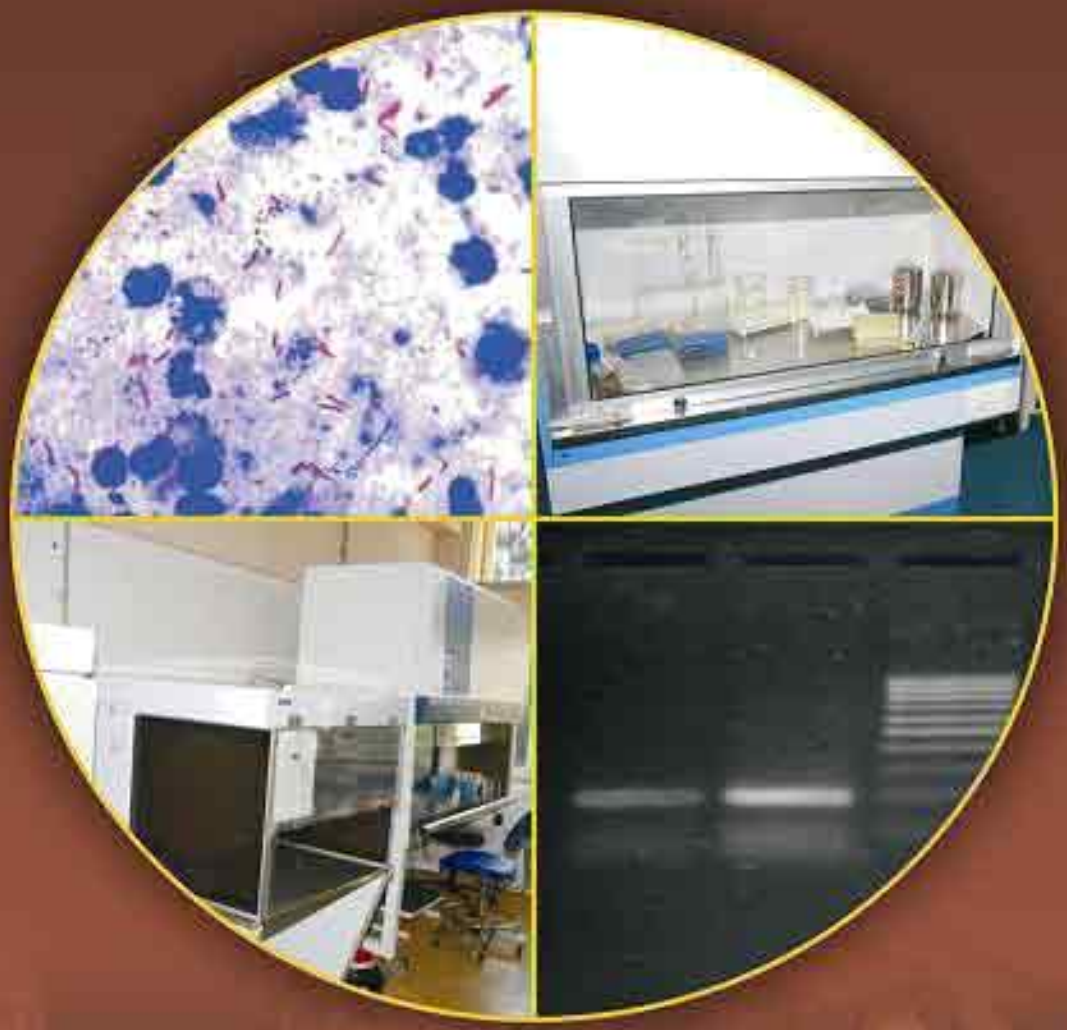
ANNUAL REPORT 2008-09



Regional Medical Research Centre for Tribals (ICMR) Jabalpur

I am extremely happy to present the Annual Report of the centre for the year 2008-09.

The new achievements during this period have given a phenomenal boost to the expanding activities of the centre. The centre endeavours to achieve good health of the community by its promising research activities, translational research and advocacy, etc. During this period the centre has strengthened its connectedness with the MP State Government. Many new projects have been initiated with the financial support from the Department of tribal Welfare, Government of Madhya Pradesh. Add to this the centre also received extramural funds from other agencies of repute for undertaking research activities such as UNICEF, WHO Country Office, WHO-SEARO, NACO, etc. I expect a quantum jump in generating more extramural funds in the years to come.

It is important to record that one senior research fellow at the centre sponsored by CSIR was awarded Ph.D from Jabalpur University and 11 students from various universities have completed their M.Sc dissertation under the able guidance of the scientists of the centre. Three more students are pursuing their Ph.D work in the centre. The centre and its scientist are recognized during the period by the Rani Durgawati Vishwavidyalaya, Jabalpur for guiding research work leading to Ph.D. degree by the above university. Further the centre also completes all formalities for its recognition as WHO Collaborative centre which is in progress.

It is worth mentioning the capabilities of the scientists and its staff for coming up with publications in good number of journals of repute. During the period many scientists of the centre also presented their research findings in both national and international conferences, workshops and meetings. A scientist also achieved higher education from Royal Tropical Institute, Netherlands. The centre also collaborates with international institutes such as CDC, and Boston School of Public Health etc. for undertaking technology driven research at molecular level.

The centre also organized a number of training workshops and meetings for state level medical officers and others on different aspects of health. It gives me immense pleasure to mention that the said period was important as the centre completes successfully its 25 years of its inception on 1st March 2009. On the eve of silver jubilee celebration, the centre also organized an International Symposium on Tribal Health during 27th February- 1st March 2009 to address all major public health problems commonly prevalent in various tribal communities. There was an overwhelming response from more than 300 experts, scientists, academicians, program managers and students from both national and international institutes of repute. Few corporate houses also participated in the mega event. During the same time the centre also releases its profile depicting its all activities during last 25 years. The year under report was eventful. Besides the scientific activities, Rajbhasha Diwas, Vigilance Day, World AIDS Day, Technology Day were also observed.

I will be failing in my duties if I do not acknowledge the constant support and guidance provided by Lt. Gen. D Raghunath, SAC Chairperson, is always a source of inspiration for all of us. It is my privileged opportunity to thank Dr. V.M. Katoch, Secretary to the Government of India, Department of Health Research, Ministry of Health & family Welfare and Director General, ICMR for his interest, encouragement and motivation that have helped us to scale the present standard.

Neeru Singh
Director

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1. GENETIC DISORDER

1.1. Protection Provided by Haemoglobinopathies in Uncomplicated and Severe *P. falciparum* Malaria- A Cohort Study

Date of Starting	:	February 2009
Duration	:	2 Years
Status	:	Ongoing
PI	:	Dr. R. B. Gupta

Malaria is a major health problem in India especially in the tribal predominant areas of Central India. Most of the mortality and complicated cases in malaria are due to *P. falciparum*. The incidence of *P. falciparum* malaria is increasing over the last few years. The tribes, Scheduled Castes and OBCs communities of Central India also have haemoglobinopathic disorders like sickle haemoglobin, α-thalassaemia type II and β-thalassaemia along with G-6-PD deficiency in various proportion. These markers are stated to provide some protection or advantageous selection against *P. falciparum* malaria. All these genetic disorders/markers have evolved in the world populations against *P. falciparum* infection. A prospective study was undertaken to observe the protective phenomenon by these haemoglobinopathies in known cases of *P. falciparum* malaria.

Objective

To observe the protective effect, in terms of malarial episode and parasitemia, of common haemoglobinopathies i.e. sickle haemoglobin, α-thalassaemia, β-thalassaemia trait etc. and Duffy antigens in mild (*P. falciparum)* and severe malaria (cerebral malaria).

Methodology

Baiga dominated 11 villages of the Baigachak area of the Dindori district were selected. These villages have history of high transmission of malaria with a predominance of *P. falciparum* malaria. All the household of the selected village were taken for the study. The census of the villages was completed in month of July 2009. All the individuals of the family of the 11 villages are being monitored for malarial infection.

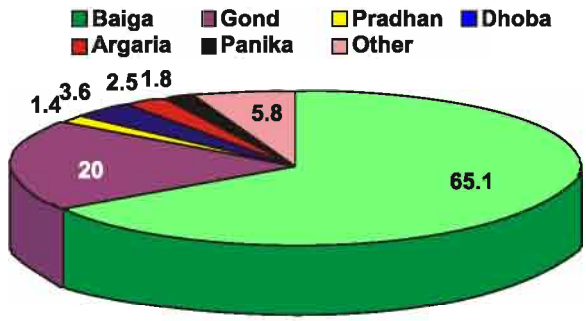
Active fever survey was conducted by door to door visit. Thin and thick blood smears were prepared. Intravenous blood samples were analysed for abnormal haemoglobin, haemoglobin A_2 (Hb A_2) and foetal haemoglobin (HbF) by BIO-RAD VARIANT-II (Haemoglobin testing system) and G6PD deficiency (Bernstain, 1962). DNA was extracted from buffy coat by phenol-chloroform methods. Identification of α-thalassaemia type II is done by allele specific amplification.

Findings

The study area is Baiga dominant (65.1%) tribal area, which comprises about 95% of total tribal population (Figure 1.1.1). Total enumerated population in census is 7317 from 1711 listed households, i.e. having an average household size as 4.27. About 10.6% of the population is below 5 years and 4% population is above 60 years of age. About 30% population is illiterate in the study area.

Most of the houses are *Kaccha* (81.2%), *Pucca* houses are only 1.3% and rest are mixed type i.e. semi *Kaccha*. About one-third families are joint families i.e. parents living with their married offspring.

Figure 1.1.1: Population of study villages (Total= 7317)



During active fever survey, a total of 1355 blood slides were collected from individuals having fever or history of fever at the time of survey. Six hundred ninety eight persons were positive for malaria parasite (SPR-51.5). Proportion of *P. falciparum* infection was 89%. Overall malaria infection was significantly more among younger age groups (<14 yrs) than adult age group of 14+ years (χ^2=60.0, p< 0.00001) (Table 1.1.1). Blood sample for analysis of haemoglobinopathies was collected from 246 persons. Sickle cell trait was 12.8% and G-PD deficiency was 4.1%.

The study is in progress.

Table 1.1.1: Prevalence of malaria in study villages (August 2009-October 2009)

Age groups	BSC	Positive	PFR	PFRG	PV	SPR	SFR
0-1	30	17	14	2	1	56.7	53.3
1-4	172	116	88	2	26	67.4	52.3
4-8	198	123	107	2	14	62.1	55.1
8-14	195	122	105	1	16	62.6	54.4
14+	760	320	297	3	20	42.1	39.5
Total	1355	698	611	10	77	51.5	45.8

1.2. Alpha Thalassamia in Relation to Common Haemoglobinopathies in some Tribes of Madhya Pradesh

Date of Starting : October 2006
Duration : 2 Years
Status : Completed
PI : Dr. R. B.Gupta

Haemoglobinopathies in the form of sickle haemoglobin and β-thalassaemia is very common in tribes of Madhya Pradesh. Sickle haemoglobin of Central and Southern India belongs to same haplotype (Kulozik et.al.,1986, Gupta et.al., 1991) and suggest a common origin. In some tribal groups the differences in prevalence of sickle haemoglobin is too large and suggests their different origin. Along with sickle haemoglobin, these tribal populations also have β-thalassaemia, α-thalassaemia type II (α^+-thalassaemia) and G-6-PD deficiency. All these single genetic disorders are stated to have evolved due to selection pressure of malaria and have attained different prevalence rates. These small endogamous populations give a unique opportunity to study the human genetic diversity and micro-evolution in terms of gene-environmental interaction.

The co-existence of α-thalassaemia type II in sickle cell disease and β-thalassaemia is stated to reduce the disease severity. α-thalassaemia is also stated to provide protection against severe form of malaria. The status of α-thalassaemia is not known for most of tribal population of MP.

Objective

To correlate the variation in sickle haemoglobin to the other haemoglobinopathies like β-thalassaemia, α-thalassaemia and G-6-PD deficiency in Kol, Gond, Pradhan, Bharia and Baiga populations of Madhya Pradesh.

Methodology

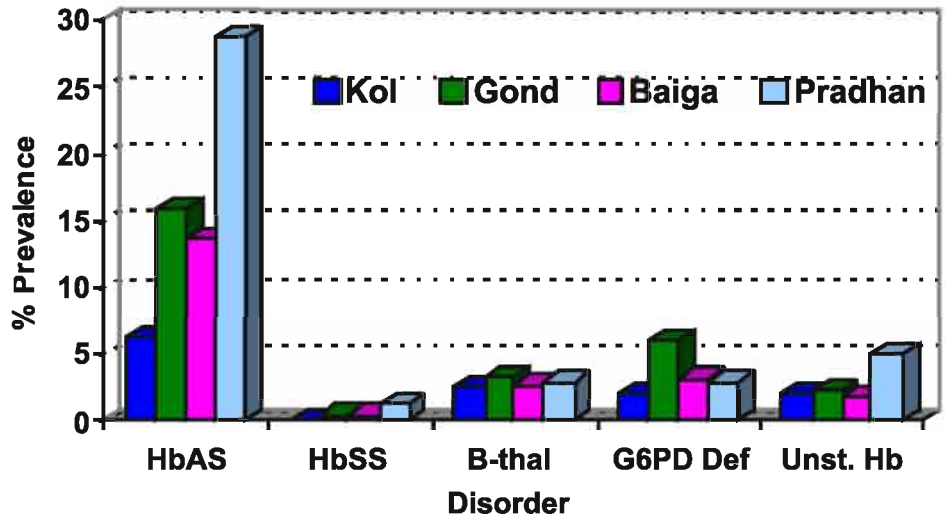
Kol of Satna, Gond of Shahdol, Baiga and Pradhan of Dindori and Bharia of Patalkot of M.P. were sampled for the study. The desired sample size of the study is 213 for Bharias, 231 for Gonds (Patalkot), 184 for Gonds (other), 184 for Kols, 218 for Baigas and 164 for Pradhan. Only apparently healthy volunteers were included as subject after taking a written consent. Family was taken as sampling unit.

