Knowledge and Utilization of HMRI Health Services in Srikakulam District, Andhra Pradesh

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ABSTRACT

Background: The role of public private partnerships in effective healthcare delivery is globally recognized. Andhra Pradesh, a South Indian state is a model state in terms of public private partnerships and NGO presence in the field of health care. Health Management and Research Institute is one such entity that delivers primary health care to rural population of Andhra Pradesh. This study tries to look at the people’s knowledge and utilization of health services offered by HMRI Srikakulam- a rural district in Andhra Pradesh.

Methods: A household survey is conducted using a questionnaire to get peoples responses regarding their knowledge and utilization of the health services offered by HMRI. Two sets of samples- with 210 respondents in each sets- were chosen. One set comprised of the beneficiaries of the service and the other set comprised of respondents chosen randomly from the community according to the 30 by 7 cluster sampling method.

Results: The respondents (Especially the beneficiary group) have high knowledge about the services offered by HMRI. Majority of the community samples are also aware of the services. But the utilization of the 104 Advice is very low in both the sample sets. The utilization of 104 FDHS van service is very low among the community samples.

Conclusions: Making 104 Advice a toll free service could possibly result in an increased utilization. As far as the 104 FDHS van services are concerned, treating general medical conditions and prior notice about the visits of the van can make a marked difference in the utilization.

Key Words: HMRI, knowledge, utilization, healthcare service, 104 Advice, FDHS.
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**Abbreviations**

AIDS- Acquired Immune Deficiency Syndrome

ANM- Auxiliary-Nurse Midwife

AP – Andhra Pradesh

ASHA- Accredited Social Health Activist

CHC- Community Health Centre

COPD- Chronic Obstructive Pulmonary Disease

EPI- Expanded Program in Immunization

FDHS- Fixed Day Health Service

GDP – Gross Domestic Product

GOI- Government of India

HIV- Human Immunodeficiency Virus

HMRI- Health Management and Research Institute

ICT- Information and Communication Technologies

IMR- Infant Mortality Rate

MMR- Maternal Mortality Ratio

PHC- Primary Health Centre

PPP-Public Private Partnership

PPS –Proportionate to Size

RMP- Rural Medical Practitioner

SAP- Structural Adjustment Program

WHO- World Health Organization
Introduction

India as of today is going through the phase of epidemiological and disease transition phase. Hence the Indian health care has to deal with the challenges of poverty and malnutrition related diseases and at the same time it also has to fend the challenges put forth by the diseases of affluence. According to the Government of India (GoI) 70% of India’s 1.17 billion population lives in the rural area and has a staggering 250 million people below poverty line (1$ a day). At the same time the health expenditure as a part of Indian economy’s GDP is at an abysmal less than 1%. To add up to the challenges more than 80% of the health expenses in India is made possible by out of pocket expenditure (Duggal, 2005), which in itself is an impeding factor in the way of early detection and treatment for the rural and urban poor.

India has one of the lowest health statuses among the middle-income countries. Despite opening its doors to globalization in early 1990s through the Structural Adjustment Programs (SAPs), the public health care service in India has failed though not completely. With the dwindling of GDP share for health care and the withdrawal of public health care services; thereby giving opportunities for the private players an unquestioned playing field has become a major dilemma in the Indian health care scenario (Duggal, 2005). The health policies of India 2002, considers that so far India has spent a large portion of its health resources in urban areas to develop an urban based health service system, which eliminated rural population from the easy access to health care. This is substantiated by the facts and figures which say only 30% of the hospital beds, and 20% of doctors are located in the rural areas which occupy more than 70% of India’s population (Dilip, 2005). So, the observed lower level of health status indicators in the rural areas could be a partially attributed to the urban bias in the provision of health facilities. This in effect can be termed as the inequity in access to health care.

Reflecting upon the above said facts, Indian health system can be included in the mixed health system category. Sania Nishtar, 2007 defines a mixed health system as health system in which out-of-pocket expenditure and private provision of health care predominates as a means of financing and providing health care services in an
environment where publically financed government health delivery coexists with privately financed market delivery of health care. This is evident in all parts of India irrespective of the rural-urban distribution of health care infrastructure and personnel.

**Andhra Pradesh (AP): Organization of health care delivery**

The South Indian state of Andhra Pradesh, which is also known as the rice bowl of India has a population of 76.21 million (India, 2001). The state has an overall literacy rate of 61.1% (with female literacy rate at 50.4) and the sex ratio of the population is 978 females to 1000 males. The state also has 72.7% of its population living in the rural areas. As far as the health indicators of AP is considered. It has an Infant Mortality Rate (IMR) of 52 and the Maternal Mortality Ratio (MMR) at 154.

The Primary Health Centre (PHC) plays the central role in delivering health care to rural India, with no exception in AP. The PHCs, are supposed to deliver preventive, promotive and curative health care to the community. Apart from mere delivery of direct services to individuals visiting the centre, the PHCs provide health education, nutrition promotion, immunization, mother child and family welfare services, and information on basic sanitation. (Thota, D., Mahapatra, P., George, C.K & Reddy, N.S, 2007) Although health is a state subject in India, the allocation of funds and development of health infrastructure in India is primarily a function of the central government (Gangolli, 2005). In accordance with this aspect, the development of health infrastructure in AP has also followed the central government directives. As per the government records of Andhra Pradesh, the primary health scenario of AP at present has 1570 PHCs across the state with a shortfall of 354 PHCs. ([http://health.ap.nic.in](http://health.ap.nic.in))

The public sector health care delivery in Andhra Pradesh is divided into four tiers based on a clear hierarchical structure. They are:

- Sub-Centers: The sub centers serve as the initial contact point between the population and public health care. As per the directives, a sub centre serves a population of 5000 in a plain and a population of 3000 in tribal or hilly areas. The services delivered at a sub-centre include all the primary care services
including free drug provision which makes the sub centers the most accessible health care facility for the population. These sub centers also are the implementation points for several national and state health initiatives since it is the closest health entity to rural population. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009)

- Primary Health Centers: Primary health centers, which is commonly known as PHCs look at the integrated curative and preventive aspects of rural health and at the same time it focuses on preventive aspect of population health. PHCs are the immediate contact point for rural population for health matters, above the sub centers. PHCs serve a population of 30,000 and 20,000 in plains and hills or tribal areas respectively. PHCs act a referral point for the sub centers and it further refers the needy people to higher levels of specialized care. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009)

- Community Health Centre: Community health centre or a CHC is the next level in the hierarchy above the PHC. CHC usually deals with the referred cases from the PHCs. CHC also serves as the first contact point for the people living in the vicinity of the same. Specialist care such as surgery, pediatrics and gynecology are rendered through a CHC, which is usually a 30-bedded hospital. It serves a population of 120,000 and 80,000 respectively in plains and hills or tribal areas. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009)

- District Hospitals and higher referral care units: The highest point of health care delivery and management in a district is the district hospital. This is the point of administration for all the other health structures like the CHCs, and PHCs in the district. It provides preventive, curative and promotive health care to the citizens of the district. Apart from catering to the direct health need of the district’s populations these entities also have a bearing on forming the base for implementing different health policies and health management services in the concerned district. The district hospitals also act as intermediary between the population and other points of referral care which include both private and
non-government health organizations. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009)

