DPHICON 2024

PUBLIC HEALTH - ENHANCING THROUGH SYNERGIES

A Comprehensive Tribal Health Care in Tamil Nadu

DIRECTORATE OF PUBLIC HEALTH AND PREVENTIVE MEDICINE

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“Strengthening the ties”- A Comprehensive Tribal Health Care in Tamil Nadu

PREFACE

As we stand on the brink of the DPHICON 2024 conference, it is with great anticipation that I introduce this important work on health services among tribal populations in Tamil Nadu. This book represents a significant contribution to our understanding of the unique health challenges faced by Scheduled Tribes, who comprise 8.6% of our nation's population, as highlighted in the 2011 Census. The authors of this book have meticulously examined various aspects of health service delivery, accessibility, and the specific needs of these populations. Through a comprehensive analysis, they shed light on the disparities and obstacles faced by tribal groups, especially in the context of the Particularly Vulnerable Tribal Groups (PVTGs), who often endure the greatest hardships.

This book emphasizes the need for integrated health services, culturally appropriate interventions, and community engagement to enhance health outcomes for tribal populations. In line with our mission to improve health equity, this publication serves as a vital resource for public health professionals, policymakers, and researchers. Together, we can work towards a health system that is inclusive, equitable, and responsive to the needs of all citizens, especially our tribal communities. I extend my heartfelt congratulations to the authors and all those involved in bringing this important work to fruition. May it inspire a renewed commitment to improving health services among tribal populations and drive meaningful change in our health systems.

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ABBREVATIONS

ANC	**Ante Natal Care**
ANM	**Auxiliary Nurse Midwifery**
ASHA	**Accredited Social Health Activist**
ATP	**Advance Tour Program**
CBC	**Complete Blood Count**
DEIC	**District Early Intervention Center**
HBNC	**Home Based Newborn Care**
HPLC	**High Performance Liquid Chromatography**
HSC	**Health Sub Center**
HWC-HSC	**Health and Wellness Center - Health Sub Center**
IMR	**Infant Mortality Rate**
ISFR	**India State of Forest Report**
JAS	**Jan Arogya Samiti**
JSSK	**Janani Shishu Suraksha Karyakram**
MMU	**Mobile Medical Unit**
NFHS	**National Family and Health Survey**
NGO	**Non -Governmental Organization**
PHC	**Primary Health Center**
PNC	**Post Natal Care**
PVTG	**Particularly Vulnerable Tribal Groups**
ST	**Scheduled Tribes**
TFR	**Total Fertility Rate**
U5MR	**Under 5 Mortality Rate**
VHNSC	**Village Health Nutrition and Sanitation Committee**

1.SCHEDULE TRIBES OF INDIA

According to the Census of India 2011, Scheduled Tribes population constitutes 8.6% of the total population of the country. At present, there are 705 scheduled tribes in the country. These can be divided into four major categories

1) Tribal people living in Schedule V areas and in tribal dominated blocks and districts (except PVTGs)
2) Tribal population in North- East India: The highest concentration of tribal population is found in the North-eastern states. The communities and their health and developmental issues in this region differ significantly from those in the rest of the country. Several of these areas are covered under Schedule VI of the constitution.
3) Particularly Vulnerable Tribal Groups: In 1975- 76, and thereafter in 1993, certain groups regarded as the poorest of the poor among the STs were identified as Primitive Tribal Groups, now called the Particularly Vulnerable Tribal Groups (PVTGs).13 The criteria fixed for the identification of such groups was: (i) Preagricultural level of technology (ii) Very low literacy levels; and (iii) Declining or stagnant population (iv) Subsistence level of economy. Currently there are 75 tribe's sub-groups in the country that are classified as PVTGs. They account for less than 0.6% of the households in the country. The state of Andhra Pradesh has the maximum number of PVTGs at 12.15%
4) Tribal People living outside the schedule area.

Currently, Odisha has the largest number of notified STs followed by Karnataka, Maharashtra, Madhya Pradesh and Chhattisgarh . Sikkim has the least with four tribes followed by Nagaland, Daman and Diu and Uttarakhand with five each. Among the South Indian States, Karnataka has the largest number of Scheduled Tribes followed by Tamil Nadu and Kerala.

1.1DISTRIBUTION OF TRIBAL POPULATION IN INDIA

Madhya Pradesh has the largest ST population. It accounts for 14.7% of total ST population in the country (over 15 million), followed by Maharashtra (over 10 million), Odisha and Rajasthan (over 9 million each). In fact, more than two thirds of the ST population live in the 7 states of MP, Chhattisgarh, Jharkhand, Odisha, Maharashtra, Gujarat and Rajasthan. However, the concentration

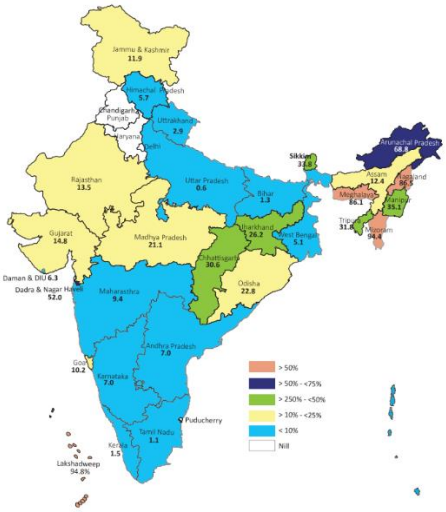
of tribal population is highest amongst the Northeastern states, particularly Mizoram (94.4%), Nagaland (86.5%), Meghalaya (86.1%) and Arunachal Pradesh (68.8%).

Table -1: Concentration of ST population across Districts in India (Statistical Profile of Scheduled Tribes in India, 2013)

S.NO	Percentage of ST Population	Number of districts
1	Less than 1 percent	55
2	Between 1 and 5 percent	282
3	Between 5 and 20 percent	134
4	Between 20 and 50 percent	79
5	50 percent and above	90
Total		640

There are 169 districts in which the ST population constitutes more than 20 per cent of the population, and 809 blocks where the ST population is more than 50 per cent.

Fig-1: Distribution of ST Population across various states (Source: Primary Census Abstract for Total population, Scheduled Castes and Scheduled Tribes, 2011; Office of the Registrar General & Census Commissioner, India)



The tribal population of the country continues to live pre-dominantly in hilly and forested areas. According to the ISFR 2013, over 37 per cent of the area in the 189 tribal districts of the country is covered by forests, as against the national forest cover of 21.23 per cent. The Northeast region, which constitutes less than 8 per cent of the geographical area of the country, accounts for nearly one fourth of its forest cover. Together the tribal areas account for almost 60% of the forest cover in the country.

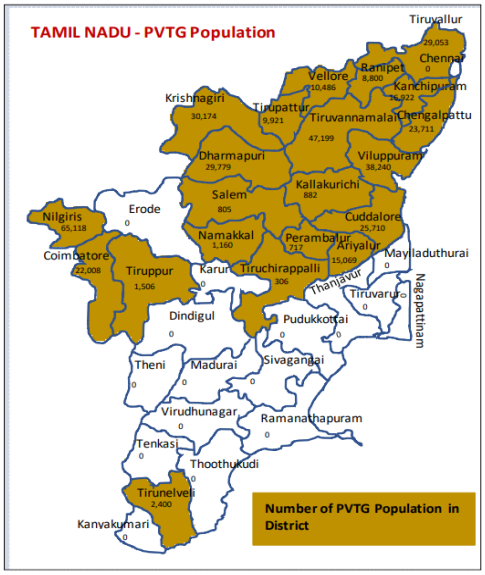
2.SCHEDULE TRIBES IN TAMIL NADU

The Government of India has identified to have 36 STs residing in 38 districts of Tamil Nadu. According to the 2011 census, 794,697 STs were living in Tamil Nadu, of which 401,068 were male and 393,629 were female. The rural and urban population of ST is 660,280 and 134,417, respectively, and the percentage of ST population in Tamil Nadu is 1.1% of the total population.