Intravenous blood samples were analysed for CBC using automatic blood cell counter. Identification of abnormal haemoglobin, unstable haemoglobin, G-6-PD deficiency, haemoglobin A_2 (Hb A_2) and foetal haemoglobin (HbF) was done following standard techniques. DNA was extracted from buffy coat by phenol-chloroform methods. Identification of α-thalassaemia type II was done by allele specific amplification.

Findings

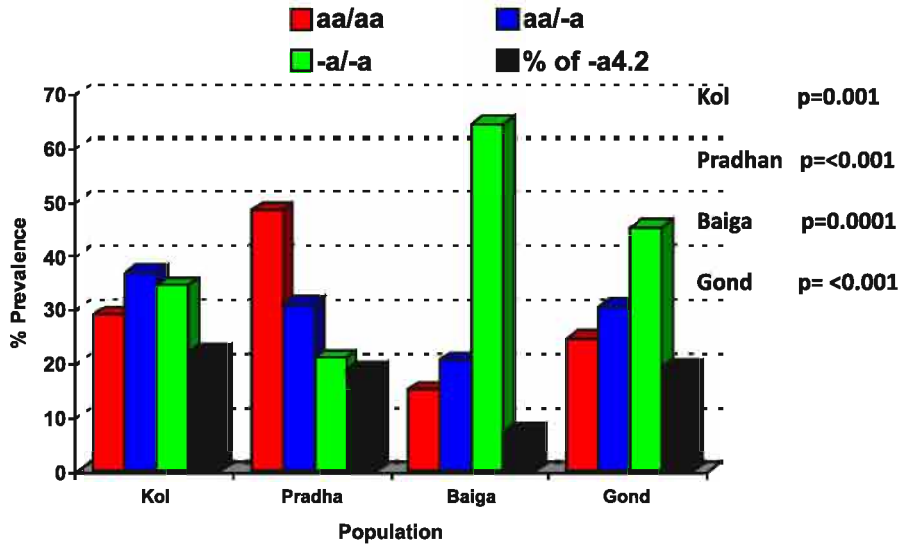
Prevalence of haemoglobinopathies and G-6-PD deficiency in tribes Kol of district Satna, Gonds of district Shahdol and Pradhan and Baiga of district Dindori vary a lot and are given in figure 1.2.1. Sickle haemoglobin is very high (30%) in Pradhan of district Dindori and it was moderate (about 15%) in Baiga and Gond tribes. Prevalence of heat unstable haemoglobin was about 2% in all the tribes except Pradhan in which it was 5% (Figure 1.2.1).

Fig 1.2.1: Prevalence of haemoglobinopathies among four different tribal populations



α-thalasaemia type II was done for samples of Baiga, Kol, Gond and Pradhan tribes. Deletional form of α-thalassaemia type-II is very high in all the four tribes. (Fig 1.2.2). Highest prevalence of alpha thalassaemia (85%) was found in Baiga tribe followed by Gond (24.4%), Kol (30%) and Pradhan (52%). The gene frequency of α gene was high in the four tribal population viz. Kol- 0.5278, Baiga 0.7465, Pradhan 0.3636 and Gond 0.6036. Such high frequency of α-thalassaemia type II as found in Baiga tribe is rarely reported from any indigenous population of the world. $-\alpha^{3.7}$ deletional allele is more common compared to $-\alpha^{4.2}$ deletional allele in all the four tribes. The distribution of α- gene was not following the Hardy-Weinberg Law for the natural distribution of gene in the population. The proportion of (-α/-α) homogygous alpha thalassaemia II was more at the cost of heterozygotes for all the four population but it was more pronounced in Baiga tribe. From the deviated values of Hardy-Weinberg's Law it appears that (-α/-α) homozygous alpha thalassaemia II is having advantageous selection (may be against malaria) in all the four population (Allen, 1997).

Fig 1.2.2: Prevalence of deletional form of alpha thalassaemia type II among four different tribal populations



Presence of alpha thalassaemia does not cause any clinical signs symptoms in the person but it causes mild microcytic anaemia or lowering of haemoglobin. The alpha thalassaemia is stated to provide protection against severe from of malaria and it also lower the clinical severity of sickle cell disease. In the present study there was no significant difference in the CBC profile of the four tribes. Hence the three category of alpha thalassaemia of all the four tribes were grouped together. The homozygousity of the alpha thalassaemia lowers the haemoglobin level and other haematological parameters (Table 1.2.1).

Anaemia is common in all the four tribes. Highest level (78.3%) of anaemia was found in Kol tribe followed by Pradhan (71.2%), Gond (65%) and Baiga (62.8%). Most of anaemic person (75%) falls under mild category (Hb <12 gm/dl). Person under severe anaemic category (Hb 7.0 gm/dl) were 1% to 2.5%. The anaemia was more common in children (below 12 years) and adult females (Table 1.2.2).

The mean haematological parameters of the four tribal populations for adult males and females, and children are given table 1.2.3. The mean haemoglobin levels are inconsistent with the data on prevalence of anaemia in the tribal populations, i.e. higher level of mean Hb in male group as compared to female and children groups. The mean value of MCV and MCH for female and male groups are in lower range, i.e. less than 72 fl and 25 pg respectively, suggesting that there is wide spread of hypochromic and microcytic anaemia in these groups.

Table 1.2.1: Haematological parameters of alpha thalassemia type II and normal individuals of tribal populations

Group	N	Hb (g/dl)	Hct (%)	TRBC ($x10^{12}$/l)	MCV (fl)	MCH (pg)	MCHC (g/dl)	WBC ($x10^9$/l)	PLT ($x10^9$/l)	HbF (%)	HbA_2 (%)
Normal (αα/αα)	87	12.0 ±1.9	35.9 ±5.5	4.7 ±0.7	76.6 ± 9.4	25.5 ±3.3	33.5 ±2.7	7.3 ±1.7	196.9 ±59.9	0.9 ±0.4	2.5 ±0.7
Homozygous ($-\alpha^{3.7}/-\alpha^{3.7}$)	113	11.6 ±1.5	34.0 ±4.4	5.0 ±0.7	68.8 ± 6.9	23.6 ±3.1	34.3 ±2.4	7.2 ±1.3	187.5 ±52.1	0.8 ±0.4	2.6 ±0.8
Hetrozygous ($-\alpha^{3.7}/\alpha\alpha$) and ($\alpha\alpha/-\alpha^{4.2}$)	86	11.7 ±1.7	35.0 ±4.8	4.8 ±0.7	73.5 ± 6.9	24.6 ±3.2	33.5 ±2.9	7.6 ±2.6	208.6 ±76.5	0.9 ±0.5	2.5 ±0.5

Table 1.2.2: Percent anaemia among four different tribal populations

	Group	N	Type of anaemia			Total Anaemia
			Mild	Moderate	Severe	
Gond	Male	81	40(49.4)	3(3.7)	0	43(53.1)
	Female	83	47(56.6)	14(16.9)	2(2.4)	63(75.9)
	Children	19	11(57.9)	2(10.5)	0	13(68.4)
	Total	**183**	**98(53.5)**	**19(10.4)**	**2(1.1)**	**119(65.0)**
Baiga	Male	90	42(46.7)	4(4.4)	2(2.2)	48(53.3)
	Female	97	44(45.4)	22(22.7)	3(3.1)	69(71.2)
	Children	31	18(58.1)	2(6.4)	0	20(64.5)
	Total	**218**	**104(47.7)**	**28(12.8)**	**5(2.3)**	**137(62.8)**
Pradhan	Male	**74**	36(48.6)	5(6.8)	1(1.4)	42(56.8)
	Female	**80**	45(56.3)	20(25.0)	0	65(81.3)
	Children	**9**	7(77.8)	1(11.1)	1(11.1)	9(100.0)
	Total	**163**	**88(54.0)**	**26(16.0)**	**2(1.2)**	**116(71.2)**
Kol	Male	63	30(47.6)	4(6.3)	1(1.6)	35(55.5)
	Female	109	68(62.4)	26(23.8)	4(3.7)	98(89.9)
	Children	12	11(91.7)	0	0	11(91.7)
	Total	**184**	**109(59.2)**	**30(16.3)**	**5(2.7)**	**144(78.3)**

Table 1.2.3: Haematological parameters of genetically normal populations of various tribal populations

Population	Group	N	Hb (g/dl)	Hct (%)	TRBC ($x10^{12}$/l)	MCV (fl)	MCH (pg)	MCHC (g/dl)	HbF (%)	HbA_2 (%)	WBC ($x10^9$/l)	PLT ($x10^9$/l)
Gond	Male	54	12.9 ±1.3	38.2 ±6.4	5.1 ±2.3	73.4 ±5.4	25.1 ±2.3	34.3 ±2.5	0.8 ±0.5	2.3 ±0.5	6.9 ±1.8	165.7 ±59.6
	Female	68	11.2 ±1.2	32.3 ±3.6	4.6 ±0.5	69.8 ±6.8	24.2 ±3.0	34.7 ±2.4	1.0 ±0.8	2.3 ±0.5	6.7 ±1.4	194.0 ±53.9
	Children	13	11.5 ±1.6	32.8 ±4.5	4.8 ±0.5	68.0 ±5.4	23.8 ±2.7	35.1 ±2.6	0.7 ±0.4	2.5 ±0.5	9.0 ±2.9	208.9 ±78.9
Baiga	Male	69	12.4 ±1.9	35.5 ±4.9	4.9 ±0.8	72.4 ±6.3	25.5 ±2.4	35.2 ±1.0	0.7 ±0.3	2.5 ±0.5	6.4 ±2.0	173.8 ±62.7
	Female	77	11.0 ±1.6	31.1 ±4.2	4.5 ±0.6	68.7 ±5.4	24.1 ±2.4	35.1 ±1.2	0.7 ±0.3	2.5 ±0.5	6.7 ±1.8	190.1 ±54.2
	Children	27	11.7 ±1.1	33.1 ±2.7	5.0 ±0.4	67.2 ±6.4	23.7 ±2.7	35.4 ±1.0	0.7 ±0.3	2.6 ±0.4	8.1 ±2.1	224.0 ±50.7
Pradhan	Male	40	12.8 ±1.8	40.1 ±4.1	5.2 ±0.6	77.0 ±7.9	24.7 ±3.8	31.9 ±2.7	0.9 ±0.4	2.1 ±0.6	6.9 ±1.8	177.4 ±64.2
	Female	56	10.9 ±1.3	34.7 ±3.3	4.7 ±0.7	75.6 ±9.7	23.7 ±3.9	31.3 ±2.6	0.9 ±0.4	2.2 ±0.6	7.5 ±1.6	226.9 ±67.9
	Children	7	10.3 ±2.0	33.2 ±4.9	4.9 ±0.5	67.3 ±8.9	20.9 ±3.4	30.9 ±3.1	1.3 ±0.4	2.2 ±0.5	9.9 ±2.7	295.1 ±65.3
Kol	Male	53	12.3 ±1.7	37.9± 5.2	5.5 ±0.9	69.9 ±6.6	22.7 ±2.7	32.6 ±1.3		2.5 ±0.4	7.8 ±2.4	217.9 ±104.5
	Female	92	10.6 ±1.8	33.1± 4.9	5.0 ±0.8	66.6 ±7.8	21.4 ±3.3	32.0 ±1.4		2.4 ±0.4	8.1 ±3.0	255.7 ±142.1
	Children	9	11.0 ±0.6	34.4± 2.5	5.4 ±0.8	64.7 ±6.0	20.7 ±2.8	31.9 ±1.6		2.3 ±0.5	10.2 ±3.2	262.3 ±74.3

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1.3. Morbidity profile of sickle cell disease in central India

Date of Starting : January 2002
Status : Ongoing
PI : Dr. R. B Gupta

Patients suspected to be suffering from hemolytic anaemia from in and around Jabalpur were referred to RMRCT, Jabalpur for diagnosis of the abnormal haemoglobins. The sickle cell disease patients were registered at Sickle Cell Clinic of RMRCT, Jabalpur and requested to attend the clinic after every three months and in between whenever needed. The clinic is operative on two days a week. The patients are given folic acid as supplementation and anti-pyretic and anti-inflammatory on SOS basis along with symptomatic outdoor treatment. Patients / parents were advised to avoid crisis precipitating factors.

