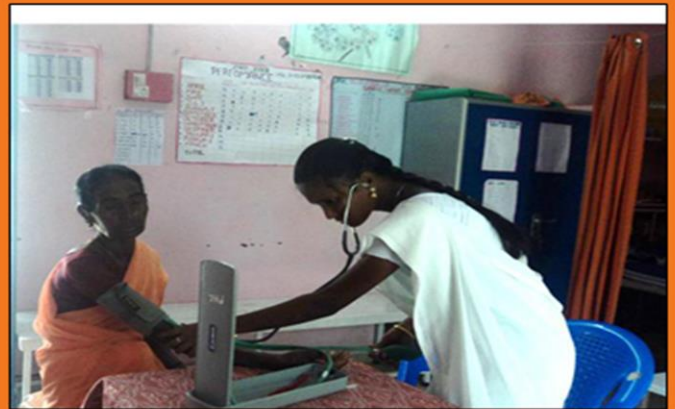


## Universal Health Coverage-Pilot in Tamil Nadu: Has it delivered what was expected?



Submitted to  
Health and Family Welfare Department  
Government of Tamil Nadu

By  
Centre for Technology and Policy  
Department of Humanities and Social Sciences, IIT Madras

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## Foreword

Professor T Sundararaman, TISS Mumbai

Health and Wellness Centers is an idea whose time has come. Belatedly and hesitantly, but better late than never. This concurrent study of a pilot programme done in three blocks of Tamilnadu details some 'baby steps' towards the realization of this idea. It shows how with a relatively limited intervention, access and financial protection for primary health care services was dramatically increased within a few months in these three blocks.

The Health and Wellness Center is the key strategy in India's roadmap to Universal Health Coverage. The essence of the Health and Wellness Center concept is to expand the set of assured services that are available at the erstwhile health sub-center. Currently, even the well-functioning health sub-center is designed to provide a very restricted list of services, which includes only some elements of care in pregnancy, child immunization and a couple of national disease control programmes. Together, they could be catering to less than 5% of ambulatory health care needs. With the inclusion of care for the most acute minor illnesses, and for most chronic illnesses, this could rise to over 75% of all ambulatory care needs. All chronic illnesses would require a doctor or appropriate specialist for confirming diagnosis and making a treatment plan. But once this is made, the follow up required for medication compliance; monitoring disease control; counselling and early detection of complications, (all of which constitute the majority of ambulatory care visits) can be provided by a team of nurses or mid care providers.

Pilot studies are not essential for proof of this concept. The experience of the National Health Services of the United Kingdom, and from Thailand and Brazil is already before us. We know from the latter experience that even in the context of a developing country, primary health care teams for about 1000 households providing such a comprehensive set of primary health care services, as well as facilitating access to a networked secondary care center when needed, is the most cost effective way of achieving universal health care. However, pilot studies are essential to understand implementation issues and build capacities that would be required for scaling up. Though pilot studies are always advocated before scaling up, this is seldom carried out. This study is an exception- as it attempts to put this precept into practice. The entire state public health leadership, both general administrators and the technical leadership have linked with the academic public health community to carry out a small study of great depth. This study is able to demonstrate that strengthening sub-centers can lead to a dramatic increase in access to ambulatory care, a reduction in out of pocket expenditure for the patient, as also the costs of care for the system. And it can do so within months- not years. These are early days yet. Currently only about half the population is aware of the expanded service basket available in these centers. Moreover, there are still some elements of essential primary health care that are yet to be put in place. But if these happen, as indeed it could, the out-patient load could double or even treble, before it plateaus.

This rigorous study, wherein the study team has visited all pilot sub-centers four times during 2016-17, also raises a number of questions. These are issues related to human resource strategy, choice of technologies and questions of design. Clearly this is a work

in progress. But even as of now, it provides enormous grounds for optimism. What it needs to do in the next phase is to find the resources for taking up this programme in all blocks in these three pilot districts simultaneously with one pilot block in each of the remaining districts. And then in the third and final phase it must scale up to all blocks in all districts!

Tamilnadu has already established an effective network of public hospitals and a state level publicly funded insurance programme. In such a context, such a scaling up of primary health care in the state would ensure that 'all those in needs of healthcare are able to access healthcare without financial hardship.' This is feasible and it is desirable. And if Tamilnadu shows the way, it would be a beacon for the other states of India and indeed for much of the developing world.

**Prof T. Sundararaman**  
**Dean - School of Health Systems Studies**  
**Tata Institute of Social Sciences**  
**Mumbai**

**February 2018**

## Acknowledgement

Our involvement and journey with UHC-pilot in Tamil Nadu has been quite organic and holistic. We are immensely happy to have been associated with this innovative public health intervention in Tamil Nadu, right from the conception of the UHC pilot in 2015 through the implementation of the pilot till end of 2017. We thank the Department of Health and Family Welfare, Govt of Tamil Nadu, for entrusting us with the task of preparing this Report on the experience of the UHC pilot in Tamil Nadu.

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During the course of our journey with UHC pilot, we have met several people (individually or in groups) residing in pilot blocks. They shared with us their expectations, disappointments and hopes. We gained much insights into the reality listening to their experience. We most sincerely wish to thank them.

We can not adequately thank Professor T.Sundararaman (of TISS Mumbai) for his Foreword, and for his critical and helpful observations on this study.

Sincerely

V.R.Muraleedharan

On behalf of everyone involved in this study.

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## Executive Summary

UHC-pilot in Tamil Nadu was launched in early 2017 in Shoolagiri Block (of Krishnagiri HUD), Viralmalai Block (of Pudukkottai HUD) and Veppur Block (of Perambalur HUD). Strengthening the primary health care service is the first step in the design and rolling out of UHC-pilot. As a result, Health Sub-Centres (HSCs), which are the closest delivery points to the community have logically become the building blocks of the UHC in the state.

The motivation and justification for this approach towards UHC is that these tail end facilities have been the weakest link in the entire edifice of public healthcare delivery system and therefore, from equity perspective, it is logical to first strengthen these facilities providing basic primary care services.

UHC pilot was expected to have the following outcomes: (1) Over a period time, HSCs would be able to cater to a larger and a significant portion of Out Patient care; (2) HSCs would be able to divert patients seeking care from higher level public facilities (PHC/CHC/General Hospitals) and particularly those seeking care from private providers; (3) as a result, per capita public spending for OP care would reduce (as patients get diverted from higher level facilities); and (4) the average out of pocket expenditure (OOPE) for patients would also reduce, as a result.

By December 2017, the UHC pilot has completed about 8 months since its roll out. Are there signs of expected outcomes of the UHC pilot?

This report attempts to answer the following two questions:

- (i) to what extent the UHC pilot has effectively improved access to HSCs and reduced OOPE for primary care in the community; and
- (ii) to what extent and how well the UHC piloting in the State covers the scope of the proposed components/services of Health and Wellness Centres by GoI?

The results presented here are based entirely on primary information collected through two rounds of household surveys (one baseline survey carried out prior to introduction of UHC-pilot, and the second survey carried out during November-December 2017, nearly 8 month since the roll out of UHC-pilot, and primary information collected from all 67 pilot HSCs in the three UHC-blocks.

The report provides unambiguous evidence in support of increased access to HSCs, diversion of patients from higher level public facilities, diversion of patients from private hospitals, significant reduction in OOPE for patients seeking care from both public and private facilities, and significantly lower government spending per OP visit in pilot HSCs.

Briefly, the following key results should be highlighted:

1. HSCs now account for 17.8% of all OPs in Shoolagiri Block, 14.8% in Viralmalai Block, and 23.1% in Veppur Block, respectively; in all three blocks, HSCs accounted for less than 1% of all OPs during pre-UHC pilot;
2. Share of private hospitals for OP care have dropped significantly -- during pre-UHC pilot period (2015-16) and Dec.2017): from 51% to 21% in Shoolagiri block; from 47.8% to 24.2% in Viralmalai Block; from 40.9% to 23.9% in Veppur Block;
3. OOPE has shown significant fall among those seeking care from public facilities: from Rs.261 per OP visit to Rs.59 per OP visit in Shoolagiri Block; from Rs.351 to Rs.26 in Viralmalai Block; from Rs.395 to Rs.67 in Veppur Block;
4. This is the average of patients attending any of public facility (up to Government Hospital). As a result of the diversion of patients taking place (as noted above), OOPE of patients attending HSCs have come down even more significantly: It is Rs.5.9 per OP visit in Shoolagiri Block; Rs.2.9 per OP visit in Viralmalai Block and Rs.5.16 per OP visit in Veppur Block.
5. Geographic reach of these HSCs has improved beyond the villages where they are located: In Viralmalai Block, nearly 47% of all OPs are from habitations away from villages where HSCs are located; in case of Shoolagiri and Veppur, the reach is much lower, at 17% and 16%, respectively. Over time, with systematic campaign and other measures, the geographic reach of these facilities is bound to increase, as evidence shows.
6. A small cohort of NCDs showed that with availability of drugs at the local HSC about one on four to one in five patients in all blocks preferred to collect their drugs and have follow up locally, going to the PHC only on referral for a quarterly check up by the medical officer. Senior citizens are more likely to make this choice. This is likely to increase as more patients get registered for NCDs and awareness of this facility (which is currently low) increases.
7. Proportion of block population accessing HSCs has increased progressively over the past six months (July-Dec 2017) : 14.5% of Shoolagiri Block, 13.6% of Viralmalai and 10.9% of Veppur Block, have used pilot HSCs at least once during July-December 2017;
8. Male patients account for nearly 35% of all OPs attending HSCs;
9. More than 50% of all OPs are from the age group 15-59;
10. Outpatient attendance in all three blocks has steadily and significantly increased over the months: as of December 2017, each HSC serves 10.7 outpatients per day in Shoolagiri Block; 13 outpatients per day in Viralmalai Block and 10 outpatients in Veppur; They were all having less than 3 outpatients per day as of July 2017;
11. Outpatient care for NCD patients have also shown similar improvement since June 2017. All NCD patients are diagnosed and put on treatment at the PHC level and given one month's drugs there. They then access medicines and follow up care at the HSC for next two months or so returning to the PHC to renew their treatment plan once in every three to four months. .

12. All this means, substantial fall in the overall reduction in the financial burden on the patients who would have otherwise visited private facilities. This is through reduction in expenditures on drugs, diagnostics, and transportation.
13. More importantly, diversion of patients from PHC/CHC/GH, to HSC would have reduced per capita public expenditures for OP care; our estimates indicate that for every OP visit diverted from PHC/CHC/GH (on an average) to HSCs, a saving of at least about Rs.200 is effected – from about Rs.300 to below Rs.100, in cost of care.
14. Evidently, it makes sense therefore to scale up this UHC pilot and reduce the overall financial burden on the government to provide primary care; the amount saved could well be spent on further strengthening the public healthcare delivery system;
15. With several “baby steps” made thus far, despite several constraints faced while being implemented, UHC-pilot provides ample and unambiguous evidence to scale;
16. Experience of the field functionaries (VHNs) also shows clear signs of their gaining confidence in providing patient-care and the engagement with local community members. More importantly, VHNs willingness to stay in staff-quarters has brought about a very positive change in the perception of the people on the efforts being made in strengthening public health care system.
17. The UHC pilot also shows the need to revisit various norms in place in establishing primary care facilities: population to be covered, number of habitations to be covered and distance of habitations from facilities – all should be considered.
18. The next phase of UHC pilot will have to address HR norms at HSC level and above as we move forward.

UHC does not end with providing out-patient care at HSCs; but provision of primary clinical care at HSCs IS a major step the design and roll out of UHC. Over a period of time, the package of primary care services will become more comprehensive and quality of primary care services will undergo positive changes as a result of roll out of various additional interventions across the state from HSCs through PHC-CHC.

## 1. Introduction

UHC-pilot in TN was launched in early 2017 in Shoolagiri Block (of Krishnagiri HUD), Viralmalai Block (of Pudukkottai HUD) and Veppur Block (of Perambalur HUD).<sup>1</sup>

Shoolagiri block has a population of 1,84,940 and is served by 25 Health Sub-Centres (HSCs), 4 PHCs and one CHC. Viralmalai block has a population of 1,41,409 and is served by 21 HSCs, 6 PHCs and one CHC. Veppur block has a population of 1,54,789, and is served by 21 HSCs, 6 PHCs and one CHC.

Strengthening the primary health care services, is the first step in the design and rolling out of UHC-pilot. As a result, Health Sub-Centres (HSCs), which are the closest delivery points to the community have logically become the building blocks of the UHC in the state.

Following a scoping study for UHC during 2015-16<sup>2</sup>, steps for rolling out primary care services at HSCs were initiated from early 2017. This meant, beefing up physical infrastructure of all HSCs in respective UHC pilot blocks, filling up all vacancies of existing VHN posts and creation of an additional post for a second VHN in all HSCs<sup>3</sup>, provision of adequate drugs, including certain drugs for NCDs, and basic diagnostics.

Sequentially speaking, in order to run the clinic and deliver outpatient care at HSC level, on a daily basis (from 9am to 5pm), attention was first paid on the physical structure of the UHC to ensure that HSC have electricity, water, toilet in functional form. Then comes availability of drugs and presence of an additional VHN, the whole day. Every HSC in this area has therefore two VHNs now as its human resources.

UHC does not end with providing out-patient care at HSCs; but provision of primary clinical care at HSCs **IS** a major step in the design and roll out of UHC. Over a period of time, the package of primary care services will become more comprehensive and quality of primary care services will undergo positive changes as a result of roll out of various additional interventions across the delivery system from HSCs through PHC-CHC.

The motivation and justification for this approach towards UHC is that these tail end facilities have been the weakest link in the entire edifice of public healthcare delivery system, and therefore, from equity perspective, it is logical to first strengthen these facilities providing basic primary care services.

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<sup>1</sup> Letter from Mission Director, State Health Society, No 8330/SHS/P5/2016, dated 29/09/2017; 19/11/2016 and 13/04/2017.

<sup>2</sup> G.O. (D) No.675 Health and Family Welfare (P2), Department Dated: 30.06.2014. The scoping study included a Household Survey, Facility Survey, including logistics, inventory of equipment, etc. Refer the section on Methodology for details of these primary surveys.

<sup>3</sup> G.O. 204, dated 12/08/2016

UHC pilot was expected to have the following outcomes: (1) Over a period time, HSCs would be able to cater to a larger and a significant portion of Out Patient care; (2) HSCs would be able to divert patients seeking care from higher level public facilities (PHC/CHC/General Hospitals) and particularly those seeking care from private providers; (3) as a result, per capita public spending for OP care would reduce (as patients get diverted from higher level facilities); and (4) the average out of pocket expenditure (OOPE) for patients would also reduce, as a result.

This report attempts to answer the following two questions:

- (1) to what extent the UHC pilot has effectively improved access to HSCs and reduced OOPE for primary care in the community; and
- (2) to what extent and how well the UHC piloting in the State covers the scope of the proposed components/services of Health and Wellness Centres by GoI?

By the end of December 2017, UHC pilot has had nearly 8 months of experience. The rolling out process faced a number of challenges typically encountered during the initial stages in the implementation of such ambitious public health interventions.

The initial months (from February till April 2017) were spent addressing ground level challenges, in getting the buildings ready, recruitment of additional VHNs and also filling vacancies, etc. All VHNs were trained in UHC-APP in maintaining patient records. It took a few months to make many features of the UHC-APP functional. In addition to the UHC-APP, all VHNs maintain a hard-copy of patient records as well, as uploading them on daily basis depends on net connectivity, web-service providers, electricity, etc.

The report is organised as follows: Section 2 describes the nature of primary data-bases used for this study; Section 3 presents results of the UHC pilot interventions based on the primary household surveys; Section 4 presents an analysis of patient related information collected directly from HSCs using the Registry and UHC-APP.<sup>4</sup> Section 5 on “Way forward” provides some reflections on Objective 2 (mentioned above). The report closes with a few concluding remarks.

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<sup>4</sup> UHC APP- used by VHNs at HSCs digitally records patient related health details along with details of his/her family members. APP also has provision to maintain record of medicines prescribed, diagnostics carried out both by VHNs and Medical Officers at PHCs/CHCs, and follow up details. Patients’ contact numbers and Aadhar numbers/Ration Card Numbers are also maintained.

## 2. Methodology:

This study uses primary data collected from household surveys carried out in UHC pilot blocks, and from HSCs located in UHC-pilot blocks.