2.1Particularly Vulnerable Tribal Groups of Tamil Nadu

There are 36 groups of STs in Tamil Nadu, out of which six tribal groups, namely Todas, Kotas, Kurumbas, Irulas, Paniyas, and Kattunayakasare . When the number of tribal people of certain groups decreases or remains unchanged, they are called PVTGs. The rest of the tribal communities distributed throughout the country are called “dispersed tribes.

Fig-2: Distribution of PVTG Population in Tamil Nadu (Source: Directorate of Public Health and Preventive Medicine)



3.STATE OF HEALTH AND HEALTH CARE IN TRIBAL AREAS

There has been some improvement in tribal health indices over a period. Infant and child mortality have reduced, nutrition levels have improved, and more tribal people are seeking care. However, despite these strides, the tribal population continues to lag behind the general population, on both the socio-economic determinants of health, health outcomes and health system. The major observation from different health data of Tribal population of India are as follows

- The social determinants of health are heavily pitted against the health of the Scheduled Tribe population.
- The fertility rate has reduced to TFR 2.5 (NFHS-5) The IMR and U5MR have reduced significantly especially during the past twenty years. Yet, the improvements in health outcome indicators among the tribal population have been slower than those among the rest of the population.
- The IMR indirectly estimated based on the Census 2011, reveals it to be 20% higher in ST population than the non-ST population (74.3 Vs 61.7). It is indirectly estimated that in 2011, nearly 145,000 tribal children died in one year.
- On the epidemiological front, the diseases prevalent in tribal areas can be broadly classified in the eight categories -Malnutrition, Maternal and child health problems, Communicable diseases, Accidents and injuries, non-communicable illnesses, Mental health problems Hereditary and hemoglobinopathy diseases and specific diseases like silicosis
- Epidemiological Transition - It has long been believed that the tribal population seldom suffer from lifestyle diseases like cancer, diabetes and hypertension. However, there is evidence to suggest an early shift of the disease burden from what were regarded as diseases of underdevelopment- malnutrition, communicable diseases- to what are ostensibly the diseases of "affluence," i.e. the non-communicable diseases.
- Tribal cultures have a distinct heritage and their own systems of traditional healing which address both the mind and the body. They rely heavily on medicinal herbs. These traditional beliefs and methods, that are different from the modern scientific worldview, have a strong influence on the health practices and health seeking behavior and choices of tribal people.
- Organization of Public Health services - The distinct geographic and sociocultural environment of the tribal people not withstanding their healthcare needs and the

epidemiological patterns in tribal areas were neither documented nor analyzed for policy formulation. The schemes for rural areas were extended to the tribal areas with a simple revision in the population norms. Even this revision was often arbitrary and not based on actual studies. Therefore, there is no way of ascertaining whether the revised norms are sufficient to bridge the health gap in tribal areas.

- The mismatch between actual need, policy formulation and financing are often the result of a serious lack of data on health culture, morbidities, program implementation among the tribal people. Further, disaggregated expenditure data on tribal health is currently unavailable, making it difficult to ascertain whether quantum of funding provided is sufficient.

Therefore, restructuring and strengthening of the public health care system, in accordance with the needs and aspirations of the tribal communities, and with their full participation, should be the highest priority for the policy makers. Furthermore, thus far, planning for tribal development has been limited to special schemes or measures designated for tribal areas, ie districts, blocks and clusters with more than 50% tribal population. However, there is evidence to show that 55% of the tribal population in the country lives outside the tribal population. Moreover, there is an increasing movement of tribal people from scheduled to non-scheduled areas in search of education and livelihood opportunities. Thus, planning for Tribal Health also requires specific measures for tribal people living in non-tribal areas.

4.GOALS OF TRIBAL HEALTH CARE IN TAMIL NADU

The tribal people of Tamil Nadu are politically, economically and educationally marginalized and geographically at the farthest place. The distance between tribal people and the health care providers, planners and mangers in primary health care system of Tamil Nadu is not only geographical but cultural and psychological facts also contributes for the remoteness. Hence the health system of Tamil Nadu to the tribal is planned in a such a way to cover the health needs of the unreached populations. The key integral strategies to address the tribal people of Tamil Nadu are as follows

- **Appropriateness** - Tribal people are unique from the rest of rural Tamil Naud. They not only differ from the non-tribal population, but also differ among themselves. A uniform and rigid model of health is constituted in Tamil Nadu to serve all the tribes appropriately.
- **Autonomy** - The single deepest aspiration among the diverse tribal groups is the strong desire for autonomy. Tribal health is designed in the state at doorstep health delivery to preserve their autonomy and their way of life.
- **Decentralization** – To ensure the appropriateness and autonomy the tribal health care service is decentralized to village level through JAS committee. The committee appreciates the involvement of tribal people to design their own health system and need at the panchayath level.
- **Acceptable and Culture sensitive** - The health care is planned in a way that it is acceptable to the tribal people, it is culture sensitive and tribal friendly, provided with dignity, and yet never forced upon them.
- **Universality** - All tribal people living in the scheduled areas or outside, are covered through a special drive program. For example, those living in non-scheduled areas (with rural population), special provisions were made at community level like access to health insurance on a priority basis.
- **Accessible -** Low population density, huge distances, hilly terrain or forests, and lack of transport systems pose obstacles. But health care system of Tamil Nadu is designed to deliver and ensure access for all through strong infrastructure facility, adequate human resources, outreach services, capacity building, skill transfer, technology, flexible and dynamic

The health care needs, beliefs and aspirations of the tribal populations are often very different from that of the general population in rural areas. Yet the current system for delivery of health services in tribal areas in Tamiilnadu is like that in rural areas, except for a relaxation of the population norms. The following strategies reflects the directorates intent to ensure that tribal people get access to timely and good quality healthcare, given the realities of the tribal health situation, they are insufficient to have the desired effect.

1. An administrative structure like JAS, VHNSC for local participation, planning and management focusing on comprehensive primary health care delivered closer to the community
2. By providing consistent, functional, sustainable and universal system of health care for the tribal people through continued efforts.
3. By encouraging bio-medical, epidemiological and operational research to provide appropriate solutions for the existing problems.
4. By establishing District and Block Tribal Health Council to regularly review the progress in implementation, health indicators, finances, and the new evidence and to suggest corrective or policy measures at the state level.