Follow-up of sickle cell disease patients

Till March 2009, 470 sickle cell disease patients were registered in eight years. During the period 279 patients did not report for the followup regularly. Out of these 218 patients residing at a distance of 40 to 300 Kms. were contacted at their residence. Most of these patients (70%) were in BPL (below poverty line) category. Out of these 218 patients, 74 (33.9%) were not alive. From rest of 144 patients information regarding their absence was enquired. An attempt was made to assign cause of death to these deceased patients on the basis of signs and symptoms of their last illness and available medical records. Among 144 surviving patients about 85% were less than 20 years and 6.3% were more than 30 years.

A. Reasons for loss to follow-up (N=144)

Most common reason (87.5%) for loss to follow up was distance and the patients and their attendant has to spend a lot of money to attend the clinic. Most of these patients are in BPL category. About seventy-four percent respondent narrated that attendant has to lose the wages and patient miss the school along with the money spent on the travel. About 20% patients were not so ill to attend the clinic. About one-fourth patients (24.3%) told that they have to go to various private physicians in case of emergency as emergency services are not provided by us. Only 5.5% patients reported they did not get expected relief from our services.

Treatment received: Most of the patients (N=144) (93.8%) were seeking for medical services only in case of emergency. Only 6.2% patients were on Hydroxyurea therapy which was also not regular. The CBC profiles of these patients were not monitored.

Illness for which medical intervention sought: Many patients gave more than one reason for seeking medical treatment. The most common illness was fever (95.8%), joint pain (87.5%),

anaemia (15.3%), jaundice (16.7%) and other (9.7%). More than one-fourth patients (27.8%) were seeking medical intervention two or less than 2 times a year and 53.5% patients required medical treatment 3 times a year. Only 2.1% patients sought medical treatment more than 6 times a year.

B. Cause of death

Most common cause of death was hepatic failure or complications and splenic sequestration i.e. 27% each. Eight percent patients died of dehydration and 5.4% died due to high grade fever. Seven percent patients had acute ischaemic stroke, 2.7% had brain stroke / infarction and 9.4% patients had other reasons. In 13.5% cases cause of death could not be ascertained due to non-availability of history of last illness. The mean age at death of the patients is 13.3± 8.0 years.

2. COMMUNICABLE DISEASES

2.1. Epidemiology of viral hepatitis in tribal populations of Orissa, Madhya Pradesh/Chhattisgarh and Jharkhand, India

Date of Starting : March 2006
Duration : 4 Years
Status : Ongoing
PI : Dr. V.G. Rao

Viral hepatitis continues to be a major public health problem in India. It has been estimated that one third of the world's population is infected with hepatitis B and that there are 300 million carriers in the world. HBsAg carrier rate in Indian population is between 2 - 7%. Since large part of both Madhya Pradesh and Chhattisgarh are hilly, forested and inaccessible with poor communication facilities, control of viral hepatitis is logistically difficult. The present study is the first to provide magnitude of the problem of viral hepatitis and the factors for disease transmission in primitive tribal communities of central India.

Objectives

1. To determine the prevalence of antibodies to hepatitis A and hepatitis E viruses.
2. To determine the prevalence of hepatitis B, C and delta viruses.
3. To assess the risk factors for transmission of hepatitis viruses.
4. To determine the circulating genotypes of HBV & HCV and prevalence of pre-core and basal core promoter mutants of HBV.

Methodology

This is an ICMR task force study being undertaken among primitive tribal communities in different parts of the country. The primitive tribes in Madhya Pradesh and Chhattisgarh are covered by the centre. All the seven primitive tribes in Madhya Pradesh and Chhattisgarh have been covered under the study viz. Baigas, Bharias, Saharias in Madhya Pradesh and Abujhmarias, Hill Kowas, Kamars and Birhors in Chhattisgarh. The study methodology involves collection of demographic and socio-cultural information from the households and information on risk factors from the study individuals using a structured questionnaire. A written informed consent was obtained from all the participants. The blood samples were collected from the study population; plasma/serum separated on site, aliquoted and transported to the laboratory maintaining the cold chain. Serology for HAV, HBV and HCV was conducted by using commercial ELISA kits. HBV genotyping was carried out at National Institute of Virology, Pune. Polymerase Chain Reaction (PCR) was employed to detect HBV DNA and for genotyping.

Findings

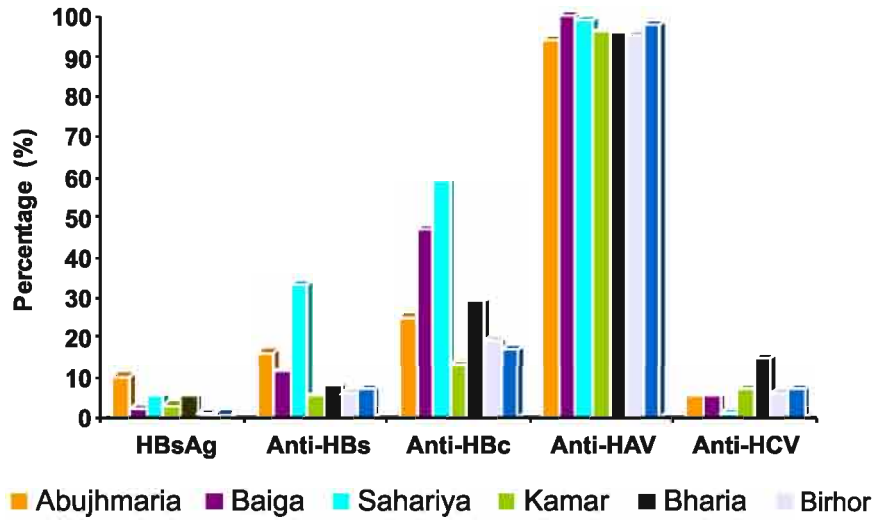
A total of 1223 subjects were screened in the study. The prevalence of hepatitis B was higher in males (80.5%) as compared to females (19.5%). The prevalence of hepatitis C was higher in females (53%) as compared to males (47%). Table 2.1.1 shows the age wise distribution of hepatitis markers.The overall HBV prevalence was found in the range of 3 -4 % in all the age groups. The anti-HCV prevalence was higher in the age group of 20-50 yrs (8%).Tribe wise seroprevalence of hepatitis markers is shown in Figure 2.1.1. The prevalence of HBsAg varies between 0.6% - 10% in these tribes. The prevalence of Anti HBs and Anti HCV has been found to be ranging between 5-33% and 1-14.4% respectively. High Anti HCV prevalence was found in Bharia tribe (14.4%). Molecular studies of HBV isolates indicated a predominance of genotype D in the region.

Table 2.1.1: Age-wise distribution of hepatitis markers

Viral markers	Percent positive		
	<20yr	20-50yr	>50yr
HBsAg	4% (209)	3% (756)	4% (238)
Anti-HBc	18% (195)	26% (727)	43% (220)
Anti-HAV	89% (205)	99% (745)	98% (233)
Anti-HCV	6% (205)	8% (745)	7% (229)
Anti-HEV	31% (197)	50% (723)	52% (219)
Anti HBsAg	8% (206)	11% (738)	14% (227)

Values in parentheses are number of sample tested

Fig 2.1.1: Seroprevalence of viral hepatitis among the primitive tribes



2.2. Prevalence of Pulmonary Tuberculosis in Jabalpur District of Madhya Pradesh

Date of Starting	:	January 2009
Duration	:	1Year & 5 months
Status	:	Ongoing
PI	:	Dr. V.G. Rao

This is the sentinel site study approved by the Central TB Division, Govt. of India as an activity under millennium development goals for TB in India. The study is being funded by WHO under Model DOTS project.

Objectives

1. To estimate the prevalence of bacillary tuberculosis in Jabalpur District of Madhya Pradesh among population aged ≥ 15 years.
2. To study the change in prevalence rates on follow-up surveys using same methodology in future at regular intervals of five years.

Methodology

This is a cross sectional survey to be conducted among the urban as well as rural population of Jabalpur district of Madhya Pradesh. The sample size has been estimated to be 90,000 adults aged ≥15 years. District is the sampling universe for the study. Rural and urban clusters have been sampled separately so that the rural-urban distribution in the sample is similar to the rural-urban distribution of population in the district. Urban cluster is defined as an area defined by boundaries of municipal wards or census blocks. Rural cluster is a village. The eligible persons ≥15 years are screened for symptom inquiry after registering the entire population in the selected cluster. Two sputum samples, one spot and one overnight are collected in sterilized McCartney's bottles and examined for microscopy and culture. All diagnosed cases are referred to the nearest DOTS centre for anti-TB treatment as per the RNTCP guidelines.

Findings

The survey in the rural population has been completed. The survey in urban population is in progress. The details of the census, number of symptomatics, sputum collection and sputum positive cases along with the coverage are given in table 2.2.1. A total of 55278 eligible individuals have been covered so far. Of these, 4734 (8.56%) individuals were found symptomatic. Sputum was collected from 4548 (96.07%) symptomatic individuals who were eligible for sputum collection. A total of 136 cases (smear/culture positive) have been identified and are referred to the nearest DOTS centre for anti-TB treatment as per the RNTCP guidelines. Field work, laboratory examination and data entry is in progress.

In addition to the funds for this project (Rs. 83.7 lacs), supplies (Lab. equipments and the vehicle) worth $66,000 have also been received from WHO for tuberculosis work.

Table 2.2.1: Census, sputum eligible and PTB cases in Jabalpur district

Area	Taluq/ Municipal corp.	Total Census	Eligible Screenin (>15)	Total Screened	Total Sputum Eligible	Total Sputum Collected	Sputum +ve cases
Rural	Kundam	7679	4833	4667(96.5)	586(12.56)	570(97.27)	25
	Sihora	16429	11143	10980(98.4)	1211(11.3)	1181(97.52)	39
		17516	11863	11309(95.3)	1117(9.88)	1074(96.15)	37
	Jabalpur	16768	12202	11900(97.2)	872(7.33)	841(96.44)	29
Total		**58392**	**40041**	**38856(97.4)**	**3786(9.74)**	**3666(96.83)**	**130**
Urban	JBP Municipal Corporation	23567	17483	16422(93.93)	948(5.77)	882(93.04)	6*
Grand Total		**81959**	**57524**	**55278(96.10)**	**4734(8.56)**	**4548(96.07)**	**136***

*Testing in progress; Figures in parentheses indicate percentages.

2.3. Molecular Epidemiology of Community Acquired *Staphylococcus aureus* Strains from Primitive Tribes of Madhya Pradesh

Date of Starting	:	May 2007
Duration	:	3 Years
Status	:	Ongoing
PI	:	Dr. Jyothi Bhat

MRSA is a widely prevalent problem in nosocomial infections. Recently it has been proved that community acquired methicillin resistant *S.aureus* (CA-MRSA) is also emerging as an infective agent. The present proposal would like to assess the extent of drug resistance in *S. aureus* especially methicillin among different primitive tribes of M.P. It is assumed that certain risk factors that are present in urban set up may not be present in primitive tribes. The proposal on completion would certainly lead to defining the extent of drug resistance in the tribes.

Objectives

1. Prevalence and characterization of CA-MRSA
2. Genotyping of MRSA strains

Methodology

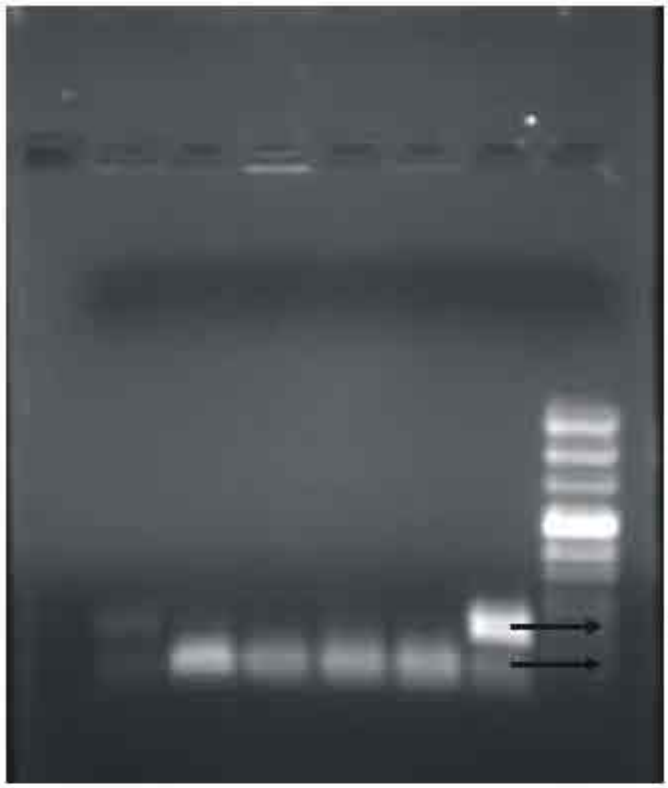
After obtaining the informed consent, parent's / guardian's in case of minor, nasal swabs were collected from healthy individuals. The samples were inoculated on a selective medium of brain heart infusion (BHI) agar containing 10% NaCl and 0.01% bromocresol purple as an indicator. *S.aureus* was identified by standard methodology. Antimicrobial susceptibility testing was done by Kirby Baeur disc diffusion method as well as Minimum inhibitory concentration (MIC) for oxacillin. Resistance to oxacillin by MIC method was considered as standard for identifying methicillin resistant *S.aureus.*

The multiplex PCR and PFGE will be performed for genotyping. The presence of the *mec*A (gene coding for penicillin binding protein 2A) and *fem*A (factor essential for methicillin resistance) genes will be used as internal control for detection of MRSA.