As everywhere else in India, private sector providers play a significant role in health care provision in Andhra Pradesh. 72% of inpatient care and more than 85% of outpatient care are catered and delivered by the private sector in Andhra Pradesh. Out of different specialties, obstetrics is the largest specialization of health care delivery provided by the private sector. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009) The private sector players in India have a larger spread of providers than the public sector. It includes not-for-profit or organizations and for-profit health providers. In for-profit category, further division of providers’ vis-à-vis non-qualified providers, qualified providers and corporate health providers are possible. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009) This is a complex matrix, which include providers like faith healers, traditional healers, rural medical practitioners (RMPs) and local drug stores. The interesting fact about many of the providers such as traditional healers and faith healers is that the profit motive with them is not strict as the corporate and private health care establishments. (Baru, 1998)

![Figure 1: Distribution of Health Expenditure in AP by source of fund as percentage. (Adapted from Andhra Pradesh Health Sector Reforms: A narrative Case Study, 2009)](image)

The health expenditure by source of funds in Andhra Pradesh for the year 2001-02 gives us a glimpse of the important role of household expenditure on health care in
Andhra Pradesh. From figure 1 it is clear that health expenditure in AP has a direct bearing on the household economy. This is irrespective of the nature of the household, i.e., irrespective poverty status. With the major chunk of health care provided by private sector, majority of the household expenditure on health also flow into the private sector. This is an overlapping burden for the poorest sections of the population.

**Public Private Partnerships (PPP)**

To support the economically weaker sections of the society new arenas of funding, managing and operationalizing health care delivery is necessary. In the wake of this challenge public private partnerships have become the new mantra and a feasible alternative for health care delivery in different parts of the world, especially for the rural populations. Being a signatory of the landmark Alma Ata declaration, India established its huge network of PHCs across the country. But with dwindling public expenditure on health infrastructure it became apparent that either private parties or civil society organizations had to take up an active role in the effective functioning of the PHC network in India. (Ghanashyam, 2008). These realizations gave rise to the idea of Public-Private Partnerships in health care delivery in many low and middle-income countries at the turn of the century. Ridley, (2001) defines a public private partnership as “a commitment to a common goal through the joint provision of complementary resources and expertise and the joint sharing of the risks involved” between a public (government) and private (non-government) entity. The role of each entity in any partnership of this nature varies with the goals of the specific program. (Mallipeddi, R, Pernefeldt, H and Begrkvist, S, 2009).

Andhra Pradesh has seen the emergence in collaboration between public and private entities in the field of health in the late nineties. (Mahapatra, P. 2002). Health Management and Research Institute (HMRI) is a not-for profit organization providing primary health care services to both urban and rural population of Andhra Pradesh, using mobile vans and it also provide standardized medical information, advice and counseling through a telephone helpline. The concept of tele-medicine is not a commonplace health care option in India. (Singh and Das, 2010). But with the emergence of a mobile telephone boom and its penetration to even the remotest rural areas a new avenue to provide health care has been identified. HMRI is an example of
a PPP with public stewardship of private provider. In this category of PPP, major part of the operational funds are generated by the public sector and the delivery and management of health care is performed by the private sector player. This stewardship mechanism can better the performances of health care delivery for low income and rural population by enhancing the health system to an improved quality, availability and affordability of health care. (Langomarsino,Nachuk and Kundra, 2009)

**HMRI Model of Health Care**

Health Management and Research Institute (HMRI) Model is a model of health care delivery system developed in the South Indian state of Andhra Pradesh, India. This is a model of public private partnership and a model of private stewardship for public services. HMRI is an offspring of the PPP in AP, which aims at the delivery of quality primary health care for the rural and urban population at an affordable rate. (Bergkvist & Pernefeldt, 2009) HMRI is a not for profit organization (NPO) which aims at bridging the gaps (Access, Affordability, Availability and Quality) in health care delivery by supporting the public health care facilities with the use of modern management practices and through the use of information technology. The use of telemedicine is an integral part of HMRI model and at the same time the issues of access and availability to health care services for the people is bridged through the system of fixed day services, when a medical van visits the villages. The finance-affordability- is borne by the PPP between the state government and the organization. Quality, is assured by the service delivery end- the organization, HMRI- through the use of technology, standardized procedures and protocols and a system of monitoring and feedback with a provision of patient feedback (Bergkvist & Pernefeldt, 2009). This is in tune with the mission statement of HMRI which states “**HMRI believes that the deployment of information and communication technologies (ICTs) can play a critical role in the socio-economic growth of developing countries and the realization of U.N.’s Millennium Development Goals. HMRI aims to provide, promote and propagate ICT-enabled healthcare services for all Indian citizens, primarily to meet the unrealized needs of the rural populace.**”([http://www.hmri.in/mnv.aspx](http://www.hmri.in/mnv.aspx))

The HMRI model of health service has various components in meeting the health requirements of the people. It has a mobile van service that goes out to the underserved villages to the populations who live more that 3 kilometers away from a
PHC. The HMRI advice service is a 24-hour call in service, which deliver the caller with standardized medical advice, counseling and information. The information, education and communication component of HMRI connects with the rural population with basic awareness on health related issues through the use of various media platforms.

Rural Mobile Health Service

The mobile van service - 104 Mobile- as it is identified, was initiated in 2008 February as a PPP between the state government and HMRI. After successful filed trials the services of the mobile vans has been expanded to all the 22 districts of Andhra Pradesh, with 475 mobile vans serving the rural population of Andhra Pradesh. This service is organized on a fixed day basis. Each medical vans has a team of seven members who are paramedics and they work connection with the government appointed ASHA (Accredited Social Health Activist) of the village they intent to visit. These visits are called the ‘Fixed Day Health Services’ with the aim of delivering primary health care facilities to the population to the population who reside outside the 3-kilometer radius of any primary health care facility. “The Fixed Date Health Service – health services being offered to each village on a 'fixed' date of each month - complements the existing public health system to create a framework for comprehensive and easily accessible health care delivery”.(http://www.hmri.in/104-Mobile.aspx)

The van service is utilized to challenge the issue of ‘geographical accessibility to health services’. The services provided by the vans include preventive and curative services. This includes diagnosis of diseases (including lab diagnosis), monitoring and treatment, record keeping of the data and the referral of high-risk cases. The team in each van consisting of paramedics, Auxiliary Nurse Midwife (ANM), data entry operator, pharmacists and lab technicians offer various services to the rural populations. These services include ante-natal checkups, height and weight monitoring, nutritional supplements for mothers and children, basic blood and urine lab investigation screening, advice and medicine dispensation for chronic illnesses such as diabetes, hypertension, epilepsy and COPD, these service also focus on dispensing medicines free of cost for a period of one month. (http://www.hmri.in/104-Mobile.aspx) At the preventive level, the ANM in the van work with the local schools
to generate health awareness and dispense information on hygiene and health lifestyle. As on 10 January 2010, the 104 Mobile services has 474 vans serving at 776 service points in AP and it has a registered user base of more than 8.2 million people.

