

**NISHA.T.A. “HOUSEHOLD HEALTH EXPENDITURE IN
KERALA: AN ECONOMIC ANALYSIS” THESIS RESEARCH AND
POST GRADUATE DEPARTMENT OF ECONOMICS,ST.THOMAS
COLLEGE,THRISSUR, UNIVERSITY OF CALICUT.**

CHAPTER 5

HOUSEHOLD HEALTH EXPENDITURE IN KERALA: AN EMPIRICAL ANALYSIS

- 5.1. Introduction
- 5.2. Health Status and Demographic indicators in Kerala
 - 5.2.1. Life Expectancy at Birth
 - 5.2.2. Birth Rate and Death Rate
 - 5.2.3. Infant Mortality Rate
 - 5.2.4. Under 5 Mortality Rate
 - 5.2.5. Maternal Mortality Ratio
 - 5.2.6. Sex Ratio
 - 5.2.7. Prevalence of Diseases
- 5.3. Health Institutions in Kerala
- 5.4. Public Expenditure on Health in Kerala
- 5.5. Household Expenditure on Health in Kerala
 - 5.5.1. Medical Expenditure in Kerala
 - 5.5.2. Medical Expenditure and Childbirth
- 5.6. Health Insurance in Kerala

5.1. Introduction

The foundation for a medical care system was laid in Kerala much before independence. Some of the present health facilities especially hospitals were started before independence. Accessibility of medical care facilities has played a major role in influencing the health status of Kerala. Decentralisation of economy since 1994 improved the infrastructure facilities and equipments in primary and secondary healthcare institutions in Kerala (Economic Review 2016). The good health status of the population had existed prior to its foundation. The health care system is considered to be the principal factor for attaining the high level of health status in Kerala. Favourable health outcomes are often attributed to its effective health care system, which has ensured high accessibility at low cost, and non-health sector contributions including wide-spread education, land reforms, public distribution of food, and housing. Incorporated western and traditional medicine provided by the government was accessible to the people (Panikar and Soman, 1984).

Kerala achieved a remarkable progress in the health care. These have been achieved due to a large number of factors such as pro-active intervention by the State, social mobilization by social, political and religious groups and improvement in other social indicators such as female education. However recent trends show that health of

the people of Kerala face the double threats of re-emerging communicable diseases and emergence of risk factors that predispose persons to chronic diseases (State Planning Board, 2013). The expectancy of life has increased, with consequent rise in degenerative diseases of aging and life-styles. Changes in dietary habits and increased tobacco and alcohol use are likely to increase the incidence of chronic diseases in future (Economic Review, 2013).

5.2. Health Status and Demographic Indicators in Kerala

The peculiarities in health status and demography of Kerala are essential to examine the variations in expenditure on health. Population of the state shows an increasing trend from 1.69 crores in 1961 to 3.34 crores in 2011. The decadal growth rate of population diminished from 26.29 percent in 1971 to 4.91 percent in 2011 (See Table 5.1).

Table 5.1

Percentage Distribution of Population and Growth Rate of Population in Kerala

Year	Age Group			Population (Crores)	Growth Rate of Population
	0-14	15-59	60+		
1961	42.42	51.53	5.84	1.69	24.76
1971	40.26	53.52	6.22	2.13	26.29
1981	35.00	57.50	7.50	2.54	19.24
1991	29.80	61.40	8.80	2.90	14.32
2001	26.08	63.44	10.48	3.18	9.43
2011	23.40	63.90	12.70	3.34	4.91

Source: Census of India, 2011

One of the important characteristics of demographic transition of Kerala is population ageing. The proportion of the population in the old age group (60+) is showing an increasing trend from 5.84 percent in 1961 to 12.7 percent in 2011. This may be due to the increasing life expectancy and availability of health facilities in the state. The proportion of the population in the age group of 0-14 shows a diminishing trend from 42.42 percent in 1961 to 23.4 percent in 2011. The old age dependency ratio in Kerala which is highest among Indian states also aggravated the level of morbidity.

5.2.1. Life Expectancy at Birth

It is clear from the Table 5.2 that the expectation of life at birth in Kerala shows an increasing trend from 72.5 years during 2001 to 75.3 years during 2016. The high expectation of life necessitates high demand for healthcare. High expenditure on

healthcare would increase the life expectancy. Hence life expectancy would be the cause and effect of expenditure on health in Kerala.

5.2.2. Birth Rate and Death Rate

Birth rate and death rate are significant factors in the growth rate of population. Birth rate, a measure of fertility of population, in Kerala shows a decreasing trend from 17.0 percent in 2001 to 13.9 percent in 2018. As per the Sample Registration System Statistical report the birth rate in India exhibits a diminishing rate from 25.0 percent in 2001 to 20.0 percent in 2018. Birth rate in Kerala is low during 2001 and 2018 compared to the national level.

Table 5.2
Health Indicators of Kerala

Mid Year	Birth Rate	Death Rate	Life Expectancy at birth
2001	17.0	6.6	72.5
2002	16.9	6.4	73.2
2003	16.7	6.3	73.6
2004	15.2	6.1	73.9
2005	15.0	6.4	74.1
2006	14.9	6.7	74.3
2007	14.7	6.8	74.3
2008	14.6	6.6	74.2
2009	14.7	6.8	74.4
2010	14.8	7.0	74.7
2011	15.2	7.0	74.8
2012	14.9	6.9	74.9
2013	14.7	6.9	75.2
2014	14.8	6.6	75.1
2015	14.8	6.6	75.2
2016	14.3	7.6	75.3

Source: Sample Registration System Statistical Report, Various Years

Death rate is a simple measure of mortality. There is a marginal increase observed in the case of death rate of Kerala from 6.6 percent in 2001 to 6.9 percent in 2018. As per the Sample Registration System Statistical report the death rate in India is reduced from 8.4 percent in 2001 to 6.2 percent in 2018.

5.2.3. Infant Mortality Rate

IMR is a crude indicator of overall health scenario of a country. Lower the IMR higher will be the health status of a country. Kerala achieved the desired level of infant deaths. IMR in Kerala increased from 11 infants in 2001 to 15 infants in 2006. After that the IMR decreased to 7 infants in 2018. There is a decrease in the IMR at national level from 66 infants in 2001 to 32 infants in 2018. Reducing IMR is a Sustainable Development Goal.

5.2.4. Under 5 Mortality Rate

Under 5 Mortality Rate is also an indicator of mortality to measure the death rate of children below 5 years. Under 5 Mortality Rate in Kerala decreased from 13 during 2011 to 9 during 2015 while at the national level it reduced from 55 during 2011 to 43 during 2015. Under 5 Mortality Rate is highest among female child compared to male child both in Kerala and national level for 2011 and 2015. Under 5 Mortality Rate among female child reduced from 14 to 10 and male child from 12 to 7 for the period 2011 and 2015 in Kerala. At the national level Under 5 Mortality Rate among female child reduced from 59 to 45 and male child from 51 to 40 for the period 2011 and 2015.

5.2.5. Maternal Mortality Ratio

Maternal Mortality Ratio (MMR) is an indicator of maternal death. It can be observed that the MMR has been reducing in Kerala and at the national level. MMR in Kerala reduced from 95 maternal deaths during 2004-06 to 46 maternal deaths during 2014-16 while at the national level it decreased from 254 to 130 for the period 2004-06 to 2014-16.