The following primary surveys provide information required to address our objectives:

(1) Household Survey 1 (HS-1): A baseline primary household survey in all three blocks were carried out during 2015-16, following the methodology adopted by the 71<sup>st</sup> Round NSS Report (2014)<sup>5</sup>. The survey covered a sample of 1000 households from 25 villages from each block to collect information on household health seeking behaviour for both OP and IP care, type of facilities utilised, nature of ailments reported for OP and IP services, overall expenses made towards OP and IP, including amount spent on drugs, diagnostics, overall monthly household consumption, etc.<sup>6</sup>

(2) Facility Survey-1 (FS-1): A baseline primary survey of all HSCs in all three UHC pilot blocks on gaps in physical infrastructure, other facilities (such as availability of water, electricity, toilets etc.), vacancies in VHNs, drugs, etc., was carried out during October 2015 and June 2016. As part of this survey, the Research Team also carried out one Group Discussion with VHNs (in each block) to elicit their views on gaps in facilities and expectations of community members, and village level group discussions to elicit directly expectations of community members for services to be made available at HSCs.

(3) Interim progress of UHC: Household Survey-2 (HS-2):

During November- December 2017, nearly 8 months after the launch of the UHC-pilot, another primary household survey in each pilot block was carried out. We followed the same design/methodology as in baseline household surveys. The same 25 villages were chosen as in baseline but the sampled households were different. Also, it should be noted here that during HS-2, a much larger sample of households and therefore a larger number of household members were included. Table 2.1 shows the extent of over sampling in each block and also the reported morbidity (chronic and ailments of short duration). Oversampling was not uniformly distributed in all 25 villages. But in each village, a minimum of 40 households were sampled. During HS-2, we have also collected information on a sample of NCD patients identified during the base-line (HS-1) from the

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<sup>5</sup> For details of the sampling /design methodology adopted by NSS 71<sup>st</sup> Round on “Social Consumption: Health”, refer Appendix B of the Report:  
[[http://mospi.nic.in/sites/default/files/publication\\_reports/nss\\_rep574.pdf](http://mospi.nic.in/sites/default/files/publication_reports/nss_rep574.pdf)]

<sup>6</sup> A very large number of field investigators were trained and deployed for these surveys. It is important to note that all field investigators were then VHN-trainees undergoing their final term of their training programme at Hosur and Tiruvalankulam training institutes. Appendix 1 provides names of all field investigators and respective supervisors and officials involved in these surveys.



same sample villages. This community level cohort based information on select NCD patients is perhaps the first of its kind ever collected in Tamil Nadu. Using this unique cohort data, we shall be presenting health seeking behaviour of these NCD patients in the pilot villages.

(4) Qualitative Primary Survey of progress of UHC-pilot and the role of HSCs and VHNs: (FS-2). This survey involved a detailed discussion with VHNs from all three UHC blocks. The study team visited all 67 HSCs during November –December 2017 and also made a note on infrastructural progress and the gaps that continued to constrain the performance of VHNs. Discussions with VHNs were primarily focussed on their clinical experience with patients over the months, their interactions with community, living conditions, what they expect from the Govt. to be able to perform better, their relationship with the senior VHNs.

(5) During 2016-17, we have visited four times all three UHC pilot blocks and observed all facilities as they were before launch of UHC pilot, during the process of upgradation of facilities, and during initial stage of deployment of VHN2. The fourth (final) visit to the HSCs were made during Nov-Dec.2017. Several interactions with respective DDHS, BMOs, MOs, HIs, UHC-Nodal MOs, pharmacists, and other field staff members provided valuable insights into the ground level realities and the challenges being addressed on a daily basis in making UHC-pilot a successful effort.

**Table 2.1: Sample Size and Morbidity Burden: Number of Persons Per 1000 population Reported as Suffering from Chronic ailment and Ailments of Short Duration: Baseline (HS-1) Vs Post UHC Survey (HS-2)**

	Shoolagiri		Viralimalai		Veppur	
Ailment type	HS-1 Households sampled N1=1000  (Number of household members N2=4817)	HS-2 Households Sampled N1=1540  (Number of household members N2=6579)	HS-1 Households Sampled N1=1000  (Number of household members N2=4726)	HS-2 Households sampled N=1600  (Number of household members N2=7181)	HS-1 Households sampled N1=1000  (Number of household members N2=4074)	HS-2 Households Sampled N1=1240  (Number of Household members N2=5069)
Chronic	91	52	51	68	43	104
Ailments of short duration*	104	161	58	229	64	236

\*Recall period 30 days (used both in HS-1 and HS-2)

Note: Number of persons per 1000 population reported self-morbidity (of short duration in particular) has increased substantially in all three blocks, during the post UHC survey (HS-2). Much of this could be due to the presence of a functional HSC in and around where people reside. This is discussed later in Sections 3 and 4.

### 3. Results based on Base-line Survey (HS-1) and Interim Household Survey (HS-2)

Sections 3.1-3.3 present results with respect to “Access to HSCs”, and “Out of Pocket Expenses (OOPE)”, comparing the baseline Household Survey (HS-1) and Interim Household Survey (HS-2).

#### 3.1: SHOOLAGIRI BLOCK:

##### 3.1.1 Access

Compared to Baseline HS-1 (2015), where HSCs accounted for only 0.37% of all OPs, HS-2 (2017) shows that HSCs accounted for 17.96% of OP patients in Shoolagiri Block. (Table 3.1.1a)

**Table 3.1.1a: Number of persons Accessing public and private facilities for out-patient services: Shoolagiri Block Pre and Post UHC pilot period (Source HS-1 and HS-2)**

	Baseline Survey Pre UHC (HS-12015) Households Sampled N1: 1000 (Number of Household members surveyed N2 : 4817)		Post-UHC Survey Nov-Dec.2017 (HS-2) Households Sampled N1=1540 (Number of household members surveyed N2=6579)	
Facility Provider	Number of OPs	%	Number of Ops	%
HSC	2	0.37	222	17.83
PHC/CHC	177	32.96	349	28.03
Government Hospital	27	5.03	86	6.91
Private Clinic	47	8.75	211	16.95
Private Hospital	275	51.21	285	22.89
Informal care	6	1.12	33	2.65
Not Visited (medicines from pharmacy)	3	0.56	59	4.74
<b>Total</b>	<b>537</b>	<b>100</b>	<b>1,245</b>	<b>100</b>

As mentioned in Section 2 and shown above, HS-2 covered 540 more households and (1762 additional household members) than HS-1 in Shoolagiri block. The self-reported morbidity (of short term type) has increased from 104 to 161 per 1000 population. The primary reason for this increase is clear from HS-2 and qualitative community surveys, namely, “the presence of a functional HSC during the day”, in and around where people reside”.

Proportion of OPs who went to PHC/CHC fell from 32.96% (in Baseline HS-1) to 28.16% during HS-2. Of those (349 OPs) who went to PHC/CHC, 38% were from villages with HSCs (under pilot UHC, HS-2). While the proportion of those attending Private Clinics increased from 8.75% (baseline HS-1) to 16.99% during HS-2, proportion of patients attending private hospitals dropped significantly from 51.21% during HS-1 to 23.06% during HS-2. But those seeking care from local pharmacists increased from 0.56% during HS-1 to 4.21% during HS-2.

Overall 82.4% of those who went to HSCs were from those villages where pilot HSCs are located. (Table 3.1.1b).

More than 60% of 191 patients who went to a private clinic/private hospital for OP services, though they had a pilot-HSC in their village, were for fever, diabetes, skeletal, urinary and obstetrics related ailments (See Appendix 2.1).

**Table 3.1.1b: Origin of Ops: HSCs villages Vs Non-HSC villages in Shoolagiri block (Source HS-2)**

Health Care Providers	Number of OPs from Villages with pilot HSCs(9) N (%)	Number of OPs from Villages with No pilot HSCs (16) N (%)	Total
HSC	183 (82.43)	39 (17.57)	222 (100)
PHC/CHC	132 (37.82)	217 (62.18)	349 (100)
Government Hospital	30	56	86
Private Clinic	62	149	211
Private Hospital	129	156	285
Informal care	4	29	33
Not Visited (medicines from pharmacy)	18	41	59
<b>Total</b>	<b>558</b>	<b>687</b>	<b>1245</b>

It should be noted that 50.8% of households surveyed (HS-2) were not aware of the on-going UHC pilot in Shoolagiri block. (Table 3.1.1c) In two villages where HSCs are located (namely in Berigai and Medithi Palli), not more than 55% were aware of the upgraded HSCs under UHC. In Berigai village, where a HSC is located, only 12.5% of the survey population showed awareness of the upgraded HSCs. (Refer Appendix 3.1)

**Table 3.1.1c: Awareness of pilot-UHC-HSCs in Shoolagiri block (Source HS-2, 2017)**

	Households N	Households %
Aware and sought care at HSC	335	33.5
Aware but didn't seek care at HSCs*	157	15.70
Not aware about pilot HSC	508	50.8
<b>Total</b>	<b>1,000</b>	<b>100</b>

\*Respondents provided many reasons for not seeking care from HSCs: they wish to consult a physician, or prefer to have “injections” in addition to medicines. HSCs do not administer injections. Many respondents have also pointed out “lack of transport facility” between their villages and where HSCs are located.

### 3.1.2 Out of Pocket Expenses (OOPE)

OOPE varies significantly across type of providers. Table 3.1.2a shows OOPE per OP visit to public facilities dropped significantly from Rs.261 (HS-1) to Rs.59.38 during HS-2.

OOPE was lowest at Rs.5.98 per visit among those who accessed pilot HSCs, while increases to Rs.55.87 and Rs.211.5 per visit among for those who accessed PHCs/CHCs and Public Hospitals, respectively. (Refer Table 3.1.2b)

**Table 3.1.2a: Average out of pocket expenditure for Outpatient care in Shoolagiri block: (Source HS-1 and HS-2)**

	Shoolagiri				
	Public Mean (Median)	Private Mean (Median)	Informal Mean (Median)	Pharmacy Mean (Median)	All Mean (Median)
<b>Baseline Survey HS-1 (May-August 2016)</b>	261.72 (100)	3632.49 (1000)	1336.66 (1150)	25 (15)	987.85 (500)
<b>Interim UHC Survey HS-2 (Nov – Dec 2017)</b>	<b>59.38 (20)</b>	<b>863.51 (520)</b>	<b>367.42 (200)</b>	<b>195.33 (60)</b>	<b>394.35 (100)</b>

Source: HS-1 and HS-2

OOPE was highest among those accessing private facilities, both during HS-1 and HS-2, at Rs.3632 and Rs.863, respectively.

Transportation costs accounts for more than 90% of OOPE among those accessing public institutions. During HS-2, none among those accessing HSCs, spent any amount on medicines or diagnostics. (Table 3.1.2c). **Medicines at Government Hospitals consumed about Rs.24 on average.**

**Table 3.1.2b: Break-up of average out of pocket expenditure for Outpatient care Facility wise: Shoolagiri block (Source HS-2)**

	Shoolagiri Block-HS-2 (Nov – Dec 2017)	
Health Care Providers	Mean	Median
HSC	5.98	0
PHC/CHC	55.87	50
Government Hospitals	211.5	100
<b>Public</b>	<b>59.38</b>	<b>20</b>
Private Clinics	607.80	400
Private Hospitals	1052.82	650
<b>Private</b>	<b>863.51</b>	<b>520</b>

**Table 3.1.2c: OOPE break-up by Medical and Non-Medical expenses facility wise: Shoolagiri block (Source HS-2)**

		Shoolagiri Block HS-2				
		HSC	PHC/C HC	Govt. Hospital	Private Clinics	Private Hospitals
1	Consultation Fee	0	0	0	133.7	218.80
2	Diagnostic Test INSIDE	0	0	5.81	142.80	277.08
3	Diagnostic Test OUTSIDE	0	0	17.44	16.42	24.07
4	Medicines INSIDE	0	.57	0	185.57	354.96
5	Medicines OUTSIDE	0	4.32	24.70	44.97	13.12
6	Transportation	5.93	37.5	130.91	60.76	122.22
7	Informal Payments	.04	12.78	32.90	24.15	45.74
8	<b>Total</b>	<b>5.98</b>	<b>55.87</b>	<b>211.5</b>	<b>607.80</b>	<b>1052.82</b>

### 3.1.3 Access and average OOPE for NCD patients (Cohort from HS-1 and HS-2)

A sample/cohort of 32 NCD patients surveyed during the baseline HS-1 were surveyed again during HS-2. Details of their health seeking behaviour and OOPE are given below:

From May/June 2017, HSCs under the pilot have begun to provide drugs for NCD patients<sup>7</sup>; four of the 17 NCD patients dependent on public facilities are drawing their drugs from HSCs; (Table 3.1.3a). Average out of pocket expenditure of NCD patients visiting government facilities has dropped substantially from Rs. 153 (HS-1) to Rs. 40 (HS-2); (Table 3.1.3a).

<sup>7</sup> The salient features of the NCD intervention are outlined in Section 4.

**Table 3.1.3a: Access and Average OOPE for a cohort of 32 NCD patients: Shoolagiri block (Source HS-1 and HS-2)**

Provider	N		Average OOPE	
	Baseline Survey HS-1	HS-2	Baseline Survey HS-1	HS-2 Survey
HSC	0	4	0	12.5
PHC	9	12	193.33	50.0
CHC	6	0	92.5	0
Public Hospital	0	0	0	0
Private Clinic	4	4	1622.5	487.5
Private Hospitals	13	5	1899.23	1022
Informal	0	1	0	474
Pharmacy	0	6	0	528.33
<b>Total</b>	<b>32</b>	<b>32</b>	<b>1046.09</b>	<b>354.81</b>

Proportion of patients using private clinics / hospitals has fallen from 53%% (HS-1) to 28% (HS-2); (Table 3.1.3a). Seven of the 17 NCD patients have switched from private clinics/hospitals to HSCs/PHCs; three of these eight patients access HSCs; six of 16 NCD patients have switched from public facilities to private clinics/informal providers; (Table 3.1.3b). Refer Appendix 4.1 for details.

**Table 3.1.3b: NCD patients accessing private and public facilities: Shoolagiri block (Source HS-1 vs HS-2)**

		HS-2 Survey (N)			
		Public	Private	Informal/ Pharmacy	Total
Baseline HS-1 Survey (N)	Public	9	3	3	15
	Private	7	6	4	17
	Informal	0	0	0	0
	<b>Total</b>	<b>16</b>	<b>9</b>	<b>7</b>	<b>32</b>

### 3.2: VIRALIMALAI BLOCK:

#### 3.2.1: Access

Proportion of OPs utilizing HSCs in Viralimalai block has increased from 0.71% (during HS-1) to 14.08% (during HS-2). PHC/CHCs share of the OP care has fallen from 32.6% (HS-1) to 26.87% (HS-2).

But overall the proportion shows that utilization of Public facilities has increased from 45% (baseline HS-1) to 67% during HS-2, proportion of patients utilizing private hospitals dropped significantly from 47.87% during HS-1 to 24.22% during HS-2. Informal and Seeking care from pharmacist has increase from nil (HS-1) to 0.41% and 2.18% respectively.

**Table 3.2.1a: Number of Persons Accessing to public and private facilities for out-patient services: Viralimalai Block Pre and Post UHC pilot period: (Source HS-1 and HS-2)**

Facility Provider	Baseline Pre UHC HS-1 2015 HS-1 Households Sampled N1=1000 (Number of household members surveyed N2=4726)		HS-2 Nov-Dec.2017 (HS-2) HS-2 Households sampled N=1600 (Number of household members Surveyed ) N=7181	
	Number of OPs	%	Number of OPs	%
HSC	2	0.71	239	14.08
PHC/CHC	92	32.62	456	26.87
Government Hospital	34	12.06	450	26.52
Private Clinic	19	6.74	97	5.72
Private Hospital	135	47.87	411	24.22
Informal care	-	-	7	0.41
Not Visited (medicines from pharmacy)	-	-	37	2.18
<b>Total</b>	<b>282</b>	<b>100</b>	<b>1,697</b>	<b>100</b>

As mentioned in Section 2 and shown above, HS-2 covered 600 more households and (2455 additional household members) than HS-1 in Viralimalai block. The self-reported morbidity (of short term type) has increased from 58 to 229 per 1000 population. The primary reason for this increase is clear from HS-2 and qualitative community surveys, namely, “the presence of a functional HSC during the day”, in and around where people reside”.