**104 Advice- Medical Helpline**

The call in service, as the name suggests a 24-hour call canter service- Health Information Help Line- to which the people of AP could call free of cost. This can be reached by dialing the number 104 where the caller is given tele-consulting services. The objective of this service is to enable people, especially from the rural areas to access information on health issues and to get an advice about a qualified medical practitioner. A team comprising of qualified professionals including doctors and paramedics gives the telephone advice. The use of calling services for medical advice can reduce the time spent by a doctor per patient because 80% of the calls are dealt by qualified paramedics or trained personnel while only 20% of the calls are directed to a doctor (Hammond, A, [http://www.nextbillion.net/blog/2009/02/06/notes-from-the-field-i-have-seen-the-future-of-healthcare 2009])

The 104 Advice facility classify the caller into a triage – critical, serious or stable conditions- and provide appropriate medical advice. The advice and suggestions received by the caller is generated by a protocol where the operator follows it and generates an advice to the specific situation. ([http://www.eindia.net.in/2010/eINDIA2009-Report.pdf](http://www.eindia.net.in/2010/eINDIA2009-Report.pdf)) At the same time the counseling dimension of the service looks into HIV/AIDS condition, matrimonial discord, depression and chronic diseases, psychological distress, early identification of suicidal tendencies and suicide prevention. The 104 Advice also has a directory service where the caller can avail information about health providers (both public and private), diagnostic techniques and information about government health schemes and programs. (Bergkvist & Pernefeldt, 2009)

**Geographical Location of the Study**

The proposed study is to be carried out in Srikakulam district of Andhra Pradesh. Srikakulam is the northeastern district of AP, bordering Orissa in the north and the Bay of Bengal in the east. It has a geographical area of 5837 square kilometers and
has a population of 2537593 as per the 2001 national Census, spread over a total of 582,377 households. The population of Srikakulam district is further broken down according to the rural and urban dwelling pattern. In this category a total of 521,523 households with a population of 2,258,934 falls in the rural category and 60,854 households with 278,659 people living in the urban areas. The district is further divided into 38 administrative units called ‘mandals’ or the sub districts.

The literacy rate of the district is a mere 55.94%. The occupation of the majority of the inhabitants of Srikakulam is agricultural labor, which accounts to 78.18%. 89% of the district’s population resides in rural areas (http://srikakulam.nic.in/DemDet.html).

The District has highest Infant mortality rate of 72 per 1000 live births while that of the State is only 59. The Maternal Mortality Rate is highest in the state is 412 per 100,000 live births while that of the State is 341. As far as the health infrastructure of the district is concerned, it has 472 sub centers serving the rural population and 3 sub centers in the urban centers. There are also 70 PHCs, 9 CHCs and two multipurpose hospitals serving the population of Srikakulam.

**Rationale of the study**

The study is proposed to be conducted in Srikakulam district because of the large rural population who lives outside the 3 Kilometer radius, which is the target population of HMRI 104 Van (Fixed Day Visit) service. As far as the experiences of people who are served by the facilities of HMRI model of health care, very few studies have been done to record peoples experience and health seeking behavior in relation to the HMRI model of health care delivery. Therefore this study proposes to explore and investigate the knowledge about HMRI services and utilization patterns of the people in utilizing the services offered by HMRI.
**Problem Statement**

The study tries to check the knowledge of rural population in one district of AP about the services of HMRI model of health care. At the same time the study also proposes to check the utilization of HMRI services by the rural population. Hence the problem could be stated as:

“How much has the HMRI model of health care penetrated and are accessed by the rural populace and how does the rural population utilize the different services offered by HMRI?”

**Aims and Objectives**

The study aims to look at the following:

- The knowledge of the selected samples about HMRI model of health care
- The utilization pattern of HMRI services made available to the population
- To identify the different health related issues for which people seek help from the HMRI.

**Research Questions**

The study proceeds with the hypothesis that the rural populations have significant knowledge about the services of HMRI (Dial 104 and the 104 van visits) and that they utilize these services when in need.

- How knowledgeable are the people about the services offered by HMRI?
- How does the rural population utilize the different services offered by HMRI?
Methodology

This study has two sets of samples with 210 households in each set. The samples in both the sets were chosen differently. One set of samples, which is identified as the exit samples were selected using a convenient exit interview technique. Here, the researcher chose one person from one household from each cluster after they were exiting the 104 vans. Thus an exclusive set of samples spread over the chosen clusters form the same district is obtained. The second set of samples was obtained by the 30 by 7 cluster sampling.

The 30 by 7 cluster sampling developed by WHO as a part of the expanded program on immunization (EPI) in 1978 (Woodard, 2001). The major benefit of this methodology is that this methodology facilitates the overall population estimate of the specified geographical area in a limited time and budget framework (WHO, 2001). This is a two stage sampling technique, with an initial phase where the population of the area is divided into different clusters. Before the sampling begins, the population of the specified geographical area is divided into non-overlapping subpopulations based on geographical, political or administrative boundaries, which are called clusters. In stage one, from the divided clusters 30 of the early divided clusters are sampled with probability proportionate to the size (PPS) of the population in cluster with replacement. This permits the clusters with larger population to have greater probability of being selected. And the replacement of the cluster makes sure that each cluster can be included in the sample more than once. (Woodard, 2001) In the second stage of the sampling, seven households are selected randomly from the chosen cluster.

In this specific study the clusters were identified using the census data of Srikakulam district from the 2001 census records of the Government of India. The seven households were selected by the “bottle spinning method”. The researcher after reaching the selected cluster (Sub-district or Mandal in this study) centre spun the bottle to find a direction to pick the first household. “After the first household is visited, the surveyor moves to the “next” household, which is defined as the one whose front door is closest to the one just visited”. (Woodard, 2001). In each household, the responses
were taken from the head of the household or the eldest person available at that time in the house.

**Data Collection**

The data was collected using a household survey and exit interviews at the site of the 104 vans service delivery. The samples from both the sets of samples were administered the same questionnaire in order to compare the results. The questionnaire had six sections which sought information about the nature of the household (economic), the natural response to a health issue in the household, the households' knowledge about the services offered by HMRI, what are the different possible methods by which the household reach HMRI, and the questionnaire also included suggestions for the improvement of services and the different services that could be possibly added to the current mechanism.

A 4-member team in which the researcher was also a part performed the data collection. The exit interviews were conducted in the HMRI 104 vans and it followed the timetable of the van’s fixed day health visit to different villages in the sub district. For the random samples the team of surveyors sketched out a schedule and criteria. Both the sets of data was collected between 24 February 2010 and 23 March 2010.
Results

The study has two data sets. One set comprises of persons interviewed at the site of service delivery, the exit sample, and the other set interviewed in the community, the community sample. Each data set consist of 210 persons. The total number of patients interviewed in the exit sample category was 210. Out of this 92 (43.8%) were males and 118 (56.2) were females. Each of the persons represented a separate household. In the community-sampled households in the community, 97 (46.2%) of the persons interviewed were males and 113 (53.8) were females, all in different households.

According to the color of the ration cards issued, each household can be categorized as above poverty line (APL) or below poverty line (BPL) households. The households with a white ration card falls under the BPL and the household with a pink card falls under the APL category.