5.2.6. Sex Ratio

Sex ratio, the number of females per 1000 males, in Kerala increased from 1058 during 2001 to 1084 during 2011 and at the national level it marginally increased from 933 during 2001 to 943 during 2011. Kerala has a favourable sex ratio among the states of India. Child sex ratio, the number of female child to per 1000 male child under 5 years, is very low compared to sex ratio of adults. At the national level child sex ratio is in an alarming situation since it decreased from 927 during 2001 to 919 during 2011. In Kerala it increased from 960 in 2001 to 964 in 2011.

5.2.7. Prevalence of Diseases

Both the communicable and non-communicable diseases are great threat to life. Kerala witnessed the re-emergence of the communicable and existence of non-communicable diseases. The high cost of medicines and longer duration of treatment leads a huge financial burden to the people. Cancer, diabetes, cardio-vascular diseases and lung diseases are major non-communicable diseases prevalent in Kerala. Among the non-communicable diseases cancer is a major threat to all sections of human population. Delay in early detection, minimal treatment centres, enormous treatment cost and lack of awareness donate to high mortality of this diseases. Regional Cancer

Centre (RCC), Malabar Cancer Centre and Cochin Cancer and Research Centre are the hospitals in government sector for cancer treatment apart from the medical colleges. the number of new cancer cases registered in RCC, Thiruvananthapuram is presented in Table 5.3.

Table 5.3
Number of New Cancer Cases Registered in RCC

Year	Number of new cases registered	Percentage change
2013-14	14985	-
2014-15	15940	5.99
2015-16	16042	0.64
2016-17	16255	1.31
2017-18	16443	1.14
Total	79665	-

Source: Regional Cancer Centre, Thiruvananthapuram

The number of new cancer cases registered in RCC during the period 2013-14 to 2017-18 was 79665. In 2017-18 the new cases registered in RCC was 16443 and there was 1.14 percent increase from the previous year. There was a tremendous increase in the number of new cancer cases from 2013-14 to 2014-15. In Kerala nearly 1 lakh people are under treatment for this disease annually. Extensive modernisation and urbanisation, extreme lifestyle changes, profound dependency on alcohol and tobacco, likeness for white collar jobs, unhealthy eating patterns, high levels of stress in all strata of population are the contributory factors of high prevalence of non-communicable diseases in Kerala (Economic Review, 2018). A survey conducted by Achutha Menon Centre for Health Science Studies on non-communicable diseases exhibits the severity of non-communicable diseases in Kerala which is highest among the Indian States. The survey reveals that one out of five has diabetes and one out of three has hypertension.

Mental health in Kerala also calls for special attention. As per the Census of India 2011, in Kerala 0.2% of the population suffers from mental retardation and 0.2% suffers mental illness compared to a national average of 0.12% and 0.06% respectively. Kerala reported high levels of mental illness compared to all India. Another notable feature in the health scenario of Kerala is high suicide rate. As per the report of National Crime Records Bureau the suicide rate is 23.9 per 100000 population for the year 2014 which is double the national rates. Kerala witnessed the dual burden of diseases (both communicable and non-communicable).

The magnitude of public health issues in Kerala in the form of communicable diseases for different time periods is given in Table 5.4. The state has been successful in controlling a number of communicable diseases earlier

Table 5.4

Prevalence of Communicable Diseases in Kerala

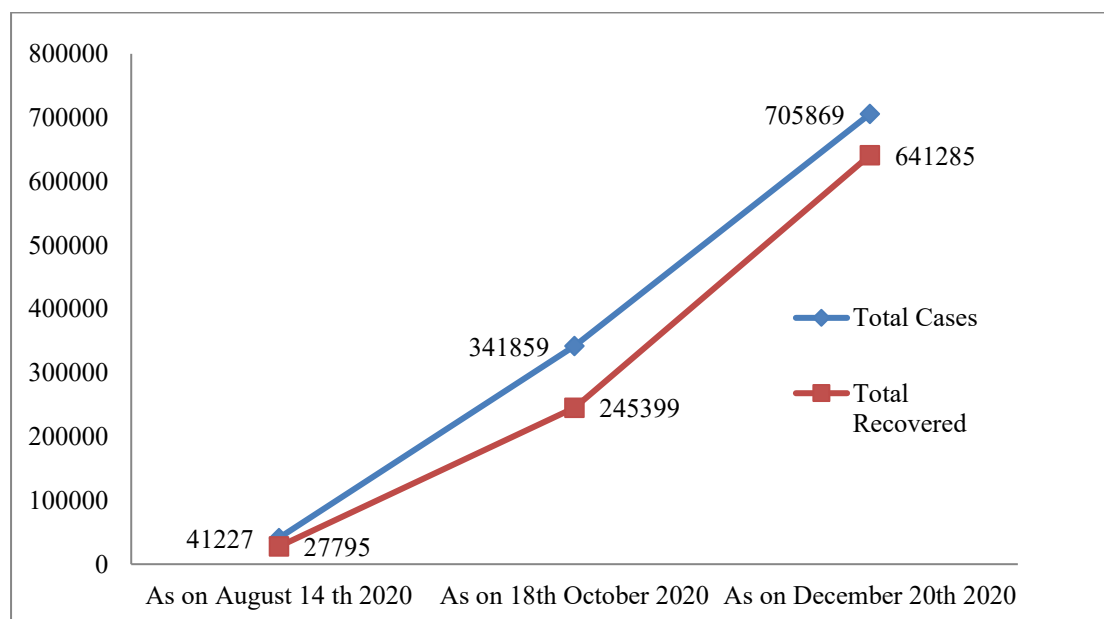
Disease	2014	2015	2016	2017
Dengue Fever	2548	4114	7218	21993
Malaria	1751	1549	1540	1192
Leptospirosis	1075	1098	1710	1408
Hepatitis-A	2833	1980	1351	988
Typhoid	1955	1772	1668	3144
Fever(inpatient)	85959	96189	80049	109974
H1N1	62	900	22	1411
Confirmed Chikungunya	264	152	124	54

Source: Directorate of Health Services, Kerala

But the emergence of dengue fever, malaria, leptospirosis, hepatitis H1N1 and Nipha results a hike in morbidity and mortality.

Figure 5.1

Epidemiological Updates of COVID-19 in Kerala



Source: Directorate of Health Services, Kerala

Apart from the other communicable diseases, COVID-19 also mounted the disease burden of the people. The first case of COVID-19 was confirmed in Kerala (the first case in India also) on 30th January 2020. As per COVID-19 Weekly Bulletin of Directorate of Health Services Kerala, there have been 705869 confirmed cases with 641285 recoveries and 2816 deaths in Kerala as on 20th December 2020. COVID-19 pandemic would influence the economy badly.

5.3. Health Institutions in Kerala

The health care system in Kerala consists of institutions in government sector, private sector and co-operative sector with systems of treatment in Allopathy, Indian System of Medicine (ISM), Homeopathy, Sidha, Unani and Naturopathy. Modern medical services in Kerala are offered by the Department of Health Services and the concerned medical education is dealt by the Directorate of Medical Education.