Geographic access to HSC is far better in Viralimalai than Shoolagiri Block: about 43% of all OPs was from the villages where HSCs are located. The rest 57% have come from non-

HSC villages. Likewise, 25.8% of OPs utilizing PHC/CHC was from the villages where they are located; the rest 74.2% were from non-PHC/CHC villages. Patients who went to a private clinic/private hospital for OP services, though they had a pilot-HSC in their village, were majorly for fever, diabetes, skeletal, urinary and obstetrics related ailments (See Appendix 2.2).

**Table 3.2.1b: Origin of OPs: HSCs villages Vs Non-HSC villages in Viralimalai block (Source HS-2)**

Health Care Providers	Number of OPs from Villages with pilot HSCs(11) N (%)	Number of OPs from Villages with No pilot HSCs (14) N (%)	Total
HSC	103 (43.10)	136 (56.90)	239 (100)
PHC/CHC	118 (25.88)	338 (74.12)	456 (100)
Government Hospital	115	335	450
Private Clinic	23	74	97
Private Hospital	113	298	411
Informal care	4	3	7
Not Visited	8	29	37
<b>Total</b>	<b>484</b>	<b>1,213</b>	<b>1,697</b>

Table 3.2.1c shows 47.4% of the sampled Household are aware and sought care at the Pilot HSCs in the block, and about 41.2% of the sample Household are not aware about their Pilot HSCs. It should be noted that overall awareness is much higher in villages where the pilot HSCs are functioning compared to other villages. (Refer Appendix 3.2)

**Table3.2.1c Awareness of pilot-UHC-HSCs in Viralimalai block (Source HS-2, 2017)**

	Households N	Households %
Aware and sought care at HSC	474	47.4
Aware but didn't seek care at HSCs*	114	11.4
Not aware about pilot HSC	412	41.2
<b>Total</b>	<b>1,000</b>	<b>100</b>

\*Respondents provided many reasons for not seeking care from HSCs: they wish to consult a physician, or prefer to have “injections” in addition to medicines. HSCs do not administer injections. Many respondents have also pointed out “lack of transport facility” between their villages and where HSCs are located



### 3.2.2 Out of Pocket Expenses (OOPE)

Average OOPE per OP visit to public facilities has significantly reduced from Rs.351 (during HS-1) to Rs.26 (during HS-2) in Viralimalai Block. The mean expense of private facility has reduced from 2843 (during HS-1) to 1246 (during HS-2), though remains the highest average OOPE both during HS-1 and during HS-2. Average OOPE on Informal care and from pharmacist are about 227 and 211 per person, respectively.

**Table 3.2.2a: Average out of pocket expenditure for Outpatient care in Viralimalai block: (Source HS-1 and HS-2)**

	Viralimalai				
	Public Mean (Median)	Private Mean (Median)	Informal Mean (Median)	Pharmacy Mean (Median)	All Mean (Median)
HS-1 (May-August 2016)	351.25 (150)	2843.90 (500)	-	-	2843.90 (500)
HS-2 (Nov – Dec 2017)	26.04 (0)	1246.81 (500)	227.14 (100)	211.89 (65)	396.36 (20)

Average OOPE was lowest at Rs.2.90 per visit among those who visited HSCs, while it increases to Rs.14.84 and Rs. 49.68 per visit among for those accessed PHCs/CHCs and Public Hospitals, respectively. HS-2 average OOPE was highest among those accessing private facilities, at Rs.299.83 in private clinics, and Rs. 1470.30 in private hospitals. (Table 3.2.2b)

**Table 3.2.2b: Break-up of average out of pocket expenditure for Outpatient care Facility wise: Viralimalai block (Source HS-2)**

	Viralimalai Block-Post UHC Implementation Survey (Nov – Dec 2017)	
Health Care Providers	Mean	Median
HSC	2.90	0
PHC/CHC	14.84	0
Government Hospitals	49.68	20
<b>Public</b>	<b>26.04</b>	<b>0</b>
Private Clinic	299.83	230
Private Hospitals	1470.30	550
<b>Private</b>	<b>1246.81</b>	<b>500</b>

As noted in the case of Shoolagiri block, here too transportation accounts for almost all of average OOPE in public facilities. (Table 3.2.2c)

**Table 3.2.2c: OOPE break-up by Medical and Non-Medical expenses facility wise: Viralimalai block (Source HS-2)**

		Viralimalai				
		HSC	PHC/CH C	Govt. Hospital	Private Clinic	Private Hospitals
1	Consultation Fee	0	0	0	76.26	230.34
2	Diagnostic Test INSIDE	0	0	0	3.09	224.45
3	Diagnostic Test OUTSIDE	0	0	.62	0	39.17
4	Medicines INSIDE	0	.53	2.00	178.19	755.02
5	Medicines OUTSIDE	0	0	.60	2.78	16.71
6	Transportation	2.28	12.01	35.23	37.06	111.51
7	Informal Payments	0.62	2.18	11.06	3.64	44.64
8	<b>Total</b>	<b>2.90</b>	<b>14.84</b>	<b>49.68</b>	<b>299.83</b>	<b>1470.30</b>

### 3.2.3 Access and average OOPE for NCD patients (Cohort from HS-1 and HS-2)

A sample of 29 NCD patients surveyed during the baseline HS-1 were surveyed again during the HS-2. Details of their health seeking behaviour and OOPE are given below:

NCD drugs are made available at HSCs as a part of UHC pilot; four of the 19 NCD patients dependent on public facilities are drawing their drugs from HSCs; (Table 3.2.3a). Average out of pocket expenditure of NCD patients visiting government facilities has dropped substantially from Rs. 361 (HS-1) to Rs.35 (HS-2).

**Table 3.2.3a: Access and Average OOPE of a 29 NCD patient cohort Viralimalai block (Source HS-1 and HS-2)**

Provider	N		Average Expenditure	
	Baseline HS-1 Survey	HS-2 Survey	Baseline HS-1 Survey	HS-2 Survey
HSC	0	4	-	0
PHC	7	8	160	29.5
CHC	5	0	774	-
Public Hospital	5	7	232	60
Private Clinic	1	3	1500	870
Private Hospitals	11	7	3485.45	1912.57
Informal	0	0	-	-
Pharmacy	0	0	-	-
<b>Total</b>	<b>29</b>	<b>29</b>	<b>1585.86</b>	<b>574.27</b>

Proportion of patients using private clinics / hospitals has fallen from 41% (HS-1) to 34% (HS-2). Three of the 12 NCD patients have switched from private clinics/hospitals to HSCs/PHCs. Only one out of 17 NCD patients has switched from public facilities to private; (Table 3.2.3b). Refer Appendix 4.1 for details.

**Table 3.2.3b: NCD patients accessing private and public facilities: Viralimalai block**  
(Source HS-1 vs HS-2)

		HS-2 Survey (N)			
		Public	Private	Informal/ Pharmacy	Total
<b>Baseline HS-1 Survey (N)</b>	Public	16	1	0	<b>17</b>
	Private	3	9	0	<b>12</b>
	Informal	0	0	0	<b>0</b>
	<b>Total</b>	<b>19</b>	<b>10</b>	<b>0</b>	<b>29</b>

### 3.3: VEPPUR BLOCK:

#### 3.3.1: Access

HSCs account for 23% of all OPs in Veppur block (during HS-2), a very significant increase from 0.38%, during HS-1. Overall, utilization of public facility in Veppur block has significantly increased from 54% in HS-1 to 71% in HS-2. The fall in the share of private hospitals from 40.9% (during HS-1) to 23.1% (during HS-2) is noteworthy.

**Table 3.3.1a: Number of Person Accessing public and private facilities for out-patient services: Veppur Block Pre and Post UHC pilot period: (Source HS-1 and HS-2)**

Facility Provider	Baseline Survey Pre UHC 2015 (HS-1) <small>Number of Households sampled N1=1000 (Number of household members surveyed N2=4074)</small>		Post UHC survey Nov-Dec.2017 (HS-2) <small>Number of Households Sampled N1=1240 Number of Household members N2=5069</small>	
	Number of OPs	%	Number of OPs	%
HSC	1	0.38	281	23.11
PHC/CHC	82	31.06	295	24.26
Government Hospital	61	23.11	289	23.77
Private Clinic	11	4.17	38	3.13
Private Hospital	108	40.91	282	23.19
Informal care	-	-	-	-
Not Visited (medicines from pharmacy)	1	0.38	31	2.55
<b>Total</b>	<b>264</b>	<b>100</b>	<b>1216</b>	<b>100</b>

As mentioned in Section 2 and shown above, HS-2 covered 240 more households and (995 additional household members) than HS-1 in Veppur block). The self-reported morbidity (of short term type) has increased from 64 to 236 per 1000 population. The primary reason for this increase is clear from HS-2 and qualitative community surveys, namely, “the presence of a functional HSC during the day”, in and around where people reside”.

Table 3.3.1b shows 83.2% of patients accessing HSCs were from the villages where pilot HSCs are located. And about 20% of patients visiting PHC/CHCs were from villages where pilot HSCs are located.

**Table 3.3.1b: Origin of OPs: HSCs villages Vs Non-HSC villages in Veppur block (Source HS-2)**

Facility Provider	Number of OPs from Villages with pilot HSCs(10) N (%)	Number of OPs from Villages with No pilot HSCs (15) N (%)	Total
HSC	234(83.27%)	47 (16.73%)	281 (100%)
PHC/CHC	60(20.33%)	235 (79.67%)	295 (100%)
Government Hospital	126	163	289
Private Clinic	17	21	38
Private Hospital	107	175	282
Informal care	-	-	-
Not Visited	12	19	31
<b>Total</b>	<b>504</b>	<b>712</b>	<b>1,216</b>

Patients who went to a private clinic/private hospital for OP services, though they had a pilot-HSC in their village, were majorly for fever, diabetes, skeletal, urinary and obstetrics related ailments (See Appendix 2.3).

Table 3.3.1.c shows 46.7% of the sampled Household were aware and sought care at the Pilot HSCs in the block, and about 50.6% of the sample Household were not aware about their Pilot HSCs. It should be noted that overall awareness is much higher in villages where the pilot HSCs are functioning compared to other villages. (Refer Appendix 3.3)

**Table 3.3.1c: Awareness of pilot-UHC-HSCs in Veppur block (Source HS-2)**

	Households N	Households %
Sought care at HSC	467	46.70
Aware but didn't Seek care at HSCs*	27	2.70
Not aware about HSC	506	50.60
<b>Total</b>	<b>1,000</b>	<b>100</b>

\*Respondents provided many reasons for not seeking care from HSCs: they wish to consult a physician, or prefer to have “injections” in addition to medicines. HSCs do not

administer injections. Many respondents have also pointed out “lack of transport facility” between their villages and where HSCs are located

### 3.3.2 Out of Pocket Expenses (OOPE)

Average OOPE per OP visit to public facilities has significantly reduced from Rs.395.16 (HS-1) to Rs.67.52 (HS-2). The mean expense of private facility has also reduced from 4349 (HS-1) to 2098 (HS-2). Average OOPE on self-care by consuming drug from pharmacist is 47.87(HS-2). (Table 3.3.2a)

**Table 3.3.2a: Average out of pocket expenditure for Outpatient care in Veppur block:** (Source HS-1 and HS-2)

	Veppur				
	Public Mean (Median)	Private Mean (Median)	Informal Mean (Median)	Pharmacy Mean (Median)	All Mean (Median)
Baseline Survey (May-August 2016)	395.16 (100)	4349.96 (1600)	-	100 (100)	2176.70 (500)
Post UHC Survey (Nov - Dec 2017)	67.52 (20)	2097.98 (800)	-	47.87 (30)	601.35 (50)

Average OOPE was lowest at Rs.5.16 per visit among those who visited HSCs. It is Rs.40.42 and Rs. 155.82 per visit among for those who accessed PHCs/CHCs and Public Hospitals, respectively.

OOPE was highest among those accessing private facilities: Rs.646 in private clinics and Rs.2293 in private hospitals.

**Table 3.3.2b: Break-up of average out of pocket expenditure for Outpatient care facility wise: Veppur block (Source HS-2)**

	Veppur Block-Post UHC Implementation Survey (HS-2 Nov – Dec 2017)	
Health Care Providers	Mean	Median
HSC	5.16	0
PHC/CHC	40.42	30
Government Hospitals	155.82	50
<b>Public</b>	<b>67.52</b>	<b>20</b>
Private Clinic	646.05	450
Private Hospitals	2293.63	900
<b>Private</b>	<b>2097.98</b>	<b>800</b>

As in other two blocks, transportation expenses accounted almost all of the OOPE for patients accessing public facilities. Whereas, for those accessing private facilities, in addition to transportation expenses, expenses towards consultation, diagnostics and drugs were quite substantial.(above Rs.1700 per visit).

**Table 3.3.2c: OOPE break-up by Medical and Non-Medical expenses facility wise: Veppur block (Source HS-2)**

		Veppur				
		HSC	PHC/CHC	Govt. Hospital	Private Clinic	Private Hospitals
1	Consultation Fee	0	0	0	115.78	208.43
2	Diagnostic Test INSIDE	0	0	1.73	50	571.88
3	Diagnostic Test OUTSIDE	0	1.18	11.59	21.05	51.77
4	Medicines INSIDE	0	0	0	342.63	967.90
5	Medicines OUTSIDE	0	2.61	14.83	15.78	85.75
6	Transportation	3.08	23.95	76.77	80.26	234.55
7	Informal Payments	2.08	12.83	51.29	20.52	164.94
8	<b>Total</b>	<b>5.16</b>	<b>40.42</b>	<b>155.82</b>	<b>646.05</b>	<b>2293.63</b>

### 3.3.3 Access and average OOPE for NCD patients (Cohort from HS-1 and HS-2)

Drugs for NCD patients are provide at HSCs in pilot UHC blocks; five of the 23 NCD patients dependent on public facilities are drawing their drugs from HSCs during HS-2; (Table 3.3.3a). Average out of pocket expenditure of NCD patients visiting government facilities has dropped substantially from Rs. 112 (HS-1) to Rs.42 (HS-2).

**Table 3.3.3a: Access and Average OOPE for NCD patients Veppur block (Source HS-1 and HS-2)**

Provider	N		Average OOPE	
	Baseline HS-1 Survey	HS-2 Survey	Baseline HS-1 Survey	HS-2 Survey
HSC	0	5	-	0
PHC	8	7	54.75	47.14
CHC	1	6	100	53.33
Public Hospital	4	5	230	64
Private Clinic	1	0	670	-
Private Hospitals	14	4	9327.85	5580
Informal	0	1	-	10000
Pharmacy	0	0	-	-
<b>Total</b>	<b>28</b>	<b>28</b>	<b>4739.92</b>	<b>1182.29</b>

Proportion of patients using private clinics / hospitals has fallen from 53%% (HS-1) to 14% (HS-2); (Table 1). 12 of the 15 NCD patients have switched from private clinics/hospitals to HSCs/PHCs; two of these 12 patients access HSCs; two of 13 NCD patients have switched from public facilities to private clinics/informal providers; (Table 3.3.3b). Refer Appendix 4.1 for details.

