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Healthcare Disparities in Tribal Areas with Reference to Availability and Accessibility

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Abstract: ***Healthcare is one of the largest service sectors in India. The Indian public healthcare system consists of primary, secondary, and tertiary care institutions. In the public sector the primary health centers and the sub-centers (SCs) are the primary level of health care providing a comprehensive health care to rural and tribal population. A sub-health center (sub-center) is the most peripheral and first point of contact between the primary health care system and the community. Due to the establishment of sub-centers, primary health centers, and community health centers in India, the healthcare sector shows a tremendous improvement. Despite these improvements, India still faces many gaps in the healthcare delivery system in rural and tribal areas. Access to health care depends on how health care is provided. In Andhra Pradesh despite many efforts by the government, tribal populations generally have poor health outcomes, often because of a healthcare delivery system that does not cater to their needs. Although the health care system uses innovative technologies and doctors, healthcare services lack infrastructure and other health care facilities in primary health centers, sub-centers and community health centres. The tribes in Warangal district have been experiencing a very high morbidity due to water-borne and vector-borne diseases and other vaccine-preventable diseases. In this context, the present study intended to find out the functioning of sub-centres and the effectiveness in bringing the health care services in Integrated Tribal Development Agency (ITDA) areas in Warangal district of undivided Andhra Pradesh. It is a cross-sectional study data was collected from sub-centers through specific pre-designed questionnaires, interviews and focus group discussion. Data was collected from medical officers, support staff, patients, community members and other stakeholders.***

Keywords: tribal area, healthcare services, sub-centers, sub-center, functioning, Warangal District, Telangana Region,

1. Introduction

Healthcare is one of the largest service sectors in India. The Indian public healthcare system consists of primary, secondary, and tertiary care institutions. In the public sector the primary health centers and the sub-centers (SCs) are the primary level of health care. They provide comprehensive health care to the rural and tribal population. A sub-health centre (sub-centre) is the most peripheral and first point of contact between the primary health care system and the community. In the first year of the Fifth Five-Year Plan (1974–78) the Minimum Needs Program (MNP) was introduced with the objective to provide an integrated curative and preventive health care to the rural population by establishing sub-centre, primary health centre, and community health centre.

The objective was to establish:

- One sub-centre for 5,000 people in plains and for 3,000 people in tribal and hilly areas,
- One primary health centre (PHC) for 30,000 people in plains and 20,000 people in tribal and hilly area, and
- One community health centre (CHC/Rural Hospital) for 120,000 people in plains and 80,000 in tribal and hilly areas.

Due to the establishment of sub-centers, primary health centers, and community health centers in India, the healthcare sector shows a tremendous improvement. This can be illustrated by the notable improvement in health indicators such as infant mortality, infant immunization, maternal mortality, institutional deliveries and life expectancy at birth. Despite these improvements, India still faces many gaps in the healthcare delivery system in rural and tribal areas. The health scenario of scheduled tribes of India presents complex of various communicable and non-communicable diseases in accordance with socio-economic developments. The major contributing factors for dismal health in tribal communities of India are the following:

- Poverty,
- Illiteracy,
- Absence of safe drinking water and sanitary conditions,
- Poor access to maternal and child health services,
- Ineffective function of health services.

Scheduled tribes populations continue to carry high burdens of 'diseases of the poor', namely under-nutrition and infectious diseases. High levels of chronic under-nutrition have been observed among child and adult populations (Bose K, Ganguly S, Mamtaz H, Mukhopadhyay A, Bhadra M: 2006). A major problem among tribal population is deficiency of macronutrient and micronutrient such as iron and iodine. Vitamin A deficiency disorders are also common. Malaria persists, particularly among tribal populations living in forested areas and the prevalence has been found to be rising in some areas (Singh N, Dash AP: 2009). Prevalence of tuberculosis, cancer and HIV/AIDS varies across tribal populations. In spite of efforts and commitment of the Government of India towards tribal development, India lagged far behind from achieving health parameters of tribal population. Nearly 50-60% of the PHCs lack medical officers and other support staff such as staff nurses, auxiliary nurse midwife (ANMs), health assistants, pharmacist, and lab technicians. Almost 50% of PHCs did not have facilities such as apparatus and medicines (Praveen Nirmalan, B.R. Shamanna, and S. Saravanan: 2011).

Access to health care depends on how health care is provided. In Andhra Pradesh despite many efforts by the government and the public healthcare system, tribal

populations generally have poor health outcomes, often because of a healthcare delivery system that does not cater to their needs. Although the health care system has innovative technologies and doctors, healthcare services still lack infrastructure and other health care facilities in primary health centers, sub-centers and community health centers.

The tribes in Warangal district have been experiencing a very high morbidity due to water-borne and vector-borne diseases and other vaccine-preventable diseases. In this context, the present study was intended to find out the functioning of sub-centres and the effectiveness in bringing the health care services in Integrated Tribal Development Agency (ITDA) areas in Warangal district of United Andhra Pradesh. A cross-sectional data was collected from sub-centers through specific pre-designed questionnaires, interviews and focus group discussion. Data collected from medical officers, support staff, patients, community members and other stakeholders.

2. Methodology of the Study

The poor living standards of the scheduled tribes of Eturnagaram Integrated Tribal Development Agency (ITDA) area of Warangal district have a direct bearing on their health status. The poor health status of the tribes in turn perpetuates their low living standards. This vicious circle can be broken only if the public health service delivery is improved to bring about sustainable development in the wellbeing of the tribes. The tribes of the Eturnagaram area are caught up in this vicious circle. The Integrated Tribal Development Agency (ITDA) area in general and the tribes in particular have been experiencing a very high morbidity due to water-borne and vector-borne diseases and other vaccine-preventable diseases. A cross-sectional, observational study was undertaken in eight sample sub-centers (Narsapur, Medaram, Otai, Monraigudem, Narasimha Sagar, Mallur, Kanthanapalli, and Chinaboina Palli) randomly selected from the Eturnagaram Integrated Tribal Development Agency (ITDA) area of Warangal district. This study was undertaken during the Year 2010. Both primary and secondary data collected for the study. The present study refers to the undivided Andhra Pradesh. The State of Andhra Pradesh has bifurcated into Telangana and Andhra Pradesh according to the Andhra Pradesh Reorganisation Act, 2014. Visits to the interior villages in the sample mandals indicate that several remote villages continue to remain underserved and exposed to the risks associated with the untrained, unqualified and ill-equipped private medical practitioners. Data was collected by means of survey through open-ended questionnaires using interviews schedules, and by focus group discussion. Patients, villagers, medical and para-medical staffs were interviewed with pre-designed schedules and questionnaires. Information also collected from key health staff in the district including District Medical & Health Officer (DM&HO), Additional District Medical & Health Officer (ADM&HO), District Coordinator of Hospital Services (DCHS), and district coordinators of 108 and 104 services.