Table 5.5

Number of Modern Medical Institutions in Kerala (2017)

District	General Hospital		District Hospitals		Private Hospitals	
	Number	Bed	Number	Bed	Number	Bed
Thiruvananthapuram	2	1183	2	562	966	10348
Kollam	0	0	1	537	850	7995
Pathanamthitta	2	714	1	210	451	5873
Alappuzha	1	400	2	487	881	4112
Kottayam	4	1064	0	0	980	7622
Idukki	0	0	2	274	487	4984
Ernakulam	2	1049	1	271	1810	17806
Thrissur	2	456	1	117	979	11267
Palakkad	0	0	1	544	653	6561
Malappuram	1	501	3	483	1353	8767
Kozhikode	1	550	1	210	1206	8764
Wayanad	1	250	1	500	301	2284
Kannur	1	514	1	616	950	7184
Kasaragod	1	212	1	400	487	1806
Kerala	18	6920	18	5157	12363	105373

Source: Department of Economics and Statistics, Kerala, 2019

The number of modern medical institutions in Kerala during 2017 is presented in Table 5.5. The number of modern medical institutions consists of 12363 private medical institutions during 2017. The number of beds under private facilities is high compared to the government facilities. Health care become very expensive due to the inefficiency of government facilities and exploitative nature of private sector (Soman, 2007). Relative neglect of public health care sector over time, in particular the primary and secondary health care, especially before the 11th plan alienated the public health system from the common person. Subsequently dependence on private sector grew substantially even among the poorer section in the rural area. The public sector was unable to meet the needs of the population. After the 10th plan the government reversed this trend and revamp the public health system thoroughly (Economic Review, 2010). The decentralisation of the government since 1994 improved the infrastructure facilities and equipments in primary and secondary health care institutions in Kerala. The number of private hospitals was high in Ernakulam (1810)

followed by Malappuram (1353) and least number of private hospitals was in Wayanad (301) during 2017. The number and bed strength in Kerala was 18 and 6920 in general hospitals, 18 and 5157 in district hospitals and 12363 and 105373 in private hospitals respectively

Table 5.6

Private Medical Institutions in Kerala based on Year of Starting

District	Before 1990	Between 1990-1999	Between 2000-2009	2010 onwards	Total
Thiruvananthapuram	136	142	237	451	966
Kollam	144	136	178	392	850
Pathanamthitta	81	103	112	155	451
Alappuzha	153	189	197	342	881
Kottayam	212	187	224	357	980
Idukki	160	67	75	185	487
Ernakulam	270	281	434	825	1810
Thrissur	134	163	228	454	979
Palakkad	79	70	143	361	653
Malappuram	106	142	263	842	1353
Kozhikode	139	150	282	635	1206
Wayanad	62	46	63	130	301
Kannur	149	161	212	437	959
Kasaragod	97	75	120	195	487
Total	1922	1912	2768	5761	12363

Source: Department of Economics and Statistics, 2019, Kerala

The sanctioned bed strength was high in Thiruvananthapuram for general hospitals and Kannur for district hospitals and Ernakulam for private hospitals during 2017. There was no general hospital in Kollam, Idukki and Palakkad.

Table 5.7

Number of Government, Aided and Unaided Colleges in Kerala, October 2018

Stream	Government	Aided	Unaided	Total
Modern Medicine	10	0	23	33
Ayurveda Medicine	3	2	12	17
Homoeo Medicine	2	3	0	5
Dental	5	0	20	25
Sidha Medicine	0	0	1	1
Unani Medicine	0	0	1	1
Nursing	6	0	117	123
Paramedical	7	0	41	48
Pharmacy	4	0	39	43
Total	37	5	254	296

Source: Kerala University of Health and Allied Sciences

It is clear from the Table 5.7 that there was 37 government, 5 aided and 254 unaided colleges affiliated under various streams as on October 2018. The predominance of unaided colleges in the health sector makes this as a profit oriented

business. Not only has medical care led to better health, greater longevity and increased productivity, but it has also become of the largest business in the world. The business aspects of the health care act as an invisible hand in creating a demand for health care which is more powerful than the desire to improve the standard of living and care for the sick. However the fundamental theorem of exchange upholds that for a trade to take place, both the buyer and the seller must believe that it makes them better off (Getzen, 2012).

5.4. Public Expenditure on Health in Kerala

Public expenditure on health in Kerala can be generally divided into two; Medical and Public Health and Family Welfare. Revenue and capital expenditure on Medical and Public Health and Family Welfare constitutes public expenditure on health in Kerala.

Table 5.8
Revenue Expenditure on Health in Kerala

Year	Revenue Expenditure (₹ Lakh)		Percent change in Revenue Expenditure	
	Medical and Public Health	Family Welfare	Medical and Public Health	Family Welfare
2000 - 2001	58170	9218	-	-
2001 - 2002	62678	10256	7.75	11.26
2002 - 2003	66630	9320	6.31	-9.13
2003 - 2004	71975	11195	8.02	20.12
2004 - 2005	78395	10704	8.92	-4.39
2005 - 2006	83708	10403	6.78	-2.81
2006 - 2007	98005	12758	17.08	22.64
2007 - 2008	108966	15234	11.18	19.41
2008 - 2009	135008	17770	23.90	16.65
2009 - 2010	145618	19675	7.86	10.72
2010 - 2011	174885	21598	20.10	9.77
2011 - 2012	247378	30621	41.45	41.78
2012 - 2013	278935	32347	12.76	5.64
2013 - 2014	315336	35418	13.05	9.49
2014 - 2015	363864	39646	15.39	11.94
2015 - 2016	411592	43565	13.12	9.88
2016-2017	501298	48644	21.79	11.66
2017-2018	598411	52081	19.37	7.07

Source: State Finances: A Study of Budgets, Reserve Bank of India, Various Years

Revenue expenditure on Medical and Public Health and Family Welfare in Kerala is presented in Table 5.2. It is clear that revenue expenditure on Medical and Public Health and Family Welfare in Kerala shows an increasing trend. Revenue expenditure on Medical and Public Health increased from ₹58170 lakhs during 2000-

01 to ₹598411 lakh during 2017-18. Revenue expenditure on Family Welfare increased from ₹9218 lakh during 2000-01 to ₹52081 lakh during 2017-18. In 2000-2001 revenue expenditure for Medical and Public Health was six times more than of Family Welfare and in 2017-2018 it was eleven times more than of Family Welfare.

Table 5.9
Capital Expenditure on Health in Kerala

Year	Capital Expenditure on Health (₹ Lakh)		Percentage change in Capital Expenditure	
	Medical and Public Health	Family Welfare	Medical and Public Health	Family Welfare
2000 - 2001	1630	49	-	-
2001 - 2002	2659	14	63.13	-71.43
2002 - 2003	4437	139	66.87	892.86
2003 - 2004	2153	115	-51.48	-17.27
2004 - 2005	2937	91	36.41	-20.87
2005 - 2006	5704	103	94.21	13.19
2006 - 2007	2986	23	-47.65	-77.67
2007 - 2008	4665	18	56.23	-21.74
2008 - 2009	4456	18	-4.48	0.00
2009 - 2010	6265	1	40.60	-94.44
2010 - 2011	9880	0	57.70	-100.00
2011 - 2012	11765	0	19.08	-
2012 - 2013	13041	24	10.85	-
2013 - 2014	13032	0	-0.07	-100.00
2014 - 2015	19319	1	48.24	-
2015 - 2016	21967	0	13.71	-100.00
2016 - 2017	34411	0	56.65	-
2017 - 2018	32179	0	-6.49	-