**Table 3.3.3b: NCD patients accessing private and public facilities: Veppur block (Source HS-1 vs HS-2)**

		HS-2 Survey (N)			
		Public	Private	Informal/ Pharmacy	Total
Baseline HS-1 Survey (N)	Public	11	1	1	13
	Private	12	3	0	15
	Informal	0	0	0	0
	<b>Total</b>	<b>23</b>	<b>4</b>	<b>1</b>	<b>28</b>

## 4. Results based on UHC-APP data base

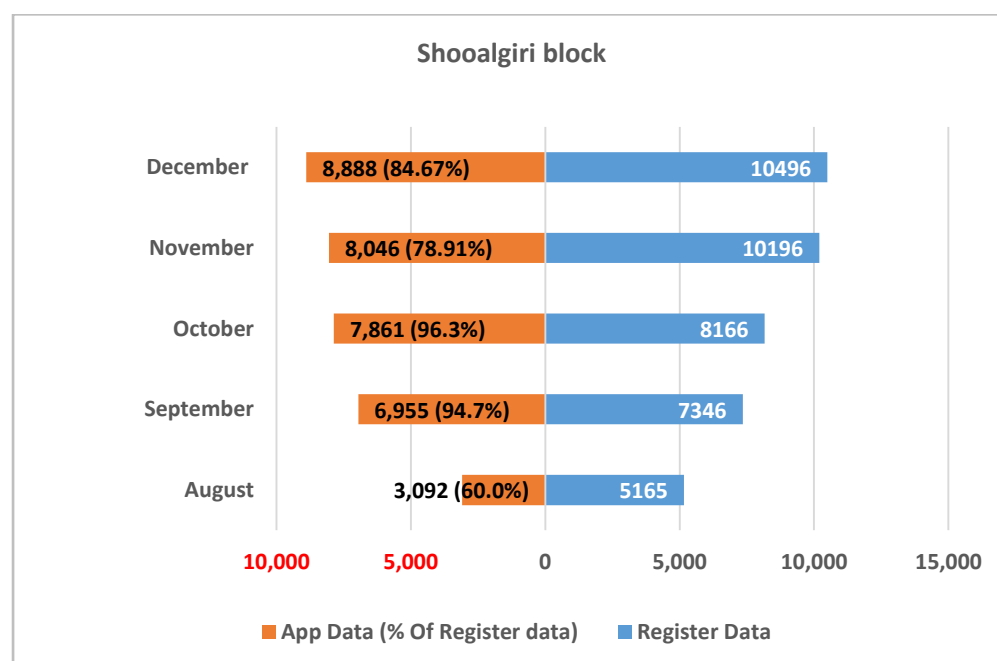
A number of observations can be made on the progress of UHC pilot based on UHC APP software data base. As we shall note in this section, several of its features lend a deeper analysis of utilization pattern which will help strengthen directly the delivery system.

### 4.1 VHNs familiarity and use of TN UHC APP

Patient related information is collected by VHNs using an electronic Application software using a hand-held Tablet. The APP captures patient related information of every single visit made by patients. APP entries at the time of consultation can be done off-line, it does require connectivity eventually to up-load data and for aggregation and analysis. Over the months since April 2017, the UHC-App went through several revisions as and when VHNs reported difficulties. VHNs were advised to keep a Registry (hard copy) of relevant patient information, besides an e-copy of the same, to make sure that we do not loose such information due to lack of connectivity.

Over a period of time, as shown in Figures 4.1.1 – to 4.1.3, as VHNs became more and more proficient with the use of APP and as connectivity became better, they were able to upload progressively greater volume of patient related information.

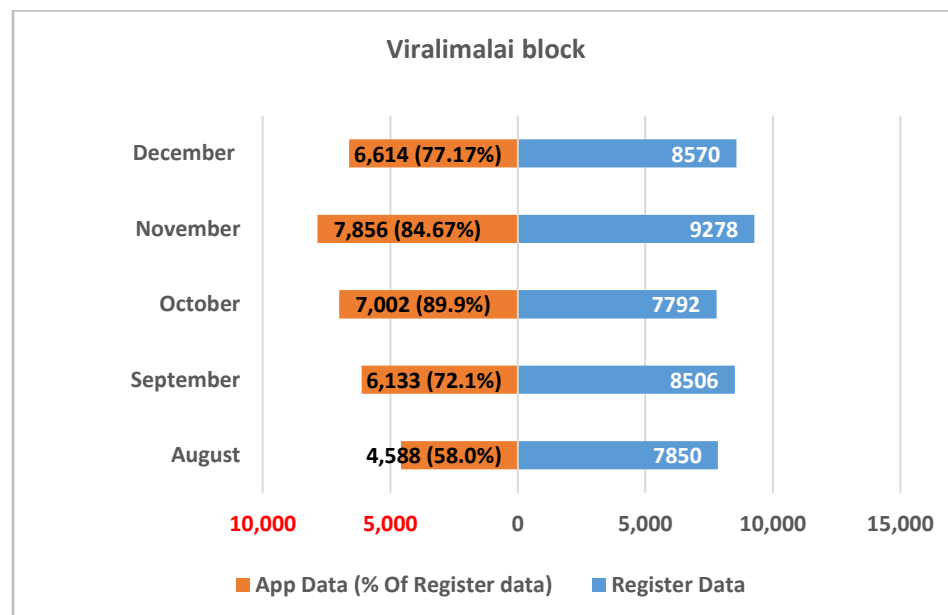
**Figure 4.1.1: Gap between UHC APP and Registry data month wise: Shoolagiri Block**



Source: UHC APP database



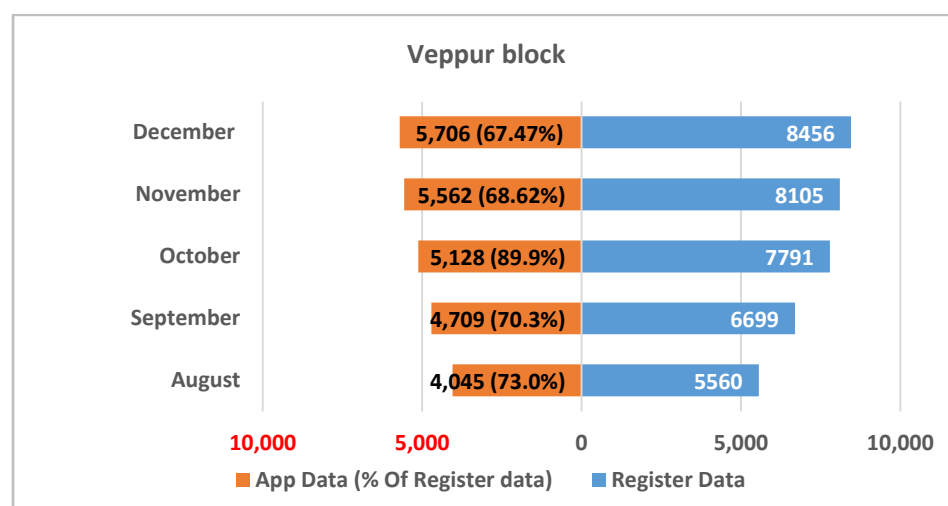
**Figure 4.1.2: Gap between UHC APP and Registry data month wise: Viralimalai Block**



Source: UHC APP database

In all three UHC pilot blocks, APP entry has grown significantly, over the months. By December 2017, Shoolagiri block shows a remarkable improvement in the APP uptake from Registry, compared to other two blocks, which also shows considerable improvement.

**Figure 4.1.3: Gap between UHC APP and Registry data month wise: Veppur Block**



Source: UHC APP database

*In our view, the progressive use of UHC APP by VHNS at HSC level is in itself a clear demonstration of an important feature of the present UHC pilot. Developing an electronic*

*patient information system will be useful in the future as UHC develops over time integrating with other levels of care, particularly in developing a sound referral system. Increased use of APP will enormously increase the overall administrative efficiency, thereby release the amount of time VHNs will have for patient care. Increased use of APP by higher officials (DDHSS/BMOs with appropriate dash-boards) for further analysis of health care needs and pattern of ailments reported will strengthen the overall delivery system and make it more responsive.*

## 4.2 Proportion of Block population accessing HSCs

**Table 4.2: Proportion of Block population utilized HSCs from July-December 2017:**

	Shoolagiri			Veppur			Viralimalai		
	Unique Individuals (OP+NCD+OG)	Revisits' N (%)	Total	Unique Individuals (OP+NCD+OG)	Revisits' N (%)	Total	Unique Individuals (OP+NCD+OG)	Revisits' N (%)	Total
July	2,887	250 (7.9)	3,137	3,110	413 (11.7)	3,523	2,465	492 (16.6)	2,957
August	2,640	464 (14.9)	3,104	2,904	1,159 (28.5)	4,063	3,204	1,510 (32.0)	4,714
September	5,485	1,717 (23.84)	7,202	3,158	1,928 (37.9)	5,086	3,985	2,246 (36.0)	6,231
October	5,366	2,616 (32.77)	7,982	2,733	2,582 (48.5)	5,315	3,564	3,542 (49.8)	7,106
November	5,182	3,139 (37.7)	8,321	2,641	2,967 (52.9)	5,608	3,661	4,470 (54.9)	8,131
December	5,232	3,326 (38.8)	8,558	2,278	3,347 (59.5)	5,625	2,404	4,131 (63.21)	6,535
<b>Total</b>	<b>26,792</b>			<b>16,824</b>			<b>19,283</b>		
<b>Block Population</b>	<b>184940</b>			<b>154789</b>			<b>141409</b>		
<b>% of block individuals utilized</b>	<b>14.5%</b>			<b>10.9%</b>			<b>13.6%</b>		

Source: UHC APP database

Table 4.2 shows that in Shoolagiri block, 14.5% of its population, has accessed HSCs under UHC pilot at least once during July-December 2017. Likewise, in Veppur and Viralimalai blocks, 10.9% and 13.6% of their respective population have accessed HSCs under UHC pilot, at least once during July-December 2017.

This is a very important positive impact of the present UHC pilot. In less than a year since the launching of the UHC pilot, population coverage has increased substantially. This is despite no active and vigorous IEC campaign, which should be a major component of the next phase of this pilot.

### 4.3 Origin of patients accessing HSCs:

On the origin of patients attending HSCs, the APP shows a more encouraging results: For example, in Shoolagiri block (Table 4.3), only 47% of OPs were from the villages where HSCs are located. Nearly 38% were from the neighbourhood regions. This is in quite contrast to the results from HS-2 which shows that only about 16% of OPDs were from neighbour villages (in Shoolagiri block, section 3.1.1b). But we must be careful here: HS-2 reports access during the previous 30 days of survey date, whereas APP data reflects the entire sample of attendance of patients during the past six months. The APP captures all “repeat” patients also – an important dimension of the UHC pilot, we shall highlight later in this section.

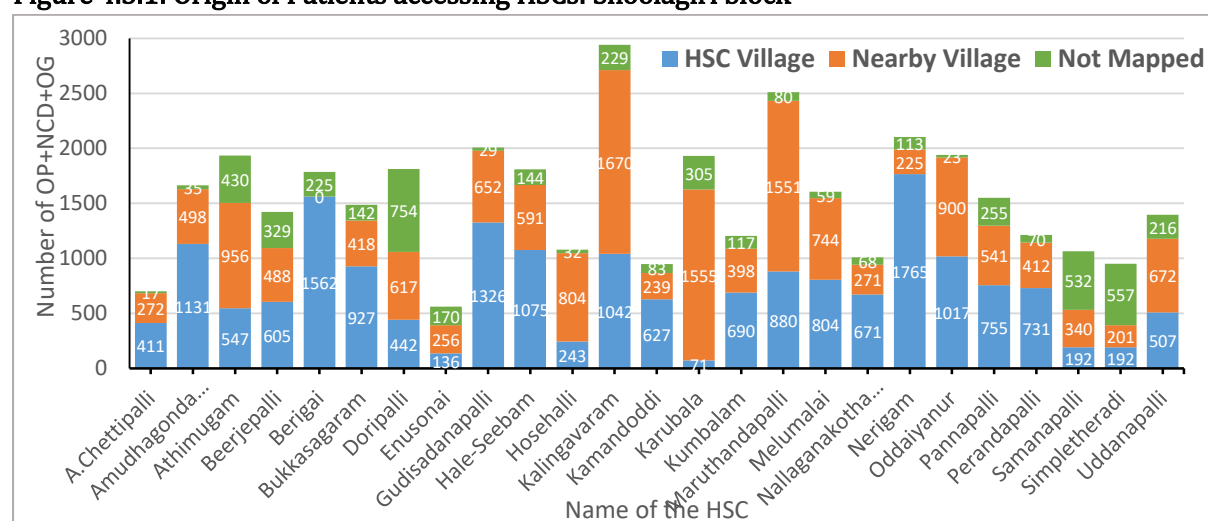
Figures 4.3.1 – 4.3.3 show origins of patients HSC-wise. [Note considerable number of patients have not been mapped of their origins. This is due to either VHNs not entering this information, or the name of their habitations are not listed in the software data-based. This needs to be rectified soon].

**Table 4.3: Origin of patients accessing HSCs from July-December 2017**

	Shoolagiri	Viralimalai	Veppur	Total
HSC village	18,349 (47.49)	13,758 (38.48)	9,338 (31.87)	<b>41,445</b> <b>(39.97)</b>
Nearby Village	15,271 (39.53)	12,103 (33.85)	7,143 (24.38)	<b>34,517</b> <b>(33.29)</b>
NOT Mapped	5,014 (12.98)	9,892 (27.67)	12,820 (43.75)	<b>27,726</b> <b>(26.74)</b>
<b>Total</b>	<b>38,634</b> <b>(100)</b>	<b>35,753</b> <b>(100)</b>	<b>29,301</b> <b>(100)</b>	<b>1,03,688</b>

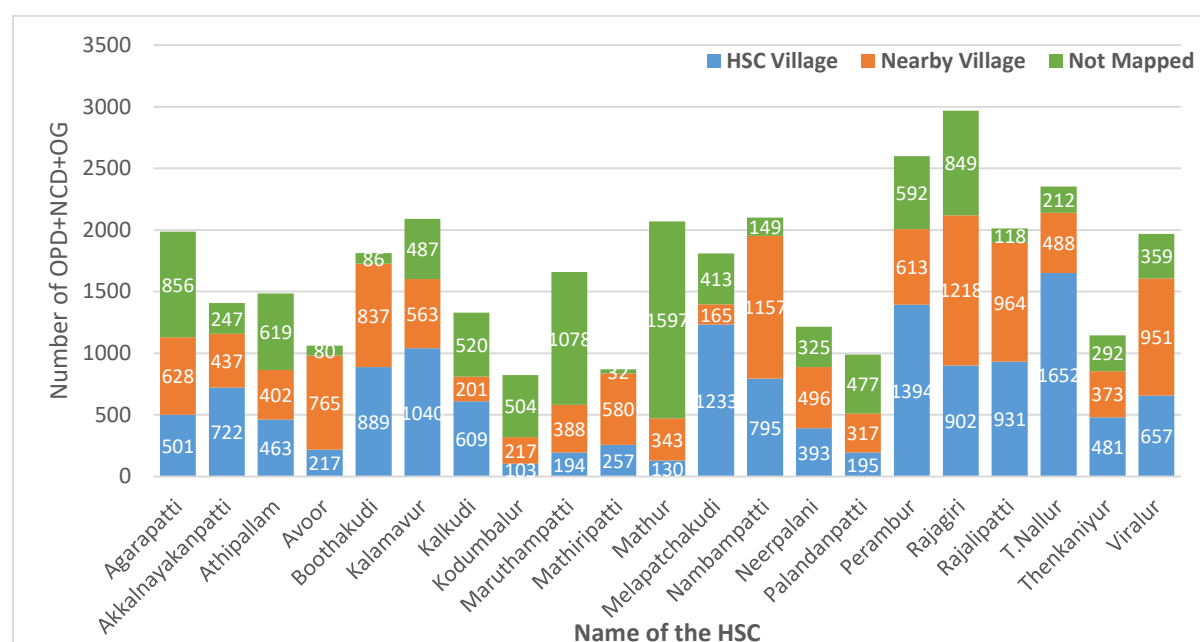
Source: UHC APP database

**Figure 4.3.1: Origin of Patients accessing HSCs: Shoolagiri block**



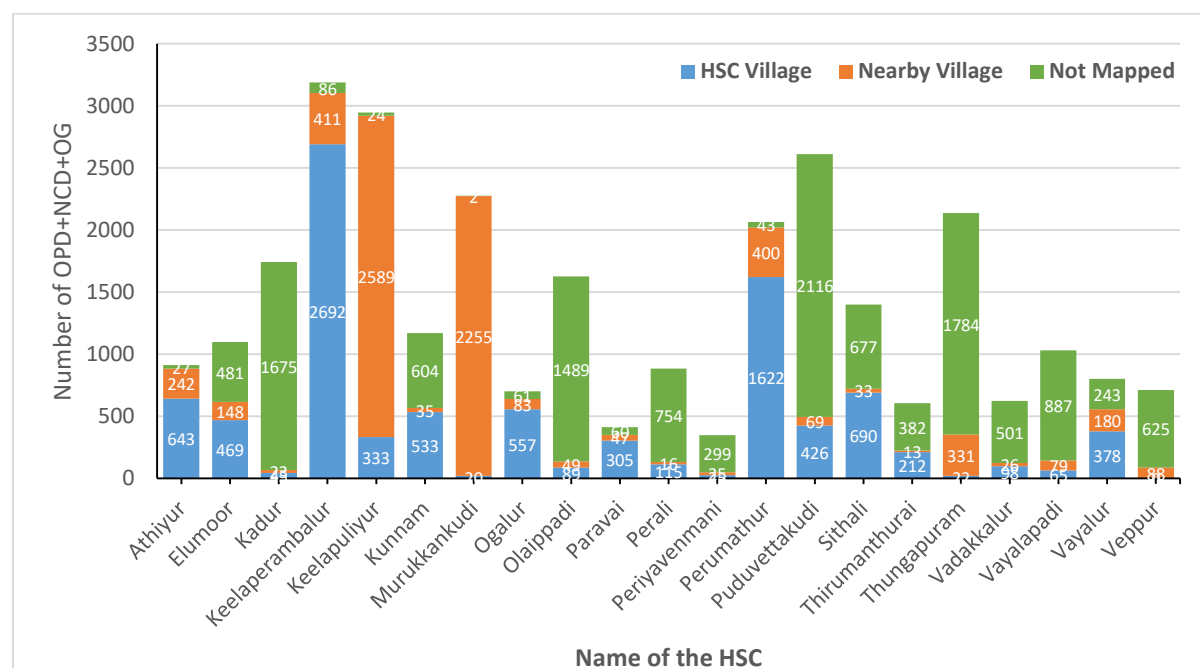
Source: UHC APP database

**Figure 4.3.2: Origin of Patients accessing HSCs: Viralimalai Block**



Source: UHC APP database

**Figure 4.3.3: Origin of Patients accessing HSCs: Veppur block**



Source: UHC APP database

Note: Murukkankudi HSC is functioning at Namayur Village

#### 4.4 Age and Gender distribution:

What is even more remarkable of this pilot is that male patients account for nearly 35% of all OPs. (Table 4.4.1)