In the exit sample, 198 (94.28%) households reported having a ration card of either one color and 12 (5.71%) households reported having no ration card at all. Of the households with a ration card 89% (n=187) had a white card, which makes the corresponding household BPL, and 5.2% (n=11) had a pink card that categorized the household as APL. In the community sample, 203 (96.7%) households reported having a ration card and 7 (3.3%) reported not having a ration card. Of the households with a ration card, only 56 (27.6%) had a white card and 147 (72.4%) had a pink card.

Table 1. Household economy status (APL/BPL).

<table>
<thead>
<tr>
<th>Color</th>
<th>Frequency (Exit)</th>
<th>Percent (Exit)</th>
<th>Frequency (community)</th>
<th>Percent (community)</th>
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<tbody>
<tr>
<td>White (BPL)</td>
<td>187</td>
<td>89</td>
<td>56</td>
<td>26.7</td>
</tr>
<tr>
<td>Pink</td>
<td>11</td>
<td>5.2</td>
<td>147</td>
<td>70</td>
</tr>
<tr>
<td>No Card</td>
<td>12</td>
<td>5.7</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>210</td>
<td>100</td>
<td>210</td>
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As far as the income sources are concerned, we can see that almost all the households engage in multiple income generating methods. The identified income generation methods of the study location are daily wage labor, company (public/private) jobs, running own business, agricultural income, keeping livestock and forest commodity trading.

Figure 2. Income Sources of the households

The above figure represents the frequency of various income sources of both exit and community households.

In the exit households, 79 (37.6%) of the respondents never attended school. In the community sample this was just 24 (11.4%). For the exit households 4 (1.9%) respondents attended school between classes 1-4, in the community households this was 3 (1.4%). In the exit sample 104 (49.5%) respondents attended school between 5-10, while in the community household it was 78 (37.1%). Looking at the intermediate education, the exit sample only 22 (10.5%) attained this level whereas in the community sample the corresponding figure was 67 (31.9%). For graduate education or above, among the exit sample only 1 (0.5%) attained this level and the same for community sample was 38 (18.1%).
187 (89%) respondents of the exit sample reported that somebody in their households fell ill in the last one year and the rest 11% (n=23) reported not falling ill in the last one year. Out of the 187 households that reported an incidence of illness 143 (76.5%) reported seeking some kind of medical care for the illness whereas 44 (23.5) households did not seek any health care for the reported illness. As far as the community sample is concerned, 174 (82.85%) respondents reported that somebody in their household fell ill in the last one year and the rest 17.15% (n=36) reported not falling ill in the last one year. Out of the 174 households that reported having incidents of illness, 146 (83.9%) households reported seeking some kind of medical care whereas 28 (16.1%) households did not seek any kind of medical attention. Figure 4 gives us a graphical representation of the chosen medical care by the households in both the exit and community sample with the frequency of households seeking a specific mode of health care.

Figure 4. Healthcare providers chosen by the households.
It is evident from the data that the households seek multiple health care facilities. This included PHCs, CHCs, general/District hospitals, Private hospitals, faith healers, traditional medicine practitioners, RMPs/Village doctors and others. Even while the exit household visit and utilize the services offered by HMRI, they also seek health care from other providers. This is evident from the figure showing different sources from which the households in both the data category seeks healthcare. From the figure it is clear that a large majority of the households seek health care at the private providers. Following the exit households, where 89% are BPL, it is clear that nearly 80 (30.09%) households seek private health care, where the households are at the risk of paying more in comparison to the public services. From the data it is evident that the households in both the samples have multiple reasons for choosing different healthcare providers. The following figure gives us the frequency distribution of the reasons for choosing a specific healthcare provider.

Figure 5: Reasons for choosing different healthcare provider.

Another interesting fact to look at this point is the reason why households that responded to not seeking health care to the illness resorted to their decision. From the 44 households in the exit sample (Who fell ill other than this episode of illness for which they are visiting the van) who fell in this category, 35 did not seek any healthcare because they did not perceive the illness to be serious enough to seek external care whereas 9 households responded to not seeking any healthcare due to
lack of geographic access to healthcare. The same response from the community sample show us that out of the 28 households that did not seek healthcare for an episode of illness, 22 households did not seek health care since it was not perceived serious enough to seek care and the remaining 6 did not have geographic access to healthcare.

For the exit sample 134 households responded positively to being satisfied with the services, while 41 responded negatively. In the community sample there were 173 positive and 18 negative responses to the question on service satisfaction.

In the exit sample 205 persons said yes to seek health advice (for instances of falling ill within the last one year and not for the current episode of illness for which they are visiting the service van) from someone, while 5 persons responded that they did not seek any health advice from anybody. For the community sample all the 210 households said yes to seek health related advice from somebody. From the data it is clear that the households seek health advice from multiple sources. The frequency distribution (Figure 6) for the same represents the various sources of health advice seeking sources of care for people.

Figure 6: Sources from which households seek health advice.

In order to facilitate the enquiry about the use of the telephone assisted service offered by HMRI, it was necessary to find out the household’s status with regard to telephone ownership (mobile telephone or land line telephone). It is clear from the data that the
penetration of telephones in the community is high. Among the exit sample 19.04% (n=40) owned a landline telephone and 57.14% (n=120) owned a mobile telephone. The same for the community sample households revealed that 63.33% (n=133) had a landline telephone and 92.85% (n=115) had a mobile telephone.

In the exit sample 57 households used telephone to seek health advice and for the community sample, 118 households agreed to use telephone to seek health. The following diagram (Figure 8) gives us the frequency of households using telephone to seek health advice from various sources.

Figure 7: Sources of help sought by households using telephone to seek health advice

Pertaining to the particular study, the respondents were asked whether they were aware of Dial 104 service, which is also called as 104 Advice. The response for this is as follows:

- Among the exit sample 100 respondents said they have heard of the service (110 negative responses) and among the community sample 147 respondents said the same (63 negative responses). As far as the sources from which the respondents became aware of Dial 104, we can see the role of multiple sources again. Figure 8 gives us the frequency of the various sources from which different households became aware of the Dial 104 service.
As far as using the Dial 104 service is concerned we can see that only 7 (3.3%) households from the exit sample and 20 (9.5%) households from the community sample have used the service. This implies 203 (96.7%) households from the exit sample and 190 (90.5%) households from the community sample have not used this service at least once. To get a detailed response on the awareness of the dial 104 services, the respondents were asked about the hours during which one can contact the dial 104 service. The responses were, from the exit sample:

- Out of the 100 respondents who agreed to have heard of the service, 27 responded that one can contact dial 104 only during day time, 1 responded to only during night, 55 responded that they can contact dial 104 any time of the day and the remaining 17 did not know when they could contact the service.