5.ORGANIZATION OF SERVICE DELIVERY IN TRIBAL POPULATION

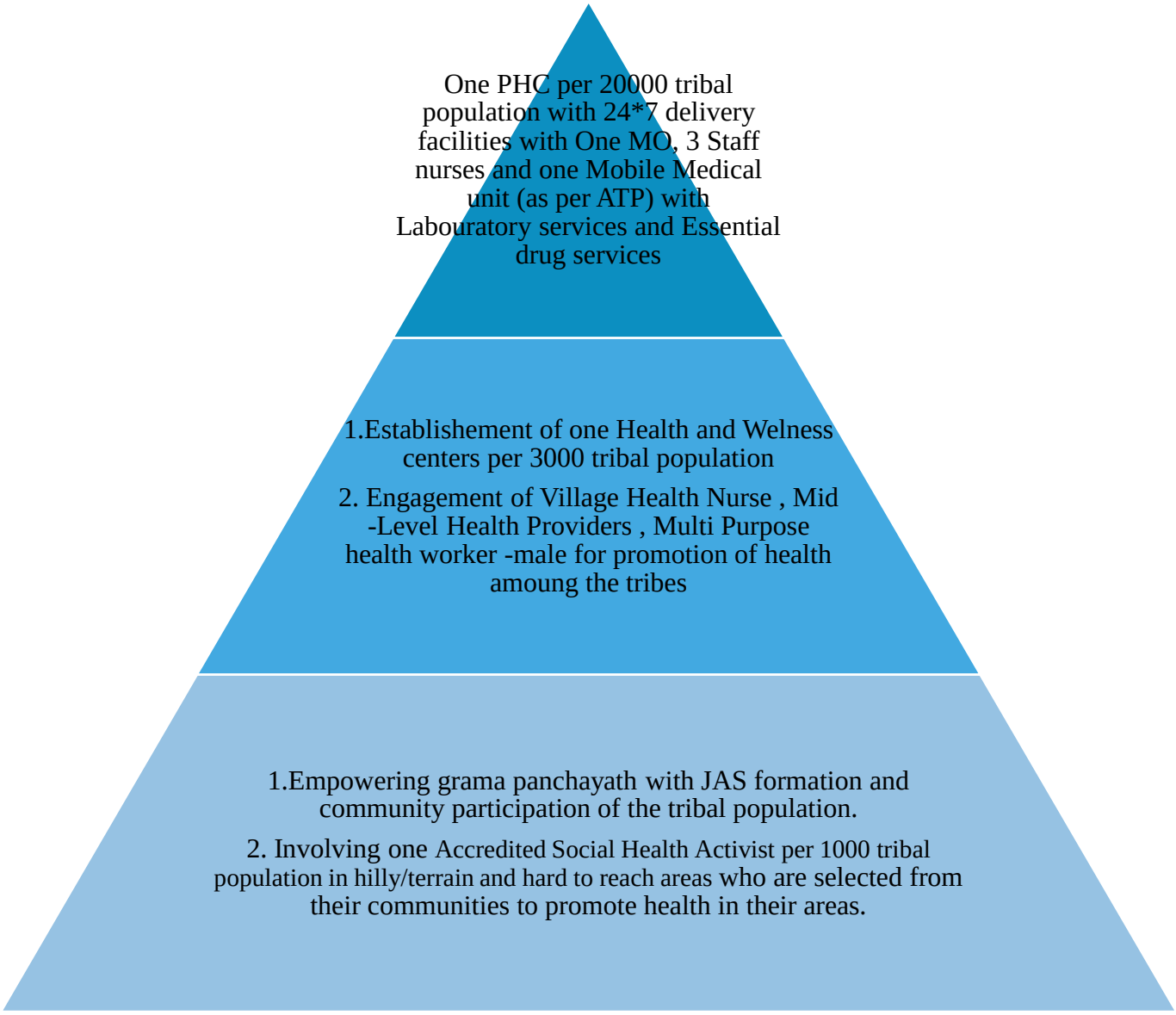
Traditionally, tribal communities have lived in and around forest and hilly areas, or in remote hamlets with little connectivity. Even today, distance and poor geographical access, compounded by the near absence of all season road connectivity and transport facilities, are major barriers to access to healthcare in tribal areas. The time, money and effort required to visit a health center and seek treatment often keeps the tribal away from the healthcare system.

These barriers can be surmounted through a decentralized provision of care that brings healthcare closer to the tribal habitations, by empowering them to manage their own health and using technology. Government of Tamil Nadu has entailed a re-visioning of the healthcare delivery system based on an understanding of the dynamics of culture, healthcare beliefs, problems and aspirations of the tribal people. This is especially important because unlike the rest of the population, a huge proportion of tribal people who access healthcare do so at government facilities.

In Tribal Health, the organization of service delivery has incorporated into three aspects:

1. Preventive and promotive healthcare- what is to be done when the tribal is not sick? (eg provision of clean drinking water and sanitation, prevention of injuries and bites, counselling re substance abuse and lifestyle disease)
2. Curative care- what is to be done when the tribal falls ill?
3. Surgical and specialty care- what is to be done when the tribal is very sick and requires specialist intervention

Fig-3: Organogram of Primary Health care in Tribal Population in Tamil Nadu



5.1PRIMARY HEALTH CARE IN COMMUNITY

The base of primary health structure is the Gram Sabha constituting all stakeholders in the village and empowered under JAS. The JAS committee at the Panchayat level would have to work with government functionaries to ensure better functioning of health programs which impact the socio-economic determinants of health are undertaken on a priority basis in tribal areas. The JAS Committee will be the starting point of the need-based health planning. The village specific health needs will be decided by them and mediated through District health society. The JAS committee is constituted in 483 tribal HSCs and 334 tribal HWC-HSCs as on date to meet the demands of the tribal population.

The topmost rung at the community level would be the community health workers: one ASHA for a population of 1000. As the tribal population is more scattered, each ASHA will be covering 2 or 3 hamlets for the health services. The ASHAs are trained at different components of health programs at block level. The ASHAs are given basic training (1-7 modules) on Anti Natal Care, Post Natal Care, Home based Neonatal Care, communicable and non-communicable diseases to improve their knowledge and conditions through which they impart awareness to their community where the serve.

ASHA are provided performance-based incentives for each activity such as AN Care, Mobilizing and escorting the AN Mother for Institutional Deliveries, PN Care, HBNC, Immunization,

Communicable and Non-Communicable Case detection and mobilizing community for Village Health Nutrition Day, Village Health Water Sanitation and Nutrition Committee and adolescent Health Clinics. ASHAs are provided with Neonatal Care Kit, digital sphygmomanometer and glucometer.

In the first phase 2650 ASHA are placed in Remote, in accessible, difficult and Tribal Areas. In the next phase the scheme is to upscale to 9 High Priority Districts in the state.

Table -2:ASHAS ENGAGEMENT IN THE TRIBAL /HILLY / HIGH PRIORITY DISTRICTS OF TAMIL NADU

Sl. No.	Name of the HUD	Total no of ASHAs engaged
1	Chengalpattu	36
2	Coimbatore	62
3	Cuddalore	20
4	Dharmapuri	123
5	Dindigal	30
6	Palani	128
7	Erode	89
8	Kallakurichi	255
9	Krishnagiri	179
10	Mayiladuthurai	2
11	Nagapattinam	14
12	Nagercoil	36
13	Namakkal	47
14	Permbalur	42
15	Pudukottai	73
16	Aranthangi	26
17	Ramanathapuram	97
18	Paramakudi	55
19	Ranipet	32
20	Salem	9

Sl. No.	Name of the HUD	Total no of ASHAs engaged
21	Attur	102
22	Sivaganga	17
23	Tenkasi	22
24	Thanjavur	21
25	The Nilgiris	413
26	Theni	7
27	Thiruvannamalai	174
28	Cheyyar	45
29	Thiruvarur	6
30	Tuticorin	66
31	Thiruchirapali	101
32	Tirunelveli	134
33	Tirupattur	114
34	Thiruppur	13
35	Vellore	60
Total ASHA s engaged		**2650**

5.2 PRIMARY CARE AT THE TRIBAL HEALTH AND WELLNESS CENTERS OF TAMIL NADU

This is the first institutional point of care, through a trained mid-level health care provider who offers a much broader range of preventive, promotive, curative and rehabilitative services. About 482 HSCs and 334 HWCs are catering to the tribal hamlets of the state. The centers are fully manpower with Village Health Nurse, Mid-level health providers, Multi-Purpose Health worker -male

Table-3: TOTAL NO OF HSCS & HWC-HSCS SANCTIONED IN TRIBAL AREAS OF TAMIL NADU

Sl.No.	HUD	HSC		HWC HSC	
		Sanctioned	Tribal	HWC HSC	Tribal HSC
1	Coimbatore	328	39	168	19
2	Dharmapuri	218	11	147	8
3	Palani	144	20	91	14
4	Erode	311	27	123	20
5	Kallakurichi	212	18	117	16
6	Krishnagiri	239	109	147	81
7	Namakkal	240	16	113	16
8	Athur	168	22	86	13
9	The Nilgiris	194	194	128	128
10	Tirupathur	134	8	110	5
11	Tiruvannamalai	253	13	111	9
12	TRICHY	307	2	142	2
13	Vellore	157	3	89	3
	Total	**2905**	**482**	**1572**	**334**