**Table 4.4.1 Gender distribution block-wise July-December 2017:**

Gender	Shoolagiri block N (%)	Viralimalai block N (%)	Veppur block N (%)	All three Pilot blocks N (%)
Female	24,721 (64.01)	23,093 (64.60)	18,460 (63.0)	66,274 (63.93)
Male	13,901 (35.99)	12,653 (35.40)	10,841 (37.0)	37,395 (36.07)
Total	<b>38,622 (100)</b>	<b>35,746 (100)</b>	<b>29,301 (100)</b>	<b>103,669 (100)</b>

Source: UHC APP database

Age wise distribution shows that those in age groups 15-35 and 36-59, account for from about 55% (in Veppur) to 67% (in Shoolagiri) of all OPs. Veppur has an exception of having 30% of its OPs accounted by those above 60 years! (Table 4.4.2)

**Table 4.4.2 Age and Gender wise distribution block-wise July-December 2017:**

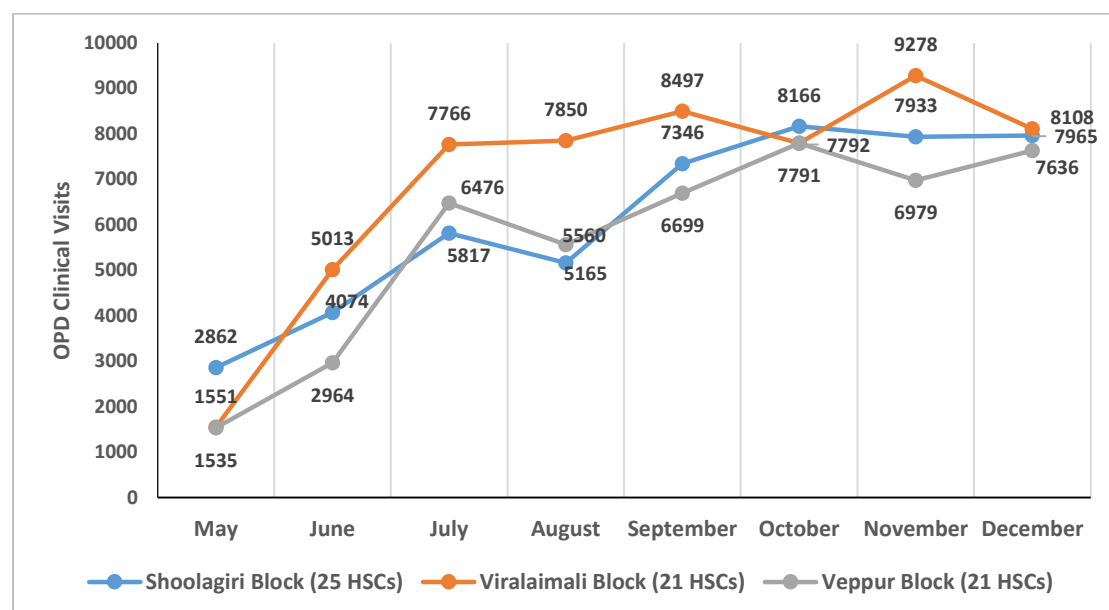
	Shoolagiri			Viralimalai			Veppur		
Age Group	Female N (%)	Male N (%)	Total N (%)	Female N (%)	Male N (%)	Total N (%)	Female N (%)	Male N (%)	Total N (%)
Under 15	5,243 (21.21)	4,827 (34.72)	<b>10,070 (26.07)</b>	3,632 (15.73)	3,690 (29.16)	<b>7322 (20.48)</b>	2,027 (10.98)	2,283 (21.06)	<b>4,310 (14.71)</b>
Between 15 – 35	10,778 (43.60)	3,832 (27.57)	<b>14,610 (37.83)</b>	7,155 (30.98)	2,718 (21.48)	<b>9,873 (27.62)</b>	4,530 (24.54)	1,426 (13.15)	<b>5,956 (20.33)</b>
Between 36 – 59	5,968 (24.14)	3,313 (23.83)	<b>9,281 (24.03)</b>	8,390 (36.33)	3,830 (30.27)	<b>12,220 (34.19)</b>	7,019 (38.02)	3,192 (29.44)	<b>10,211 (34.85)</b>
Over 60	2,732 (11.05)	1,929 (13.88)	<b>4,661 (12.07)</b>	3,916 (16.96)	2,415 (19.09)	<b>6,331 (17.71)</b>	4,884 (26.46)	3,940 (36.34)	<b>8,824 (30.12)</b>
Total	<b>24,721 (100)</b>	<b>13,901 (100)</b>	<b>38,622 (100)</b>	<b>23,093 (100)</b>	<b>12,653 (100)</b>	<b>35,746 (100)</b>	<b>18,460 (100)</b>	<b>10,841 (100)</b>	<b>29,301 (100)</b>

Source: UHC APP database

## 4.5 Block wise Outpatients utilization:

Figure 4.5.1 shows month wise use of HSCs in respective UHC blocks. There has been a steady rise in the use of HSCs. This represents regular outpatients, NCD patients and OG patients. The steady rise is due to several factors, including supply side and demand side factors.

**Figure 4.5.1: Outpatient clinical visits in pilot blocks May-December 2017**



Source: The source for this information is from the Notebook (Registry) maintained by VHNs at HSC. This contains all patient related information which are later entered by the VHNs into the UHC APP' (off-line), and uploaded to the Main Server through a network service provider.

HSCs in all three UHC pilots witnessed slow but steady improvements in physical infrastructure, and deployment of the second VHNs<sup>8</sup>. It took considerable time, training and support for additional VHNs to get acclimatised to the new job requirements and to gain confidence to examine patients. Wherever the second VHNs stayed in respective HSC quarters, residents of these villages were able to access HSCs even during evening hours beyond 5pm.

Our impression is that by November/December 2017, almost all HSCs had all supply side inputs and almost 70% of additional VHNs were staying in HSC quarters. This, along with vigorous IEC campaign, the overall performance (measured in terms of OPD attendance, and other qualitative measures) will improve over the next six to 12 months. Most new VHNs have shown clear willingness to continue to work under current work-environment. There are clear signs of VHNs getting “connected” with local residents as professionals and as part of local communities.

<sup>8</sup> Refer Appendix 5-7 shows infrastructural and HR positions of HSCs in all three blocks, as of March 2016 (pre UHC) and December 2017, post-UHC.

The overall impression is that these second VHNs over the next 6 to 12 months will have much more confidence and display ability to deliver better care and coverage of services, with adequate support in the form of additional manpower and other support.

**Table 4.5 Average OPD and NCD/OGs as recorded by VHN 2 (clinical record)**  
**Block wise/ Per HSC:**

Month- 2017	Shoolagiri Block (Average Per day per HSC)		Viralimalai Block (Average Per day per HSC)		Veppur Block (Average Per day per HSC)	
	OP	OP+NCD+OG	OP	OP+NCD+OG	OP	OP+NCD+OG
April	2.72	NA	2.34	NA	6.16	NA
May	4.24	NA	2.73	NA	2.7	NA
June	5.81	7.09	9.13	10.4	3.23	6.13
July	7.71	9.3	12.33	14.79	7.79	12.33
August	6.27	7.65	11.64	13.84	6.66	9.8
September	9.16	11.3	13.4	15.57	8.36	12.26
October	10.25	13	12.63	14.8	10.5	14.8
November	10.02	12.69	14.67	17.67	9.65	13.29
December	10.76	12.74	13.11	15.44	10.67	14.54

Source: The Registry (as in Table 4.5.1)

This is evident from Figure 4.5.2, which shows break up of Out-patients and NCD and OG patients attending HSCs. By OG patients we refer to both care in pregnancy and general women's health issues. In NCDs we include only those registered for NCD chronic illness care. In all blocks, since early June, the NCD and OG components have been included under UHC pilot. As a result there has been a steady improvement in the average number of patients covered. *This reflects the enhanced ability of VHNs in providing follow up care for NCD patients and also in their ability (increasingly) to correctly suspect/screen for possible cases and refer such patients to PHC MO for a confirmatory diagnosis before being included under the NDC register.*

The salient features of the NCD intervention are given below:

It is important to note here that all NCD patients are tractable from UHC APP and Registry maintained by the VHNs. HSCs are equipped with diagnostics kits to screen for whether a patient is diabetic and/or hypertensive. If the VHN suspects the patient to be diabetic and/or hypertensive, the patient is then asked to visit the respective PHC, where he/she is examined by the medical officer (with additional laboratory tests) who confirms the status. Here, at PHC, he /she is also examined for co-morbidity conditions, namely for cardiac respiratory conditions, Thyroid and Cholesterol, as well as for complications of diabetes and hypertension. Once the patient is confirmed as suffering from diabetes and/or hypertension and co-morbidity conditions, the MO prescribes relevant drugs and

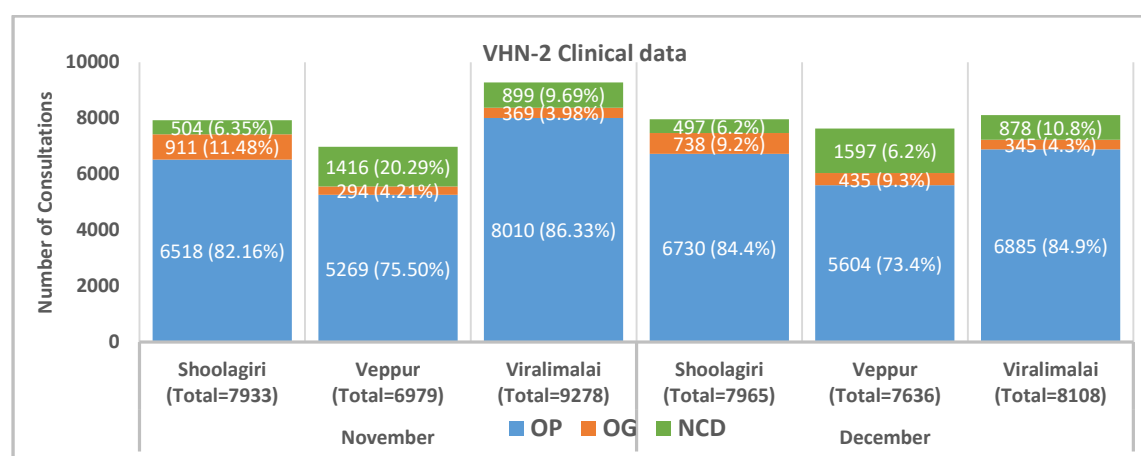
ask the patient to collect them from the respective HSC/VHN who referred this patient to PHC. VHN dispenses relevant drugs for a month, and asks the patient to get back after month for monitoring and dispensing next month's drugs. At the end of the third month, the patient is referred back to the respective PHC, along with the readings of the previous three months for Diabetes and Hypertension, for another examination of the patient by the Medical Officer. Typically, the patient is asked to report one week before the expiry of his/her stock to ensure no break in compliance due to lack of drugs with the patient. This is how the referral system is designed. There are bottlenecks and impediments to be addressed on ground: sometimes there could be shortage of drugs in the Drug Warehouse at district headquarters; or the patient could not report for personal reasons. *On many occasions, we have heard VHNs urging the patient over phone to collect drugs due from the HSC.* When the drugs are in short supply, they are dispensed for shorter duration (15 days, instead of 30 days) – in such situations, VHN reminds the patient later to collect drugs for the remaining days, before the next round of monitoring. This active follow up by the VHN is the key- it shows a dramatic change in mindset from that of a curative clinic, to a preventive and promotive population based primary care service (secondary prevention as it is technically known).

The following drugs are dispensed by at HSCs on prescriptions by an MO from PHC:

- a. For Hypertension - Amlodipine Tab IP - 2.5mg, Atenolol Tab IP - 50mg, Enalapril Maleate Tab IP - 2.5mg
- b. For Diabetes - Glimipride Tab IP 1mg, Glipizide Tab IP - 5mg, Glybenclamide Tab IP, Metformin Tab IP - 500mg
- c. For Cholesterol Atorvastatin Tab IP
- d. For Cardio Aspirin Tab IP, Clopidogrel Tab IP - 75mg

The above system is now almost in place as VHNs have gained experience and the confidence level is visibly higher in “engaging with the patients”. We shall visit this issue in the next section.

**Figure 4.5.2: Disaggregated data: OPD, OG, and NCD: November and December 2017**



Source: The Registry (as noted in Table 4.5.1)



#### 4.6 Drug distribution; Societal Impact:

A major use of the APP is that it can help compute total units of drugs distributed on a daily basis patient wise. Table 4.6 shows a very important result of the UHC pilot. It shows the total volume of drugs distributed and their comparative rupee value using their unit price at which TNMSC has purchased them and the market price of these drugs.<sup>9</sup> Appendix 4.2 gives details of all 20 regular drugs dispensed by VHNs at HSC.

**Table 4.6: TNMSC and Market value for drug dispensed at HSCs in all three pilot blocks during July – December 2017**

Month	Regular Drug			NCD Drug			Total TNMSC Drug Value (Rs.)	Total Drug Market Value (Rs.)
	Units Dispensed	TNMSC Value (Rs.)	Market Value (Rs.)	Units Dispensed	TNMSC Value (Rs.)	Market Value (Rs.)		
July	73056	51632	232150	35457	5172	77402	56805	309552
August	241180	137965	657957	162736	23211	298337	161176	956294
September	272068	176792	762260	124232	17403	233708	194196	995969
October	318963	203532	945226	179345	24864	331198	228397	1276425
November	292159	196034	859317	148549	20433	278965	216468	1138282
December	260552	175384	777275	129300	17632	242114	193017	1019390
<b>Total (Half- yearly)</b>	<b>14,57,978</b>	<b>9,41,343</b>	<b>42,34,188</b>	<b>7,79,619</b>	<b>1,08,718</b>	<b>14,61,727</b>	<b>10,50,062</b>	<b>56,95,916</b>

**Note:** The above table is based on UHC APP data, which has captured **77.69%** of register data from July-December month. The total amount is likely to be much higher if all 100% of patients consulted and dispensed with drugs could be captured by the APP.

Total value of all drugs distributed from all three blocks at TNMSC price is Rs.10.50 lakhs. Whereas this amounts to Rs.56.95 lakhs at market price. This shows the amount of money patients attending the HSCs in the pilot region would have spent out of pocket, had they attended private provided in the absence of these HSCs. This represents that upper limit, the per capita OOPE would have been Rs.41 and Rs.101 for regular and NCD drugs, respectively.

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<sup>9</sup> Market prices of all drugs distributed from pilot HSCs were collected from a local pharmacy shop in Shoolagiri town in December 2017.

#### 4.7: Cost of provision per OP visit

While the pilot has progressed in many dimensions as shown in the preceding sections, it is important to have an estimate of cost of outpatient services provided through HSCs under UHC pilot.