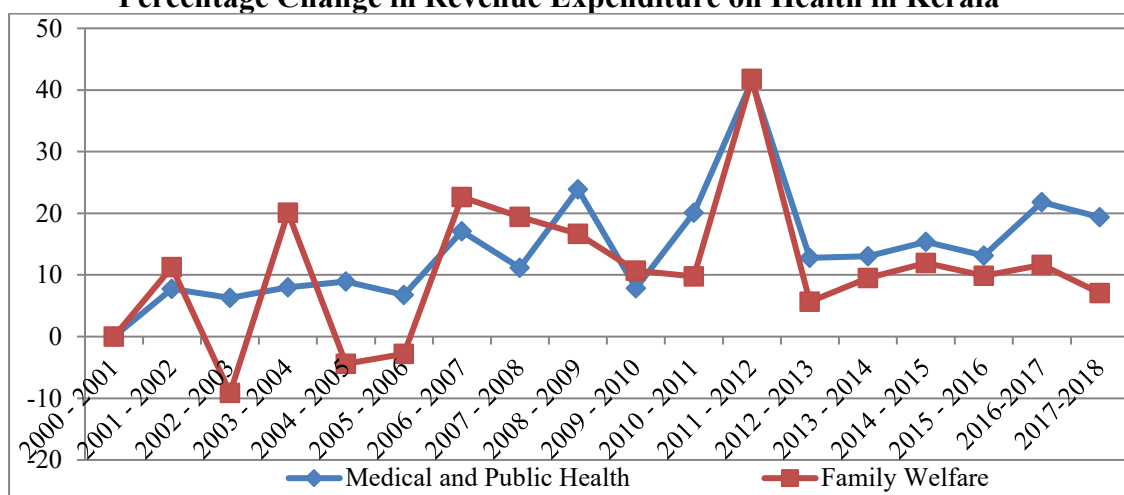
Source: State Finances: A Study of Budgets, Reserve Bank of India, Various Years

Public Expenditure on health from capital account increases from ₹1630 lakh in 2000-2001 to ₹32179 lakh in 2017-18 for Medical and Public Health. The percentage increase in Medical and Public Health from capital account was maximum during 2005-2006 and minimum during 2003-2004. The maximum allocation for Family Welfare from capita account was ₹139 lakh during 2002-2003. There was insignificant capital allocation to Family Welfare from 2010-2011 to 2017-2018 except for the periods 2009-2010 and 2012-2013.

Percentage change in revenue expenditure for Medical and Public Health was in the peak level (41.45 percent) during 2011-2012. Percentage change in revenue expenditure for Medical and Public Health was minimum (6.31 percent) during 2002-2003. Percentage change in revenue expenditure for Family Welfare reached the highest trend (41.78 percent) during 2011-12. Expenditure on Family Welfare shows negative percentage change during 2002-2003, 2004-2005 and 2005-2006.

Percentage change in revenue expenditure for Medical and Public Health and Family Welfare in Kerala is evident from Figure 5.2. Percentage change in capital expenditure for Medical and Public Health and Family Welfare in Kerala is evident from Figure 5.3.

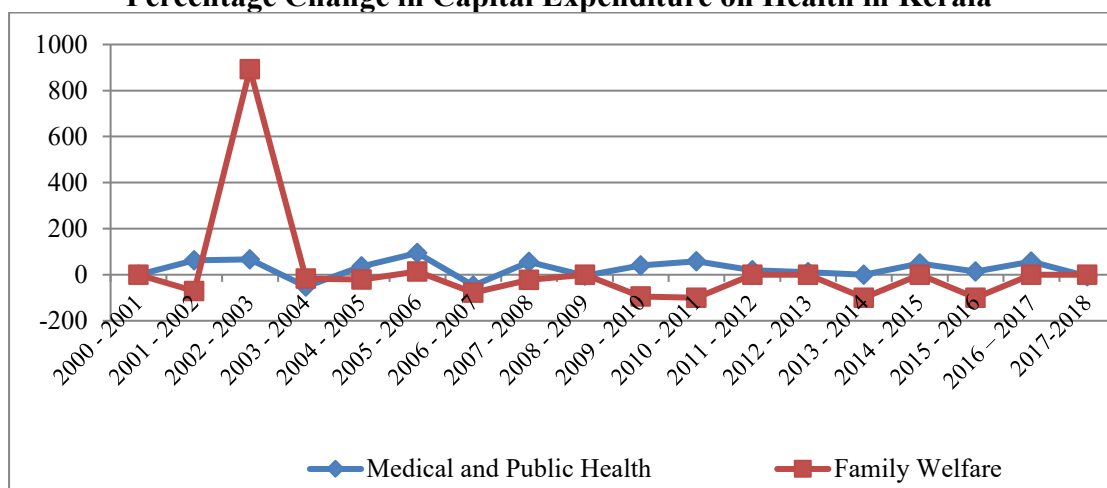
Figure 5.2
Percentage Change in Revenue Expenditure on Health in Kerala



Source: State Finances: A Study of Budgets, Reserve Bank of India, Various Years

Percentage change in capital expenditure for Family Welfare reached its highest point (892.86 percent) during 2002-03.

Figure 5.3
Percentage Change in Capital Expenditure on Health in Kerala



Source: State Finances: A Study of Budgets, Reserve Bank of India, Various Years

Percentage change in capital expenditure for Medical and Public Health was maximum (94.21 percent) during 2005-2006. Capital expenditure on Family Welfare shows negative percentage change. It is evident from the Table 5.10 that the public expenditure on health (both revenue and capital expenditure on Medical and Public Health and Family Welfare) in Kerala increased from ₹41721 in 1995-1996 to

₹682671 in 2017-2018 with a CAGR of 12.92 percent. There was a negative percentage change in public expenditure on health in Kerala during 2000-2001.

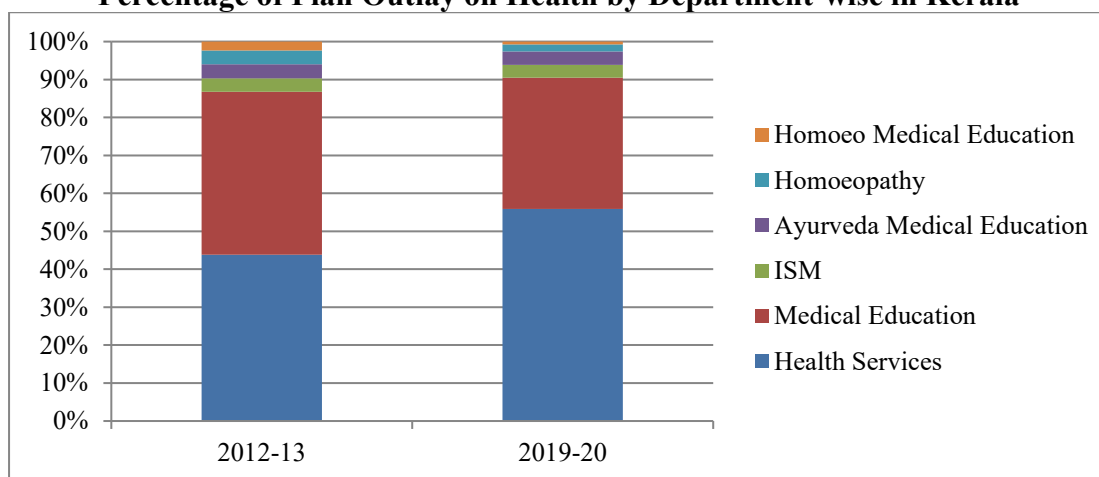
Table 5.10
Public Expenditure (Revenue & Capital Expenditure) on Health in Kerala