Health Scenario of Tribes in the Study Area

The total population of Andhra Pradesh, as per the 2001 Census, is 76,210,007. Of which, 5,024,104 (6.6 per cent) are scheduled tribes (STs). The Andhra Pradesh ST population constitutes 6 per cent of the country's ST population (Census 2001). Andhra Pradesh is home to 35 tribal communities. Out of 35 tribes, the major tribes are the following:

- Gond,
- Koya,
- Sugalis,
- Yanadis
- Yerukulas.

The following twelve tribes have been recognized as particularly vulnerable tribal groups (PVTGs):

- Bodo Gadaba,
- Gutob Gadaba,
- Bondo Poraja,
- Khond Poroja,
- Parangiperja,
- Chenchu,
- Dongaria Khonds,
- Kuttiya Khonds,
- Kolam,
- Kondareddis,
- Konda Savaras
- Thoti.

Although the health status of tribal populations is poor, those of the particularly vulnerable tribal groups (PVTGs) is even worse. This is because of the isolation, remoteness and being relatively unaffected by the developmental process in India.

Tribal communities are highly disease-prone and have less access to basic health facilities compared to others. Communicable and non-communicable diseases are prevalent in tribal areas of Andhra Pradesh. Sujata Rao has observed that the tribals suffer TB and malaria disproportionately to their population – the rate of incidence of TB among tribals is estimated to be double that of non-tribal populations. The case incidence of malaria, mostly of P Falciparum variety, is estimated to be over 18 per 1000, accounting for 75 per cent of the state's total deaths on account of malaria (Sujata Rao; 1998).

The district of Warangal has an area of 12,846 sq. km., and constitutes 4.46% of total area of united Andhra Pradesh, India. The district is bounded by Karimnagar district to the north, Khammam district to the east and southeast, Nalgonda district to the southwest, and Medak district to the west. The population is 35, 22, 644 of which 28.33% was urban and 71.67% rural (2011 Census). The scheduled castes population is 16.9% and scheduled tribes population is 14.07%. The overall Literacy Rate is 60.01%. The district has five revenue divisions, 51 mandals and 1,014 grama panchayats. The tribal population in the district is 4, 57, 675. The Integrated Tribal Development Agency (ITDA) Eturnagaram looks after overall welfare and development of tribal population. In Warangal district there are 70 primary health centers out of which 17 are tribal PHCs and four area hospitals, 12 community health centers to cater the services

to the needy. 16 community health & nutrition clusters were formed for effective monitoring and supervision.
In the Warangal district major health problems in tribal area are the following:

- Malaria,
- Dengue,
- Viral fevers and liver cirrhosis,
- White discharge,
- Joint pains,
- Tuberculosis
- Health problems arising out of anemia and nutritional deficiency.

In the district the tribal areas are an endemic area for vector-borne and water-borne diseases. A perusal of the National Rural Health Mission (NRHM) monthly progress reports suggests that the proportion of tribal population subject to seasonal fevers, diarrhea and other water-borne diseases and TB is higher in the sub-plan area compared with the district average. The number of villages classified as 'high risk' in the Tribal Sub-plan (TSP) area was 128. The National Rural Health Mission monthly reports suggest the Human Immunodeficiency Virus (HIV) positivity rate among Ante Natal Care (ANC) as 0.5%. Among men and non-ANC women tested the HIV positivity rate was 4.2% and 4.7% respectively. On the average, 3.4% of those tested during the last three months were reported to be HIV positive. This data suggest that the HIV epidemic is spreading to general population in the district. The proportion of women and children suffering from anemia is relatively higher in the sub-plan area. The seriousness of anemia and nutritional deficiencies can be gauged based on the demand for in vitro fertilization (IVFs) by the patients in the community health centers, primary health centers and sub-centers. About 25% of the patients at these facilities seek IVFs.

With the advent of 108 services the rate of institutional deliveries increased substantially in the district. The Maternal Mortality Rate (MMR), the Infant Mortality Rate (IMR) and the neonatal mortality rate clearly reflect the relatively poor health status of the people inhabiting the district *(Table 1)*. The condition of tribes that live in far remote and inaccessible areas would be no better. Which means, the tribal area has to go a long way to achieve the Reproductive and Child Health (RCH-II) objectives of reducing IMR to 25, MMR to 0.80 and neonatal mortality to 20 per 1,000 live births. Despite the phenomenal expansion in the primary and secondary health care services, the registered and unregistered medical practitioners continue to hold sway over the tribal areas.

Table 1: Key Health Outcome Indicators for Warangal District

S. No.	Outcome Indicator	Indicator Value
1.	Maternal Mortality Rate (per 1,000 live births)	1.87
2.	Infant Mortality Rate (per 1,000 live births)	51.9
3.	Neonatal Mortality Rate (per 1,000 live births)	37.5
4.	Proportion of Institutional Deliveries (%)	98.0
5.	Full Immunization against 7 Vaccine-Preventable Diseases (%)	54.0

Note: ITDA area covers non-tribal communities also.
Source: DM&HO, Warangal and ITDA, Eturnagaram

Access to Sub-Centers in Eturnagaram
Sub-center, also known as a sub-health center, is the first contact point between the primary health care system and the community. As per government norms, there is one sub-center for every 5,000 people in plain areas and 3,000 people in non-plain areas, e.g. hilly and tribal areas. It is the most peripheral of the service delivery, with referral system linking it to the primary health center, which caters to 20,000–30,000 population. A sub-center is the most accessible health care center to the community at the grass-root level and provides all the primary health care services. These health services include:

- Antenatal, natal and postnatal care,
- Immunization,
- Prevention of malnutrition and common childhood diseases,
- Family planning counseling and services.