Table 4.7 shows the cost of drugs distributed (at TNMSC price) per OP visit. For regular OPs, It varies from Rs. 6.61 per consultation in Shoolagiri to Rs.12.30 per consultation in Viralimalai. For NCD drugs, the cost of drugs per consultation is between Rs.7.22 and Rs. 8.11.

What proportion of the total cost of OP services per consultation is accounted for by cost of drugs? Figure 4.8 shows a rough calculation of the total cost of OP care per patient visit. This includes all capital costs and recurring costs incurred in HSCs as part of UHC pilot.<sup>10</sup>

Three points should be noted here:

- a. The average total cost per OP visit ranges from Rs.64 to Rs.97. This is far below the average OP cost per visit at public facilities, as estimated by an earlier study, which is about Rs.300 using 2013-14 data (TN-SHA 2017).
- b. Therefore, every outpatient diverted from higher-level public facilities to HSC would help save about Rs.200 per visit. This is an enormous savings of public resources, which could be redeployed to strengthen further the public health system.
- c. Drugs account from 7% to 19% depending upon the OP. The larger the number of OPs attending HSCs, cost per patient per visit will come down. Accordingly, the share of drugs will rise. Viralimalai has the lowest total cost per OP visit (Rs.64.12) and drugs (for regular OPs) constitute 19.8% of the total cost per OP visit. Shoolagiri has a much higher total cost per OP visit (Rs.94.07) and drugs constitute only Rs.7.03 of the total cost per OP visit.

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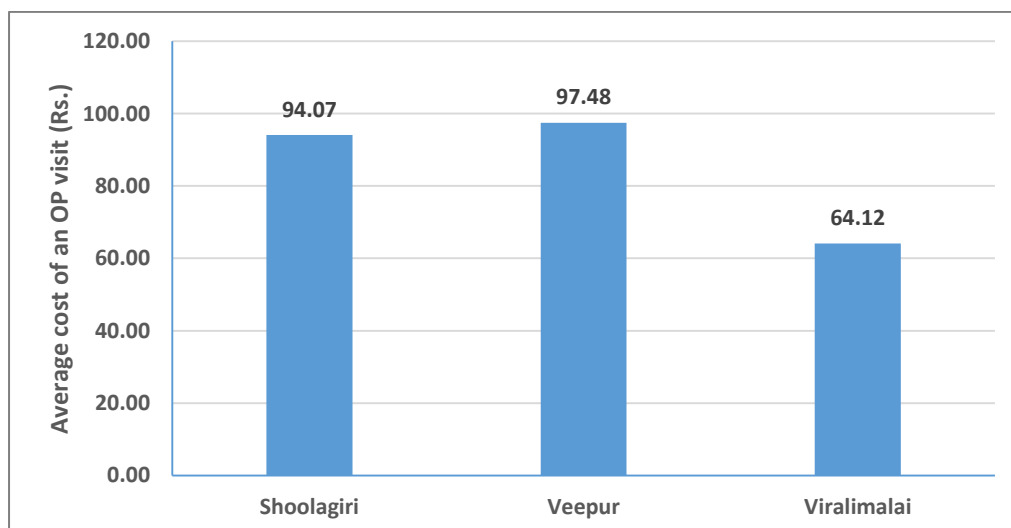
<sup>10</sup> Capital cost includes annualized values of all expenses made towards purchase of various equipment, including clinical instruments, cost of additional amount spent in upgrading the physical infrastructure etc. Recurring cost include salary of VHNs, cost of drugs, other expenses such as electricity, water, etc. Capital expenses incurred for the pilot are assumed to have a life span of just 5 years.

**Table 4.7: Cost of Drugs distributed per outpatient visit at HSCs: All Pilot Blocks December 2017**

	Cost of Drugs Distributed at TNMSC Price (Rs.)		Number of OP consultations		Cost of Drugs Per OP consultation (Rs.)	
	Regular	NCD	Regular	NCD	Regular	NCD
Shoolagiri	55815	3170	8449	439	6.61	7.22
Veppur	46464	9001	4434	1272	10.48	7.08
Viralimalai	73104	5460	5941	673	12.30	8.11

Source: UHC APP database

**Figure 4.8: Average cost of an OP visit in UHC pilot Blocks (December 2017) Source: UHC APP and Official NHM data:**



## 5. Way Forward:

We now turn to the second objective of the report, namely, the following:

- (i) to what extent and how well the UHC piloting in the State covers the scope of the proposed components/services of Health and Wellness Centres by GoI?

UHC pilot in TN commenced in early 2017, and practically began to deliver clinical outpatient services from April 2017. Until about April, most HSCs were being reconstructed, refurbished, and basic physical infrastructural gaps were being addressed. In fact, even by end of November 2017, a few HSCs were suffering from lack of basic amenities, such as water, and electricity. VHNs were in place in most places but many had to function with one VHN till end of November. UHC APP underwent more than 25 revisions as and when problems were identified at field level. Internet connectivity posed serious constraints in uploading patient-data on a daily basis.

UHC pilot is now about a year old – and what it is delivering now – as shown in the last section – is a result of enormous amount of efforts put in at various levels in all three pilot blocks, and the constant nudging and support provided at district and state level administrative machinery.

Yet, UHC pilot so far is very much like a one-year old infant. *The first step of this infant is to learn to deliver primary clinical care at HSC level.* The first step of this infant also consists of several smaller tiny steps, including new infrastructural inputs, recruitment and deployment of additional Village Health Nurses (called the 2<sup>nd</sup> VHN), who needs to work in harmony with the senior VHNs (called the 1<sup>st</sup> VHN). Both VHNs together form organic parts of HSCs, which needs time to evolve and deliver better clinical care. [Note that there is no official designation as 1<sup>st</sup> VHN or 2<sup>nd</sup> VHN. We use these “terms” to refer to the fact that there are two VHNs].

The results presented in the earlier sections show clear signs of positive impact of UHC pilot, in improving access to and utilization of HSCs, significant reduction in the OOPE as a result, and significant diversion of patients from private providers to HSCs.

In this section, we wish to highlight two critical issues in relation to the second objective/question stated above: (a) how well are the VNHs able to cope with the work at HSCs and how does the community view their service; and (b) as the range of services to be provided increases, we will have to revisit the “NORMS” being used, for establishing new HSCs in pilot blocks and for deployment of additional VHNs / Health and Wellness Workers?

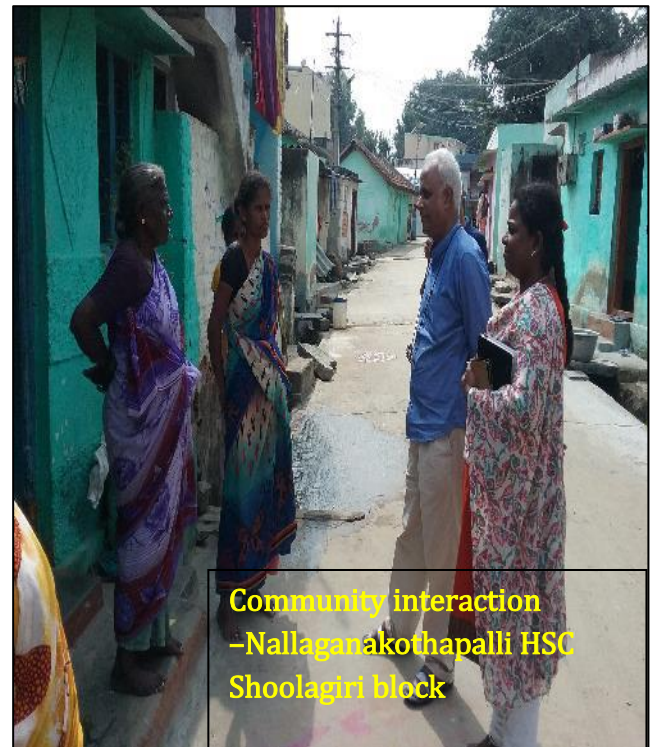
We visualise that the next phase (over the next one year or so) of the UHC pilot, will require time and efforts, and attention to these two issues.

## Section 5.a

i) During the past six to eight months, there are also clear positive signs of adaptation of VHNs to the local community. This is extremely important to emphasize this aspect of the UHC pilot.

Several members of the communities we met in all three blocks uniformly remarked thus:

*“We are very happy to see this HSC now functioning everyday...For many years, until a few months ago, these [HSCs] were open once a week at best and that too for a few hours only...”*





Some other remarked:

*“The land for this HSC was donated by my grandfather more than 20 years ago. The building was built with efforts contributed by the members of the village, but I had not seen this open for more than 10 years now....Now under the UHC pilot, we see this open every day from morning till evening ...”*



**-Amuthakondapalli HSC  
Shoolagiri block**



ii) Some made very positive comments on the VHNs' dedication to work”:

*“Our VHN stays in the quarter's provided in the facility and she is always accessible even during evening hours, after 5 o'clock...We are proud to have her and we shall look after her as our daughter...”*



Left to Right in Picture  
BMO Dr.Archana, Local  
resident,  
Prof. Muraleedharan,  
Local resident,  
Asha worker,  
VHN-1 and VHN-2

-Hoshahalli HSC  
Shoolagiri Block

iii) Several VHNs have expressed their satisfaction with the nature of their work and with the support they receive from the local people. As one VHN put it:

*“I am quite happy with our local people...They often drop by to enquire about my well-being and even offer food for lunch and tea and snacks during afternoon sessions...”*

This we noticed in several of villages particularly during our visits pilot blocks during November-December 2017.

iv) What we observed is an *increase in the confidence level of the VHNs* in their ability to examine patients, deliver care and refer them to PHC for additional care and follow up. As one VHN said:

*“I have now more confidence in myself...in my ability to examine and deliver drugs... Over the past 6 months, I have learned how to respond to patients expectations, though it is a bit difficult to convince them when they demand “injections”...”*



v) The 2<sup>nd</sup> VHNs' relationship with senior VHNs have become much stronger and they are supportive of each other visibly in several facilities.

We have observed two features of this UHC pilot: Confidence of the VHNs delivering primary care, and their relationship with local communities and senior VHNs.

The stronger this relationship is in the initial stages of UHC pilot, the stronger the foundations, growth and impact of UHC will be in the long run. Needless to say, that there are instances of strained relationships between them, which naturally would have

affected effective delivery of services at HSCs. These are being addressed by respective MOs, BMOs and higher level officials, sometimes even by officials at state level.

The over-arching observation is thus: given time, adequate support, nurturing and training, the ability of VHNs to deliver services more than what they deliver now will get enhanced significantly. This is already evident from the results shown so far: Over the past six months, number of OPs covered have increased, proportion of repeat patients have increased, number of NCDs and OG referred have increased, familiarity with UHC APP improved vastly, number of APP entries have increased significantly, time spent for OP care increased as a result of staying in HSC quarter's. And, VHNs interactions with community and senior VHNs have become more harmonious resulting in improved quality of care. More importantly, permanency of employment have given them a sense of security and stability in life. VHNs now are more willing to stay in staff quarters than their say about two decades ago: the villages have much higher access to electricity, water, other requirements for daily life, better roads and a larger number of people living around the facility; what is more remarkable is the each one of them has a MOBILE PHONE!! -- all together give them an enormous sense of security that their seniors did not have two decades ago.

vi) Wherever ASHAs are present as in Shoolagiri and Veppur blocks, HSCs have shown better consistency in their outputs.

vii) With the introduction of NCD staff member (who is drawn from the local SHGs), HSCs' ability to cover a wider cross section of population will also increase. These NCD members have already been put in place – since late November 2017 – and they were seen uniformly in all pilot HSCs during our visit in Nov-December assisting respective VHNs as part of their initial exposure to the UHC system.

The proposed model of Health and Wellness Centres (HWCs), which will replace the Health Sub-Centres (HSCs) are expected to provide the following 12 services

1. Comprehensive Maternal Health care services to be provided in those sites equipped to services as “delivery points”;
2. Comprehensive neonatal and infant health care services;
3. Comprehensive childhood and adolescent health care services;
4. Comprehensive contraceptive services;
5. Comprehensive reproductive services;
6. Comprehensive management of communicable diseases;
7. Screening and Comprehensive management of non-communicable diseases;
8. Basic ophthalmic care services;
9. Basic ENT care services;
10. Screening and basic management of mental health ailments;
11. Basic dental health care;
12. And Basic geriatric health care services;



The first seven of the 12 services are already being addressed by HSCs under the UHC pilots in TN. Each one has a history, and therefore the quality and reach will vary accordingly. But the efforts are visibly to include and enlarge the set of services. For example, item 7 on NCD screening and management is one of the recent inclusion, as described in Section 4.5. Not everything happens within the HSCs: one of the two VHNs from each HSC, who does the out-reach functions, whom we refer to as the “mobile arm” of the HSC, takes care of several aspects of the first seven services through their visits to villages/anganwadies. The training modules for services (from 8 to 10 above) are ready; the VHNs in the pilot blocks are expected to have their training on these modules over the next 6 months; the modalities including duration of training for these modules for various batches are being worked out (source: interviews with officials from NHM, TN). Interviews with State level officials are working on the remaining two modules, namely on basic dental and geriatric care.

Evidence of improvement in quality of these services is already shown in through the interim survey of VHNs/HSCs and the fact that close to 35% of OP visits is accounted by “repeat” patients – which is indicative of patients’ confidence in the service delivery system.

## **Section 5.b**

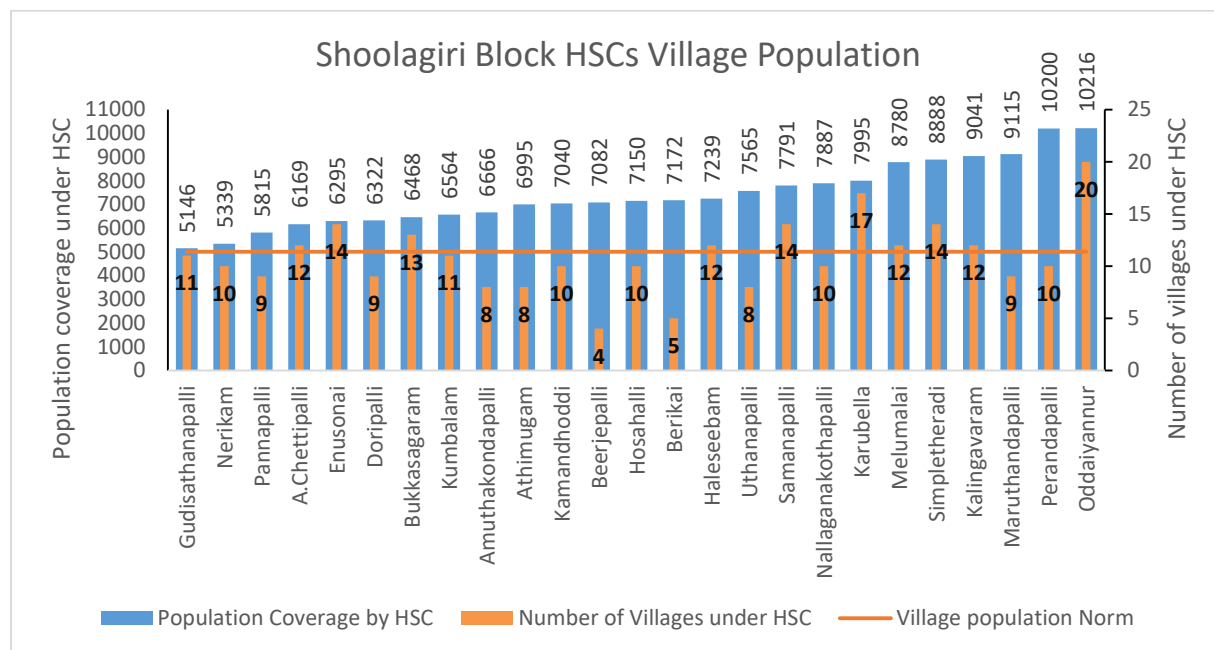
While they get trained in these additional services, and as they begin to consult patients with a wider spectrum of ailments, we should ask *“whether they are able to cope with the increased patient load” and to what extent additional human resources (either in form of VHNs and/or Staff Nurse) would be required to ensure no fall in the overall quality of services delivered at HSCs?”*

*This UHC pilot should be the testing ground for revisiting the HR norms, not only at HSC level but also at PHC and CHC levels. This is a unique opportunity to examine this issue.*

The Need to revisit HR norms across primary care facilities (HSCs/PHCs/CHCs) is evident, as illustrated by the experience gained thus far in building the network of HSCs in pilot UHC blocks over the past 10 months. Consider the Populations and number of habitations covered by HSCs in all three blocks. Take for example, Shoolagiri Block (Figure 5.1)

- i) As is evident from Figure 5.1, 15 of the 25 HSCs each cover more than 7000 population. Parandapalli and Odaiyanallur HSCs, each covers more than 10,000 persons.