Response to the same query from the community sample shows the following figures:

- Out of the 147 respondents who agreed to have heard of the service 10 were of the understanding that the contact can be made only during day, 8 were of the opinion that the contact can be made only during night, 84 responded that one can contact dial 104 any time of the day and 45 did not know when to contact.
All the 7 exit households that contacted dial 104 reported that they contacted the service to seek advice regarding a specific health situation. All of the respondents understood the advice offered by the service but none of them acted upon the advice received from the call since it was not possible to follow the provided advice. As far as the community sample are concerned, all the 20 respondents who contacted the service via telephone to seek health advice and all of them understood the advice and only 7 of them acted in the line of the advice provided. The remaining 13 callers reported that even though they understood the advice, it was not possible to follow the advice.

Looking at the mode of contacting calling service, 4 out of 7 exit sample callers used their own mobile telephone to contact dial 104. One among the exit sample used a neighbor’s phone to call the service and the remaining 2 used a call phone to contact the service. Whereas for the community sample, all the callers (n=20) used their own mobile telephones to contact the service. All the respondents from the exit sample who had called the dial 104 service (n=7) responded that they would not contact the service again, whereas for the community sample callers (n=20), only three respondents said yes and the remaining 17 said they would not contact the service again.

The following part of the study enquired about the households’ awareness and utilization of the 104 van (fixed day health visit, FDHS) services. The initial probe was on the households’ awareness of the van service. In response to this, all (100%) the respondents from the exit sample (n=210) said they were aware of the service whereas for the community sample 161 (76.7%) respondents agreed to being aware of the service and the remaining 49 (23.3%) were not aware of the particular service.

In order to check how deep the household’s awareness about the van service was the study sought information about the household’s knowledge on the frequency of the visits of the vans the respective villages. From the exit sample in which all the respondents were aware of the services offered by the van, 8 respondents said the vans visited their village once in two weeks, 1 responded that the vans visit their village once in three weeks, 181 responded the vans visit their village once in a month and 20 did not know about the van’s visiting frequency. Out of the 161 community
respondents who were aware of the services offered by the van, 3 responded that the
vans visited their villages once in two weeks, 2 responded with once in 3 weeks, 97
responded that the vans make a visit once in a month and 59 respondents did not
know about the frequency of visits made by the van to the villages.

As far as the utilization pattern of the services offered by the van the study sought
information about anybody from the household visiting the van, using any of the
services provided by the van and the possibility of them revisiting the van to utilize
the services. For the exit sample all (100%) the respondents agreed to visiting, using
and revisiting the services offered by the FDHS -104-vans. But for the community
sample the figures tend to vary. Out of the 161 respondent households that were
aware of the 104-van service only 50 (23.8%) visited the vans, and from this 50 visits
only 43 (20.47%) used any of the services offered at the service point and 41
(19.52%) of the beneficiaries from this category responded that they will revisit the
104 van service.

Looking at the responses from the exit sample we can see that 156 exit respondents
chose to visit the vans because they could avail free medication and 36 community
responses corresponded to the same reason as well. This was followed by 137 exit
persons giving free consultation as a reason whereas for the community sample the
frequency for this was 30. It is followed by 124 exit sample responses corresponding
to easy access and the community sample response for the same is 16. This is
followed by reasons such as good service (33 exit sample response and 4 community
sample response) and friendly staff (29 exit sample response and 1 community sample
response).

Profiling the health related issues for which the households utilized the service of the
FDHS, we can again see that the households contacted the service vans for multiple
illnesses. Among these issues diabetics and hypertension, are the leading cause for the
exit sample households, and this is followed by pregnancy related care, childcare and
care for cough (TB). In case of the community sample households the cause of
visiting can be graded as hypertension, diabetics, cough (TB), childcare and
pregnancy related care.
Enquiring about the beneficiary satisfaction about the 104 van services, the data reveal that out of 210 beneficiaries, who used the service from the exit sample, 199 (94.8%) said they were satisfied with the services they received and the remaining 11 (5.2%) said they were not satisfied with the services provided. The same for community sample respondents shows us that out of the 43 beneficiaries who used the service of 104 van, 39 (90.69%) said they were satisfied and the remaining 4 (9.31%) reported that they were not satisfied with the service. In a query about which group of people (men, women or children) use the services the most, the response from the exit sample showed that 175 respondents agreed that mostly women uses the service offered by the 104 vans-FDHS. Among the remaining, 32 were of the opinion that mostly men use the service and 3 responded that mostly children use the services. The corresponding findings from the community sample were that 23 respondents felt that women mostly use the service and the remaining 20 felt children mostly use it.

206 (98.09%) of the exit sample felt that the service benefit the village and 4 (1.91%) were of the opinion that they are not benefiting the village. All the 43 (100%) community sample respondents who use the services felt that the services are benefiting the village. The study also tried to get suggestions for improvement of the 104 FDHS service.
Discussion

As seen in the analysis section of this write up, it is clear that the use of health services available among the study population and the utilization of available health care resources show remarkable differences. As far as the knowledge regarding the services offered by the Health Management and Research Institute (HMRI), we can see from the data that this also varies across various sections of the sample population. The health utilization model developed by Anderson (Anderson, 1995) proposes three factors that can influence the utilization of a health service use. They are:

- Predisposing factors: this includes the factors such as age, gender, religion, ethnicity, education, occupation, social capital, knowledge and prior experience about the illness and health service (Anderson, 1995)
- Enabling factors: this refers to factors such as availability of services, affordability, health insurance and social network support. (Anderson, 1995)
- Need factors: these factors refer to the perception of severity of illness, days lost due to illness, outside help for care. (Anderson, 1995)

Further modification in the above mentioned model has identified factors from the health systems such as policy guidelines, health resources, and organization of health system and health care delivery also influence the utilization of a particular model of health care (Ahmed, 2005).

In this section the discussion will be more focused on the community households since the exit sample households are already the beneficiaries of one or more of the services offered by HMRI. The representativeness of the community group can be analyzed and discussed more in detail since it will give us more information about the healthcare utilization of the district than from the exit sample who are already using one specific (HMRI) service provider.

Household economy status, education level and choice of health care

In order to get the economic background of the different households, the study uses the ration card as a benchmark to identify the economic status. The households with a white ration card are considered as ‘below poverty line’ (BPL) households and households with pink ration card are ‘above poverty line’ (APL) households. In the
exit sample we can see that out of the 198 households that reported having a ration card, 187 (89%) has a white ration card: indicating these households fall in the BPL category. The same response for the community sample house holds shows us that only 56 households (26.7%) fall in the BPL households’ category. Out of the remaining households, 147 (70%) households belong to the APL category and the remaining 7 (3.3%) do not have a ration card. The level of access to economic resources is a determinant of health. (Lindstrand, et.al, 2008) This is evident in comparing the utilization of health facilities by both the sample. The data (Figure 4) shows us that the majority of respondents and their households prefer private health care compared to the respondents from the exit sample. This points to the importance of economic status of a given household in utilizing a particular health care. Even among the respondents from the exit sample a major part seeks health care from the private sector despite the expenses related to private health care. The private health care sometimes seem to be less expensive, especially when the care is delivered by RMPs or village doctors who take the consultation fee in the form of kind or service instead of ready payment by cash. (Yadav,K., Jarhyan,P., Gupta,V.& Pandav, C., 2009)

As far as the income sources of the households are concerned, it is visible from the data (Figure 2) that the majority of the exit households subsist on daily wage labor followed by agricultural income and rearing livestock. But the same for the community households tell us that the majority of these households are formally employed either with a public or private sector employer, and also engage in their own business to subsist their households. This makes the community households economically more strong, which is one of the major factor in deciding the health of the household (Wagstaf, 2002).