They also provide drugs, free of cost, for minor ailments such as diarrhea, fever, worm infestation. The sub-center also carries out community needs assessment. Added to the above, the government implements several programs, both national health and family welfare related, that are being delivered through these sub-center workers (Price Waterhouse Coopers, 2008f).

However, in the tribal area of Warangal district, with a total of 108 sub-centers, the average population for a sub-center was about 3,330. With regard to the scheduled mandal, Mangapet, each sub-center covered on an average 3,088 population. Similar to the condition prevailing in the case of the primary health centres, some sub-centers were covering more population and others were covering less population. For example, within 8 sample sub-centers, the Chinaboinapalli sub-center under the Kannaigudem primary health centre covered about 3,400 population as compared to 1,800 population covered by the Narasapur sub-center under the Tadvai primary health centres (Table 2). These deviations need to be corrected by identifying the underserved mandals and gram panchayats for locating additional sub-centers.

Table 2: Geographical Distribution of sub-centers in the District

S.N.	Particulars	District	ITDA	Scheduled Area
1	Population	32,46,004	3,59,650	40,043
2	Sub-centers	641	108	13
3	Average population per sub-center	5,063	3,330	3,088

Source: DM&HO, Warangal and ITDA, Etur Nagaram.

On an average, 2,700 population depended on each of the eight sample sub-centers. All the sub-centers were located within the sanctioned village. Though the population covered by the Monraigudem sub-center was less than the target norm of 3,000 population, the distance of the farthest village coming under the sub-center was 15 km to the centre, rendering outreach work of 2 Multi-Purpose Health

Assistant (MPHAs) difficult. This indicated the need for relocating the sub-centers or starting of additional sub-centers rather than simply sanctioning the sub-centers as per the population norm meant for the tribal areas. The average distance between the sub-centers and the primary health centres was about 19 km. But the sample sub-center of Chinaboinapalli and Medaram were located at a distance of about 40 km to the concerned primary health centres. This also the indicated the futility of just taking population criteria ignoring the distance while locating the new sub-centers.

Table 3: Functional Facility Indicator for Sub-Centers

S. No.	Indicator	SC 1	SC 2	SC 3	SC 4	SC 5	SC 6	SC 7	SC 8	Average
1.	Population covered	1,800	1,821	2,539	2,793	3,247	3,327	2,714	3,403	2,706
2.	Location	All within the SC sanctioned village								
3.	Distance from farthest village (km)	8	5	8	15	5	2	6	4	6.6
4.	Distance from PHC (km)	14	39	10	10	12	6	20	42	19.1
5.	Distance from CHC (km)	25	35	25	25	45	37	15	8	26.9

Note: SC1 (Narsapur), SC2 (Medaram), SC3 (Otai), SC4 (Monraigudem), SC5 (Narasimha Sagar), SC6 (Mallur), SC7 (Kanthanapalli) and SC8 (Chinaboina Palli) Source: Sample sub-centers

Infrastructure in Sub-Centers

None of the 108 sub-centers was located in a pre-designed and constructed public building. All the eight sample sub-centers were located in single room premises, each measuring not more than 10x10 sqft. About 50% of them were located in vastly run-down buildings with poor sanitation around. There was no separate labour room or examination room. The only room available was used for all purposes. The common room was found to be congested in all the sub-centers with equipment and furniture. None of them had a compound wall.

Monthly rent for the accommodation of the sub-center varied between Rs.100 to Rs. 200. There was a considerable delay in the payment of rents due to pending of release of grants. However, Multi-Purpose Health Assistants (Female) were paying the rents to avoid vacating the premises. Hence, it would be appropriate to construct the buildings for the sub-centers. Meanwhile steps need to be taken for the release of grants meant for rent on a monthly basis and raise the amount of rent reasonably, so as to accommodate the sub-centers in better premises.

Table 4: Condition of Physical Infrastructure of Sub-Centers

S. No.	Sub-Centre	Monthly rent (Rs)	Type	Compound wall	Condition of plastering	Condition of flooring	Sanitation around
1.	Narsapur	100	Tiled	None	Only bamboo curtain	Run down	Very poor
2.	Medaram	150	Tiled	None	good	Good	Very poor
3.	Otai	150	Tiled	None	Run down	Run down	Very poor
4.	Monraigudem	100	Tiled	None	Run down	Run down	Very poor
5.	Narasimha Sagar	150	RCC	None	Run down	Run down	Very poor
6	Malluru	150	Sheeted	None	Good	Good	Very poor
7	Kanthana palli	150	Tiled	None	Run down	Run down	Very poor
8	Chinaboina palli	150	Tiled	None	None	Run down	Very poor

Source: Sample SCs

The rented premises were not spacious enough to accommodate all the furniture and equipment. As a result, the furniture and equipment were not put to full use in almost all the sample sub-centers, partly defeating the very purpose of supplying the equipment under Rashtriya Sam Vikas Yojana (RSVY). Even the furniture supplied prior to RSVY was found under-utilized and the sub-centers were virtually crowded with the available furniture and equipment. Further, as the deliveries were not conducted in the sub-centers, the labour table and the related equipment were not put to use in the sample sub-centers.

Complementary Facilities in Sub-Centers

Availability of the complementary facilities would help in extending quality services to the people by the sub-centers. For example, the tickler bags would help in the monitoring of month and week-wise time-table of all the infants and the children eligible for immunization and for the provision of immunization services. Likewise, the display boards would help in easy recognition of the sub-center and timings of the center. Similarly, provision of a waste disposable pit would help in safe and easy disposal of medical waste. The electricity connection would help in extending the services at late hours also. Other facilities like water and a functional toilet would help the staff in discharging the responsibilities at the sub-center to provide better services to the patients.