The HWC-HSCs serves the following comprehensive health services to the tribal population

- Diagnosis and treatment of common or important illnesses, and minor emergencies, backed by point of care and simple diagnostics and telemedicine facility
- Promoting institutional deliveries, ANC, PNC and homebased Newborn and Child Care
- Control of Communicable diseases
- Referral, if necessary, by arranging emergency transport.
- Immunization
- Nutrition screening, counselling, referral of SAM Health education and promotion in 8-10 villages

- Organizing diagnostic and treatment clinics eye, dental, surgical, gynecological
- Sanitation
- Sexual, reproductive, adolescent health and Family Planning.
- Screening, detection, regular NCDs - treatment and follow up
- Addiction prevention, counselling, organizing de-addiction treatment
- Trauma care
- Records, reporting, data generation

These centers would also serve as the gate keepers, ensuring that only people who need to be reviewed by a doctor visit the PHCs. Appropriate technology like E Sanjivani is used to connect these midlevel practitioners to MBBS doctors to facilitate proper diagnosis and timely referrals.

5.3 PRIMARY HEALTH CENTERS

At the apex of the Primary Health care pyramid in tribal areas would be the Primary Health Centre. This center is currently for a population of 20,000 i.e. approximately 80 villages/hamlets. The PHCs in the tribal areas provide continuum of care and referral support. The staff of Primary health centers in tribal area are appropriately skilled in multicentric manner to function as ophthalmic technicians, dental hygienists, physiotherapists, mental health counsellors etc. as the specialty services are far reach from the PHC areas. The PHCs are provided with help desk along with tribal councilor to support tribal and guide them for receiving appropriate treatment.

By bridging the gap between traditional and modern healthcare, it becomes possible to provide comprehensive and culturally sensitive care to tribal communities in India. Thus, an Ayush Health and Wellness centers with one Ayush Doctor and attended is established in Tribal PHCs to provide a comprehensive health care.

Table-4: TOTAL NO OF PRIMARY HEALTH CENTERS ESTABLISHED IN TRIBAL AREAS

S.NO	Name of the District	Total no of PHCs established in Tribal areas
1	COIMBATORE	38
2	DHARMAPURI	16
3	DINDIGUL	5
4	ERODE	40
5	KALLAKURICHI	16
6	KRISHNAGIRI	107
7	NAGARCOIL	7
8	NAMAKKAL	16
9	PALANI	16
10	SALEM	22
11	THE NILGIRIS	185
12	TIRUCHIRAPALLI	2
13	TIRUPATHUR	21
14	TIRUPUR	17
15	TIRUVANNAMALAI	13
16	VELLORE	9
Total		**530**

TRIBAL FRIENDLY CENTER

The Primary Health Centers are suited with cultural practices of tribal communities, eg modifying the labor table for giving birth in the squatting posture, providing their traditional food, allowing a companion during delivery and accompanying with tribal counsellors and ASHA who knows the tribal language to explain what is happening.

TRANSPORTATION SERVICES

Considering the distance in tribal areas, the beneficiaries who are referred from community are accompanied by ASHA or ANM to the appropriate centers. The AN mother who requires transportation services for delivery or any other modality of treatment is provided with 108 ambulance services under JSSK scheme. The mothers are picked up and dropped back on their doorstep.

ROUND-THE-CLOCK SERVICES

The Primary Health Centers assure emergency service including admission to a health facility, 24x7 delivery facility irrespective of time of day, for all tribal patients. In Tamil Nadu, one PHC in every 20,000 population has staff quarters and 24x7 on call services.

INNOVATIVE POINT OF CARE DIAGNOSTICS

The directorate has established innovative technologies that can work with ease in the peripheral health facilities and with community health volunteers, along with easier methods of calibration and verification of their accuracy. Basic blood investigations are carried out by mobile medical units at their doorsteps who visit the tribal hamlets based on their ATPs. The laboratory test which cannot be done at field or primary health centers, the samples are collected and transferred to higher center in cold chain conditions under Integrated Essential Laboratory services program.

TELE-MEDICINE

Tele-medicine is used for assisting the doctors and health workers at the PHCs and HWC-HSCs. Each PHCs function as spoke and district hospital and medical college act as HUB. The tribal population approaching the primary centers can get their medical attention through tele medicine services thus reducing their out-of-pocket expenditures.

PUBLIC PRIVATE PARTNERSHIP

NGOs provide healthcare services to tribal people in the remotest corners of the state. NGOs work locally with tribal groups through service delivery or community-based models to improve their health status. The biggest strength of involvement of NGOs is their understanding of local socio-cultural beliefs which enables them to ensure better utilization of services and greater impact. Most successful intervention by NGOs is screening of hemoglobinopathy diseases among school students and their family in tribal blocks. The state is analyzing their strengths in a systematic manner to scale up their full potential for different health programs in different tribal areas.

5.4 MOBILE OUTREACH SERVICES

To improve the outreach and access, each tribal block PHC have one Mobile Medical Unit that will visit every village in the catchment area at least once a month as per the ATP and offer basic health care, ANC, diagnostics, medicines for regular and chronic ailments and health education. The Mobile outreach service works as a complement, not a substitute for delivery of health care services at institution. Each mobile unit is equipped with a medical officer, staff nurse and multi-purpose workers with essential laboratory services and drug delivery. This proposed structure for primary health care delivery in tribal areas would involve 1 to 2 per cent of the population in tribal areas in health care delivery and awareness as health workers. It will empower the tribal people manage their own health. At the same time, it will ensure the timely and efficient delivery of quality primary health care.

Table-5:MOBILE MEDICAL UNITS SERVING 30 TRIBAL BLOCKS OF TAMIL NADU

S.NO	Name of the HUD	Total no of tribal blocks	Tribal MMU	Regular MMU	Total MMU
1	Attur	1	1	1	2
2	Coimbatore	3	2	3	5
3	Dharmapuri	2	1	2	3
4	Erode	2	1	2	3
5	Kallakurichi	1	1	1	2
6	Krishnagiri	2	2	2	4
7	Nagercoil	3	1	3	4
8	Namakkal	1	1	1	2
9	Palani	3	2	3	5
10	Tiruchirappalli	2	1	2	3
11	Tirupathur	4	1	4	5
12	Tiruvannamalai	1	1	1	2
13	Udhagamandalam	4	5	4	9
14	Vellore	1	1	1	2
Grand Total		**30**	**21**	**30**	**51**


2021 - 2022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6.ADDRESSING PRIORITY HEALTH PROBLEMS OF TRIBAL POPULATION

According to Symington, *'Actually the problem of the aboriginal and hill tribes lies not in the isolation from but in their contacts with the main body of the community… in the places, where they are in constant contact with more educated people, they are degraded, timid and exploited… government appears to have … usually assumed that whatever measures were suitable for the country at large were suitable also for the tribal area in fact, the common law of the land is in many respects highly unsuitable for the tribal areas and produces serious oppression and exploitation'*

It is observed that heavy burden of communicable, noncommunicable and silent killer genetic diseases are more prevalent in tribal communities of Tamil Nadu hence strategies are prioritized based on local specific and tribal specific when compared to other parts of Tamil Nadu. Many of the infectious and parasitic diseases are prevented with timely intervention, health awareness, and information, education and communication skilled activities. Despite the tremendous advancement in the field of preventive and curative medicine, the health care delivery services in tribal communities to be augmented with locality specific, tribe specific and need-based health care delivery system which is appropriate, acceptable, accessible, and affordable.