Year	Public Expenditure (₹ Lakh)	Percentage change	Year	Public Expenditure (₹ Lakh)	Percentage change
1995 - 1996	41721	0.00	2007 - 2008	128883	13.28
1996 - 1997	45341	8.68	2008 - 2009	157252	22.01
1997 - 1998	51044	12.58	2009 - 2010	171559	9.10
1998 - 1999	57511	12.67	2010 - 2011	206363	20.29
1999 - 2000	71106	23.64	2011 - 2012	289764	40.41
2000 - 2001	69067	-2.87	2012 - 2013	324347	11.93
2001 - 2002	75607	9.47	2013 - 2014	363786	12.16
2002 - 2003	80526	6.51	2014 - 2015	422830	16.23
2003 - 2004	85438	6.10	2015 - 2016	477124	12.84
2004 - 2005	92127	7.83	2016 -2017	584353	22.47
2005 - 2006	99918	8.46	2017 - 2018	682671	16.83
2006 - 2007	113772	13.87	CAGR		12.92

Source: State Finances: A Study of Budgets, Reserve Bank of India, Various Years

Health has been a major area of concern in the budget of the state. Department-wise plan outlay during the annual plan period 2012-13 and 2019-20 is given in the Figure 5.4

Figure 5.4
Percentage of Plan Outlay on Health by Department-wise in Kerala



Source: Economic Review, Government of Kerala, Various Issues

The percentage of plan allocation during 2012-13 as department-wise is likely that 43.8 percent for Health Services, 43.0 percent for Medical Education 3.5 percent for ISM, 3.7 percent for Ayurveda Medical Education, 3.7 percent for Homoeopathy and 2.3 percent for Homoeo Medical Education. During 2019-20, 55.89 percent for Health Services, 34.56 percent for Medical Education, 3.39 percent for ISM, 3.55

percent for Ayurveda Medical Education, 1.90 percent for Homoeopathy and 0.71 percent for Homoeo Medical Education allocated for various department of health.

Table 5.11 (a)
Department-wise Plan Outlay and Expenditure (₹ lakh) in Kerala

Year	Health Services		Medical Education		ISM	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
2012-13	20564	90.15	20220	81.15	1665	101.38
2013-14	24530	97.67	22665	93.85	2330	95.11
2014-15	29693	78.9	25750	97.40	2545	78.15
2015-16	32216	67.86	26699	89.69	2670	93.85
2016-17	52174	113.3	39388	77.56	3412	94.06
2017-18	72402	97.74	47009	82.25	4320	81.56
2018-19	78921	84.23	49414	56.47	4820	70.10
2019-20*	78329	43.38	48425	26.34	4755	40.79

* Expenditure up to October , 2019

Source: Economic Review, Government of Kerala, Various Issues

During the first year of 12th Plan an amount of ₹47000 lakh had been allotted for health sector of which 82 percent was expended. It can be clear from the Table 5.11 (a) and Table 5.11 (b) that the allocation of the state to the health sector shows a steady increase.

Table 5.11 (b)
Department-wise Plan Outlay and Expenditure (₹ lakh) in Kerala

Year	Ayurveda Medical Education		Homoeopathy		Homoeo Medical Education		Total	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
2012-13	1760	59.16	1721	40.66	1070	32.01	47000	82.38
2013-14	2300	94.04	1475	61.80	800	90.50	54100	94.72
2014-15	2567	84.1	1440	88.76	945	97.6	62940	87.76
2015-16	2567	94.6	1440	91.26	945	93.78	66537	79.65
2016-17	3364	55.5	1983	76.26	990	24.3	101311	95.24
2017-18	4600	48.51	2300	88.37	864	42.98	131495	89.42
2018-19	5060	50.82	2700	100.00	1015	100.00	141930	73.24
2019-20*	4975	24.46	2660	30.16	1000	43.62	140594	36.49

* Expenditure up to October

Source: Economic Review, Government of Kerala, Various Issues

During 2018-19 an amount of ₹141930 lakh was allocated for health sector. During 2016-17 95.24 percent of allocation to the health sector was expended. The budget allocation to the health sector in Kerala shows an increasing trend from ₹47000 lakh during 2012-13 to ₹141930 lakh in 2018-19.

5.5. Household Health Expenditure in Kerala

Major share of expenditure on health is spent by the individual himself. The household spending on health is highest in Kerala compared to the other states in India. At the same time the Monthly Per-capita Consumption (MPCE) is also high in Kerala when compared to the other states. Household spending on health varies with differences in gender, geographical location and age pattern. As per NSS Reports, household spending on health in Kerala decreased from 86.3% in 2004-05 to 73.9 % in 2014-15. Per-capita household health expenditure increased from ₹2548 in 2004-05 to ₹5023 in 2014-15. There was 97.1 percentage increase in per-capita household health expenditure from 2004-05 to 2014-15.

5.5.1. Medical Expenditure of Households in Kerala

Medical expenditure may be institutional or non-institutional. The expense on medical treatment as an in-patient of a medical institution is called institutional medical expenditure or otherwise non-institutional medical expenditure. Monthly per-capita medical expenditure in Kerala is given in Table 5.12.

Table 5.12

Monthly Per-Capita Institutional Medical Expenditure of Households (₹) in Kerala

Year	Monthly Per-capita Institutional Medical Expenditure			
	Rural	Percentage Change	Urban	Percentage Change
1994-95	2.52	0.00	3.46	0.00
1995-96	5.22	107.14	5.12	47.98
1996-97	9.62	84.29	27.59	438.87
1997-98	16.44	70.89	62.97	128.23
1998-99	25.75	56.63	7.99	-87.31
1999-20	21.56	-16.27	27.37	242.55
2000-01	22.58	4.73	26.77	-2.19
2001-02	31.17	38.04	33.66	25.74
2002-03	36.19	16.11	57.56	71.00
2003-04	50.49	39.51	58.65	1.89
2004-05	42.78	-15.27	24.22	-58.70
2005-06	33.84	-20.90	42.47	75.35
2006-07	52.61	55.47	44.63	5.09
2007-08	61.98	17.81	55.71	24.83
2009-10	65.77	6.11	88.96	59.68
2011-12	96.65	46.95	63.14	-29.02

Source; NSS Consumer Expenditure Survey, Various Years

Monthly per-capita institutional medical expenditure in Kerala escalated from ₹2.52 during the period 1994-95 to ₹96.65 during the period 2011-12 in rural area and from ₹3.46 during the period 1994-95 to ₹63.14 during the period 2011-12. Percentage change in rural monthly per-capita institutional medical expenditure from

1994-95 to 2011-12 is maximum during the period 1995-96 (107.14 percent) and negative during the periods 1999-2000, 2004-05 and 2005-06. Percentage change in urban monthly per-capita institutional medical expenditure from 1994-95 to 2011-12 is maximum during the period 1996-97 (438.87 percent) and negative during the periods such as 1998-99, 2000-01, 2004-05 and 2011-12.

Table 5.13

Monthly Per-Capita Non-Institutional Medical Expenditure of Households in Kerala

Year	Non-Institutional Medical Expenditure (₹)			
	Rural	Percentage Change	Urban	Percentage Change
1994-95	14.52	0.00	15.01	0.00
1995-96	14.32	-1.38	15.86	5.66
1996-97	17.17	19.90	16.00	0.88
1997-98	18.94	10.31	28.59	78.69
1998-99	28.21	48.94	43.46	52.01
1999-20	39.27	39.21	41.08	-5.48
2000-01	44.62	13.62	49.39	20.23
2001-02	55.44	24.25	56.41	14.21
2002-03	46.84	-15.51	64.56	14.45
2003-04	55.51	18.51	74.84	15.92
2004-05	61.22	10.29	67.71	-9.53
2005-06	64.53	5.41	71.69	5.88
2006-07	79.80	23.66	94.77	32.19
2007-08	97.06	21.63	119.47	26.06
2009-10	99.85	2.87	116.08	-2.84
2011-12	148.12	48.34	162.40	39.90

Source; NSS Consumer Expenditure Survey, Various Years

Monthly per-capita non-institutional medical expenditure in Kerala increased from ₹14.52 during the period 1994-95 to ₹148.12 during the period 2011-12 in rural area and from ₹15.01 during the period 1994-95 to ₹162.40 during the period 2011-12. Percentage change in rural monthly per-capita non-institutional medical expenditure from 1994-95 to 2011-12 is maximum during the period 1998-99 (48.94 percent) and negative during the period 1995-96, and 2002-03. Percentage change in urban monthly per-capita non-institutional medical expenditure from 1994-95 to 2011-12 is maximum during 1997-98 (78.69 percent) and negative during the periods such as 1999- 2000, 2004-05 and 2009-10.