Table 5: Availability of Complementary Facilities in Sub-Centers

S. No.	Sub-Center	Water	Electricity	Functional toilet	Waste disposal pit	Display board
1	Narsapur	Tap	No	No	No	No
2	Medaram	Well	Yes	No	Yes	No
3	Otai	Tap	Yes	No	Yes	No
4	Monraigudem	Tap	Yes	No	Yes	No
5	Narsimhasagar	Tap	Yes	No	Yes	Yes
6	Mallur	Tap	Yes	No	Yes	Yes
7	Kanthanapalli	Bore well	No	No	No	No
8	Chinaboinapalli	Well	No	No	Yes	Yes
% sub-centers with facility		100	62.5	0	75.0	62.5

Source: Sample sub centers

The sub-centers had no complementary services of significance. Only four sub-centers had tickler bags meant

for month-wise positioning of the immunization cards of infants and children eligible for immunization. Only two of these sub-centers properly utilized the tickler bags, and the bags at the other two sub-centers were hanging to the wall without any cards. Five of the sub-centers had piped water facility, but the supply was restricted to just an hour a day.

There was no electricity connection in three of the eight sample sub-centers. In case of other sub-centers, its availability was restricted by the power cuts. None of the sub-centers had landline telephone connection. Except a few sub-centers like the one in Medaram, all others had mobile phone connectivity. None of the sub-centers had a functional toilet or a waste disposal pit. Only three sample sub-centers had display boards.

Human Resources in Sub-Centers

The availability of the human resources in all the sub-centers was not uniform (Table 6). In three sub-centers, the responsibilities of MPHAs (Female) were handled by only one, while the position of the first MPHA (F) was vacant at Kanthanapalli and second position was vacant at Monraigudem and Chinaboinapalli sub-centers. The MPHA (Male) position was vacant in five of the eight sample sub-centers. These vacancies were affecting the provision of intended services at the sub-centers, especially, the conduct of health awareness camps, mobilization of the patients for sterilization operations and institutional deliveries and in the provision of medicines to minor ailments. Hence, there was a need for immediate filling of the vacancies of Multi-Purpose Health Assistants (MPHAs).

Table 6: Staff Position in Sub-Centers

S. No.	Sub-centre	MPHA (F-1)	MPHA (F-2)	MPHA (M)
1	Narsapur	In position (C)	In position (C)	Vacant
2	Medaram	In position	In position (C)	Vacant
3	Otai	In position	In position (C)	In position
4	Monraigudem	In position	Vacant	In Position (C)
5	Narasimha sagar	In position	In position (C)	Vacant
6	Mallur	In position	In position (C)	In position (C)
7	Kanthanapalli	Vacant	In position (C)	Vacant
8	Chinaboinapalli	In position	Vacant	Vacant
% of vacancies to total		12.5	25.0	62.5

Note: C - Contract basis; V - Vacant.
Source: Sample sub-centers

Availability of Multi-Purpose Health Assistant (MPHA)

The place of residence of the multi-purpose health assistants had an important bearing on their functional effectiveness. Provision of the preventive and curative services could be optimized only when the staff was available round the clock at the sub-center, which implied residing within the sub-center village. If the MPHAs resided close to the sub-center, the members of the community could go to the sub-center seeking curative services rather than going to the registered medical practitioners (RMPs) or quacks.

None of the eight sample sub-centers had residential quarters for the MPHAs. Only 25% of MPHA (Female-1), 37.5% of MPHA (Female-2) and 12.5% of MPHA (Male) were reported to be residing in the sub-center villages. All others were found traveling either from the PHC headquarters or from other villages, often reducing the duration of their availability at the sub-center. All this suggested the need for the construction of residential quarters for the staff of the sub-centers or construction of sub-centre cum residence to the MPHA (Female).

Table 7: Place of Residence of Staff of Sub-Centers

S. No.	Designation	SC 1	SC 2	SC 3	SC 4	SC 5	SC 6	SC 7	SC 8
1	MPHA (F-1)	14 km	On site	5km	2km	12km	On site	-	8km
2	MPHA (F-2)	On site	On site	On site	-	12km	6km	35km	-
3	MPHA (M)	-	-	On site	20km	-	5km	-	-

Note: SC 1(Narsapur), SC 2 (Medaram), SC 3 (Otai), SC 4 (Monrai gudem),SC 5 (Narasimha sagar), SC 6 (Malluru), SC 7 (Kanathana palli), SC 8 (Chinaboina palli). Source: Sample sub-centers

The MPHA (Female) were also found traveling long distances for collecting the vaccines from the PHCs that had cold storage facility and returning the unused stock the same evening. This also affected the availability of the MPHAs at the sub-centers.

Accredited Social Health Activist (ASHAs) in Position

Identification and training of the ASHAs had an important bearing on achieving the National Rural Health Mission (NRHM) objectives. The ASHAs were expected to be identified from among the members of the target community. The honorarium for the ASHAs was linked to their performance. Mis-identification of the ASHAs implied a poor service to the target community. The ASHAs were expected to be trained in ANC and PNC care, infant and child immunization for vaccine-preventable diseases, mobilizing pregnant women for institutional deliveries, promoting family planning methods and curative service for minor ailments. The ASHAs in all the sample sub-centers were identified from among the stakeholders. However, the minimum training that they were provided with was not sufficient. Hence, the ASHAs required full training in undertaking their responsibilities effectively.

Table 8: ASHAs in Position

S. No.	Indicator	Tadvai	Kothaguda	Chunchupalli	Kannaigudem
1.	No. of ASHAs in position	25	31	14	43
2.	No. of ASHAs provided minimum training	25	31	14	43
3.	No. of ASHAs provided incentive	-	-	9	43
4.	No. of clinics organized (for ANCs, immunization and RTI/STI)	-	-	-	16

Source: PHC Survey Schedule

Capacity of ASHAs

During fieldwork a special interactive session conducted with the ASHAs at the Kothaguda PHC indicated that they were aware of proper use of oral rehydration salt (ORS), but not of home remedies for minor ailments. They were aware of the need for avoiding physically strenuous work for seven days after tubectomy, but not of post-vasectomy precautions. Further, the assessment of the training provided to the ASHAs revealed that it was part of a routine monthly review meeting rather than a structured training program. There was a sharp inter-personal variation among ASHAs in terms of education and the levels of awareness, calling for a closely monitored training program. The ASHAs had a tendency to work only in those areas which were linked to their incentive payments that led to relative neglect of other important areas such as preventive health care, personal hygiene and health awareness education.