The following are the specific interventions undertaken by Directorate of Public Health and Preventive Medicine in addressing priority health problems of tribal populations.

6.1PREVENTION OF HEMOGLOBINOPATHY DISEASES

Hemoglobinopathy is a blood-related genetic disease commonly found among tribals. The objective of this program is to detect, prevent, and treat common blood-related diseases like thalassemia and sickle cell anemia at an early stage. The estimated prevalence of sickle cell anemia in Tamil Nadu is 0-31% and prevalence of Thalassemia is 1-3%. However when compared to other states of India, Tamil Nadu shows higher prevalence of Thalassemia than sickle cell disease.

SCHOOL SCREENING OF HEMOGLOBINOPATHIES

Government of Tamil Nadu has launched school screening and AN screening program starting from 2017 and the program is implemented successfully in 30 tribal blocks of 14 Districts. The program was rolled out in 4 phases.

- First Phase (November 2017): Pilot in 4 Districts – Dharmapuri, Krishnagiri, Namakkal & Salem)
- Second Phase (September 2018): - Nilgiris and Coimbatore
- Third Phase (January 2019)- Vellore, Thirupattur, Villupuram & Tiruvannamalai
- Fourth Phase – Erode, Kanyakumari, Trichy and Dindugal

OBJECTIVE OF THE PROGRAM

- To create a data base of Haemoglobinopathies by active screening at the schools in tribal blocks and to create **community free of Hemoglobinopathies** by **proactive screening** of children by identifying trait & preventing birth of thalassemia and sickle cell anemia children by genetic counseling.

The Tribal MMU screens a minimum of 40 students every Monday and Tuesday in Government and Government aided schools in the tribal blocks. The team will collect two 2ml blood samples from the students. The one sample is subjected to Solubility and Nestroff test and CBC in the Block PHC on every Tuesday. The students who are positive in the above test, the second sample is sent for HPLC testing at medical college on Wednesday. The family of positive students are subjected to cascade screening and the family members are subjected to CBC and HPLC testing.

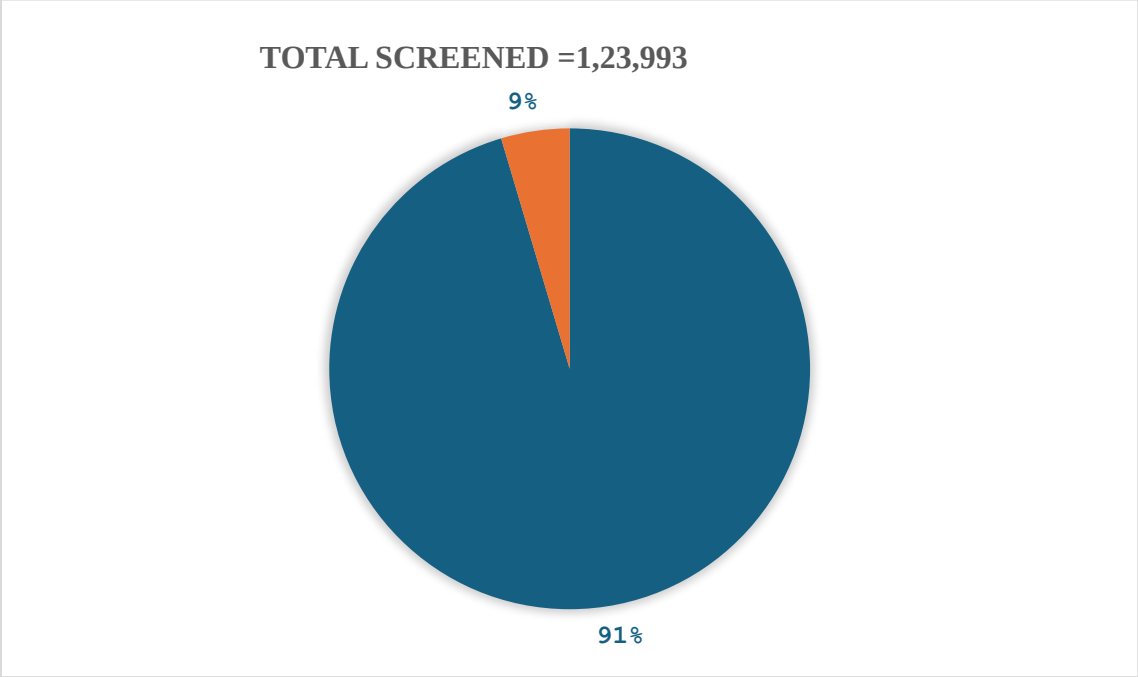


Fig-4 : Out of 1,23,993 children in the age group of 6th to 12th Standard (Govt and Govt aided school) , 9 % (5706) of the children were found to have Heamoglobinopathy Trait / Sickle Cell Anemia (Nov-17 to July-24-Source :NHM TN)

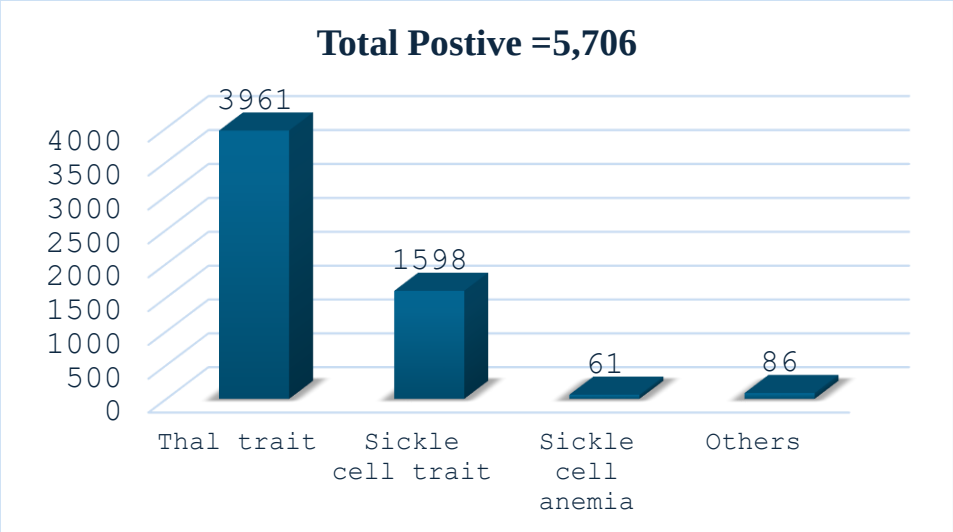
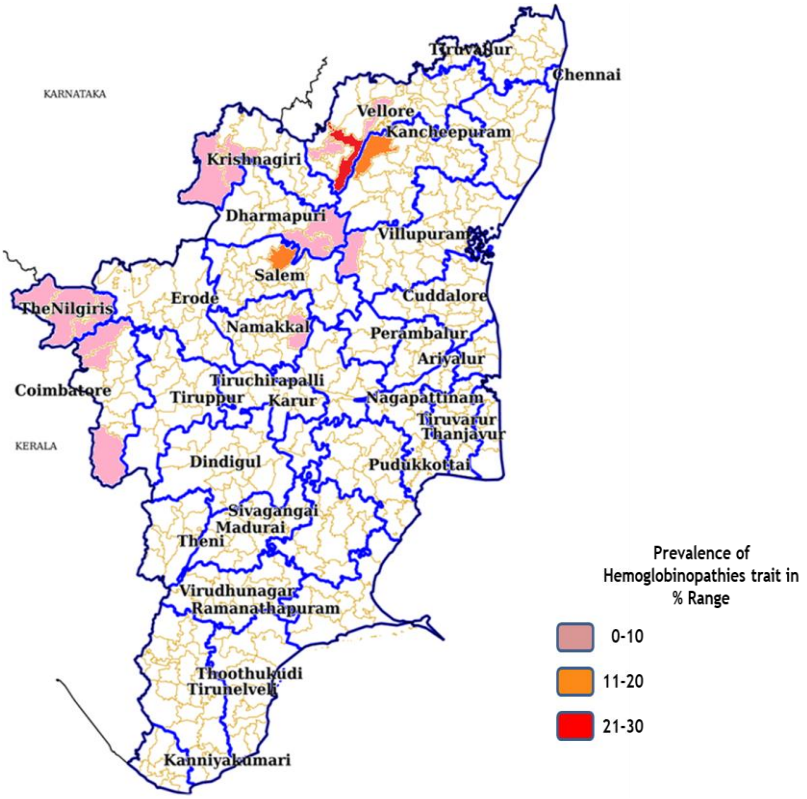