District-wise monthly per-capita medical expenditure in Kerala during 2009-10 is shown in Table 5.14 There exist inter-district variations in the spending on health by the rural and urban households in Kerala. Monthly per-capita medical expenditure was more in urban (₹147.3) than in rural (₹117.88) Kerala during 2009-10. Among the districts Thiruvananthapuram and Wayanad ranked highest and lowest

respectively in monthly per-capita medical expenditure both in the rural and urban area.

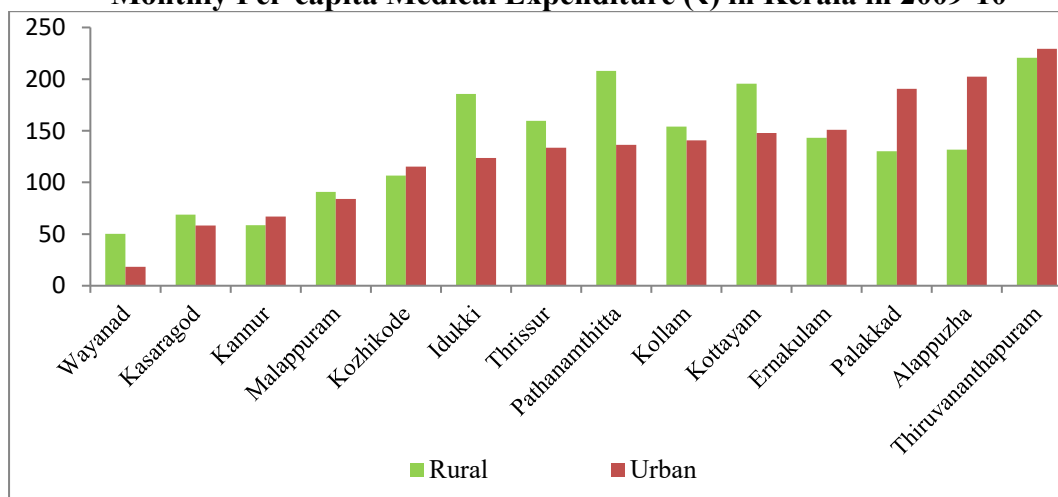
Table 5.14
Monthly Per-capita Medical Expenditure (₹) in Kerala (2009 -2010)

District	Rural			Urban		
	Institutional Medical expenses	Non-Institutional expenses	Total	Institutional Medical expenses	Non-Institutional expenses	Total
TVM	87.36	133.44	220.8	75.58	153.67	229.25
Kollam	79.11	74.93	154.04	59.31	81.54	140.85
Pathanamthitta	74.53	133.57	208.1	16.09	120.36	136.45
Alappuzha	48.64	83.23	131.87	94.40	107.93	202.33
Kottayam	86.69	109.02	195.71	27.30	120.58	147.88
Idukki	110.4	75.15	185.55	43.01	80.77	123.78
Ernakulam	65.68	77.53	143.21	57.03	94.02	151.05
Thrissur	57.58	102.15	159.73	61.80	71.93	133.73
Palakkad	54.40	75.66	130.06	80.56	110.05	190.61
Malappuram	30.85	60.01	90.86	29.72	54.14	83.86
Kozhikode	30.54	75.93	106.47	32.23	83.22	115.45
Wayanad	14.77	35.46	50.23	4.32	14.09	18.41
Kannur	18.34	40.32	58.66	39.94	26.91	66.85
Kasaragod	31.16	37.64	68.8	22.77	35.39	58.16
Kerala	48.82	69.06	117.88	59.18	88.12	147.3

Source: NSS 66th Round, Household consumption of various goods and services in Kerala 2009-10, DES, Kerala

Medical expenditure constitutes both the institutional and non-institutional expenditure. Medical expenditure is highest in urban area

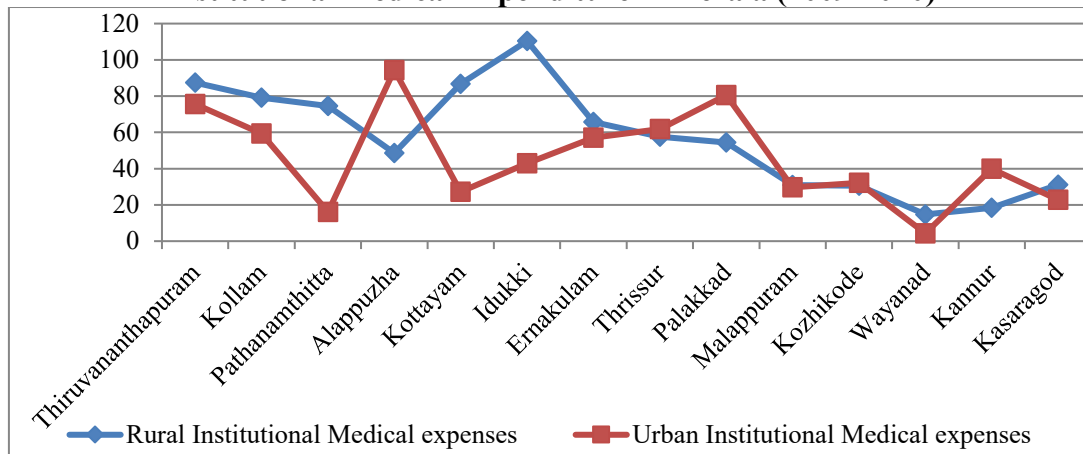
Figure 5.5
Monthly Per-capita Medical Expenditure (₹) in Kerala in 2009-10



Source: NSS 66th Round, Household consumption of various goods and services in Kerala 2009-10, DES, Kerala

Institutional medical expenditure in Kerala was ₹48.82 and ₹59.18 for rural and urban area respectively. Non-institutional medical expenditure in Kerala was ₹69.06 in rural area and ₹88.12 for urban area.