Functioning of ASHAs

The ASHAs were expected to provide ANC, PNC and immunization services apart from mobilizing the ANCs for institutional deliveries. With regard to the curative services the ASHAs were told to maintain separate transparent plastic boxes to keep different medicines with proper labeling, their usefulness and dosage. However, no such practice was observed in the field. Hence, the supply of boxes may help promote practice the same. As revealed in the FP figures available in District Medical & Health Officer (DM&HO) office and confirmed by the FP camp in the Kothaguda PHC, more men were coming forward to undergo No Scalpel Vasectomy (NSVs). This implied the need for training the ASHAs in dealing with men on sensitive issues related to sterilization.

The ASHAs were found supporting the MPHA-F in immunization, provision of ANC services, PNC visits and mobilization for institutional deliveries. There was a tendency on the part of the MPHA (Female) to delegate certain responsibilities to the ASHAs. The ASHAs complained of non-payment of monthly honorarium, incentive and Rs.40 for attending the meetings at the PHCs.

Equipment in Sub-Centers

There were two aspects related to the equipment - the availability of equipment and the proper use of the same. The gaps in the availability of equipment and furniture indicated the limitations under which the sub-centers were functioning while discharging the services. The minimum equipment required for running a sub-center was an examination table, a labour table, a medicine chest, a BP apparatus, sterilizers and infant and adult weighing machines. Though deliveries were not taking place, the availability of disposable delivery kits would help in undertaking deliveries in case of emergencies. None of the sample sub-centers were having examination tables. Labour tables were used for examination of the patients in cases of necessity. As 50% of the sub-centers were not having almirahs, the records, equipment and medicines were kept in the cardboard boxes used to bring the drugs and other material to the sub-center from the PHCs. However, all the sub-centers reported having BP apparatus and infant and adult weighing machines.

Basic furniture such as a table, a stool for the patient and chairs for the staff and patients is essential in the sub-center. Except Otai, no other sub-center had furniture to record; minimum furniture of four chairs was purchased by using the Untied Fund in Otai. Shortage of minimum equipment and furniture in the sub-centers indicated the need for taking immediate steps for procurement and supply of the same. However, most of the available equipment and furniture remained underutilized due to small and crowded premises; equipment like infant and adult weighing machine was kept under wraps and was placed on labour table in 50% of the sub-centers.

Table 9: Availability of Equipment and Furniture in Sub-Centers

S. No.	Equipment /Furniture	Narsapur	Medaram	Otai	Monrai gudem	Narasimhasagar	Malluru	Kanathana palli	Chinaboina palli
1	Examination Table	N	N	N	N	N	N	N	N
2	Medicine Chest	Y	N	N	N	Y	Y	N	N
3	Labour Table	Y	Y	N	N	Y	Y	N	N
4	Almirah	Y	Y	Y	Y	N	N	N	N
5	BP Apparatus	Y	Y	Y	Y	Y	Y	Y	Y
6	Sterilizers	N	N	N	N	N	N	N	N
7	Weighing Machine (adults)	Y (not working)	Y	Y	Y	Y	Y	Y	Y
8	Weighing Machine (Children)	Y	Y	Y	Y	Y	Y	Y (given to AWC)	N
9	Disposable delivery kits	N	N	N	N	Y(2)	Y(1)	N	N

Source: Sample SCs

Services Provided by the Sub-Centers

The sub-centers were expected to provide basic services such as the following:

- ANC registration and check-ups,
- Mobilization for institutional delivery,
- Postnatal check-ups,
- Infant immunization and provision of school/hostel health services,
- Promotion of family planning methods and distribution of condoms,
- Support for sanction and release of the jsy financial incentive,
- First-aid and treatment of minor ailments,
- Disease surveillance and
- Support for cleaning the water resources.

In Narsapur, Medaram, Otai, Narasimha Sagar and Malluru sub-centers, the work was found to be distributed between the two female MPHAs. Each one was found responsible for all the outreach services in specific villages. Services of the second MPHA (Female) of all the sub-centers under Chunchupalli PHC were used in turns at the PHC; each one attended the PHC one week in a month. These MPHAs were assigned the responsibility of the pharmacist on rotation basis in the absence of a regular Pharmacist.

Interactions with the local inhabitants suggested that immunization and ANC services were satisfactorily provided. As the immunization schedule was pre-fixed and target oriented, the sub-center staff were found visiting the habitations as per the schedule, though in some cases the schedule was not followed strictly. They were also found mobilizing the ANCs for institutional deliveries. With regard to the FP program, the staff of the sub-centers was found mobilizing the men and women to FP camps. The staff was also found accompanying the eligible candidates to the FP camps. There were no complaints with regard to the distribution of condoms. Health-days were conducted at AWCs, once in a month in all the sub-centers. MPHA-F of Otai conducted Gravendex Test for early detection of pregnancy. The test helped rapport building and regular ANC visits. It also helped in avoiding the problems like missing registration during first trimester.

However, several inhabitants of the village under the sub-centers complained about the non-availability of the MPHA-F during times of emergency (both day and night) to provide first-aid and curative services to minor ailments. School health programs were more or less neglected and the communities were not given any inputs on preventive health care and home remedies for minor ailments. Salaries of the MPHAs employed under contract basis were paid once in three or four months. For example, salaries for the months of April, May and June were paid during October 2009 and salaries of July, August and September remained unpaid till October end. Such payments restricted the regular fieldtrips of the MPHAs. Within a month of receiving their salary of three or four months, they spent the whole amount and were found borrowing money for further visits. Sometimes field trips were not taken up as they were not able to borrow.

The communities served by the sub-centers were found utilizing the curative and first aid services offered by the sub-centers. The community members also expressed that the number of patients visiting the RMPs for curative and first-aid services declined significantly due to the establishment of sub-centers and the services made available there. An important lacuna was the functional redundancy of sub-centers located in the PHC headquarters' villages. A majority of the sample sub-centers located in the PHC headquarters were found to be vastly under-utilized. People living in the PHC headquarters' villages had a strong tendency to prefer the PHC for immunization, ANC and other services rather than the sub-centers. The PHCs on the other hand, were found using the services of MPHA (Female) and MPHA (Male) of the sub-center in the PHC itself, virtually reducing the utility of the sub-centers.