Findings

Bharia: In Bharia tribe 248 swabs collected, *S.aureus* was detected in 22 (8.8%) specimens. Of these 4 (1.6%) were methicillin resistant.

Saharia: Total of 288 swabs were collected, of these 9 (3.1%) were *S.aureus* and 4 of the strains were methicillin resistant. The genes mecA and femA were also detected from the strains.



Lane 2 - 7: samples
Lane 8: DNA marker

Band showing gene mecA and femA

3. VECTOR BORNE DISEASES

3.1. Preparation of a Field Site for Malaria vaccine trial in and around Jabalpur

Date of Starting	:	May 2005
Duration	:	5 Years
Status	:	Ongoing
PI	:	Dr. Neeru Singh

Recent advances in malaria vaccine development have led to the realization that an effective vaccine for the prevention and control of malaria may be within our reach. However, testing of vaccines requires a well-characterized field site, where the epidemiology of the disease is well understood. It is also important that the baseline data on immune responses, parasite diversity, and mosquito characteristics be available in the area where vaccines have to be tested. The purpose of this project is to develop a well characterized field site for vaccine testing. This multi-disciplinary study combines field and laboratory studies aimed at investigating parasite infection, host immune responses, and host, parasite, and mosquito characteristics in a well designed epidemiologic framework.

The study has four arms viz., (A) Molecular Biology Component, (B) Immunological Component, (C) Epidemiology, and (D) Entomology component. The RMRCT is collaborating with NIMR (Field Station) Jabalpur only on molecular biology and immunological components of the study which are discussed here-

A. Molecular Biological Component

Objectives

The objectives of this component are as under -

1. To determine the nature and extent of polymorphisms in vaccine antigen and drug resistant genes of *P. falciparum* and *P. vivax*
2. To determine whether natural polymorphisms in vaccine genes abrogate immune recognition and to determine the role of host genetic factors in susceptibility and protection.
3. To determine the prevalence of chloroquine and sulfadoxine/pyrimethamine (SP) resistant mutants.

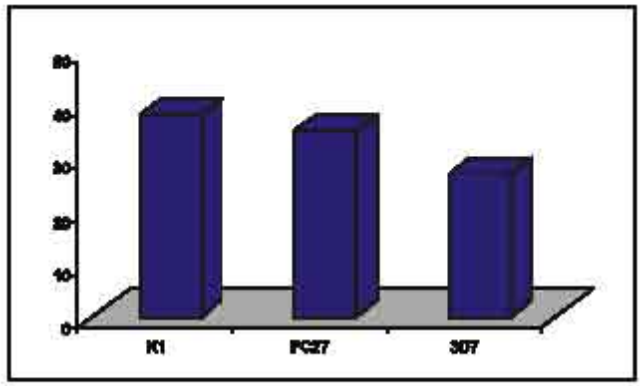
Findings

DNA Sequencing of Merozoite surface proteins 3 of *P. falciparum*

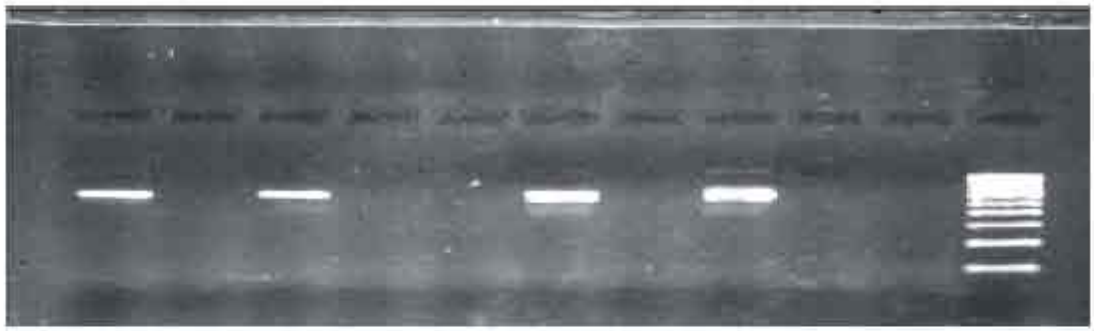
Under molecular biology component of the project we have sequenced the Merozoite

Surface Protein 3 (MSP3). The genomic DNA was isolated from 50 blood samples. Enzymatic amplification of PfMSP3 was attempted and successful amplification & sequencing was achieved for 26 isolates. The amplification was done for approximately 550 bp long central repeat region of the PfMSP3 to study the genetic variation. Sequences of these samples were analyzed and compared to the references sequences to find out the variations at the nucleotide level as well as amino acid level. The overall allelic prevalence was observed higher in K1 (38%) followed by FC27 (35%) and 3D7 (27%). Only two variants in K1 while no variant were observed in FC27 & 3D7 type allele.

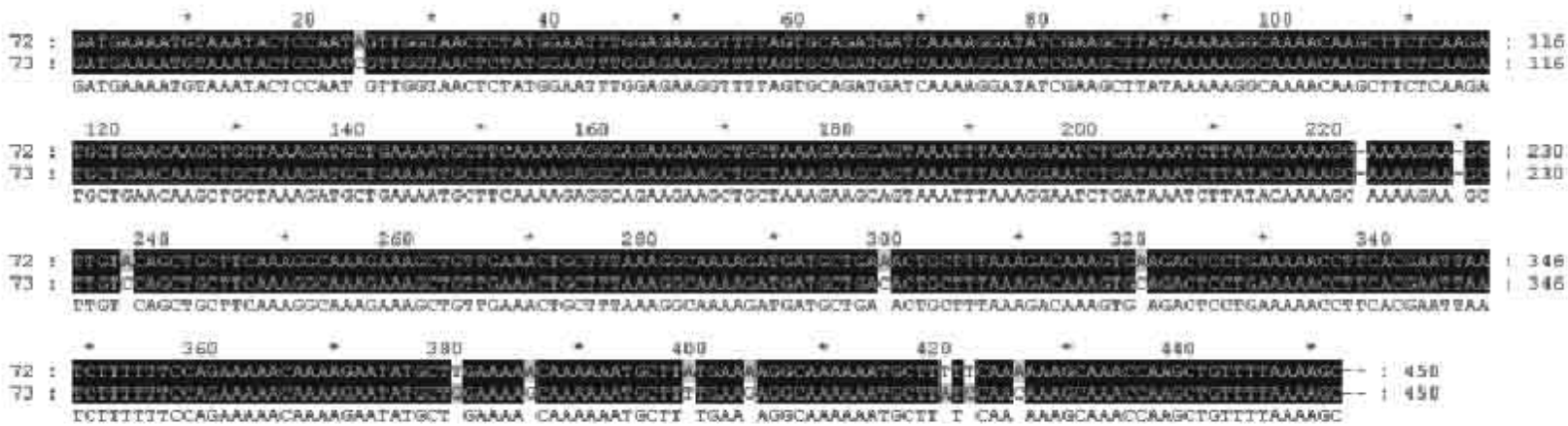
Fig 3.1.1: MSP3 Allelic prevalence among the study samples



B. Immunology Component

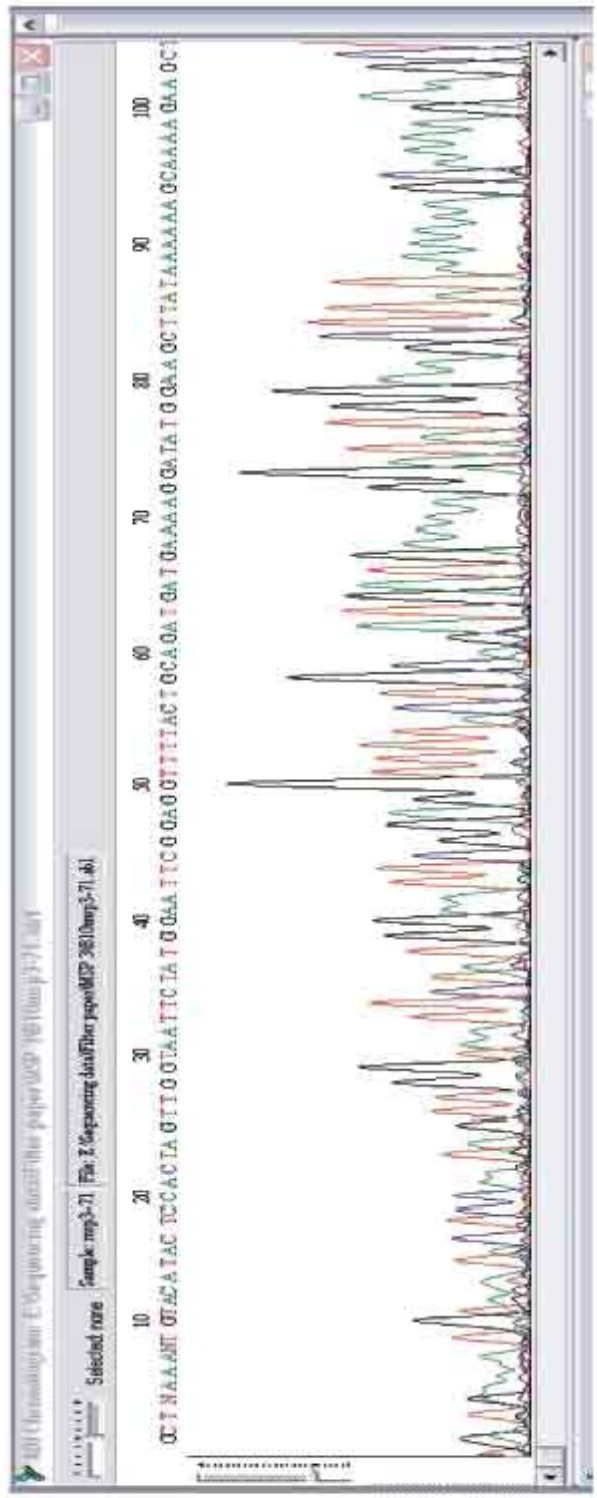


Amplification of PfMSP3



Alignment of nucleotide sequences of the central repeat region of *Plasmodium falciparum* merozoite surface protein 3.

Alignment of deduced aminoacid sequences of the central repeat region of *Plasmodium falciparum* merozoite surface protein 3.



Electropherogram of merozoite surface protein 3 decoding the K1 family of MSP3

B. Immunology Component

Objectives

The objectives of immunology component of the study are as under-

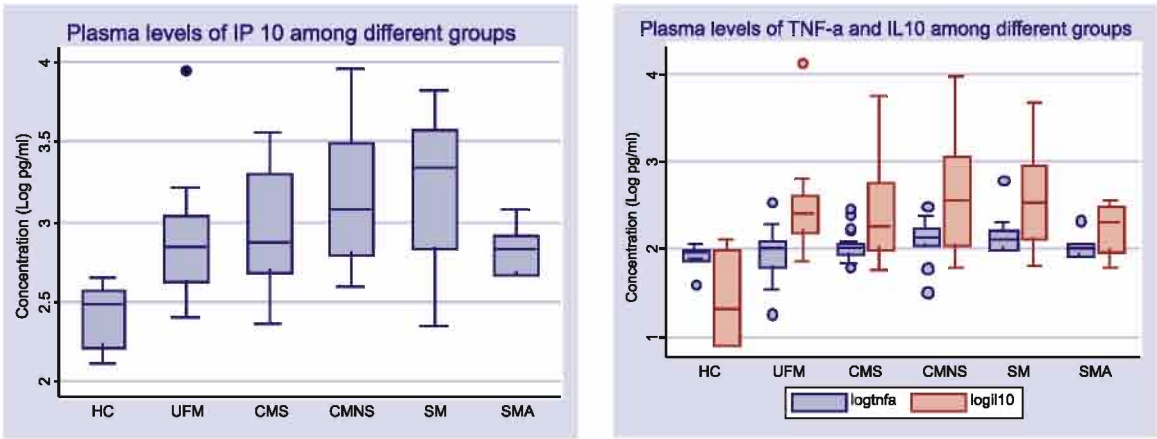
1. To characterize immune responses to stage-specific *P.falciparum* and *P.vivax* antigens in children and adults naturally exposed to malaria.
2. To study the development and maintenance of immune responses in different age groups with emphasis on infants, their older siblings, mothers, and fathers through identification of epitopes that correlate with protection.
3. To evaluate the immune mechanisms, those are involved in pathogenesis of malaria, especially anemia, cerebral malaria and placental malaria.

Findings

Cytokine measurement

Plasma levels of cytokines were measured among different groups of malaria severity in order to know their possible role in malaria related immunopathology. We found that plasma levels of IP-10 were progressively increased with the disease severity and especially high among those who suffer from vital organ dysfunction such as brain, kidney and liver. TNF-alfa was high among cerebral malaria nonsurvivors cases, cases with vital organ dysfunction other than brain and among severe malaria anemia cases.