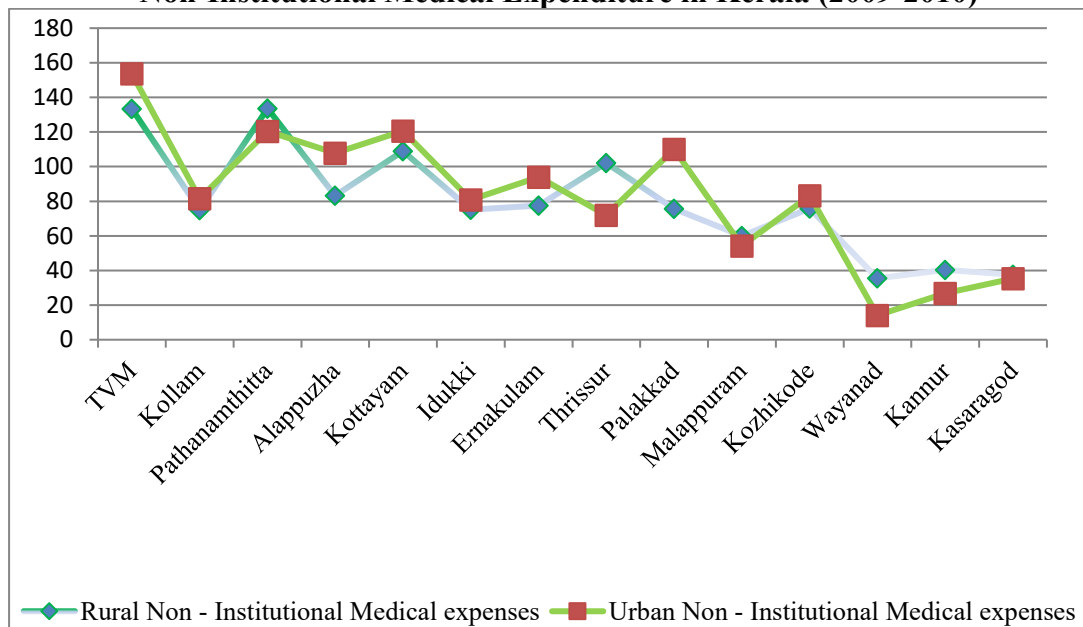
Figure 5.6
Institutional Medical Expenditure in Kerala (2009-2010)



Source: NSS 66th Round, Household consumption of various goods and services in Kerala 2009-10, Department of Economics and Statistics, Kerala

Non-institutional expenditure is higher than institutional expenditure both in rural and urban area of Kerala.

Figure 5.7
Non-Institutional Medical Expenditure in Kerala (2009-2010)



Source: NSS 66th Round, Household consumption of various goods and services in Kerala 2009-10, Department of Economics and Statistics, Kerala

Rural institutional medical expenditure varies from ₹14.77 in Wayanad to ₹110.4 in Idukki while rural non-institutional medical expenditure ranges from ₹35.46

in Wayanad to ₹133.57 in Pathanamthitta. Urban institutional medical expenditure was highest in Alappuzha and lowest in Wayanad. Urban non-institutional medical expenditure was highest in Thiruvananthapuram and lowest in Wayanad. Above all in Kerala non-institutional medical expenditure exceeds the institutional expenditure.

Table 5.15

Institutional Medical Expenditure of Households by Item-wise in Kerala (2009-10)

Item	Per-capita expenditure in 30 days (₹)		% of households incurring expenditure in 365 days	
	Rural	Urban	Rural	Urban
Medicine	22.53	26.63	25.0	26.7
X-ray, ECG, Patho. Test	4.24	6.86	15.7	17.3
Doctors Fee	4.77	5.5	17.1	18.2
Hospital Charges	12.28	16.34	17.0	16.8
Other medical expenses	5.0	3.85	11.6	10.9
Total (Institutional Medical Expenditure)	48.82	59.18	26.1	28.1

Source: 66th Round NSS Report, Department of Economics and Statistics Kerala

The items wise share of institutional medical expenditure of Kerala during 2009-10 for different reference period can be show in Table 5.15. Among the items in per-capita institutional medical expenditure of Kerala medicines contributes the largest share followed by hospital charge both in rural and urban area for a reference period of 30 days. In the case of household institutional medical expenditure largest component is medicine followed by doctors' fee both in rural and urban area for a reference period of 365 days.

Table 5.16

Non-Institutional Medical Expenditure of Households by Item wise in Kerala (2009-10)

Item	Per-capita expenditure in 30 days (₹)		% of households incurring expenditure in 30 days	
	Rural	Urban	Rural	Urban
Medicine	57.29	73.2	72.7	69.7
X-ray, Patho. Test	3.5	4.36	4.4	7.2
Doctors fee	6.6	8.85	28	25.3
Family Planning Appliances	0.1	0.12	1.1	10
Other Medical expenses	1.58	1.58	3.8	2.8
Total (Non-Institutional Medical expenditure)	69.06	88.12	73.1	70.2

Source: 66th Round NSS Report, Department of Economics and Statistics, Kerala

The distinction between institutional and non-institutional medical expenses lies in whether the expenses were incurred on medical treatment as an in-patient of a medical institution (institutional), or otherwise (non- institutional). Medical institution

here covers private as well as Government institutions such as hospitals and nursing homes. In Kerala per-capita non-institutional medical expenditure is more in urban while household expenditure is high in rural area. Medicines contribute the largest share in non-institutional per-capita expenditure with a reference period of 30 days followed by doctors' fee and diagnostic test both in rural and urban area.

Table 5.17

Range in Prices of Diagnostic Tests across Two Cities in Kerala (2017)

Name of Diagnostic Tests	Costs of Diagnostics (₹)					
	Ernakulam			Thiruvananthapuram		
	Average Price	Minimum Price	Maximum Price	Average Price	Minimum Price	Maximum Price
Bilirubin Test	118	50	1010	87	30	150
Blood Sugar Test	64	40	100	53	20	200
Cholesterol Test	95	60	150	72	40	140
Creatinine Test	94	70	170	76	30	130
ECG	149	100	250	113	80	250
Folic Acid Test	810	400	1000	812	300	1200
HbA1C Test	378	300	450	353	280	450
HDL Cholesterol	147	100	250	125	50	250
HIV Test	312	150	550	263	150	700
Insulin Test	500	400	650	412	350	500
Kidney/Renal Function Test	346	180	500	368	140	520
LDL Cholesterol	122	90	150	170	50	300
Lipid Profile	362	250	475	336	90	410
Liver Function Test	372	300	475	377	270	490
Pregnancy Test	100	80	150	98	50	120
Protein Test	152	100	200	158	60	410
Sodium Test	129	80	160	114	50	350
Sonography	718	500	900	688	500	850
Thyroid Test	373	300	460	407	290	600
Uric Acid Test	104	70	150	92	30	130
VDRL Test	143	90	275	131	50	260
Vitamin D Test	1296	600	3500	1777	500	4000
X-Ray	212	150	280	243	140	400
2D Echo	1315	900	2000	1344	1100	2000

Source: www.medifee.com accessed on 26th April, 2019

High out-of-pocket spending, mainly led by household spending on pharmaceuticals, is pushing millions into poverty and representing financial hardship to them (Mattam, 2015; Eldose, 2018). It is not a new finding that medicines are the highest component of out-of-pocket expenditure. The persistence of high out-of-pocket expenditure on medicines demonstrates that policy efforts so far have not reduced the problem. The regular updates of the Essential Medicines List (EML) tackled the challenges of access to medicines over the past few years. The success of this government policy depends upon the design of the EML, i.e. whether and to what extent the EML has taken into consideration the effectiveness and cost-effectiveness

of the medicines, as well as the overall burden of disease of population, amongst other criteria, the quality of the supply chain and the final use of services by users (WHO, 2017).

Table 5.17 shows the price variations of various diagnostic tests in two cities, Ernakulam and Thiruvananthapuram, in Kerala. It is clear from the table that there exist variations in average prices and also in minimum and maximum prices of different diagnostic tests between these two cities. Uncertainty creates most of the information problems in health care. Financial uncertainty can be reduced by insurance whereas uncertainty about the quality of care and outcome of treatment cannot. Information asymmetry arises from the difference between the physicians' and the patient's knowledge of medical treatment. Because of this disparity in the cost of knowledge patients must trust physicians to act as their agents and make decisions on their behalf (Getzen, 2012).