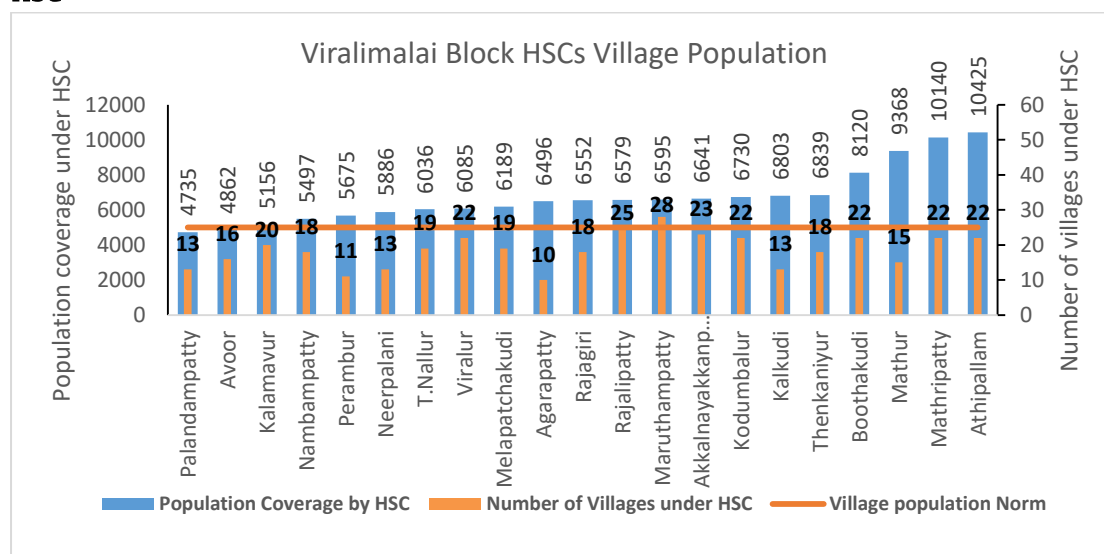
**Figure 5.1: Shoolagiri Block HSCs Village Population and number of villages covered under each HSC:**



Source: Respective HSCs/VHNs

This scenario is not very different in Viralmalai block as well. 15 of the 21 HSCs each have at least crossed 6000 population and two of these (Mathrimpatti and Athipalam) have also crossed 10,000 mark. (Refer Figure 5.2)

**Figure 5.2: Viralmalai Block HSCs Village Population and number of villages covered under each HSC**



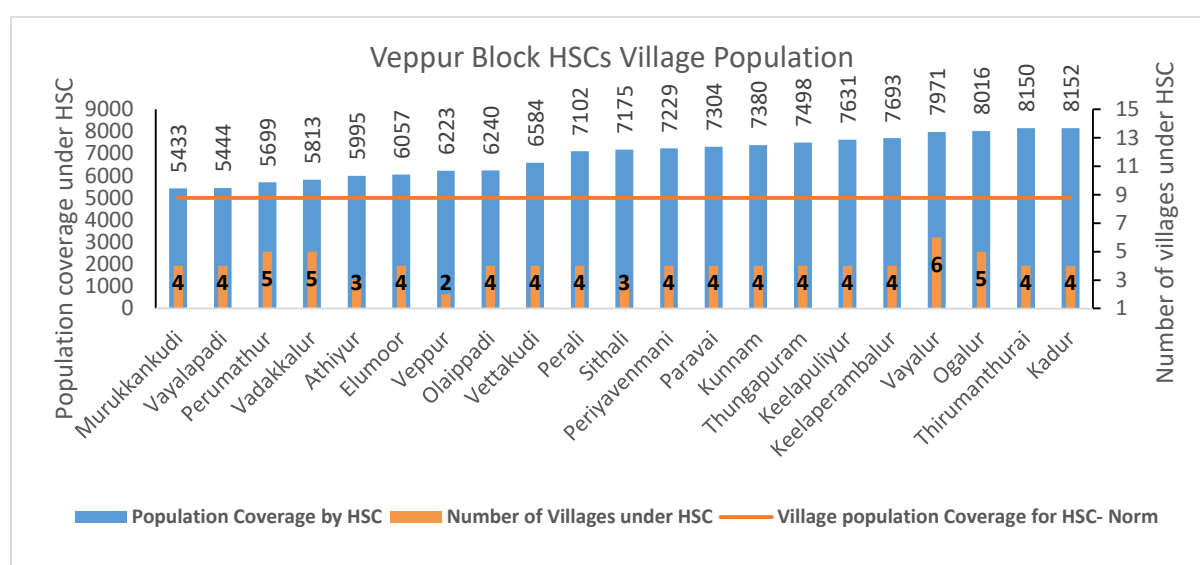
Source: Respective HSCs/VHNs

While Veppur Block does not have any HSC covering above 8100 population, 12 of the 21 HSCs have cover more than 7000 population coverage.

The existing norm is that each HSC (in plain areas) will cover 5000 population.

ii) Figures 5.1 – 5.3 also show the number of habitations covered by each of the HSCs in the pilot blocks. Viralmalai has the distinction of having a HSC (in Maruthampatty) with as many as 28 habitations with a population of 6595. The HSC at Agarapatti has the lowest number of habitations (10) with a population of 6496, very close to the HSCs at Maruthampatty, which has the highest number of habitations!

**Figure 5.3: Veppur Block HSCs Village Population and number of villages covered under each HSC**



Source: Respective HSCs/VHNs.

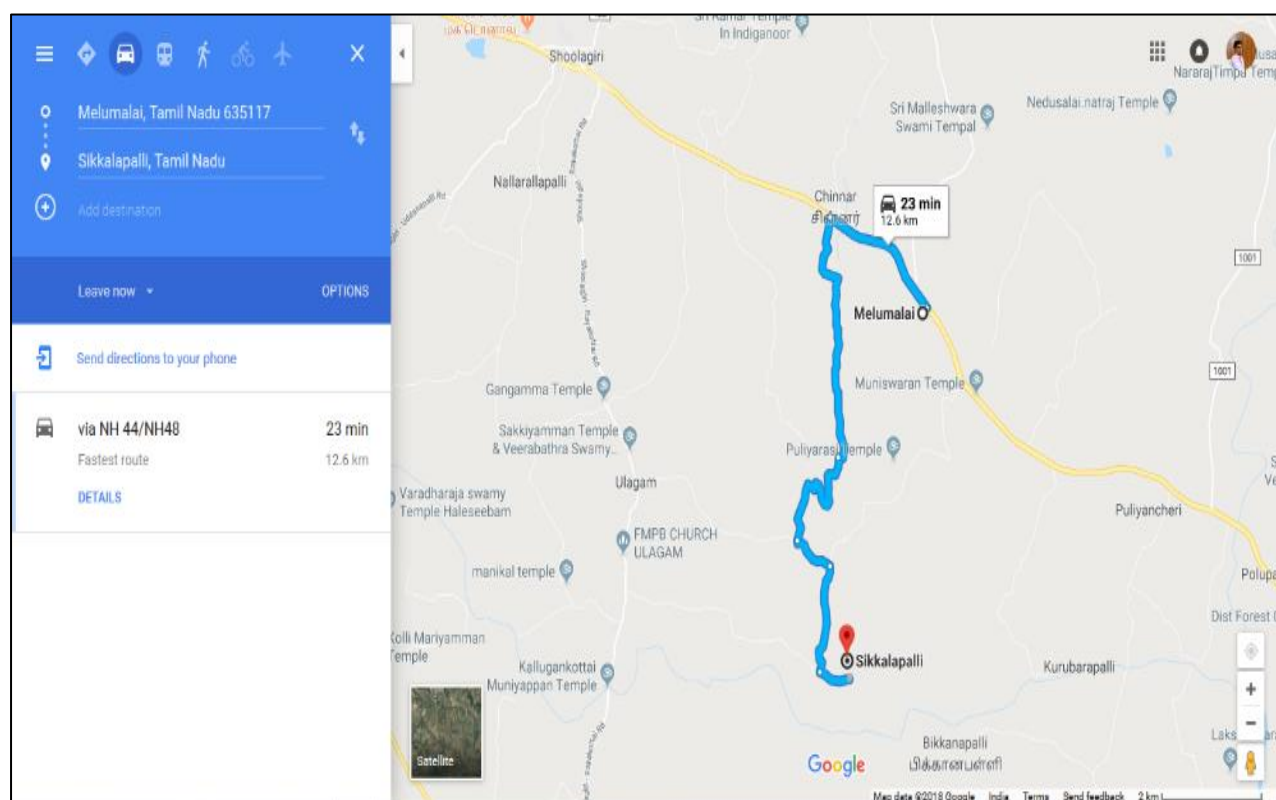
iii) Besides population and number of habitations coverage, norms for establishing HSCs should explicitly consider the distance between habitations and the HSCs to which they are administratively assigned – that is the distance patients will have to travel to reach HSCs/PHCs as well the distance VHN1 will have to travel for out-reach work.

Habitations in Viralmalai and Shoolagiri blocks are far and widespread. Given the low frequency of buses plying between the place of residence of VHNs and these habitations, the effective coverage becomes very low.

Consider the following two illustration:

Sikkalapalli village is 12.6 Kilometres from the nearest Melumalai HSC, in Shoolagiri Block. As shown in Figure 5.4, it takes 23 minutes by a car to reach the HSC from this village.

**Figure 5.4: Distance between Sikkalapalli village and Melumalai HSC: Shoolagiri Block**

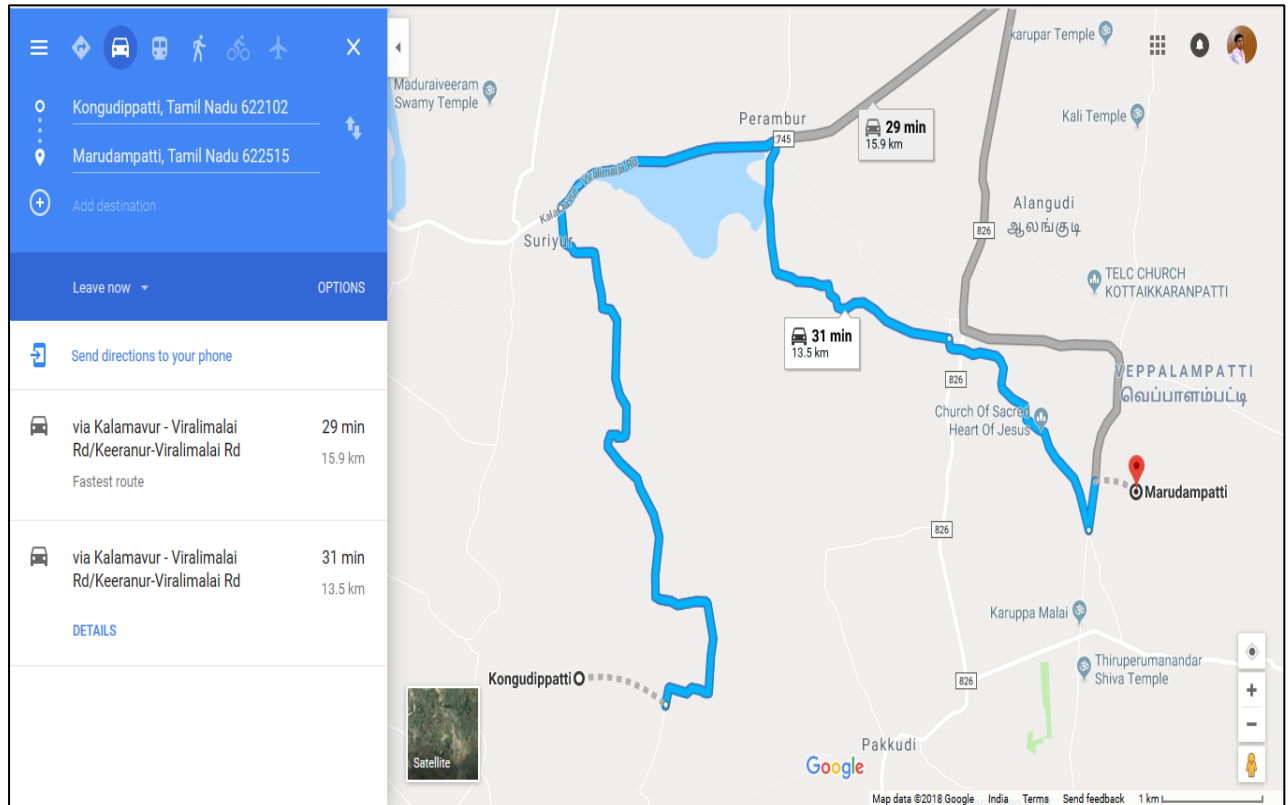


Source: Google Maps

Consider the village Kongudupatti in Viralimalai block. The nearest HSC is in Maruthampatti, which is about 13.5Km and it takes about 31 minutes by a car to reach the HSC from this village!

Given the infrequent bus services between these villages and respective HSCs, it is evident that the reach of these public facilities will be restricted to those who live close by villages. Our results also support this point, as shown in Section 3.

**Figure 5.4: Distance between Kongudupatti village and Maruthampatti HSC: Viralimalai Block**



Source: Google Maps

The case for revisiting the HR norms is strong. This is borne out clearly in the UHC pilot blocks, as shown above. But as the pilot UHC progresses, as the range of services delivered expands, and as the overall quality needs to be maintained across the primary care facilities (HSC-PHC-CHC), and the number of habitations to be covered remain the same -- the case for revisiting HR norms becomes more compelling.

The next phase of UHC pilot will have to address HR norms at HSC level and above as we move forward.

## 6. Concluding Remarks:

Both qualitative and quantitative “evidence” of UHC pilot in the three blocks leads us to two sets of observations. They are:

I: Has UHC achieved what was expected? : YES, the tiny steps made so far, shows definite signs of progress:

1. UHC pilot has brought about a ‘significant change” in improving access to primary care at sub-centre level;
2. UHC pilot has brought about a dramatic fall in the overall dependence on private providers, particularly those seeking care from private hospitals;
3. UHC pilot has brought about a substantial fall in the out of pocket expenditure among those seeking OP care from both public and private providers – and
4. UHC pilot clearly shows the per capita public expenditure per OP visits falls significantly when provided at HSC level. Thus resulting in enormous savings for the government expenditure, when patients are diverted from PHC/CHC/GH to HSCs.

II. To what extent and how well UHC pilot covers the scope of the proposed component and services HWC of the GoI? : Evidence is positive ...

It is important to visualise the current state of UHC pilot as evolving into a much integrated larger organic unit encompassing PHCs and CHCs, including a range of services. Right now the seeds of UHC pilot are being sown at HSC level and they have shown signs of capacity to grow and deliver.