Analyzing the various reasons given by the respondents in choosing a specific healthcare provider (Figure 5) helps us to understand the driving force behind the choice of a particular health care. It is evident from the response that among the exit sample in which the majority is BPL, affordability of the chosen healthcare is the major driving force and for the respondents from the community sample quality of service and trust is the major driving force.
Another possible determinant for choosing a specific healthcare provider may be the education level of the household. Education is considered as the most important determinant of health care after the economic status (Lindstrand, et.al, 2008) In our sample we can see that the respondents from the community sample are more educated than the respondents of the exit sample (Figure 3). The number of respondents who haven’t attended school is high in the exit sample compared to the community sample. Education level appears to be higher among the respondents from the community samples than the exit samples.

Health care related information and advice seeking – Utilization and awareness of 104 Advice

As a background to the enquiry in relation to the service of HMRI, the study explored people’s sources (Figure 6) of seeking advice on health related matters. It was discovered that in both the sets the family was the major source of advice on health related matters. The next source of information differed between the groups. In order to check the use of telephone as a medium to seek health care differences, it was necessary to enquire about the household’s status of owning a telephone (mobile or landline phone). The penetration of telephones (mobile telephones or landline telephones) among the households irrespective of the sample group to which they belong is remarkable. It appears from the data (Figure 7) that the penetration of telephones in the community surveyed is high. Among the exit sample in which 19.04% (n=40) owned a landline telephone, 57.14% (n=120) owned a mobile telephone. The same for the community sample households revealed that 63.33% (n=133) had a landline telephone and 92.85% (n=115) had a mobile telephone.

In the exit sample only 27.14% (n=57) said they used telephone as a means for seeking health care information. But for the community households, 56.19% (n=118) of the respondents said they used telephone as a way of seeking health advice or information. Among the exit sample respondents only 3.3 % (n=7) responded to using 104 Advice, whereas for the community households, only 9.52% (n=20) have used the 104 Advice service provided by HMRI (figure 10). There can be different possibilities for the difference in the use of phones for seeking health information or advice could several, foremost among them maybe.
- Access to a telephone
- Awareness about a source where health advice is dispensed over telephone.

Pertaining to the awareness of the households about the 104 Advice services, from the analysis it is clear that 100 respondents are aware of the service from the exit sample and from the community sample 147 respondents are aware. Discussing this in terms of percentage, we can see that 47.61% of the exit sample and 70% of the community sample are aware of the 104 Advice service. But the utilization of the specified service is mere 3.3% and 9.52% for the exit and community sample respectively (figure 10).

Figure 10: Awareness-utility comparison of the 104 Advice among the sample households

There may be multiple reasons behind this low utilization of an available health service. It can be seen from the data that only high awareness about a particular service necessarily would not result in high utilization. Various other factors such as age, gender, religion, ethnicity, education, occupation, social capital, knowledge, prior experience about the illness and health service, affordability, social network support and perception of severity of illness (Anderson, 1995) influence the utilization of a service.

104 Advice is a 24-hour telephone support system, which can be contacted in case of a health issue. Knowledge about the working times of a service is important in
utilizing a particular service. Enquiring about the respondent’s knowledge on when could one contact the 104 Advice (Figure11). This difference in the knowledge about the service may arise from different factors. It can be influenced by the source from which one gets to know about the service or personal factors such as the capability to understand what information is being dispensed. There may be possibilities that the level of education of the user or potential user, economic status of the households, and factors such as who owns the telephone within the household and how accessible is the phone to all the members of the household may also affect the utilization of the 104 Advice phone –in healthcare advice service.

Reasons for contacting 104 Advice and perceived usefulness of the provided advice
The only reason why the households from both exit and community sample contacted the household is to seek advice pertaining to a specific health situation. As far as the usefulness of the advice is concerned, all the callers understood the advice provided by the call centre but none of the exit households were able to follow the directions since it was beyond their means. All the respondents from the exit sample who contacted the service reported that they were advised to change the diet habits. As for the callers from the community sample only 7 out of the 20 callers reported acting in line with the advice provided.

As far as contacting the 104 Advice service again, none of the exit sample callers said they would contact the service again and only 3 callers from the community sample said they would do so. The reason cited being the charges the callers have to pay in contacting the service. Using the service incur a user fee for the caller and all the callers from the exit sample see it as a mere waste of money to pay for a service which does not do any good to solve the issue at hand.

Suggestions for improvement of 104 Advice
Both the community sample users and the exit sample users demanded the abolition of user fee and making the service a toll free service. Making the service toll free could help more people to access the service and hence utilize the advice to enhance their or their kin’s health.
In response for the query on the awareness of the household respondents about the 104 van service, it is not surprising to find that all the exit sample are aware of the service. The reason being that all the respondents in this category were chosen and interviewed at the site of service. Hence the response from this set of sample cannot be considered as a valid representation. But for the community sample we can see that 76.7% (n=161) of the community sample respondents are aware about the FDHS -104 van- services offered in their villages. To cross check how aware the respondents are about the FDHS, the study investigated the frequency of the vans visit to the village (Figure 13). In practice the FDHS vans visit each village once in a month to deliver its services. The majority of the respondents –from both exit and community sample- responded that the vans visit the villages once in a month. However there is a matter of concern here. Looking at the exit sample who are all users of the FDHS van service, 20 respondents do not know about the frequency of the FDHS visit, 8 respondents think the visit happens once in 2 weeks and 1 believe the visit happens once in tree weeks. Among the community sample respondents, 59 respondents do not know about the frequency of the FDHS van visits to their village.

Looking at the utilization of the services offered by the FDHS vans (Figure 14), it is evident that all the respondents from the exit sample have visited and used any one service offered by the FDHS. But even when 76.7% of the community sample respondents are aware about the FDHS, which can be availed free of cost only 23.8% (n=50) of the responding households had ever visited the FDHS service point. Out of the 50 respondent households that had ever visited the FDHS service point, 43 households used any of the services offered. The 7 household representatives who visited the service point did visit the service point out of curiosity. These visits can be considered useful since they generate more awareness about the FDHS. As we have seen in the beginning of the discussion the majority of the responding households in the community sample are economically well off and they can afford to pay for health care. The utilization of the FDHS helps us to prove the importance of some socio-economic differences in health and in use of health service. Poorer sections of the society made more use of the public healthcare facility than the economically well of sections of the society. (Khe,2004) . This holds good for the households that fall in the BPL category in the present study.
When all the users of the 104 FDHS users from the exit sample agreed to revisit and reuse the FDHS, 2 respondents from the community sample said they would not return to the FDHS on the grounds that the medicines dispensed were substandard and the FDHS do not facilitate the consultation through the use of a doctor.