Treatment of Malaria

Except Otai and Chinaboinapalli, no other sub-center was found collecting blood for testing for malaria parasite. Common complaint in this regard was that the necessary slides were not available; neither old slides were washed nor new slides supplied. All the patients complaining of fever and chills were given Chloroquine tablets, irrespective of the parasitic status in their blood increasing the scope for the occurrence of drug resistance and reactions. Subjecting all the patients to Chloroquine tablets could have been avoided if only the blood smears were collected and tested.

Supply of Drugs

The MPHAs (Female) collected the drugs during their visits to the PHCs. Each sub-center was supplied about 15 to 25 different types of drugs for treating common ailments like fever, body aches, diarrhea, vomiting, gastritis. However, no uniformity was observed in the availability of drugs. Availability of the specific drugs depended on the choice of MPHA (Female). The sub centers of Medaram and Otai were provided IVFs also. However, all the sub-centers were commonly provided with oral contraceptive pills, condoms and copper-Ts. The drugs were supplied on a monthly basis.

In most sub-centers there was shortage of important drugs such as Paracetamol, Mebendazole, Methylergometrine, Cotrimoxazole and IFA tablets, Povidone Iodine ointment and vitamin-A solution. At the community level drugs were available with the MPHA (Female-2) and the ASHAs. In any case, people inhabiting the distant locations did not have ready access to the full range of drugs and services for the treatment of minor ailments and emergencies. The drugs were handed over to the Accredited Social Health Activist (ASHAs) to be issued to the patients living within their habitations.

Janani Suraksha Yojana (JSY) Incentive Sanctioned and Released

The financial incentive provided to the women who delivered in the public and private institutions under Janani Suraksha Yojana (JSY) scheme was not disbursed to them within a reasonable period after delivery. Several post-natal women were required to visit the hospitals repeatedly to claim the amount. There were delays in the disbursement due to the non-release of grant and other administrative reasons. There were also instances of PNC and their men abusing the paramedical staff of "swallowing" the incentive amount. This spoiled whatever little goodwill the staff and the community shared. It is therefore imperative that the JSY incentive be released and disbursed in time i.e. at the time of discharge from the hospital after delivery.

Services of MPHA-M

On the whole, the role of the MPHA (Male) was relatively light compared to the MPHA (Female). The important tasks to be performed by the MPHA-M included;

- Collection of blood smears for malarial parasite testing,
- Conducting outreach activities and
- Conducting chlorination of water sources,
- Motivation for family planning,
- Distribution of condoms and
- Undertaking door-to-door health education campaigns against HIV, TB, Diarrhea, Malaria and other water-borne and vector-borne diseases.

In a few sub-centers both the MPHA (Female) and MPHA (Male) were visiting the villages for outreach work together, although they were expected to visit the villages in a clock-wise/anti clock-wise manner independently; for example Otai under Kothaguda PHC. Vacancies of the MPHA (Male) positions in the sub-centers contributed to the negligence of outreach activities.

Medical Officers Visiting to Sub-Centers

Though the medical officers (MOs) were expected to visit each sub-center at least twice a month to conduct clinics and provide support and supervision to the MPHA (Female) and the MPHA (Male), they visited only once. The community members of the sample sub-center villages also indicated that the MOs visited the sub-center i.e. the main village once in a month but did not visit the other villages attached to the sub-centers. However, the visit of the MOs to the sub-centers affected the service delivery at the PHCs. In case of Chunchupalli PHC, when the MO visited a sub-center she did not attend the PHC. It was noted by the paramedical staff of Chunchupalli PHC that, in the pretext of visit to the sub-centers the MO did not attend the PHC. The MO, however, indicated that they would be able to undertake frequent visits to the sub center only if a second MO was appointed to the PHC and a dedicated transport facility provided. The Medical Officers opined that the newly recruited staff nurses and lab technicians were not able to perform their responsibilities based on their educational qualification. Their performance was failing due to their inadequate knowledge and experience in discharging the responsibilities that they required to perform. This indicated need for providing induction training to these paramedical staff.

Maintenance of Records

The entire eight sample sub-centers maintained the National Rural Health Mission (NRHM) records. Perusal of the records showed that all the five records were maintained in a single book. The information in the records was found to be regularly filled. However, not all the MOs put in their signature as a mark of verification of these records. Interactions with the sub-center staff revealed that none of the MOs verified the reliability of the records prepared by them. Only the sub-centers of Kanthana Palli and Chinaboinapalli maintained the OP Registers, but none maintained the Movement Register of the staff and Stock Registers of the equipment, the furniture and the drugs. This situation led to three important problems:

- The record of the drugs administered to the patient was not sent along with them in case of referral;
- The drugs found their way to RMPs in Otai two years ago, which was a fact shared by the Village Organization (VO) leader of the Otai village;
- The monitoring of movement of the MPHA (Female) and the MPHA (Male) became difficult.

None of the sub-centers prepared the village health plans or sub-center health plans, thereby missing the calendar of seasonality of diseases.

Utilization of Untied Funds by the Sub-Centers and Gram Panchayats

The Untied and the Village Health and Sanitation Committee (VHSC) funds were meant to undertake preventive health care activities and meet the expenditure that could not be met within the sanctioned budget meant for specific purposes. The community members were expected to play an effective role in proper utilization of these funds.

The untied and the VHSC funds provided to each sub-center/gram panchayat were reported to have been utilized for drainage clearance, purchase of Bytex spray and bleaching powder, clearance of drains and filling of small pits with sand and soil. Most of the expenditure was in the nature of non-verifiable items. There was also a tendency to utilize the amounts for low priority items by the sub-centers, defeating the very objective of the untied funds. Instances of elected leaders of Panchayat Raj institutions interfering and causing leakages to the fund were brought to the notice of the study team. For instance, MPHA (Female) of Narsapur and Medaram sub-centers under Tadvai PHC handed over the amounts to the concerned sarpanchas. Expenditure was incurred on certain items which were not approved in the guidelines. For instance, salaries of the health volunteers of Narasimha Sagar and Chinaboinapalli sub-centers were met from these funds during 2007-08. The community was rarely involved in the expenditure decisions. The VHSCs were not convened to discuss the issues relating to utilization of the funds. No sample sub-center incurred expenditure from VHSC fund on the conduct of household surveys, preparation of village health plans and organization of health camps. None of them used funds for procurement of drugs in case of emergencies or in chlorination of water.