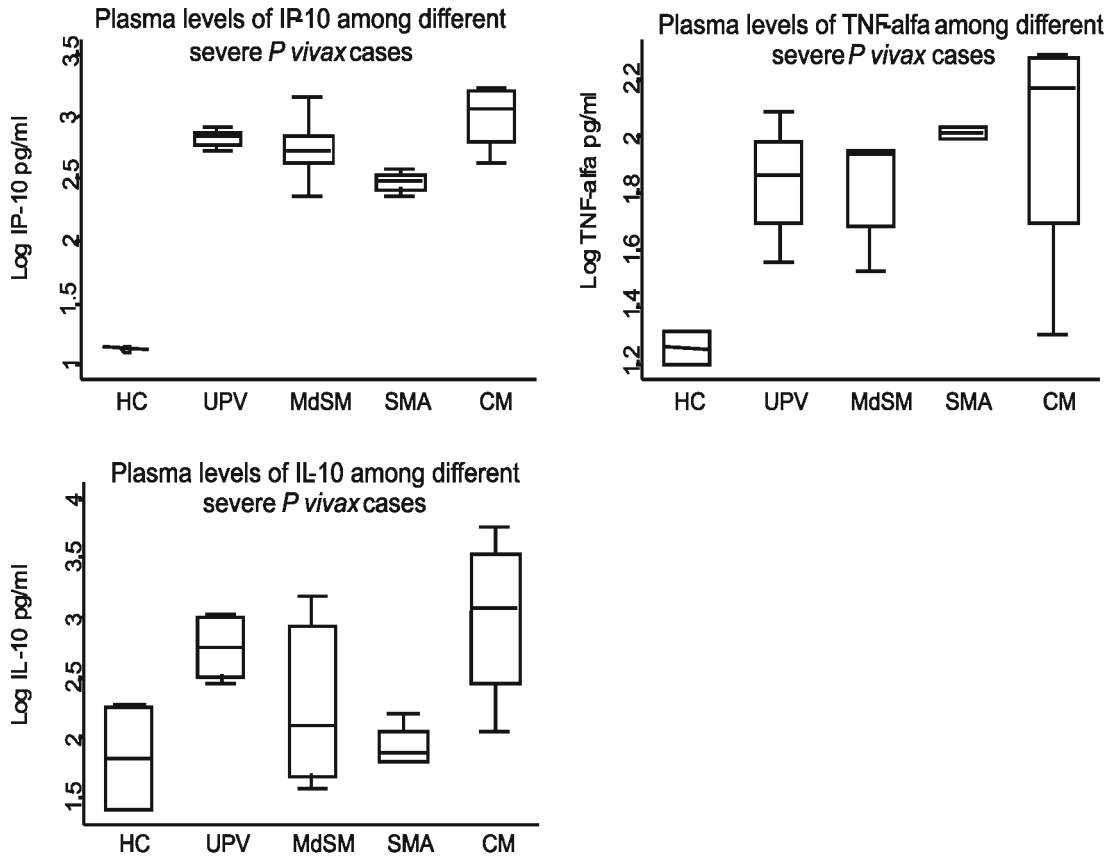
Fig 3.1.2: Plasma levels of IP 10, TNF-alfa among different groups



(HC = Healthy Control, UFM = Uncomplicated falciparum malaria, CMS = Cerebral malaria survivors, CMNS = Cerebral malaria nosurvivors, SM = Severe Malaria, SMA = Severe malaria anemia)

We also did immunological investigation among subset of *P vivax* severe cases. So far the results indicated that IP-10 and TNF-alfa molecules are triggered in severe vivax also but small sample size limit us to conclude anything significantly. However, it looks that IL-10/TNF- α ratio was low in severe malaria anemia (SMA) caused by both *P. falciparum* and *P. vivax*.

Fig 3.1.3: Plasma levels of IP-10, TNF-alfa and IL-10 among different sever *P.vivax* groups



(HC = Healthy control, UPV = Uncomplicated *P. vivax* malaria, MdSM = Moderately severe malaria, SMA = Severe malaria anemia, CM = Cerebral malaria)

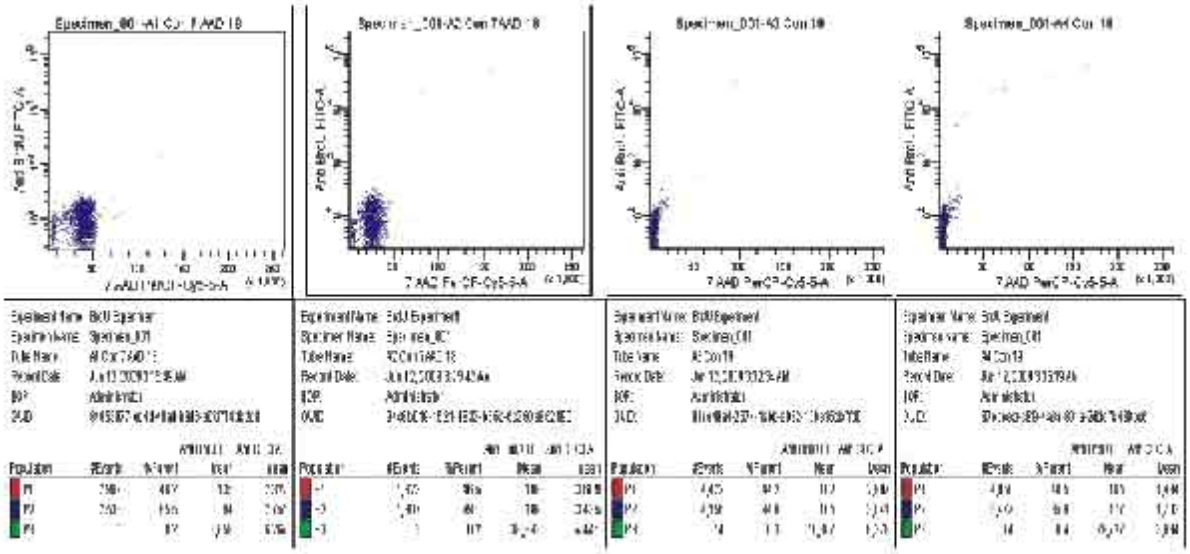
Fluorescent Activated Cell Sorter

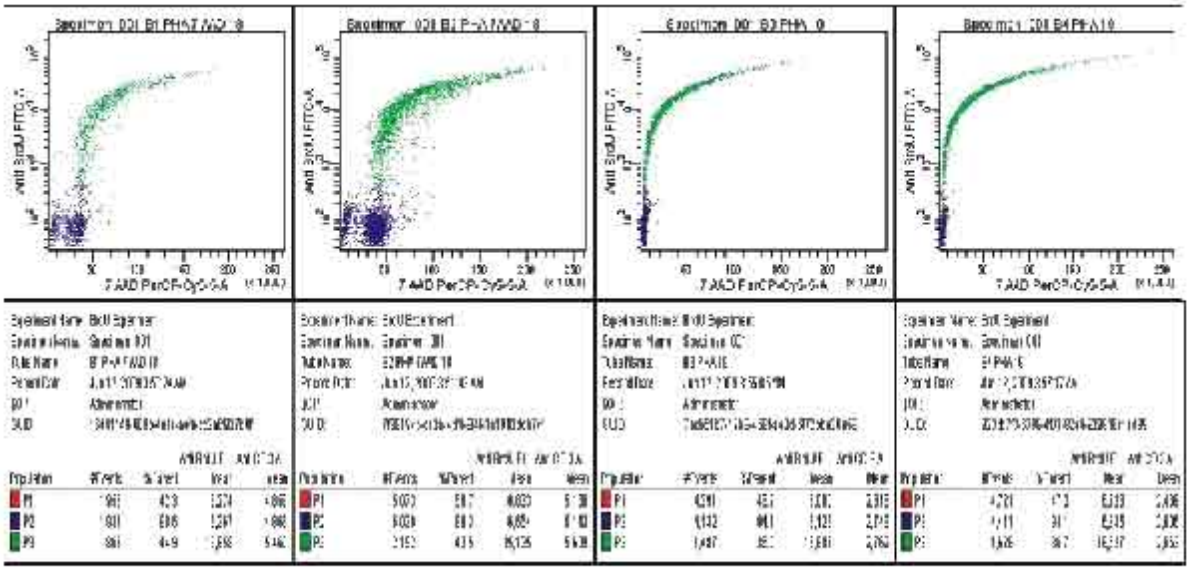
Under the immunological component cellular immune response against different stage specific vaccine molecules of 100 subjects aged more than 14 years was undertaken. FACS provides a sensitive technique to evaluate the proliferative cell population in response to any stimulant.

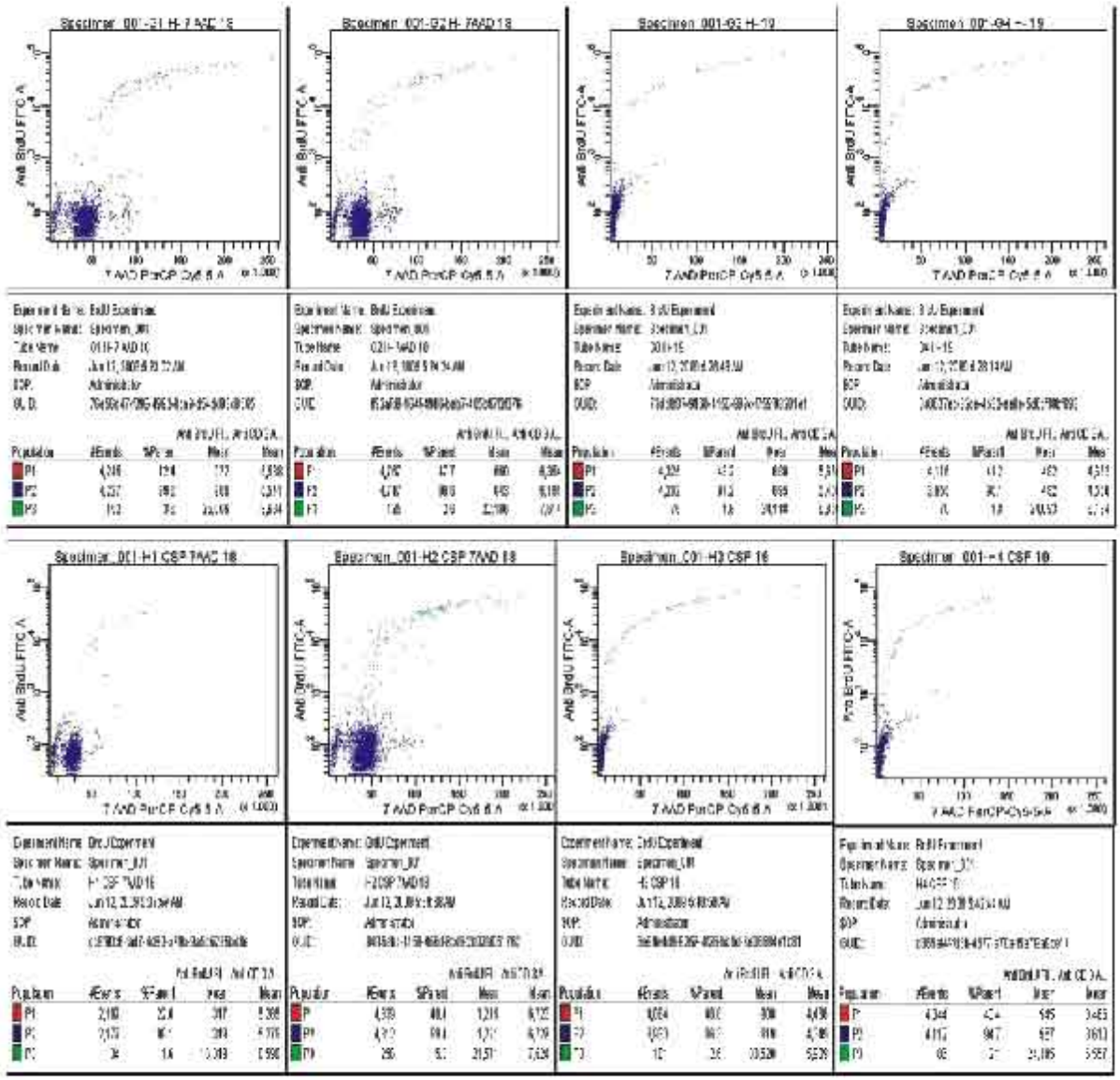
The equipment has 3 laser, 11 parameter detection and 4 way sorting facility. We are presently conducting cellular mediated immune response in PBMC cells isolated from subjects who had previous *P. falciparum* and *P. vivax* infection. The purpose is to first quantitate proliferative population (Brdu incorporation) and further proportionate CD4/CD8 population (cell surface markers) in response to the multivalent/multiepitope FALVAC vaccine molecule and other stage specific recombinant/synthetic vaccine.

So far we have tested CMI response to MSP-19KD, 42KD, 83 KD, CSP and FALVAC vaccine molecules. PHA is taken as positive measure of cell proliferation as it is a well known mitogen, unstimulated culture (no vaccine molecule/PHA) is taken as negative control. Synthetic peptide were used at 10 µg/ml and recombinant antigen at 1 µg/ml. Incubated culture (120 hrs / 5% CO2) was incorporated with 10 µM concentration of Brdu and incubated for 12 hrs. Surface staining has been done by CD3-APC antibodies. Cell were fixed and permiablized by cytofix/cytoperm. DNase treatment is given in order to expose incorporated Brdu. Staining is carried out by FITC conjugated antibodies. Whole DNA staining is done by 7AAD. 10,000 events were recorded by flowcytometry.