Fig-5: Distribution of Hemoglobinopathy disease among the school students in Tribal blocks. (Others include hemoglobin C disease, Hb E, Hb D, Heterozygous group)

Fig -6: Prevalence of Hemoglobinopathies among school students in 30 tribal blocks of Tamil Nadu



- Once a trait/ disease is identified by screening, premarital counselling is offered by the 20 Tribal MMU team , Block PHC team including DEIC. Tab. Hydroxy Urease and nutritional support is given by the NGOs to the disease affected family on monthly basis and followed up. Genetic color coded cards (3 Types- Disease , Trait , Normal) are given to each individual. Following the color code one can decide whom to marry or not thus preventing birth of diseased child in preconception period

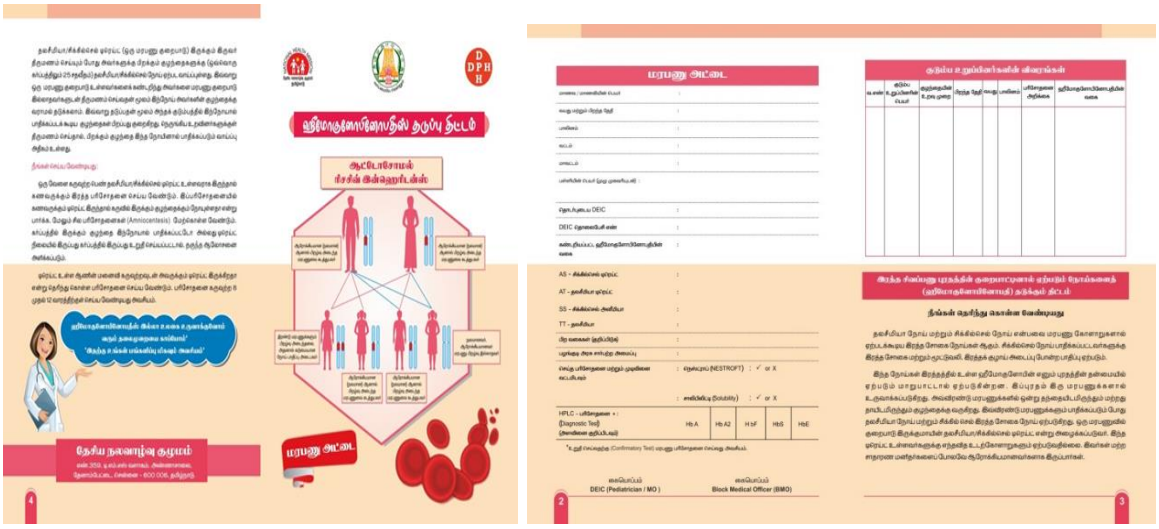


Fig :Genetic card for Trait Children

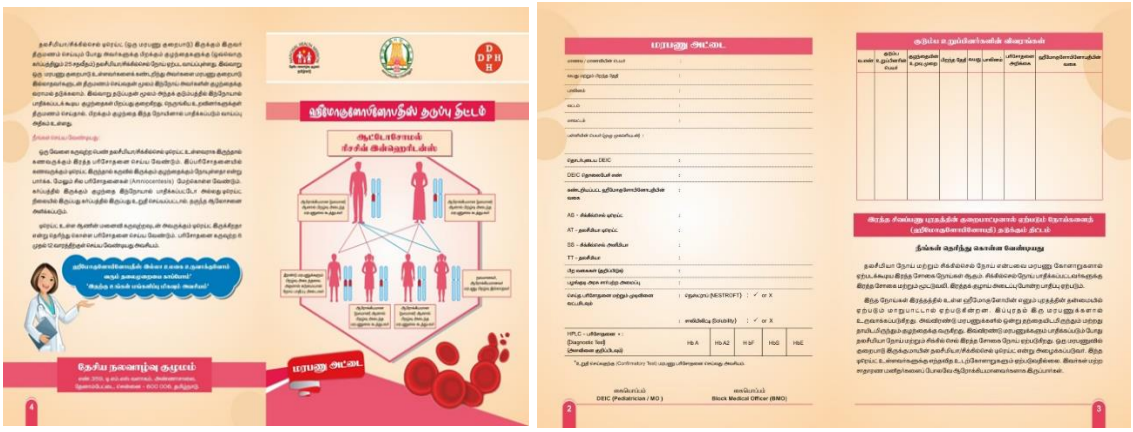


Fig: Genetic card for Diseased Children

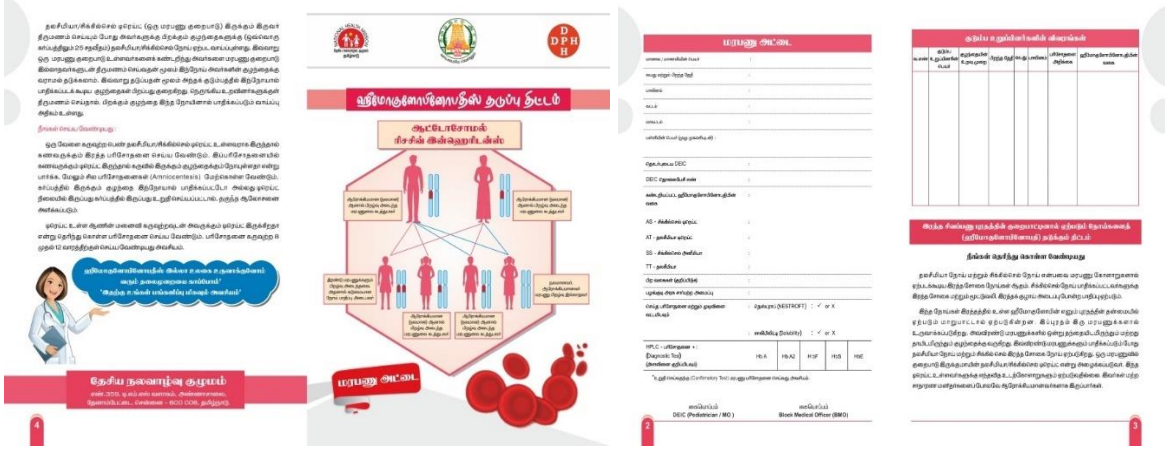


Fig: Genetic card for Normal Children

6.2ANTENATAL SCREENING AND PRENATAL DIAGNOSIS FOR HAEMOGLOBINOPATHIES

The prevalence of carriers of thalassemia and sickle cell anemia among adolescent children in tribal blocks is found to be 8 to 10% based on adolescent school screening in Tamil Nadu. As per the guidelines of Ministry of Health and Family Welfare-Haemoglobinopathies in India 2016, a carrier state rate of 1% or more is taken as cut off for implementation of universal screening program among pregnant women. As per the above guidelines if an antenatal mother is found to be a carrier, her spouse also should be tested; if he is also a carrier prenatal diagnosis should be done in tertiary care center. This will prevent vulnerable pregnant mothers from giving birth to children with hemoglobinopathies.