*With careful nurturing (by way of good training programmes) without hurrying the VHNs to “perform” and “show” results, by allowing them to mature over time, along with careful efforts to “integrate HSCs with PHC/CHC” as is already happening with the “hub and spoke” model being used for laboratory tests (between PHCs and CHCs), and complementary human resources, with strict enforcement of population norms (in order that VHNs do not get overwhelmed with excessive load), the current VHN based UHC pilot for providing comprehensive primary care services as envisaged by GoI through Health and Wellness Centres (HWCs) , is likely to become a reality. There are clear signs of commitment at all levels, bureaucratic and political. We need more time to pursue the pilot and also to scale progressively. Access and financial burden on the poor for primary care need immediate attention.*

\*\*\* \*\*

## Appendix-1

**We thank the following persons for their assistance in carrying out the Household Surveys HS-1, and HS-2**

### **Shoolagiri Block (Team from Institute of Vector Control and Zoonoses)**

Abdul Khaer. M (Senior Entomologist), Dr. Jothy Basu. D. (Veterinary Assistant Surgeon), Thirumal Venkatesan. T (Senior Entomologist), Nirmala. V. (Principal ANM Training Centre), Marandahalli Krishnagiri District; Dr Sampath (BMO, Shoolagiri)

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### **Veppur and Viralimalai Block Household Survey (May-August 2016)**

Dr. Tamilmani (Viralimalai block BMO), Dr. Sesu (Veppur block BMO), Mr.Selvaraj (Health Inspector Viralimalai block) and Dr Elango (Block HI, Veppur), Dr. Aravind (Nodal MO-UHC, Veppur), Dr. K.Sultan (Nodal MO-UHC, Viralimalai block), Dr. S.R Ganesh (Nodal MO-UHC, Shoolagiri block)

### **Regional Training Institute – Thiruvarangulam.**

Dr. Kalaivani. B, (Deputi Director of Health Service), Dr. Rajendiran.V, (Aranthargi Health Officer); **Tutors:** Praba.G, Jeyalakshmi. M, Anantha Parkavi. C, Rajam. T, Vasantha. R. (Principal In charge ANM Training School)

### **Multipurpose Female Health Workers from Department of Public Health-Regional Training Institute of Public Health at Thiruvarangulam (Pudukkottai)**

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## Appendix-2.1

### Ailments of outpatient's accessing PHC care from HSC located Village - Shoolagiri block (Source HS-2)

Ailment	PHC/CHC	Government Hospital	Private Clinic	Private Hospital	Informal	Pharma
Fever*	78	14	26	61	0	2
Diabetes	6	0	0	8	0	2
Psychiatric & Neurological	4	0	3	0	0	1
EAR & Nose	1	2	1	3	0	1
Hypertension	4	0	0	3	0	0
Respiratory	10	1	7	6	1	7
Gastro	2	0	2	4	1	2
Skin	4	1	6	2	0	0
Skeletal	5	2	6	10	1	1
Urinary	1	1	0	11	0	1
Obstetric	3	3	1	2	0	0
HIV/AIDS	0	0	0	0	0	0
TB	0	0	0	1	0	0
Injury	3	3	3	9	0	1
	11	1	7	9	1	0
Others						
	132	30	62	129	4	18

\*includes malaria, typhoid



## Appendix-2.2

### Ailments of outpatient's accessing PHC care from HSC located Village - Viralimalai block (Source HS-2)

Ailment	PHC/CHC	Government Hospital	Private Clinic	Private Hospital	Informal	Pharma
Fever*	51	62	11	49	0	0
Diabetes	16	6	0	15	0	0
Psychiatric & Neurological	6	4	4	6	0	0
EAR & Nose	0	2	0	1	0	0
Hypertension	9	7	1	7	0	2
Respiratory	21	8	2	4	0	4
Gastro	3	7	1	4	2	1
Skin	1	1	0	6	0	0
Skeletal	6	7	3	9	2	1
Urinary	0	0	0	1	0	0
Obstetric	0	2	0	1	0	0
HIV/AIDS	0	2	0	0	0	0
TB	0	0	0	0	0	0
Injury	3	4	0	5	0	0
Others	2	3	1	5	0	0
	<b>118</b>	<b>115</b>	<b>23</b>	<b>113</b>	<b>4</b>	<b>8</b>

\*includes malaria, typhoid

### Appendix-2.3

#### Ailments of outpatient's accessing PHC care from HSC located Village - Veppur block (Source HS-2)

Ailment	PHC/CHC	Government Hospital	Private Clinic	Private Hospital	Informal	Pharma
Fever*	19	61	15	49	0	5
Diabetes	8	0	0	7	0	0
Psychiatric & Neurological	8	0	1	5	0	0
EAR & Nose	0	1	0	1	0	0
Hypertension	2	8	0	5	0	0
Respiratory	6	11	0	11	0	4
Gastro	2	4	0	9	0	0
Skin	0	2	0	3	0	0
Skeletal	8	13	0	10	0	3
Urinary	0	0	0	1	0	0
Obstetric	0	0	0	0	0	0
HIV/AIDS	0	0	0	0	0	0
TB	0	0	0	0	0	0
Injury	0	3	0	3	0	0
Others	7	1	1	3	0	0
	<b>60</b>	<b>126</b>	<b>17</b>	<b>107</b>	<b>0</b>	<b>12</b>

\*includes malaria, typhoid

### Appendix –3.1

**Table: Awareness of pilot-UHC-HSCs in Shoolagiri block from HS-2: Village wise [The stared villages have pilot-HSCs located]**

Village Surveyed	HH Aware about HSC	Total HH Surveyed	% of HH aware	Village wise, distribution of sampled patients utilizing pilot HSCs HS-2
Enu sonai*	39	40	97.5%	8
Maruthanda Palli*	38	40	95.0%	57
Ayarana Palli*	36	40	90.0%	10
Nalla Gana Kotha Palli*	36	40	90.0%	42
Ulagam	33	40	82.5%	2
Panna Palli*	31	40	77.5%	10
Kaman Thotti*	30	40	75.0%	14
Melumalai*	29	40	72.5%	24
Bukka Sagaram*	28	40	70.0%	11
Midithe Palli	22	40	55.0%	2
Berigai*	21	40	52.5%	7
Balagondarayana Durgam	19	40	47.5%	9
Beer Palli	16	40	40.0%	5
Maranda Palli	16	40	40.0%	1
Chenna Palli	15	40	37.5%	3
Adda Kurukki	12	40	30.0%	0
Moornapalli	12	40	30.0%	2
Kattu Naicken Thotti	11	40	27.5%	3
Petha sigara Palli	11	40	27.5%	0
Eluva Palli	7	40	17.5%	0
Hale Kotta	7	40	17.5%	8
Kurubarapalli	7	40	17.5%	1
Thyagarasana Palli	7	40	17.5%	3
Shoolagiri	5	40	12.5%	0
Venkatesh Puram	4	40	10.0%	0
<b>Total</b>	<b>492</b>	<b>1000</b>	<b>49.2%</b>	<b>222</b>

\*HSC Located Village

### Appendix 3.2

**Table: Awareness of pilot-UHC-HSCs in Viralimalai block from HS-2: Village wise [The stared villages have pilot-HSCs located]**

Village Surveyed	HH Aware about Pilot HSC	Total HH Surveyed	% of HH aware	Village wise, distribution of sampled patients utilizing pilot HSCs
Thengaithinnipatti *	40	40	100.0%	1
Palandampatti *	40	40	100.0%	9
Melapachakudi	39	40	97.5%	25
Kalkudi *	38	40	95.0%	43
Rajagiri *	38	40	95.0%	25
Kodumbalur *	38	40	95.0%	1
Nambampatty *	38	40	95.0%	24
Neerpalani *	38	40	95.0%	4
Buthakudi *	37	40	92.5%	21
Viralur *	36	40	90.0%	24
Kalamavur *	35	40	87.5%	18
Mathur*	27	40	67.5%	23
Kathalur	25	40	62.5%	6
Thennampaddy	25	40	62.5%	1
Poyyamani	23	40	57.5%	5
Sengalagudi	21	40	52.5%	0
Viruthapatti	18	40	45.0%	0
Meenaveli	10	40	25.0%	1
Viralimalai	5	40	12.5%	0
Poruvai	5	40	12.5%	0
Sooriyur	5	40	12.5%	6
Theenthiryanpatty	4	40	10.0%	1
Melabuthakudi	3	40	7.5%	1
Singatha	0	40	0.0%	0
Mandaiyur	0	40	0.0%	0
<b>Total</b>	<b>588</b>	<b>1000</b>	<b>58.8%</b>	<b>239</b>

\*HSC Located Village

### Appendix 3.3

**Table: Awareness of pilot-UHC-HSCs in Veppur block from HS-2: Village wise [The stated villages have pilot-HSCs located]**

Village Surveyed	HH Aware about Pilot HSC	Total HH Surveyed	% of HH aware	Village wise, distribution of sampled patients utilizing pilot HSCs
Sirukudal *	40	40	100.0%	34
Thungapuram south *	39	40	97.5%	23
Sithali(Keelapuliyur South)	38	40	95.0%	25
Elumoor west *	38	40	95.0%	11
Olaipaadi *	38	40	95.0%	25
Vadakalur *	36	40	90.0%	29
Keelaperambalur *	36	40	90.0%	31
Thirumandurai *	34	40	85.0%	9
Paravaai *	33	40	82.5%	38
Vayalapaadi *	24	40	60.0%	13
Kilumathur	19	40	47.5%	1
Malavarayanallur	18	40	45.0%	8
Elumoor East (aayakaadu)	15	40	37.5%	7
Milaganatham	15	40	37.5%	11
Nannai	15	40	37.5%	1
Perimapalayalam	10	40	25.0%	1
Vasistapuram	10	40	25.0%	3
Keelapuliyur	8	40	20.0%	5
Thungapuram north	8	40	20.0%	3
Assur	7	40	17.5%	1
Opium	7	40	17.5%	2
Maruvathur (Perali South)	3	40	7.5%	0
Varagur	2	40	5.0%	0
Kolapaadi	1	40	2.5%	0
Pennakonam	0	40	0.0%	0
<b>Total</b>	<b>494</b>	<b>1000</b>	<b>49.4%</b>	<b>281</b>

\*HSC Located Village

## Appendix- 4.1

**Switch of NCD patient's facility wise from HS-1 vs HS-2:**

Shoolagiri Block (N=32)		Viralimalai Block (N=29)		Veppur Block (N=28)	
HS-1 Survey Provider	HS-2 Survey Provider	HS-1 Survey Provider	HS-2 Survey Provider	HS-1 Survey Provider	HS-2 Survey Provider
CHC	HSC	CHC	HSC	CHC	HSC
CHC	Pharma	CHC	PHC	PHC	HSC
CHC	Pharma	CHC	PVT Hosp.	PHC	HSC
CHC	PHC	CHC	Public Hosp.	PHC	PHC
CHC	PVT Clinic	CHC	Public Hosp.	PHC	PHC
CHC	PVT Hosp.	PHC	PHC	PHC	PHC
PHC	Pharma	PHC	PHC	PHC	PHC
PHC	PHC	PHC	PHC	PHC	Public Hosp.
PHC	PHC	PHC	PHC	PHC	Public Hosp.
PHC	PHC	PHC	PHC	PVT Clinic	CHC
PHC	PHC	PHC	Public Hosp.	PVT Hosp.	CHC
PHC	PHC	PHC	Public Hosp.	PVT Hosp.	CHC
PHC	PHC	PVT Clinic	PVT Clinic	PVT Hosp.	CHC
PHC	PHC	PVT Hosp.	HSC	PVT Hosp.	CHC
PHC	PVT Hosp.	PVT Hosp.	HSC	PVT Hosp.	CHC
PVT Clinic	HSC	PVT Hosp.	PVT Clinic	PVT Hosp.	HSC
PVT Clinic	HSC	PVT Hosp.	PVT Clinic	PVT Hosp.	HSC
PVT Clinic	PHC	PVT Hosp.	PVT Hosp.	PVT Hosp.	PHC
PVT Clinic	PVT Hosp.	PVT Hosp.	PVT Hosp.	PVT Hosp.	PHC
PVT Hosp.	HSC	PVT Hosp.	PVT Hosp.	PVT Hosp.	PVT Hosp.
PVT Hosp.	Informal	PVT Hosp.	PVT Hosp.	PVT Hosp.	PVT Hosp.
PVT Hosp.	Pharma	PVT Hosp.	PVT Hosp.	PVT Hosp.	PVT Hosp.
PVT Hosp.	Pharma	PVT Hosp.	PVT Hosp.	PVT Hosp.	Public Hosp.
PVT Hosp.	Pharma	PVT Hosp.	Public Hosp.	PVT Hosp.	Public Hosp.
PVT Hosp.	PHC	Public Hosp.	HSC	Public Hosp.	Informal
PVT Hosp.	PHC	Public Hosp.	PHC	Public Hosp.	PHC
PVT Hosp.	PHC	Public Hosp.	PHC	Public Hosp.	PVT Hosp.
PVT Hosp.	PVT Clinic	Public Hosp.	Public Hosp.	Public Hosp.	Public Hosp.
PVT Hosp.	PVT Clinic	Public Hosp.	Public Hosp.		
PVT Hosp.	PVT Clinic				
PVT Hosp.	PVT Hosp.				
PVT Hosp.	PVT Hosp.				

## Appendix- 4.2

### List of regular drugs dispensed at HSCs by VHNs:

Name of Drugs	
Albendazole Suspension IP - 400mg/10ml	IFA
Albendazole Tab IP - 400mg	Ibuprofen Tab IP - 200mg
Aluminium Hydroxide Tab NFI	Iron and Folic Acid Syrup IP
Amlodipine Tab IP - 5mg	Methyldopa Tab IP - 250mg
Amoxycillin Cap IP - 250mg	Metoprolol Succinate Extended Release
Ampicillin Inj IP - 500mg (IM/IV Use)	Metronidazole Tab IP - 200mg
Ascorbic Acid Tab IP - 100mg	Multivitamin Tab NFI Formula
Calcium (Elemental) Caps	Norfloxacin Tab IP - 400mg
Carbamazepine Tab IP - 200mg	ORS Powder IP
Cephalexine Cap IP - 250mg	Omeprazole Cap IP - 20mg
Ciproflaxacin Tab IP - 500mg	Paracetamol Inj - 150mg/ml
Clotrimazole Cream IP - 2% W/W	Paracetamol Syrup IP
Co-Trimoxazole Oral Suspension IP	Paracetamol Tab IP - 500mg
Co-Trimoxazole Tab IP	Pheniramine Maleate Inj IP - 22.75mg/ml
Compound Benzoic Acid Ointment IP	Phenoxy Methyl Penicillin Potassium T..
Dexamethasone Tab IP - 0.5mg	Phenytoin Sodium Tab IP - 100mg
Diazepam Tab IP - 5mg	Povidone Iodine Ointment USP - 5% W/w
Diclofenac Gel BP	Povidone Iodine Solution IP - 5% W/V
Diclofenac Sodium Tab IP - 50mg	Promethazine Syrup IP
Dicyclomine Hcl Tab IP - 10mg	Ranitidine Hcl Tab IP - 150mg
Domperidone Tab IP - 10mg	Salbutamol Sulphate Tab IP - 4mg
Doxycycline Cap IP - 100mg	Silver Sulphadiazine Cream IP - 1% W/W
Enalapril Maleate Tab IP - 5mg	Tetanus Toxoid (Adsorbed) Inj IP
Flucanazole Tab IP - 150mg	Vitamin A Tab
Folic Acid Tab IP - 5mg	Vitamin B Complex Tab NFI
Gentamycine Eye Drops IP - 0.3% W/V	Zinc Tab BP

## Appendix- 5

**Table: Shoolagiri block Infrastructure and HR position: Pre-UHC (2016) vs Post UHC (Dec.2017).**

		Pre UHC - As of March 2016		Post UHC - As of December 2017	
		Number required	Number Available	Number required	Number Available
HR Status	1st VHN	25	15	25	25
	2nd VHN (Posted under UHC Implementation)	NA	NA	25	25
	Asha Worker	NA	16	NA	34
Building Type	Government Building	25	16	25	17
	Rented Building		9		6
	Pudhu Valvu Thittam		-		1
	Agricultural Building		-		1
Electricity		25	10	25	25
Running water supply		25	5	25	23*
Toilet Facility		25	6	25	23*

\*Beerjepalli and A.Chettipalli HSC (Rented Building)



## Appendix -6

**Table: Viralmalai block Infrastructure and HR position: Pre-UHC (2016) vs Post UHC (Dec.2017).**

		Pre UHC - As of March 2016		Post UHC - As of December 2017	
		Number required	Number Available	Number required	Number Available
HR Status	1st VHN	21		21	21
	2nd VHN (Posted under UHC Implementation)	NA	NA	21	21
	Asha Worker	NA	-	NA	-
Building Type	Government Building	21	21	21	20
	Rented Building		0		0
	Pudhu Valvu Thittam		0		1
Electricity		21	20	21	21
Running water supply		21	13	21	20
Toilet Facility		21	20	21	21

## Appendix -7

**Table: Veppur block Infrastructure and HR position: Pre-UHC (2016) vs Post UHC (Dec.2017).**

		Pre UHC - As of March 2016		Post UHC - As of December 2017	
		Number required	Number Available	Number required	Number Available
HR Status	1st VHN	21	15	21	20 (1 on suspension)
	2nd VHN (Posted under UHC Implementation)	NA	NA	21	16 on regular 5 on contract
	Asha Worker	NA	-	NA	12
Building Type	Government Building	21	17	21	17
	Rented Building		4		1
	Pudhu Valvu Thittam		-		3
Electricity		21	16	21	19
Running water supply		21	16	21	17
Toilet Facility		21	16	21	17