Our results showed excellent cell proliferation in PHA stimulated cells and very low proliferation in unstimulated cell population. MSP 83KD and FALVAC showed better stimulation than other molecules. The study is in progress.







3.2. Evaluation of Rapid Diagnostic Test vs. Traditional and Molecular Techniques for Malaria

Date of Starting	:	August 2008
Duration	:	1 Year
Status	:	Ongoing
PI	:	Dr. Neeru Singh

Objectives

1. To evaluate sensitivity, specificity of rapid diagnostic method (malaria Pf/Pv kit), in comparison with microscopy and polymerase chain reaction (PCR) for diagnostis of *Plasmodium falciparum* and non falciparum malaria.

Findings

In all 682 patients with fever suspected to have malaria were tested with new RDT in parallel with microscopy (Table 3.2.1). Microscopically confirmed malaria cases were 297 (43.5%) with 89 *P. vivax* (30%), 200 *P. falciparum* (67%) and 8 mixed infection of *P. vivax* and *P. falciparum* (3%). The RDT showed 347 (50.9%) malaria positive out of 682 cases, of which 96 were *P. vivax* (28%), 249 *P. falciparum* (71%) and 2 mixed infection (0.6%). Using microscopy as Gold standard, the sensitivity and specificity of the RDT for *P. vivax* was 79 and 96% respectively. However, for *P.falciparum* sensitivity and specificity was respectively 85 and 84%. Out of 682, only 283 samples were tested by PCR (Table 3.2.2), of which 156 (55%) were found malaria positive, 80 with *P.vivax* (51%), 48 with *P. falciparum* (31%) and 28 mixed infection (18%).

Parasitaemia counting: Number of parasites were quantified by counting parasites against 200 leucocytes in thick films. Results revealed that in field, parasitaemia for *P. falciparum* ranged from 80 to 100400 parasites per µl of blood while for *P.vivax* it ranged from 80 to 13920. In the hospital, parasitaemia for *P. falciparum* ranged from 120 to 39520 parasites per µl of blood while for *P.vivax* it ranged from 240 to 9800 parasites per µl of blood.

The results show that where *P. falciparum* asexual parasitaemia is greater than 200 parasites/µl, the RDT is 86% sensitive. At higher levels of prasitaemia, the sensitivity of the test increases. Similarly for *P. vivax* the sensitivity of the test were 87% when asexual parasitaemia is >200 parasites/µl of blood. The 100% sensitivity is recorded when parasitaemia is ≥ 3000 parasites/µl of blood.

Table 3.2.1: Evaluation of Rapid diagnostic test kits (RDTs) vs. blood smear by microscopy

Area	Blood Smear					RDT				
	Exam.	Pos	Pf	Pv	Mix	Tested	Pos	Pf	Pv	Mix
Hospital	66	36	27	9	0	66	62	51	11	0
Field	616	261	173	80	8	616	285	198	85	2
Total	**682**	**297**	**200**	**89**	**8**	**682**	**347**	**249**	**96**	**2**

Pos Positive for malaria; Pv *Plasmodium vivax*; Pf *P. falciparum*
Mix Mixed infection of *P. vivax* and *P. falciparum*

Table 3.2.2: Evaluation of Rapid diagnostic test kits (RDTs) vs. microscopy and PCR*

Area	Blood smear					RDT					PCR				
	Exam	Pos	Pf	Pv	Mix	Tested	Pos	Pf	Pv	Mix	Tested	Pos	Pf	Pv	Mix
Hospital	57	29	20	9	0	57	54	43	11	0	57	36	22	10	4
Field	226	81	33	40	8	226	92	44	46	2	226	120	26	70	24
Total	**283**	**110**	**53**	**49**	**8**	**283**	**146**	**87**	**57**	**2**	**283**	**156**	**48**	**80**	**28**

* Out of 682, PCR was performed in 283 samples.

Temperature stability test: For testing temperature stability (Table 3.2.3 & 3.2.4), the RDTs were kept at 60°C for upto 48h, at -10°C for 60 minutes and at 35°C or 45°C for upto 90 days before testing. RDTs were tested for each temperature/ time point and comparison were made with control RDTs kept at 4°C until use and with microscopy. Table 3.2.3 showed the RDT stability for *P. vivax* at high and low temperature. Out of total 10 samples tested for each temperature/ time point, eight were Pv positive and 2 negatives in normal temperature. RDTs kept at 35 and 45°C temperature detected 7 Pv, 1 mixed infection of Pf and Pv and 2 negatives. RDTs kept at 60°C showed 6Pv, 1 mixed and 3 negative result. Whereas RDT of -10°C detected 8 Pv and 2 negative for malaria. By microscopy, (Table 3.2.4) 9 Pv and 1 Pf was diagnosed. Table 4 showed RDT stability for *P. falciparum*. The RDT kept at 35°, 45°, 60° and -10°C all showed 100% matching results with blood smears examined by microscopy.

In conclusion, the test is easy to perform, rapid, simple to interpret and stable in the field for both *P. vivax* and *P. falciparum*.

Table 3.2.3: Heat stability testing results for *P.vivax* samples at baseline and after 90 days incubation at 35°C and 45°C

Sample No.	Normal temp.	35°C*	45°C*	60°C**	-10°C***	Blood Smear	Parasites/µl of blood
1	Pv	Pf/mix	Pf/mix	Pf/mix	Pv	PvRTG	7800
2	Pv	Pv	Pv	Pv	Pv	PvRTG	9360
3	Pv	Pv	Pv	Pv	Pv	PvRTG	3400
4	Pv	Pv	Pv	Pv	Pv	PvRTG	1400
5	Pv	Pv	Pv	Pv	Pv	PvRTG	5960
6	Pv	Pv	Pv	Pv	Pv	PvRTG	8760
7	Pv	Pv	Pv	Neg	Pv	PvRTG	360
8	Pv	Pv	Pv	Pv	Pv	PvRTG	1840
9	Neg	Neg	Neg	Neg	Neg	PvTG	520
10	Neg	Neg	Neg	Neg	Neg	PfRG	200

Note-

* RDT kept at 35°C / 45°C for 90 days before testing

** RDT kept at 60°C for 48 hours before testing

*** RDT kept at -10°C for one hour before testing

Table 3.2.4: Heat stability testing results for *P. falciparum* samples at baseline and after 90 days incubation at 35°C and 45°C

S.No.	Normal temp.	Temperature				Blood Smear	Parasites/ cubic mm	Result first response
		35°C*	45°C*	60°C**	-10°C***			
1.	Pf	Pf	Pf	Pf	Pf	PFR	160	Pf
2.	Pf	Pf	Pf	Pf	Pf	PFR	280	Pf
3.	Pf	Pf	Pf	Pf	Pf	PFR	240	Pf
4.	Pf	Pf	Pf	Pf	Pf	PFR	200	Pf
5.	Pf	Pf	Pf	Pf	Pf	PFR	1880	Pf
6.	Pf	Pf	Pf	Pf	Pf	PFR	277560	Pf
7.	Pf	Pf	Pf	Pf	Pf	PFR	124480	Pf

Note

* RDT kept at 35°C/45°C for 90 days before testing

** RDT kept at 60°C for 48 hours before testing

*** RDT kept at -10°C for one hour before testing

3.3. Evaluation of the Introduction of Insecticide Treated Mosquito Bed Nets (ITMN) for Malaria Control in Tribal Population of Central India

Date of Starting	:	October 2008
Duration	:	1 Year 3 Months
Status	:	Ongoing
PI	:	Dr. Neeru Singh

The Study was initiated for the assessment of the feasibility of the introduction, treatment and effectiveness of insecticide treated mosquito nets in tribal areas of Madhya Pradesh

Objectives

To assess the feasibility of the introduction, treatment and effectiveness of the insecticide treated mosquito nets (ITMN) in tribal areas of Madhya Pradesh, India.

Methodology

The study was started in 4 districts viz. Mandla, Balaghat, Betul and Seoni. Five villages in each district were selected on the basis of availability of insecticide treated bed nets. These nets were distributed in the year 2005 by state health department. Five without net villages of Dindori district were also surveyed for fever surveillance as control.

Findings

The report of the surveys carried out in non-transmission (February - March) and transmission (July - October) season is as under:

Entomological evaluation

Indoor vector density: The average per man hour density of indoor resting anophelines observed in study villages was 17.5 in non transmission season of which the density of malaria vectors *Anopheles culicifacies* and *An.fluviatilis* was 13.8 and 0.12 respectively. During transmission season, the anopheline density was 77.8 of which *An. culicifacies was 25.8 followed by An.fluviatilis (0.15).*

Vector incrimination by ELISA: A total of 263 *An.culicifacies* and 1 *An.fluviatilis* collected from all 4 districts were assayed for sporozoite ELISA technique of which none were found positive for the presence of sporozoites.

Cone Bio-assay test: The residual efficacy of bed nets against *An.culicifacies* was assessed by WHO cone bio-assay test technique. The re-impregnation of nets in study villages is carried out by state health department. But due to non availability of funds re-impregnation could not be done in time (i.e. in every 6 months). Only in 50% villages, re-impregnation was done in 6 months and in other villages it could be done either in 12 months or in more than 12 months. Therefore we could assess those nets which were re-impregnated (i) 4 to 6 months (ii) 6-12 months and (iii) > 12 months prior to our tests. An average of 53.8 to 95.1% corrected mortality of *An.culicifacies* was observed in those nets which were re-impregnated 4 to 6 months prior to our tests, 16.0 to 44.7% in those nets which were re-impregnated between 6-12 months prior to our tests and only 5.0 to 7.0% in those nets which were impregnated > 12 months prior to our tests.

Disease prevalence: During the visit, parasitological point prevalence surveys were carried out in all bed net study villages of Mandla, Balaghat, Seoni and Betul districts. Further to monitor the impact of Bed nets, parasitological point prevalence was also carried out in some villages of Dindori and Balaghat districts where no bed nets distributed. Only 6.5% malaria positive cases were detected in bed net villages with 61% *P.falciparum* where as in non bed net villages of Dindori and Balaghat districts, 37% were found positive with 86% *P.falciparum*.

3.4. Field Evaluation of Bacticide DT (Dispersible Tablets), a formulation of *Bacillus thuringiensis var.israelensis* H-14, strain164 against Larvae of Mosquito Vectors

Date of Starting	:	February 2009
Duration	:	2 Years
Status	:	Ongoing
PI	:	Mr. Gyan Chand

Among the alternative methods to insecticide based vector control, different formulations of *Bacillus thuringiensis israelensis* (BTI) spores (serotype H-14) have been found effective against larvae of many mosquito species. Several commercial formulation of BTI are available in the market for the control of various mosquito vectors while most of the BTI formulation gives good control initially, it does not appear to persist longer in most situations. Therefore new formulations in the form of tablet (Bacticide DT) that may have long lasting effect and have greater use in the vector control program have been developed. This new formulation was evaluated in laboratory on few samples. One BTI tablet (400 mg approx.) was found to be effective against *Aedes aegypti* upto two weeks in small containers.

Objectives

1. To evaluate the effectiveness of Bacticide DT formulation for control of *Aedes aegypti, An. culicifacies* and *Culex quinquifasciatus* in a locality.
2. To assess the persistence of Bacticide DT in different type of mosquito breeding habitats.
3. To assess the operational dose and its frequency of use

Methodology

The study is being carried out in a semi urban area named Barela and a small area of Jabalpur city. These areas have been selected because of outbreak of dengue in the year 2007, for testing the efficacy of bacticide DT against *Aedes aegypti* and other vectors. Larval density was monitored using dipper (Bowl) of 4 inch diameter. Three dips were taken from each positive container. Containers showing 4 and more larvae per dip were considered for treatment with bacticide DT tablet formulation @ one tablet per container having surface area up to one sq. meter. Impact of bacticide on larval density was monitored in these containers on day 1, day 2, day 3, day 7, day 14, day 21 and day 28.

Apart from this area another area having similar type of housing pattern were selected as control where no intervention was provided but monitoring of larval density was carried out as in experimental area.

Findings

In all 73 containers were treated with Bacticide but impact was monitored in 63 containers up to day 7, in 57 up to day 14 and in 47 up to day 21 because of non cooperation of house holders. Fifty seven were positive for *Aedes aegypti* alone and five were positive for mix infestation of *Ae. Aegypti* and Anophelines infestation. Average larval density of 1-2 instar and 3-4 instar was 21.1 and 16.6 per three dip on day 0 in experimental area and 20.3 and 13.8 in control area (19 containers).

There was a significant reduction (corrected) in larval density up to day 14 in both the categories of larval instar but the impact was more on 3-4 instar. Average density 1-2 instar larvae increased on day 21 and day 28 as compared to day 0. However, reducing trend was maintained in case of 3-4 instar larval and pupal density (Figure 3.4.1 - 3.4.4).

In case of Anophelines more than 90% reduction in larval density was recorded up to day 21. In one container density of Ist and IInd instar larvae on day 21 were significantly increased than base line density. The study is in progress.

