines is essential. Due to the presence of hospitals both private and Government, people tend to be dissatisfied when there is shortage of medicines. So continuous supply of medicines is essential.
- In the UPHCs located in a coastal area, population is mainly fisher folk and those from low income group, cases of injuries, cuts and wounds caused during fishing is more which raises the demand for minor surgeries, minor sutures etc. Even if they are referred to higher facilities, people show reluctance to go and return to the UPHCs for treatment. So catering to the needs of the population is a priority area to work upon.
- Demand for NCD drugs is more. People are regular to visit the UPHC to keep sufficient stock of medicines and come every 15 days. In UPHCs located in some slums, unruly mob tends to create problems if medicines are not provided.
- Need for Specialists atleast once in a month during camps is the felt need of the population.
- There is great demand for paediatric and dental care. All UPHCs are active in outreach camps, source reduction drives, palliative care and special camps. There is also demand for Gynaec OP, ortho and geriatric care OP once in a week atleast apart from the services that are provided presently.
- Generally the elderly population depends heavily on the services provided by the UPHC inspite of the presence of MCH, or other hospitals which shows the importance of UPHCs.

So the study findings portray the good utilization of UPHCs in Kerala. There is demand for services. Elderly population heavily depends on these centres to avoid long queues in the referral hospitals or the higher costs in the private sector. More stress to pediatric care could perhaps attract treatment of children at these centres. There is good NCD attendance in the UPHCs in the State due to the higher incidence of hypertension and diabetes. Medicine distribution for NCDs are on great demand and supplies need to balance the demand. UPHCs in Ernakulam district set an example with additional facilities like ECG, Palliative care and Mental health care which raised the satisfaction levels of beneficiaries compared to the other districts under study. Such facilities could be extended to all UPHCs.

Every successful health programme is the result of commitment of the health care providers. Their demands for better remuneration and better facilities need attention. On the beneficiary side, the higher expenditure incurred for treatment in the private sector often tempts the urban poor to utilize the UPHC services. So facility level preparedness is a key aspect and has to be carefully demand oriented. We found great demand for services especially among the aged urban poor who mostly struggle to manage their health problems. The UPHCs in the State form a good platform for such demands.

Acknowledgement

Population Research Centre Kerala sincerely acknowledges the support rendered by the District Programme Managers, NHM, Thiruvananthapuram, Kozhikode, Ernakulam and Wayanad Districts for facilitating data capture from the selected UPHCs. We place on record our sincere gratitude to Dr. Bijoy. E, State Urban Health Manager, Dr. George K Philip, State M&E Consultant, Ms. Buela G.S, Urban MIS Manager, National Urban Health Mission, Kerala for providing all necessary information. The study would not have been possible without the critical comments and suggestions of the Officers concerned at every stage of the study. The cooperation rendered by the State Health Department is gratefully acknowledged.

References

1. Alsan, M., Bloom, D., Canning, C. & D. Jamison (2008). The consequences of population health for economic performance, in: Bennett, S., Gilson, L. & A. Mills

- (eds). *Health, economic development and household poverty. From under-standing to action*. London: Routledge, pp. 21–39.
2. Gupta, I. and Guin, P. (2015) Health Status and Access to Health Services in Indian Slums. *Health*, **7**, 245-255. <http://dx.doi.org/10.4236/health.2015.72029>
 3. Gupta, I. and Mondal, S. (2014) Urban Health in India: Who Is Responsible? The International Journal of Health Planning and Management, Early View. <http://dx.doi.org/10.1002/hpm.2236>
 4. Harpham, T. (2009). Urban health in developing countries. What do we know and where do we go?, in: *Health & Place*, Vol. 15, No. 1, pp. 107–116.
 5. Marsh, A., Gordon, D., Heslop, P. & C. Pantazis (2000). Housing deprivation and health. A longitudinal study, in: *Housing Studies*, Vol. 15, No. 3, pp. 411–428.
 6. Mohan, V., Sandeep, S., Deepa, R., Shah, B., Varghese, C. 2007. Epidemiology of type 2 diabetes: Indian scenario. *Indian J Med Res*. Mar125(3):217-230
 7. Pahwa Parika and Aditya Sood, 2013, Existing practices and barriers to access of MCH services – a case study of residential urban slums of district Mohali, Punjab, India GLOBAL JOURNAL OF MEDICINE AND PUBLIC HEALTH Vol. 2, No. 4 2013
 8. Pande Suchi, 2005, Background note on health in urban slums in Delhi , Ensuring public accountability through community action 2005, Institute of Social Studies Trust, New Delhi
 9. Registrar General of India, [Primary Census Abstract Data for Slum \(India & States/UTs - Town Level\)](#) – 2011, *Census 2011*, New Delhi
 10. Smith, S.J., Easterlow, D., Munro, M. & K.M. Turner (2003). Housing as health capital. How health trajectories and housing paths are linked, in: *Journal of Social Issues*, Vol. 59, No. 3, pp. 501–525.
 11. Subramanian, S.V., Delgado, I., Jadue, L., Vega, J. & I. Kawatchi (2003). Income inequality and health. Multilevel analysis of Chilean communities, in: *Journal of Epidemiology and Community Health*, Vol. 57, No. 11, pp. 844–848. Carsten Butsch / Patrick Sakdapolrak / V.S. Saravanan 32