**Reasons and health cause for utilizing the 104 FDHS Vans**

There were multiple reasons for the respondents from different households for utilizing the service offered by the 104 FDHS vans (Figure 15). From both the sample sets, the major reason for visiting the service was free medication followed by free consultations dispensed at the FDHS sites. This indicates that the households irrespective of their economic status appreciate low priced or free health care. As far as the medical conditions for which the respondents sought care from the 104 FDHS vans, diabetics and hypertension or high blood pressure were the leading causes among the exit sample and vice versa for the community sample respondents. This in the exit sample followed by pregnancy related care and childcare. We can see among the community sample that the numbers for the same decline rapidly. The apparent reason for this decline may be various. First, the households in the community samples are economically well off and they tend to seek private healthcare. Second, because of the perceived discomfort in crossing the social barrier. This was manifested clearly in two instances in the data collection exercise where two household representatives from the community sample said they would not want to use the services of the FDHS. In doing so they will have to mingle with the poor and lower caste (low in social order) people of the village and share the same facility used by the socially downtrodden class.

**Satisfaction and the Gender distribution in utilization of FDHS And Suggestions for improvement**

By enquiring about the satisfaction of the beneficiaries of the FDHS we can see that a large majority of the exit sample, 94%, are satisfied and that 98% believe that the FDHS benefits the village in dealing with the issues of health care. Majority of FDHS users from the community sample shows that the satisfaction is much higher (90%) and all the community sample respondents are of the opinion that the 104 FDHS benefits the village population.
Out of the 210 respondents from the exit sample, 154 (73%) gave suggestions that could benefit the FDHS to enhance its services. 124 people suggested that the vans should provide a doctor to consult along with the current paramedical staff. They also suggested that the FDHS service should start consulting and treating for general medical conditions in addition to the treatments dispersed for antenatal care and chronic diseases. 24 respondents also suggested that the medicines distributed should be of better quality and standards. The remaining 5 respondents suggested that the timing of the van visit should be altered so that the male members of the family could also attend the medical service offered at the FDHS. From the community sample the only suggestions from improvements were the possible inception of a doctor in the 104 FDHS vans.

From the responses of the beneficiaries of the FDHS, it could be suggested that better coordination in informing the villagers in advance about the FDHS visit would definitely benefit the target population. An effective inspection mechanism to look at the quality of medicines and the competence of the staff would be of great benefit for both the providers and the beneficiaries. The feasibility of treating general medical conditions and doctor availability in the service van is worth exploring but the generation of extra resources in this regard must be kept in mind.

Thus it can be concluded that users of the service are ‘generally’ satisfied with the services provided at the 104 FDHS vans and there is substantial scope in generating awareness about the services offered by HMRI.

Methodological Issues

The sampling for the respondents from the community sample was done as per the guidelines of the standard 30 by 7 cluster sampling initiated by WHO to study the immunization coverage under the EPI (Woodard, 2001). The sample in the exit interview was chosen more on a convenience basis at the site of service delivery. Both samples were drawn from the same administrative area (mandal). The community sample gives more representation of the population since it is selected randomly. Since the primary data was collected in a regional language, the possibility of translation errors cannot be discounted. There are also possibilities that the respondents may have tried to respond positively to avoid further explanation or to finish the interview fast.
Further investigations with a larger sample are required to further explore and get better representation from the community. Adding a qualitative dimension to the study would also be of great use.

Findings and Conclusion

- Knowledge and awareness about the services of HMRI (104 Advice and 104 FDHS vans) is high. Even with the heavy penetration of telephones among the sample sets the utilization of the 14 Advice (Dial 104) is at a very low level. Making 104 Advice a toll free service would benefit the population and this can facilitate the increase in the user base of this service.
- The utilization of the 104 FDHS vans is also at a low level among the community samples.
- In order to serve more of the target population, it is suggested that the FDHS could look into the possibility of treating general medical cases along with the COPDs.
- Also, effective and prior notification to prospective beneficiaries about the vans visit to the villages can increase the utilization of services.
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My course mates- without whom I could not have found a firm ground. Among them Jessica, James, Emelie, Kristie and Lisa deserve a special place in my heart.

My family, the earth that nourishes me to grow into a sky of opportunities

Elizabeth- my life and my future.

Tack så mycket!
References


Andhra Pradesh Health Sector Reform: A Narrative Case Study - The Rockefeller Foundation–Sponsored Initiative on the Role of the Private Sector in Health Systems in Developing Countries’. Washington DC: Results for Development Institute.


## Appendix 1- Cluster Assignment and Calculations

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<th>Mandal (Sub-district)</th>
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<th>Cumulative population</th>
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<td>Place</td>
<td>Population</td>
<td>Base Value</td>
<td>Cluster Numbers</td>
</tr>
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<td>------------</td>
<td>------------</td>
<td>-----------------</td>
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<td>2</td>
</tr>
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<td>Vajrapukotturu</td>
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<td>2425832</td>
<td>28</td>
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<tr>
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<td>47,879</td>
<td>2473711</td>
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<tr>
<td>Veeraghattam</td>
<td>63,882</td>
<td>2537593</td>
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</tr>
<tr>
<td><strong>Total Population</strong></td>
<td><strong>2,537,593</strong></td>
<td></td>
<td></td>
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</table>

Base Value = Total population/ Number of clusters

\[
= \frac{2,537,593}{30} = 84568.4
\]
Appendix 2- Consent Form and Questionnaire

Dear Respondent,

I am inviting you to participate in a research project to study the ‘People’s Knowledge and Utilization Patterns of HMRI Services (104 Advice and 104 Mobile) in Srikakulam District, Andhra Pradesh’. This research project is conducted as a part of the Master of Arts in Global Health course I am undertaking at the Karolinska Institutet, Stockholm, Sweden. Along with this letter is a short questionnaire that asks a variety of questions about your experiences and utilization pattern of health care services. I request you to kindle participate in the survey by answering the questions in the survey form attached. It will not take more than 30 minutes of your time.

Through your participation, I hope to understand the People’s Experiences and Utilization Patterns of HMRI Services in Srikakulam District, Andhra Pradesh. Please be informed that there is no financial benefit for you by participating in this exercise. The result of the survey will be useful for further studies and to improve the health services for the good of the people. The findings of this study would be shared and published.

There will be no risks to you for your participation in this study. I also assure you that all your responses would be completely confidential and would not be identified with you personally. This survey should take you about 30 minutes to complete. Your participation is voluntary and you may choose to withdraw from the survey at any time if you feel so.