Fig.3.4.1: Corrected reduction of larval and pupal density in bacticide DT treated containers

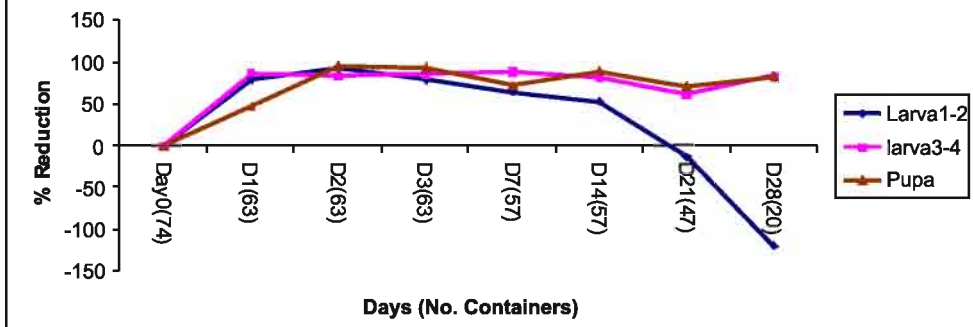
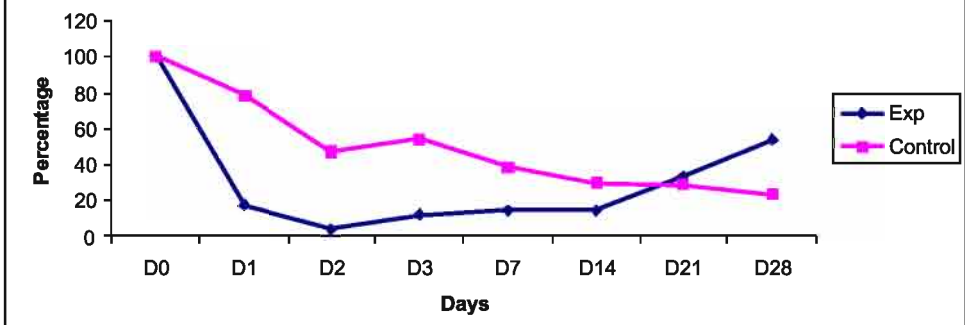


Fig. 3.4.2: Impact of bacticide on 1-2 instar larval density in study area



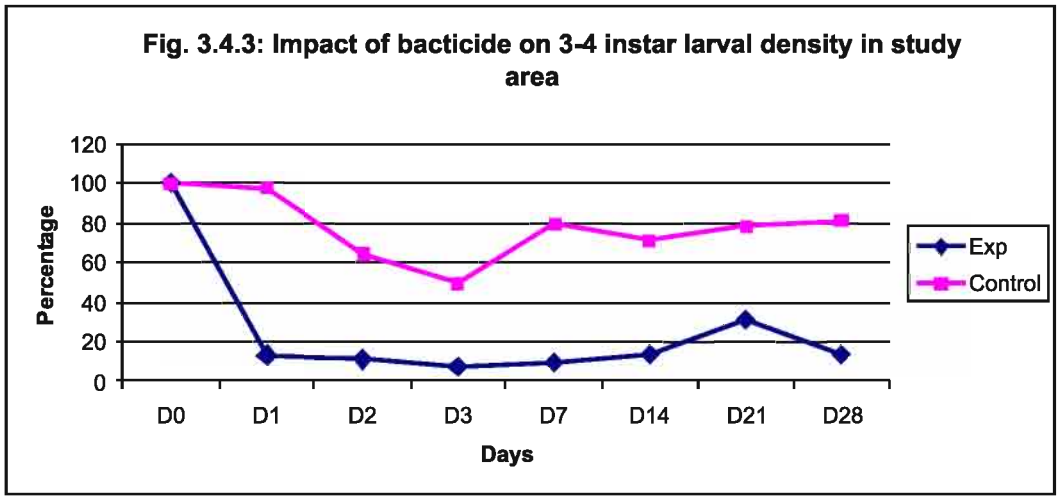


Fig. 3.4.3: Impact of bacticide on 3-4 instar larval density in study area
120
100
80
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40
20
0
Percentage
D0
D1
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Days
Exp
Control

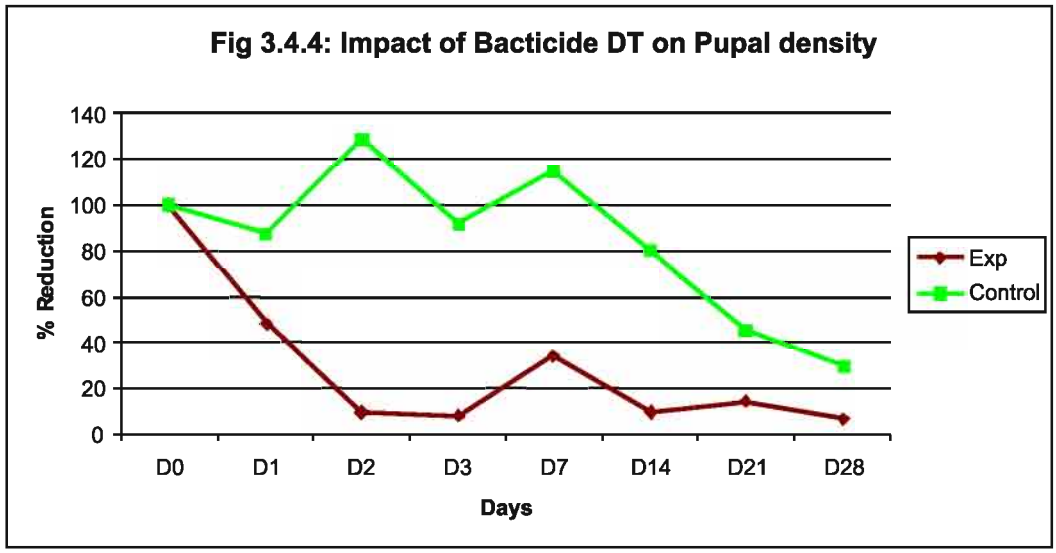
Fig 3.4.4: Impact of Bacticide DT on Pupal density
140
120
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D7
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Control

4. COMMUNITY HEALTH

4.1. Tobacco related disease in the Tribal Population of Kundam Block, Jabalpur District

Date of Starting	:	December 2007
Duration	:	2 Years
Status	:	Ongoing
PI	:	Dr. Surendra Kumar

Tobacco is responsible for significant amount of morbidity and mortality among middle age adults. As per WHO, tobacco kills more people annually than AIDS, alcoholics, drug abuse and accidents.

Objective

To study the prevalence of tobacco addiction among Gond population.

Methodology

The study was carried out among Gond tribe in Kundam block of district Jabalpur. The estimated sample size for the study was 1000 households. For the sampling purpose block was divided into four equal clusters viz. eastern, western, northern and southern. From each cluster 250 Gond households were selected to carry out the survey. A total population of 4542 out of 1021 households was surveyed from 26 selected villages.

Head of the household or any senior person in the household were interviewed through pre-designed, pre-tested structured schedule and information about tobacco use and general household information was collected. All individuals aged 6 years and above and available at time of survey were interviewed. Detailed information on habit and different type of tobacco use was collected from all tobacco users. The accompanying physician examined the individuals for clinical signs and symptoms, related to tobacco use.

Formation of village level committee for prevention of tobacco use: A committee comprising of village pradhan, school teachers, village health workers, ANM, representative of any NGO operating in the area and one or two educated young persons were formed. The detrimental effects of tobacco use on human health were discussed with committee members and they were trained on the preventive aspects for its communication to the villagers.

Interviewing a Tobacco user

Examining for clinical sign & symptoms

Findings

Tobacco consumption habit in study population

About 65% of the population covered was tobacco users. The tobacco users were found in the form of smokers (15%), smokeless (47%) and those of mixed type (3%). Tobacco smoking in the form of '*Beedis*' was significantly higher among the males compared to females (χ^2 = 31.17, P<0.05), while smokeless use in term of tobacco chewing was higher among females (χ^2 = 23.2, P<0.05). Overall about 70% males use tobacco in either form as compared to 61% females (Table 4.1.1).

Table 4.1.1: Tobacco habit in study population

Gender	Tobacco habit					
	User				Non User	Total
	Smoker	Smokeless	Mixed	Total Users		
Male	634 (27.9)	805 (35.4)	145 (6.4)	1584 (69.7)	688 (30.3)	2272 (100.0)
Female	36 (1.6)	1343 (59.2)	07 (0.3)	1386 (61.1)	884 (38.9)	2270 (100.0)
Total	670 (14.7)	2148 (47.3)	152 (3.3)	2970 (65.4)	1572 (34.6)	4542 (100.0)

Values in parenthesis are percentages.

Tobacco morbidity status

A total of 1552 individuals were clinically examined for any abnormality in oral cavity among the study population. The different tobacco morbidities identified were as submucosis fibrosis (5.1%), Leukoplakia (9.0%), Ulcer in mouth (2.7%), COPD (5.8%) and oral dental staining (2.14%). All the diagnosed cases were referred to Medical College, Jabalpur for further investigations and treatment (Table 4.1.2). Estimated odd ratio (r=1.89) is the chance of getting a risk of disease among tobacco users is about two times higher compare to non-user at the level of probability ($p<0.05$) (Table 4.1.3).

Conclusions

The use of tobacco causes a spectrum of diseases in human populations. In the state of Madhya Pradesh, the use of tobacco in the form of smoking is very common, particularly in the tribal population. The Gond tribe of the state is most vulnerable to this habit. The study demonstrates a high prevalence of tobacco use (65.2%) in the form of smoking as well as smokeless (chewing tobacco) form, which causes leukoplakia, submucosis fibrosis, chronic obstructive pulmonary disease (COPD), mouth ulcer, etc. Apart from the above, some psycho-social factors are also responsible for inducing the use of tobacco even in the vulnerable children. There is a strong need to augment efforts to control the tobacco use, which is spreading in the form of an epidemic among this tribe. Training of the health personnel for intervention and to bring behavioral changes in their traditional practices are highly essential.

Table 4.1.2: Tobacco morbidity status

Disease	Non user		Tobacco User						Total	
	No	%	Smoker		Smokeless		Mix user		No.	%
			No.	%	No.	%	No.	%		
leucoplakia	8	2.5	32	9.3	92	11.0	9	11.0	141	9.0
SMF	0		6	0.4	67	4.3	6	0.4	79	5.1
COPD	5	1.6	63	18.3	13	1.6	10	12.2	91	5.86
Hypertension	74	22.9	60	17.4	137	16.4	13	15.9	284	18.29
Oral ulcer	4	1.2	4	1.2	34	4.1	1	1.2	43	2.77
Dental carries	22	6.8	13	3.8	42	5.0	5	6.1	82	5.47
Oro dental staining	3	0.93	13	3.8	13	1.6	3	3.7	32	2.06
Oral Growth	0		1	0.29	2	0.2	0		3	0.19
NAD	204	63.2	154	44.7	404	48.5	35	42.7	797	51.35
Total	320	(20.6)	346	(22.3)	804	(51.8)	82	(5.3)	1552	(100)

Table 4.1.3: Odds ratio showing tobacco morbidity status

Tobacco using	Disease status		Total	Odd ratio	95% Confidence interval	Probability
	Disease present	Disease absent				
Exposed to Tobacco	639	593	1232	1.89	(1.69 <2.08)	p<0.05
Not exposed to Tobacco	116	204	320			
Total	755	797	1552			

4.2. Health and Nutritional Profile of Baiga Tribe of Balaghat District, Madhya Pradesh

Date of Starting	:	January 2009
Duration	:	1 Year
Status	:	Ongoing
PI	:	Dr. T. Chakma

Madhya Pradesh has a total population of 603.48 lakhs as per 2001 census of which 122.33 lakhs are tribals. Baigas are one of the oldest aboriginal tribe of Madhya Pradesh and found mainly in Balaghat, Mandla & Dindori districts and considered as primitive tribe. Total population is about 17146 spread over in 190 villages. The present study has been undertaken at the request of the Bharia Development Authority, Government of Madhya Pradesh.

Objectives

The main objective of the study was to assess health and nutritional status of Baiga tribe of Balaghat District.

Methodology

Cross sectional study was carried out in 22 sampled villages of Baihar Tehsil. Demographic and socio-economic particulars were collected form all the available households by personal interview in a pre-coded proforma. Clinical examinations were carried out by a medical officer for the presence of nutritional deficiencies and other morbidities. Systolic and diastolic blood pressures were measured in sitting posture using digital sphygmomanometer to all available adults. Anthropometric measurement such as height and weight were taken by using SECA digital balance and anthropometric rod by trained investigator. Dietary assessment was carried out from 10% households by 24 hours recall methods from the women who cook & serve food to households members. Hemoglobin estimation was done by modified cyanmethaemoglobin method. Stool samples were collected for identification of ova and cyst. Data was analyzed using SPSS 11.5 statistical software.