Table 10: Utilization of Untied Funds in Sub-Centers

S. No.	Expense Head	Narsapur	Medaram	Otai	Monrai Gudem	Narasimha Sagar	Malluru	Kanathana Palli	Chinaboina palli
1.	Bytex Spray	Did not receive any funds	X	✓	✓	X	X	Did not receive any funds	X
2.	Drainage Clearance		✓	X	✓	✓	✓		X
4.	Clearing of the bushes		X	X	✓	X	X		X
6.	Cleaning of Drinking Water Tanks		✓	X	X	X	X		X
7.	Bleaching Powder		✓	✓	✓	X	X		X
8.	Sprayer		✓	X	X	X	X		X
9.	Fogging		X	X	X	✓	X		X
10.	Furniture		✓	X	X	X	X		X
11.	Equipment		X	✓	X	X	X		✓
11.	Salaries		X	X	X	✓	X		✓
12.	Stationary		X	X	X	X	X		✓

Source: Sample SCs

3. Conclusion and Policy Implications

Health and economic wellbeing are inter-dependent. The poor living standards of the scheduled tribes of Etur Nagaram Integrated Tribal Development Agency area have a direct bearing on their health status. The population of Etur Nagaram ITDA in general and the tribes in particular were experiencing a very high morbidity due to water-borne and vector-borne diseases and other vaccine-preventable diseases. It is evident that innovative steps have been taken to shape the future health status of the population in Andhra Pradesh. In the State of Andhra Pradesh the healthcare sector shows a tremendous improvement, for the last few decades. Despite these improvements, the State still faces the following many issues and gaps in the healthcare delivery system in tribal areas.

On an average, each sub-center catered to about 3,330 population, with some covering more than 4,000 population. With regard to the scheduled area, each sub-center covered 3,088 population, indicating better access to the sub-centers. All the eight sample sub-centers were located within the sanctioned main village. The distance from the farthest village to the sample sub-center was 15 km. The average distance between the sub-centers and the farthest villages covered by respective centers was 4 km. The average distance between the PHCs and the sub-centers was 13 km and the average distance between the sub-centers and the CHCs was 37 km. This indicated the need for provision of additional PHCs based on their physical distance from the villages rather than only the population covered.

There were no public buildings designed and constructed for the sub-centers and all the 108 sub-centers in the ITDA were located in rented buildings. All the eight sample sub-centers were accommodated in single rooms, each measuring not more than 10x10 sqft. About 75% of the sample sub-centers were located in vastly run-down buildings with poor sanitation in and around. Out of the eight sub-centers, six need to be shifted to different premises immediately due to the poor physical condition of the present premises. Only 50% of the sample sub-centers had a labour table and the same was being used as an examination table. Almirahs were available in 50% of the sample sub-centers. All the sample sub-centers had BP apparatus and adult and infant weighing machines. There was hardly any furniture. The available equipment and furniture was also not put to optimal use due to small physical size of the accommodation.

Of the eight sample sub-centers only two were found using tickler bags meant for month-wise positioning of the immunization cards of the children. Five of the sub-centers had piped water facility, but the water supply was restricted to an hour a day. Two sub-centers did not have electricity. None of the sub-centers had a functional toilet. Only two sub-centers had display boards. In two sample sub-centers, the responsibilities of the two MPHA (F) were undertaken by one. The position of the first MPHA (F) was vacant at Kanthanapalli, while the position of the second MPHA (F) was vacant at Monraigudem. The MPHA-M position was vacant in five of the eight sample sub-centers. Due to these vacancies, the quality of services was affected. None of the eight sample sub-centers had residential quarters for the MPHAs. Only 25.0% of MPHA (F-1), 37.5% of MPHA (F-2) and 12.5% of MPHA (M) were residing in the sub-center villages. All others were found traveling either from the PHC headquarters or from other villages, often reducing the duration of their stay at the sub-centers. Non-availability of the staff during nights and emergencies forced the patients to approach RMPs.

Communities perceived that services by the sub-centers with regard to ANC registration, ANC check-ups and mobilization for institutional deliveries did improve substantially, but other areas like school/hostel services, preventive and curative health care, JSY payment remained neglected. Only the MPHA-F of Otai conducted Gravendex Test for early detection of pregnancy. The test helped rapport building and regular ANC visits. It also helped in overcoming the problem of missing of registration during the first trimester. The Otai MPHA (F) was also found giving IVF(s), minimizing the people going to the RMPs. Among the important responsibilities allotted to the sub-centers, collection of blood smears for malarial parasite was under-performed (one centre, namely, Otai alone provided the service). Community members were found approaching PHCs for emergencies, first aid, treatment of minor ailments and ANC and PNC services. The sub-centers under these PHCs were found canvassing for family planning and distribution of condoms and oral contraceptive pills only. Important tasks performed by the MPHA-M included motivation for family planning, distribution of condoms and undertaking health education campaigns against HIV, TB,

diarrhea, malaria and dengue and other common preventable ailments.

Salaries of MPHAs (F) on contract employment were being paid once in three or four months. Within a month of receiving the salary, they exhausted the amount for repaying loans taken during the previous three or four months. Delay in payments restricted the regular fieldtrips of MPHAs as they had no money to undertake field trips during the subsequent months. As such it is necessary to pay the salary every month rather than paying in lump sum. In the sub-centers with two MPHA (F) the work was found to be shared between them by dividing the villages. Unofficial deployment of second MPHA (F) at the PHC was also observed, for example in Chunchupalli. The ASHAs were found supporting the MPHA-F in immunization, provision of ANC services, PNC visits and mobilization for institutional deliveries. There was a tendency on the part of the MPHA-F to delegate certain responsibilities to the ASHAs. However, the ASHAs were found neglecting important but non-incentivized areas such as the preventive health care, personal and water hygiene and health awareness education.