The program was rolled out in two phases,

- First Phase (Sep 2021) 18 tribal blocks of Dharmapuri, Krishnagiri, Namakkal, Salem , Nilgiris , Coimbatore ,Vellore , Thirupattur, Kallakurichi & Tiruvannamalai Districts
- Second Phase (December 2022) 12 tribal blocks of Erode, Kanyakumari, Trichy Dindugal Districts

Under this program, two 2ml samples of blood are collected from the mother. One sample is subjected to CBC test and the other sample is sent for High Performance Liquid Chromatography (HPLC)in the nearest Government medical college hospital. If the mother is positive, the sample of spouse is taken and subjected to HPLC. The positive couples are

counselled at DEIC and send for amniocentesis at IOG, Egmore for further management. Written consent is obtained from both the husband & the AN Mothers before doing the amniocentesis. The procedure will be done by the Radiologist / Obstetrician.

Out of 84,263 mothers screened, 8428 mothers were found positive for hemoglobinopathies.

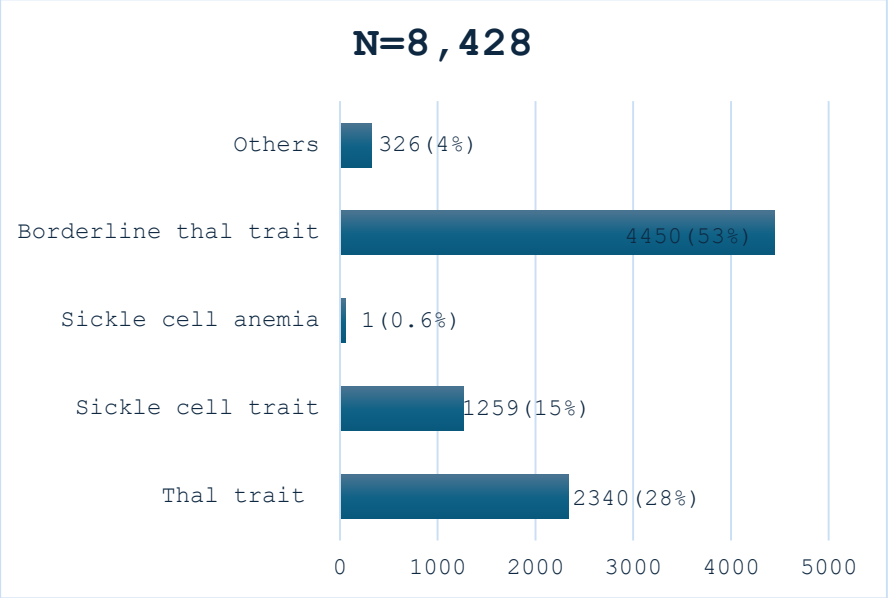


Fig-7: Prevalence of Hemoglobinopathies among the Antenatal mothers in the Tribal block

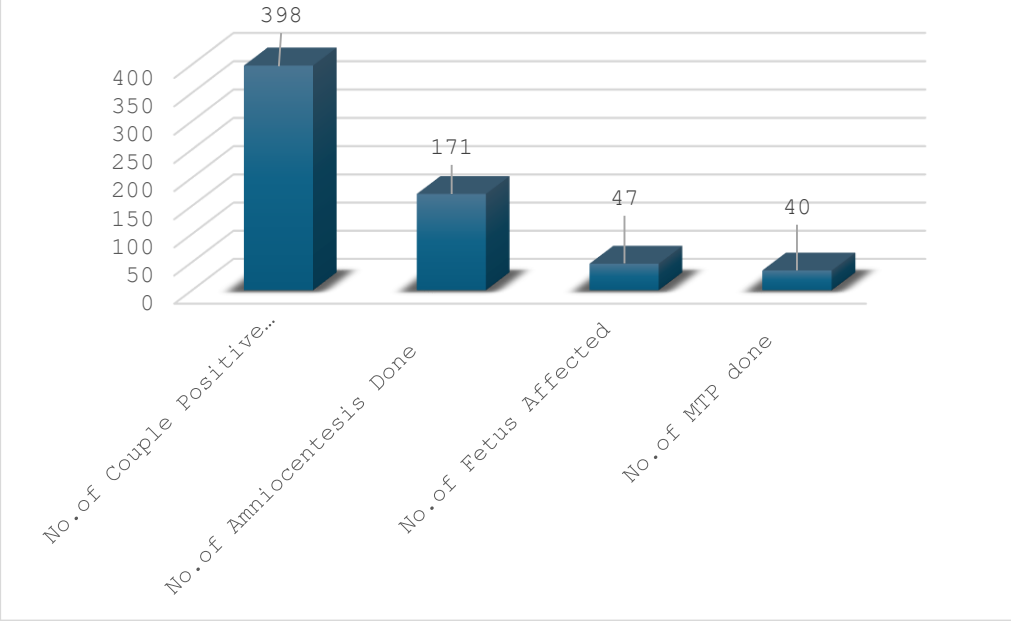
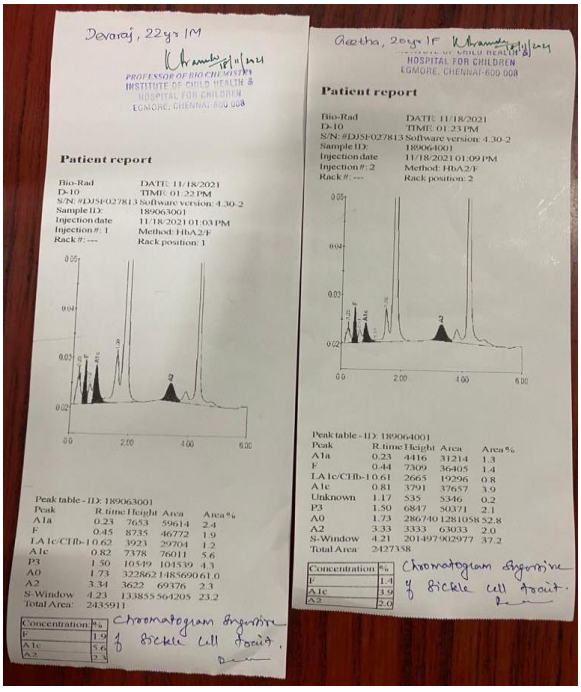


Fig-8 : Prenatal diagnosis done in Antenatal mothers of Tribal blocks of Tamil Nadu



6.3SICKLE CELL ANEMIA PREVENTION PROGRAM BY NGOS

The objective of the scheme is to provide comprehensive support and care services to sickle cell anemia patients in tribal communities across the state. The project is being implemented by NAWA and ASWINI, two tribal charities operating in the Nilgiris and Coimbatore districts. The scheme targets specific areas, including Kothagiri, Kudalur, Coonoor (Nilgiris district), and Periyanayakanpalayam, Karamadai (Coimbatore district). A total of 2370 tribal patients have benefited from this scheme.

6.4 SAFE MOTHERHOOD AND HEALTH OF THE WOMEN FROM TRIBAL COMMUNITIES.

BIRTH WAITING ROOMS IN TRIBAL BLOCKS

Birth waiting room are residential facilities available in the places where women who live in tribal area or remote area can wait before giving birth at hospital. 17 birth waiting room have been established in Tamil Nadu. This scheme has helped to reduce home deliveries as well as maternal and perinatal morbidity and mortality. In order to facilitate the stay of tribal mothers at the birth waiting room, 3 supportive staff have been appointed round the clock in the institution.

- The pregnant women along with her attender is provided Rs 80/day each during the entire period of their stay in antenatal and postnatal period.
- The community health nurse of that block is supervising the functioning of BWR and will be paid Rs 500/- as honorarium
- BWR have the facility for cooking food Provided with 3 supportive staff for round the clock care and services
- Pregnant women are brought well in time for their deliveries and monitored during the entire process of pre labor and labor and the home deliveries have been reduced between 2013 to 2016
- A total of 794 tribal pregnant mothers benefited from delivery waiting rooms at government primary health centers in hilly areas inhabited by tribals in Tamil Nadu from April 2024 to June 2024.