5.5.2. Medical Expenditure and Childbirth

There exists disparity between medical expenditure for hospitalised treatment per childbirth in public sector hospital and private sector hospital and also between rural and urban. This can be evident from Table 5.18.

Table 5.18

Average Total Medical Expenditure in Kerala and India (2014-15)

Medical Expenditure		Rural			Urban		
		Public	Private	All	Public	Private	All
Average total medical expenditure for treatment (₹) per case excluding childbirth	Kerala	3524	25411	17642	2768	21808	15465
	India	5636	21726	14935	7670	32375	24436
Average total medical expenditure for treatment (₹) per childbirth	Kerala	1662	19443	13830	1534	21578	15346
	India	1587	14778	5544	2117	20328	11685

Source: NSS Report No. 574: Health in India, April 2016

The rural population spent ₹5636 in a public sector hospital and ₹21726 in a private sector hospital for a hospitalised treatment at national level during 2014. While the urban population spent ₹7670 in a public sector hospital and ₹32375 in a private sector hospital for a hospitalised treatment at national level. ₹5544 was spent per institutional childbirth in rural areas and ₹11685 in urban areas of the country.

Kerala spends less for a hospitalised treatment than national average of urban area. In Kerala average total medical expenditure excluding childbirth is higher in rural area (₹17642) than in urban area (₹15465) during 2014-15. In India average total medical expenditure excluding childbirth is higher in urban area (₹24436) than in rural area (₹14935). In the case of expenditure for childbirth during 2014-15 the state and national average move in the same direction i.e. higher in urban and lower in rural.

Generally patients face shortage of essential medicines, hospital facilities in government hospitals. There are irregular medical services and irregular supply of medicines in public hospitals and this lead to overdependence on private sector. Moreover, private hospitals have outpaced the government hospitals in the provision of sophisticated facilities, modern method of diagnosis such as MRI scans, CT scans, endoscopy etc. The excessive privatisation of medical care generates escalation of health care cost (Health Economics).

In order to reduce household expenditure on health e-Health Project is implemented in Kerala. The main aim of this programme is to build a database of individual medical records which avoid repeated medical tests through the exchange of medical data between different health care delivery units. This would help the households to reduce the cost of diagnosis.

5.6. Health Insurance in Kerala

The health system goals of equity and accessibility necessitate adoption of a financing strategy that will ensure protection of the majority of individuals from catastrophic health expenditure. The financial burden due to health care expenditure India is growing day by day. The heaviest burden is faced by the people engaged in non-formal rural and urban activities. Absence of health insurance and increasing dependence on the private health sector has impoverished the poor (Ellis, 2000; Mukherjee et.al, 2011). The main sources of finances in health insurance are the households/employees, government, and enterprises/employers. These entities pay premiums or contributions for health service coverage for the financing schemes.

For providing free and quality inpatient care the Government of India sponsored a new Health Insurance Scheme called Rashtriya Swasthya BimaYojana (RSBY). The scheme ensures inpatient treatment facility upto ₹30,000/- on paperless, cashless and floater basis to a maximum of five members in a family, for a period of one year through selected public and private hospitals with a prefixed medical and

surgical rates for treatment in general ward. The Government of Kerala adopting RSBY in 2008 decided to implement it in all the districts of the state simultaneously to BPL families. The government broadened to include other categories of households to make it a universal health insurance scheme by formulating its own Scheme. These two schemes are being jointly run under the banner Comprehensive Health Insurance Scheme (CHIS). Another special programme named CHIAK (Comprehensive Health Insurance Agency, Kerala) is formed to help the people from catastrophic expenditure on health care (Economic Review 2015, 2016). In addition to the RSBY and CHIS, there is another scheme names CHISPLUS to provide an additional ₹70000 treatment benefit to the BPL category patients of cardiology, oncology, neurology etc. These schemes are subsumed into a new scheme called Karunya Arogya Suraksha Padhati (KASP). Due to the growing physician consultancy fee, expensive drugs and medical tests, people take health insurance policies. Insurance provides protection against risk or uncertain events. Health insurance covers the medical expenses based on the policy and premium.

Table 5.19

Growth of Public Health Insurance Schemes (RSBY/ CHIS) in Kerala

Year	Number of families enrolled (lakh)	Premium Paid (₹crore)
2008-10	11.78	51
2010-11	18.75	80
2011-12	28.01	205
2012-13	28.28	310
2013-14	29.73	219.49
2014-15	31.94	236
2015-16	31.94	216
2016-17	32.53	167.03
2017-18	34.85	267.69
2018-19	40.96	302.82

Source: Economic Review 2019, Kerala State Planning Board, Government of Kerala

From just 11.78 lakh families in 2008-10, the RSBY/CHIS have now 40.96 lakh families for the year 2018-19. The amount of premium of RSBY/CHIS increased from ₹51 crores in 2008-10 to ₹302.82 crores in 2018-19. The amount of premium for RSBY/CHIS is highest (₹310 crores) during 2012-13. The number of claims increased from 1.43 lakh during 2008-10 to 8.08 lakh during 2018-19. The amount of claims paid under RSBY/CHIS mounted from ₹45 crores in 2008-10 to ₹367.71 crores in 2018-19. The amount of claims paid under CHIS PLUS increased from ₹0.28 crores in 2010-11 to ₹80.58 crores in 2018-19. The amount of claims paid under

RSBY/CHIS and CHIS PLUS increased from ₹113.28 crores in 2010-11 to ₹448.29 crores in 2018-19. The number of empanelled hospitals rose to 554. The non-institutional medical expenses are also high and the entire amount being carried out by the household which hamper the household financial stability. Limited number of private empanelled hospitals, ambiguities in the benefits of the scheme, absence of effective monitoring mechanism and redressal of grievances are some of the constraints in achieving the desired objectives of RSBY-CHIS (Mini, 2013).

Table 5.20

Utilization of Public Health Insurance Schemes in Kerala

Year	RSBY-CHIS		CHIS PLUS		Total	
	Number of claims (lakh)	Claims paid (₹crore)	Number of claims (lakh)	Claims paid (₹crore)	Number of claims (lakh)	Claims paid (₹crore)
2008-10	1.43	45.00	-	-	1.43	45.00
2010-11	3.6	113.00	0.002	0.28	3.60	113.28
2011-12	6.98	212.00	0.14	26.08	7.12	238.08
2012-13	7.0	181.00	0.42	56.94	7.42	237.94
2013-14	5.57	199.03	0.51	53.08	6.08	252.11
2014-15	5.87	228.06	0.67	68.02	6.54	296.08
2015-16	5.26	205.86	0.80	73.42	6.06	279.28
2016-17	5.86	267.42	1.02	83.59	6.88	351.01
2017-18	7.08	314.14	1.09	73.09	8.17	387.23
2018-19	8.08	367.71	1.31	80.58	9.39	448.29

Source: Economic Review 2019, Kerala State Planning Board, Government of Kerala

In this chapter we can see the expenditure on health in Kerala. The plan allocation to health sector shows an increasing trend which is a welcoming trend. The public expenditure on health in Kerala increased from ₹41721 in 1995-1996 to ₹682671 in 2017-2018. The implementation of National Health Mission (NHM), submission of both NRHM and NUHM, is a vital step to provide accessible, affordable and accountable quality health care to the poor households. Both the central government and state government fund to the health sector would accelerate the affordable and quality health care to the households. As per NSS reports household spending on health in Kerala decreased from 86.3% in 2004-05 to 73.9% in 2014-15.