Sincerely,

Anand Jose Manarkattu

NB: If the respondent consents to participate proceed to the interview, otherwise wind up the interview and proceed to the next household / respondent.
**General Information**

**Section 1**

<table>
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<th>Sl. No</th>
<th>Information</th>
<th>Response</th>
</tr>
</thead>
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</tr>
<tr>
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<td>Sub-District (Mandal)</td>
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</tr>
<tr>
<td>1.2</td>
<td>Cluster Number</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Panchayat</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>Village</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Date of Interview</td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td>Name of Interviewer</td>
<td></td>
</tr>
<tr>
<td>1.7</td>
<td>Interviewee Characteristics</td>
<td></td>
</tr>
</tbody>
</table>

**Now I would like to ask you a few questions about the nature of this household**

**Section 2**

| 2      | What is your religion                | Hindu       |
|        |                                      | Christian   |
|        |                                      | Islam       |
|        |                                      | Buddhism    |
|        |                                      | Others (Specify) |
2.1 Which cast do you belong to?  
- SC  
- ST  
- OBC  
- General  
- Other (Specify)

2.2 Have you ever attended School? If Yes, what was the highest level of education achieved?  
- Never went to school  
- Primary (class 1-4)  
- Secondary (class 5-10)  
- Higher secondary (10+2)  
- Bachelor and above

2.3 Do you have a ration card?  
- Yes  
- No

2.4 What is the colour of your ration card?  
- White  
- Pink

2.5 Which of these do you presently have in your household?  
- Electricity?  
  - Yes  
  - No  
- Radio?  
  - Yes  
  - No  
- TV?  
  - Yes  
  - No
<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Phone?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Mobile Phone?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Refrigerator?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Fan?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Bicycle?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Motorbike?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Latrine</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Mosquito net</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Storage for drinking water with tap</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

2.6 Do you own your own land?  Yes No

2.7 If yes, How much land do you have?

What is the source of income for this household?

2.8

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily wage labourer?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Company job?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Own business?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Agriculture income?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Livestock</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Forest commodity trading</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other? (Specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 3

Now I would like to ask you some questions about your Health?

3. Do you or anybody in this household fell ill in the last one year?

   Yes           No

3.1 Did you seek any medical care for that incidence of illness?

   Yes           No

   Proceed to 3.2 if No, proceed to 3.3 if yes

   What is the reason for NOT seeking medical care?

3.2 Did not have access

   Disease was NOT perceived to be serious enough to seek medical care

   Did not know whom to contact

   The care was too expensive

   Did not want to loose a day's labour

   Other (Specify)

   Were there any cases of hospitalizations in your household in the past one year?

3.3 Yes           No
3.4 Were there any instances of Pregnancy or related issues in your household in the past one year?

Yes  No

If no Proceed to Section 4

3.5 Primary Health Care Centre
Community Health Centre
General/ District Hospital
Private Hospital/ Clinic
Ayurveda clinic
Homoeopathic treatment
Faith healer
Traditional medicine
RMP/Village doctor
unani
Rural medical practitioner
Siddha
Local drug shop
Other (Specify)

3.6 What is your reason for choosing the above said medical care?
Affordability

Accessibility(Geographical)

Quality

Trust

Other

Do you think that the personnel at the medical care centre treated you the way you expected?

3.7

Yes No

Were you satisfied with the service you received?

3.8

Yes No

If No, Why were you not satisfied?

Long wait

Short consultation time

Couldn't see the practitioner

Very Expensive

Other (Specify)

If given a choice/ possible, would you ever consider visiting another health care facility?

3.10
Now I would like to ask a few questions about alternative health care facilities available to you

Section 4

4 Do you seek advice on health related issues from anybody?

Yes

No

If yes, proceed to 4.1

4.1 From whom?

Family members

Friends

Village health worker (ASHA)/ Village nurse

ANM

PHC

Other Specify

4.2 Have you ever used you telephone to seek health care?

Yes

No

4.3 If yes, whom have you contacted?

…………
4.4 Have you heard of the Dial 104 health advice service?

Yes  No

If yes proceed to 4.5, If No proceed to section 5

If yes, from whom have you heard about it?

Family members
Friends
Village health worker (ASHA)/Village Nurse
ANM
PHC
Radio
TV
Print media
Word of mouth
Other (Specify)

Have you or anybody in this household ever sought help from this service?

Yes  No
4.7 When can you call/contact Dial 104?

- Only during day time
- Only during night time
- Any time of the day
- Do not know

**Proceed to Section 5 if no contact has been made**

4.8 What was the purpose of you contacting Dial 104 service?

- Seeking Advice: Yes  No
- Seeking Counseling: Yes  No
- Seeking health information: Yes  No
- Other (Specify)

4.9 Did you understand the advice provided from the Dial 104 service?

- Yes  No

If No, give reason………………………………………………………………………………

4.10 Did you act upon the advice provided by the Dial 104 service?

- Yes  No

If No, give reason………………………………………………………………………………
Was the advice provided sufficient to solve the health issue for which you contacted Dial 104?

4.11 Yes  
No

If no, explain……………………………………………………………

How did you contact the Dial 104 service?

4.12 Own mobile phone
Own Land Phone
Neighbours/ Friends Phone
Through the ASHA worker/RMP
Other………………………………………………

Would you ever again contact Dial 104 in case of a health issue?

4.13 Yes  
No

If no, explain ……………………………………………………………

Were there instances when the advice from Dial 104 was not possible to follow?

4.14 Yes  
No

If yes explain why?………………………………………………
Now I would like to ask you some questions about 104 Mobile Van Services

Section 5

Are you aware of the 104 Mobile Van Services?

Yes No

Proceed to 5.1 if yes, If No, proceed to section 6

5.1 How did you come to know about the 104 Mobile van Service?

Family members

Friends

Village health worker (ASHA)

PHC

Radio

TV

Print media

word of mouth

Dial 104

Other (Specify)
5.2 How often does the van visit your village?

- Once a week
- Once in two weeks
- Once in three weeks
- Once in a month
- Do not know

5.3 Have you or anybody in this household ever visited one of these vans? (No use of any service)

Yes

No

If No, Why? __________________________________________

5.4 Have you or anybody in this household ever used any services from one of these vans?

Yes

No

If No, Why? __________________________________________

5.5 If yes would you ever consider revisiting the van again?

Yes

No

If No, Proceed to 5.7
5.6 If Yes, why?

- Easy access
- Good service
- Free medication
- Free consultation
- Friendly staff

5.7 If No, Why?

- Was too far away
- Bad previous experience
- Unskilled staff
- Other (Specify)

5.8 Why did you or anybody in this house hold visit the van?

- Pregnancy care
- Child care
- Cough (TB)
- Diabetes
- Hypertension
- Registration (birth, death, marriage)

Are you satisfied with the advice and care you or any member of this household received at the van?
Do you know of any other services provided by the van in the community?

Yes
No

If Yes,
Explain…………………………………..

In your opinion who uses the service most?

Women
Children
Men

Do you think that the van's visit to the village is benefitting the village population?

Yes
No

How often would you like the van to visit your village?

Once in a month

Yes
No

Twice in a month

Yes
No

If more than once in month, Why?

What are your suggestions for the improvement of the mobile van service?
Appendix 3 - Maps of the Study Location

Map 1 - Andhra Pradesh

Map 2 - Andhra Pradesh - District map
### Map 3- Srikakulam district map with Mandal codes

#### Mandal codes, names and cluster number

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<tr>
<th>Mandal Code</th>
<th>Cluster Number</th>
<th>Mandal Name</th>
<th>Mandal Code</th>
<th>Cluster Number</th>
<th>Mandal Name</th>
<th>Mandal Code</th>
<th>Cluster Number</th>
<th>Mandal Name</th>
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<td>16</td>
<td>5</td>
<td>H.Mandalam</td>
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<td>21</td>
<td>S.Bommali</td>
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<td>2</td>
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<td>Vangara</td>
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<td>Kottabommali</td>
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