6.5TRIBAL MOBILE MEDICAL TEAMS

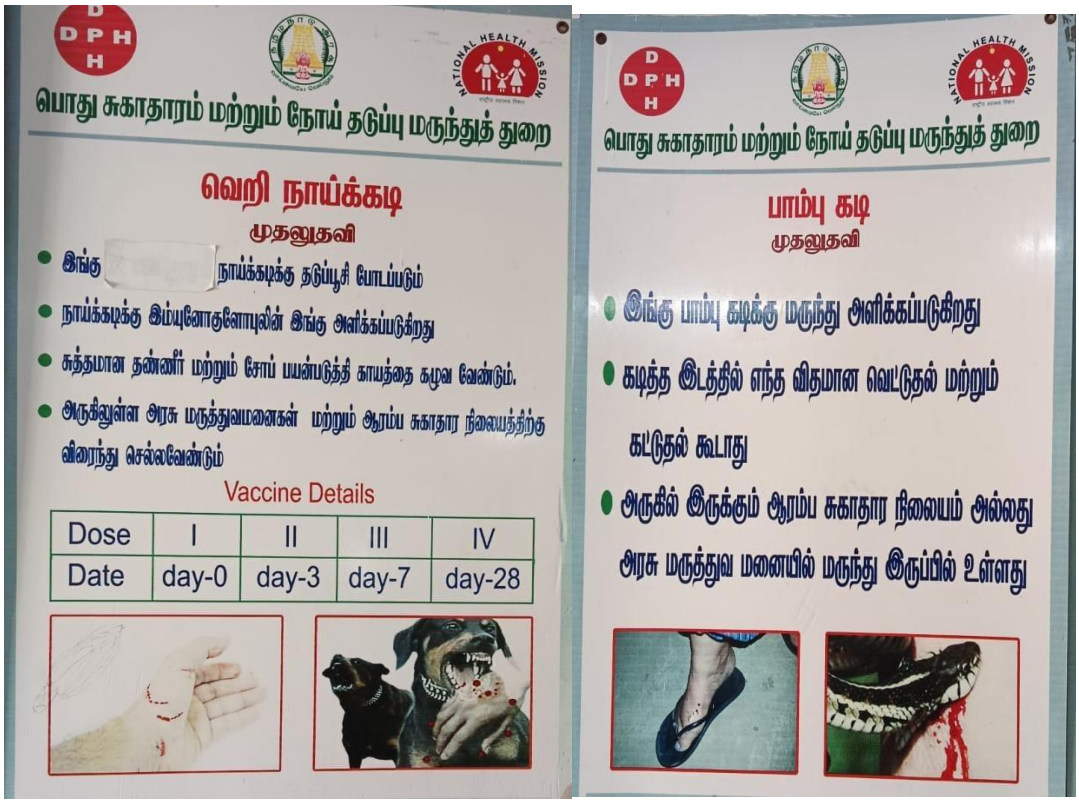
In addition to the existing mobile medical teams in the districts, 20 specialized mobile medical teams for tribals are functioning in tribal areas across 14 districts. These teams not only provide routine medical services but also conduct hemoglobinopathy screenings for students aged 14 and above, including students in classes 6 to 12th std from government and government-aided schools (tribal and non-tribal) as well as school dropouts. 1.51 lakh patients in tribal villages received medical treatment in 15148 camps were organized by the Tribal Mobile Medical Teams.

6.6TRIBAL HEALTH COUNSELLOR

Tribal health counsellor act as a bridge between health institutions and tribal communities. They provide services in 10 government hospitals in districts with a significant tribal population, such as Nilgiris, Coimbatore, Salem, Tiruvannamalai, Namakkal, Dharmapuri, and Vellore. From April 2024 to June 2024, 14,701 patients benefited from this scheme.

6.7 ENSURING TIMELY TREATMENT FOR ANIMAL BITES AND ACCIDENTS

Since animal bites and snake bites are more common in tribal areas and might be responsible for more deaths than maternal mortality, an urgent and intensive response is warranted. All medical officers and nurses at the CHC, PHC, Mobile Medical Unit are trained for managing these emergencies appropriately. All PHCs are provided with adequate stocks of Anti Rabies vaccine and Anti Snake Venom to tackle the emergencies.



7.CONCLUSION

Geographical remoteness and limited infrastructure pose significant challenges to the delivery of healthcare services in tribal communities. These communities are often located in remote and inaccessible areas, such as mountainous terrains, dense forests, or regions with inadequate transportation infrastructure. The unique geographical characteristics of these areas make it difficult to establish and maintain healthcare facilities and ensure timely and efficient delivery of medical supplies and services. This can be particularly challenging for any medical emergency. 24*7 availability of 108 ambulance in the tribal areas overcomes this challenge in Tamil Nadu.

Language and cultural barriers pose significant challenges to healthcare delivery in tribal areas in India. These barriers impede effective communication between healthcare providers and tribal patients, leading to misunderstandings and suboptimal healthcare outcomes. Limited access to health information in native languages hinders tribal community members from making informed decisions about their health. Sometimes, the customs go against modern medical treatment. Hence choosing ASHA and tribal health counsellors from their own community has improved

communication, provided language interpretation services, and developed culturally tailored healthcare resources.

Tribal communities often reside in remote and geographically inaccessible areas, which makes the government build and maintain healthcare facilities. Additionally, there is a scarcity of healthcare professionals, including doctors, nurses, and paramedical workers, in these areas. Healthcare professionals may not opt for a job in such remote places. The state governments have sanctioned remote incentives to encourage young doctors to work in remote areas. Government of Tamil Nadu has put efforts to improve transportation networks, establish healthcare facilities closer to tribal settlements, and increase the number of healthcare professionals in these regions to enhance access to quality healthcare for tribal populations in the state.

Tribal communities in India face numerous socioeconomic challenges, including widespread poverty and limited access to education. These conditions create significant barriers to accessing healthcare services and contribute to the perpetuation of health inequities. Tribal groups struggle to meet their basic needs. Hence, they may neglect medical care and treatments. As a result, many tribal individuals and families are unable to reach healthcare facilities in a timely manner. Moreover, the lack of awareness about preventive healthcare measures further exacerbates the health disparities experienced by tribal populations. Without proper education and information about disease prevention, tribal communities are more susceptible to preventable illnesses. The Government of Tamil Nadu has approached multi-faceted strategies that includes conducting health and awareness campaign on every 3rd Saturday in all Health and Wellness centers – HSC,PHC and CHCs in which helps the tribes to understand about the CMCHIS insurance cards and Ayushman Bharath health card which will reduces their out of pocket expenditure towards health.

In conclusion, addressing the healthcare challenges faced by tribal communities requires a comprehensive and culturally sensitive approach. By investing in healthcare infrastructure, strengthening human resources, promoting health education, and enhancing outreach services, significant progress can be made in improving access to healthcare for tribal populations. Additionally, integrating traditional healing practices and beliefs, along with engaging tribal communities in decision-making processes, will foster trust and better healthcare outcomes. Government support, research, and data collection are essential for evidence-based interventions

and policies that target the unique health needs of tribal communities. By implementing these potential solutions, India can work toward achieving health equity and improving the overall well-being of its tribal populations. It is imperative that all stakeholders, including government bodies, healthcare professionals, community leaders, and tribal representatives, collaborate and prioritize the health and welfare of tribal communities to ensure a brighter and healthier future for all.

DIRECTORATE OF PUBLIC HEALTH AND PREVENTIVE MEDICINE

2024 DPH DPHICON THANJAVUR