Each sub center was supplied, on an average, with 15 different types of tablets and injections for treating common ailments such as hypertension, malaria, body aches, gastroenteritis. No uniformity was observed in the availability of drugs. Availability of the specific drugs depended on the choice of the MPHA (F). The sub-centers of Medaram and Otai were provided IVFs also. However, all the sub-centers were commonly provided oral contraceptives and condoms. The drugs and other requirements were supplied once in a month. Shortage of primary drug, paracetamol, was observed in Narsapur. Drugs were made available with MPHA (F-2) and ASHAs. Except Otai, no other sub-center collected blood smears. A common complaint in this regard was that adequate number of blood smear slides was not made available. Chloroquine tablets were commonly issued to all patients visiting the sub-centers with fever and chills. Thus, causing drug resistance to the malaria parasite and drug reactions.

All the sub-centers maintained NRHM reports. Only Kanthanapalli and Chinaboinapalli sub-centers maintained the OP Registers. No sub-center maintained the Movement Register of staff and Stock Registers of equipment, furniture and drugs. In the absence of maintenance of necessary registers two important problems were observed. First, no record of drugs was provided to the patients in case of referrals. Second, monitoring of movement of MPHA-F, MPHA-M became difficult. None of them prepared the village health plans or sub-center health plans, thereby missing the calendar of seasonal occurrence of diseases.

The ASHAs were aware of proper use of ORS. Most of them were not familiar with other home remedies available for minor ailments. They were aware of the need for avoiding physically strenuous work for seven days after tubectomy, but not of the post-vasectomy precautions. The training provided to the ASHAs was part of a routine monthly review meeting rather than a structured training program. There was a sharp inter-personal variation among the ASHAs in terms of awareness, calling for a closely monitored training program.

On an average, the MOs were found signing the records of the sub-centers once in a month. The community members confirmed the monthly visits of the MOs to the sub-centers. The visit of the MOs to the sub-centers affected the service delivery at the PHCs. In the case of Chunchupalli PHC, if there was a visit to the sub-center the Medical Officer did not attend the PHC on that day. The Medical Officer indicated that they would be able to undertake frequent visits to the sub centers provided a second Medical Officer was given and a dedicated transport facility was made available.

The Untied and VHSC funds provided to each of the sub-centers was reported to have been utilized for purchase of Bytex spray and bleaching powder and clearance of drains and filling of small pits with sand and soil. Most of the expenditure was in the nature of non-verifiable and low priority items. There were instances of elected representatives of Panchayat Raj institutions being given the cash to undertake the above activities. Instances of payment of salary of the health volunteer from the funds were also noted. The community was rarely involved in the expenditure decisions. The VHSCs were not convened to discuss the issues related to utilization of funds. No sample sub-center incurred expenditure on the conduct of household surveys, preparation of village health plans and organization of health camps. None used the funds for procurement of drugs or chlorination of water.

There was no coordination between the health staff, the RWS and the gram panchayats with regard to sanitation, supply of clean drinking water and dealing with the mosquito menace. There was no coordination between the DCHS, the DM&HO and the ITDA office in the purchase of drugs and equipment and utilization of the services of the staff. The incentive amount under JSY scheme was not disbursed to the PNCs within a reasonable period after delivery due to non release of the funds. Several post-natal women were required to visit the hospitals repeatedly to claim the amount, and some post-natal women accused the paramedical staff of misusing the incentive amount. Major health complaints in the ITDA were the following:

- Vector-borne and water-borne diseases,
- TB,
- Gynecological problems,
- Anemia and physical weakness associated with food habits and lack of sufficient food.

Heavy alcoholism without taking the necessary diet further weakened the nutritional condition of the tribal population. Nutritional anemia is a common problem leading to complications in pregnant women, increased susceptibility to infections and reduced work capacity among the tribes. A considerable proportion of TB cases were reported to be relapsing or becoming defaulters because of poor complimentary diet. Manual recording and progress reporting systems continued. The PHCs were earlier supplied with computers, but the ITDA office took them back. There were no field level validity checks of the information furnished. Hard copies of the reports were not

maintained properly. The data collected was used for reporting to the government rather than for internal use.

The need for additional sub-centers may be examined, taking into account the current population estimates vis-à-vis the national norms. Sub-centers located in the PHC headquarters may be shifted to different places not having sub-centers. Construction of predesigned public buildings to accommodate the sub-centers needs to be taken up in a phased manner. All the sub-centers and ASHAs may be supplied transparent boxes to store the drugs. All the MPHA (F) needs to be trained in the conduct of Gravendex test for early detection of pregnancy. The ASHAs need to be systematically trained according to a training plan. Steps need to be taken for coordinating and preparing a comprehensive convergent health action plan by involving health staff, RWS and gram panchayats. Along with the sarpanchas, the local school teachers and the VO leaders need to be made partners in the decision-making with regard to the utilization of Untied and VSHC Funds at the sub-center level. Making this as an agenda item of VO meetings would help proper social audit of the funds. The fund earmarked needs to be spent through the VO rather than through the *panchayat sarpanch*. Steps need to be taken immediately for the release of pending JSY incentive. The JSY incentive needs to be paid immediately after delivery. It is the responsibility of every state to make efforts for raising the health standard and standard of living of the targeted population and the advancement of public health as its primary function.

References

[1] Bose K, Ganguly S, Mamtaz H, Mukhopadhyay A, Bhadra M. (2006). High prevalence of undernutrition among adult Kora Mudi tribals of Bankura District, West Bengal, India. *Anthropological Science*. Vol (114), 65-68
[2] Census (2001). *Andhra Pradesh: Data highlights: The Scheduled Tribes*. Office of the Registrar General and Census Commissioner. New Delhi.
[3] Praveen Nirmalan, B.R. Shamanna, and Saravanan, S. (2011). *Primary Health Centers in Andhra Pradesh: Capacity to Provide Reproductive Health Services.* Prashasa Health Consultants www.prashasa.co.in
[4] Price Waterhouse Coopers (2008f). *Review of Service Delivery Units and Performance Measurement*, Hyderabad, India.
[5] Neeru S., Aditya P.D., Krongthong T. (2009). Fighting malaria in Madhya Pradesh (Central India): Are we losing the battle? *Malaria Journal*, 8(93), 1-8.
[6] Sujata Rao. K. (1998). Health care services in tribal areas of Andhra Pradesh: A Public Policy Perspective. *Economic and Political Weekly*. Volume 33(9), 481-486.