Findings

About 1191 individuals of different age group from 436 households in 22 villages were surveyed. All the households belonged to Hindu religion (100%) with 95% of the households were living in *kachha* houses. The average family size was 5 and 70% of the families had children with birth order of 5 and above. All the Baigas were marginal land holders and maximum landholdings were non-irrigated. Labour and collection of forest products were major occupation (89.1%). A total of 41% populations were illiterate, 21.6% had primary education and 11.8% were educated upto middle school. More than 81% households uses tube well as source of drinking water and 3% uses stream water. Only 1.6% households had sanitary latrine. A total of

8.5% households possessed separate kitchen and about one third of houses were electrified. Only 47.7% households had *'Deendayal card'* and 27.1% preschool children were benefited by *'Balshakti Yojana'*.

Over all acute respiratory infection (8.6) was the most common morbidity followed by fever (most likely due to malaria) (7.4%), scabies (2.4%), cataract in elderly population (1.7%) and dysentery (0.8%). Among women prevalence of pelvic inflammatory disease was 2.6% (Table 4.2.1).

The mean anthropometric measurements were lower than those of all age & sex matched values for other tribal children of MP as well as NCHS standards. The proportion of underweight (<-2SD) preschool children was about 65.9%, while severe underweight (<-3Sd) was 35.4%. The extent of stunting (<-2SD) was about 49.6%, while about 28.8% of were severely stunted (<3SD). Wasted (<-2SD) were 42.3% and severe wasted (<Median -3SD) was 10.7% (Table 4.2.2). Among adult population about 55.8% males and 62.9% of the females (Table 4.2.3) had chronic energy deficiency (BMI <18.5).

Cereals formed the bulk of Baiga diet. Consumption of protective foods such as pulses, flesh food, milk, fruits, oil and fats were grossly inadequate. As a result the intake of micronutrients was much below the recommended level in all the age groups.

None of the children up to 6 year exhibited signs of Kwashiorkor while the prevalence of Marasmus was about 0.8%. The prevalence of Bitot's spot, a sign of vitamin A deficiency and angular stomatitis indicative of B complex deficiency was about 1.0 % and 0.9% respectively.

Utilization of health services was poor. About 76.9% pregnant/lactating women did not receive any antenatal care. Only 54% women have received II dose of TT injection during their antenatal period. In the last 24 month 72% deliveries took place at home, majority being carried out by trained Dais. Only 18% women had post natal care visited by ANM & AWW. The detailed analysis is in progress.

Table 4.2.1: Prevalence (%) of General Morbidity & Nutritional Deficiency Signs (n=1197)

General Morbidity	(%)	Nutritional Deficiency	(%)
Malaria Fever	7.4	Marasmus	0.8
ARI	8.6	Night Blindness	0.1
Dysentery	1.2	Conjunctival Xerosis	3.5
Scabies	2.4	Bitot Spot	1.0
Cataract	1.7	Angular stomatitis	0.9
PUS	1.9	Dental carriers	0.8
Multiple Boil	0.7	Goiter	0.6
PID	2.6		

Table: 4.2.2: Distribution (%) of 1-5 years children according to SD classification (n=226)

Variables	<-3SD	3SD to 2SD	-2SD to-1SD	-1SD to Median	>=Median
Weight for Age	35.4	30.5	24.8	6.6	2.7
Height for Age	28.8	20.8	21.7	15.5	13.3
Weight for Height	10.7	31.6	39.6	13.8	4.4

Table 4.2.3: Distribution (%) of Adult Male & Female according to BMI classification (n=691)

BMI →	<16 CED III	16-17 CED II	17-18.5 CED- I	18.5-20 Low wt Normal	20-25 Normal	25-30 Obese I	>=30 Obese II
Male	5.3	18.5	32.0	29.0	14.9	0.3	nil
Female	13.4	15.2	34.3	23.7	11.9	1.5	nil
Total	9.8	16.6	33.3	26.0	13.2	1.0	nil

4.3. Health and Nutritional Profile of Baiga Tribe of Dindori District, Madhya Pradesh

Date of Starting	:	February 2009
Duration	:	1 Year
Status	:	Ongoing
PI	:	Dr. T. Chakma

The Baigas are one of the oldest aboriginal tribe and classified as one of the primitive tribe of Madhya Pradesh. Their economy still dependent on primitive agriculture, gleaning and making of bamboo articles which are sold in the nearby markets. This study was undertaken on the request of Baiga Development Authority, Dindori district, Government of Madhya Pradesh.

Objective

To study the health and nutritional status of Baiga's of Dindori district.

Methodology

The survey was carried out in 3 blocks of Dindori district namely Bajag, Karanjiya & Samnapur. Out of 74 Baiga dominating villages 23 villages were selected using PPS sampling method. Demographic and socio-economic particulars were collected from all the available households by personal interview in a pre-coded proforma. Clinical examinations and other methods of data collections and analyses are same as described in study 4.2.

Findings

So far a total of 611 individuals of different ages from 273 households in 12 villages were surveyed. All households belonged to Hindu religion, and 88.6% households were living in *kachha* houses, while 8.1% were semi *pucca* and only 3.3% were *pucca*. About 59% of the households had open well as source of drinking water, while about 20% use stream water for drinking. Only 1.1% of the households had sanitary latrine. A total of 40% of households possessed separate kitchen and about fifty percent houses were not electrified. Only 68% households had *'Deendayal card'* and 61.2% preschool children were benefited in *'Balsakti Yojna'*.

Fever due to malaria was the most common morbidity (17.6%) followed by acute respiratory infection (5.6%), dysentery (1.5%) and goiter (0.7%). The prevalence of cataract in elderly population was 5.1%. None of the children exhibited signs of Kwashiorkor, while the prevalence of Marasmus was about 1.5% (Table 4.3.1). The prevalence of Bitot's spot, a sign of vitamin A deficiency and that of angular stomatitis indicative of B complex deficiency was about 1.3 % and 1.1% respectively. The proportion of preschool children with underweight (<-2SD) was about 60.2%, while that severe underweight (<3SD) was 25% (Table 4.3.2). The extent of stunting (<-2SD) was about 44.8% while about 17.4% of were severely stunted. Wasted (<-2SD)

was 27.1% and severe wasted (<Median -3SD) was 6%. Among adults about 47.5% males and 48.7% of the females had chronic energy deficiency (BMI <18.5) (Table 4.3.3).

Cereals formed the bulk of Baigas diet while millets (maize & vargu) also consumed in the form of '*Pej*'. The intake of Cassia tora (chakoda leaves) was very common in the daily diet. The consumption of proactive foods such as milk, green leafy vegetables, fruits, oil and fats were grossly inadequate. Regarding utilization of health-care services, more than 52% women did not receive any antenatal care. Only 62 % women had received II dose of TT injection. In the last 24 month 87% deliveries took place at home, majority being carried out by trained Dais. Only 25% women had post natal care visited by ANM & AWW. The study is in progress.

Table 4.3.1: Prevalence (%) of Major Morbidities & Nutritional Deficiency disorders

General Morbidity (n=611)	(%)	Nutritional Deficiency (n=611)	(%)
Scabies	3.0	Marasmus	1.5
Fever	17.6	Conjunctival Xerosis	0.8
Dysentery	1.5	Bitot's Spot	1.3
ARI	5.6	Angular stomatitis	1.0
Cataract	5.5	Cheilosis	0.6
Peptic ulcer Syndrome	1.0	Goiter	0.7
Multiple furunculosis	0.3		

Table: 4.3.2: Distribution (%) of 1-5 years children According to SD classification (n=165)

Variables	-3SD	-3SD to 2SD	-2SD to 1SD	-1SD to edian	>=Median
Weight for Age	24.9	34.7	26.0	9.8	4.6
Height for Age	30.1	17.9	26.0	11.6	14.5
Weight for Height	5.4	20.5	45.8	16.3	12.0

Table 4.3.3: Distribution (%) of Adult Male & Female according to BMI classification (n=329)

BMI ⟶	<16 CED III	16-17 CED II	17-18.5 CED- I	18.5-20 Low wt normal	20-25 normal	25-30 Obese I	>=30 Obese II
Male	5.0	13.3	29.2	27.5	22.5	2.5	nil
Female	10.5	10.0	28.2	27.8	22.5	1.0	nil
Total	8.5	11.2	28.6	27.7	22.5	1.5	nil

4.4. Health and Nutritional Profile of Bharia Tribe of Patalkot Valley, Chhindwara District, Madhya Pradesh

Date of Starting	:	March 2009
Duration	:	6 Months
Status	:	Ongoing
PI	:	Dr. T. Chakma

Bharias are one of the three primitive tribes of M.P. They are mainly confined to the Chhindwara district of Madhya Pradesh. A small section of this community lives in a unique area known as Patalkot in Chhindawara district of Madhya Pradesh. As the name suggests "*Patal*" meaning below the sea level. It is about 1600 ft deep valley spread over in about 79 sq km. Total population is about 2000, spread over in 12 villages. The study was undertaken at the request of the Bharia Development authority, Tamia block of Chhindwara district, Government of Madhya Pradesh.

Objectives

The main objective of the study is to assess the health and nutritional status of the Bharia tribe of Patalkot Valley.

Methodology

Clinical examinations and other methods of data collections and analyses are same as described in study 4.2.

Findings

About 570 individuals of different age groups and gender from 230 households were covered for clinical examination and anthropometry. Information on food and nutrient intake was collected from 74 households. A total 262 male & females were covered for estimation of Hemoglobin, while with our best efforts we could collect only 79 stool samples from the school going children for identification of intestinal parasites. Most of the people lives in *kachha* houses (79.1%) followed by semi *pucca* (19.6%). About 42% of Bharia population was absolutely illiterate, 26.5% had primary education, 24.9% had middle level, 3.5% had high school level and only 2.4% had college level education. A total of 58.3% households use open well for drinking water and 20.9% depend on tube wells. Another 21.7% households were consuming unsafe drinking water from streams. Only 2.2% households had sanitary latrines.

During the survey, scabies (21%) was found to be the most common morbidity (Plate 1), while 9.8% population were suffering from fever, 9.6% had upper respiratory tract infection and 2.5% had dysentery. Other general morbidities observed were UTI, Cataract, Jaundice, Bronchitis, Hypertension, TB, Dermatitis, Multiple boil and in low proportion. According to JNC-VII criteria, prevalence of stage II hypertension (SBP >160 mmHg and DBP >100 mmHg) was about 2.8%. The overall prevalence of anemia among male was about 89.8% with 37% having

moderate and 2.8% with severe anemia (Table 4.4.1). *H. Nana* (20.2%) was the commonest parasite followed by *Entamoeba histolytica (17.7%)*, *Ascaris lumbricoides* (16.4%) and *Ancylostoma duodenale (15.2%)* found in the stool (Table 4.4.2)

The prevalence of clinical cases of Protein Energy Malnutrition such as Kwashiorkor in pre-school children was absent and only 0.2% cases of Marasmus was seen. In the school age children the prevalence of Vitamin A deficiency in the form of Conjunctival xerosis (3.3%) and Bitot's Spot (1.8%) was high. The overall prevalence of goiter was found in 2.6% cases confined to older women over 40 years. The distribution of height and weight of male and female are presented in Fig 4.4.1 & 4.4.2. Bharias were found to be lighter and shorter as compared to the NCHS standard as well as Rural Madhya Pradesh children.

The proportion of children with underweight (<Median - 2SD) was about 53.7%, while that of severe underweight (<Median - 3SD) was 13.9%. The extent of stunting (<Median -2SD) among pre-school children was 44.8%, while that of severely stunting (<Median -3SD) was 17.4%. The wasting of pre-school children was about 32.2% (<Median - 2SD), while 7% was severally wasting (<Median - 3SD). No significant sex difference was observed in the prevalence of wasting. About 42% of the males and 48% of the females had Chronic Energy Deficiency (CED< 18.5) (Table 4.4.3).

The staple diet was a low calorie dense preparation made by boiling millet flour such as maize, vargu and samai with a large quantity of water adding salt called *Pej*. The average daily intake of cereal and millets was 483 gm which was higher than RDA. The consumption of pulses and green leafy vegetables was 30gm and 26.6 gm respectively. The consumption of protective food such as fruits, milk & milk products, oil and fat were much lower than recommended level.

The average energy and protein intake was 1895 kcal and 46.7 g per CU/ per day. Though the cereals and millets intake was high but energy level was low. This might be due to low calorie of coarse grain millets intake. The intake of all micronutrient was lower than RDI, only thiamin intake was better due to higher intake of cereals. The mean intake of calcium and iron was 124 mg and 16.9 mg respectively, while the mean intake of vitamin C 28.1 mg, carotene 1153 µg, thiamin 1.0 mg and riboflavin was 0.7 mg.

Inspite of 90% women are aware of "*Janani Suraksa Yojana*" only 10% could avail such facility. The reasons submitted by them are: home delivery is convenient (55.9%), hospital is far away and lack of proper transportation (35%). Similarly only 15% of the respondents availed "*Ladli Laxmi Yojana*" another 15% were not aware about this scheme and 70% did not avail the facility. About 87% deliveries were carried out by trained *Dai*.

Only 57% children received BCG within one month of birth, while DPT 1st dose was 63% and II dose was 24.1%. However 83% children received Oral Polio Vaccine. More than 50% of the pregnant women did not receive any antenatal care and only 62% women received Tetanus Toxoid injection.

An 11 year old girl severely infected with Scabies

Table 4.4.1: Prevalence (%) of Major Morbidities & Nutritional Deficiency disorders among Bharia tribes of Patalkot valley (n=570)

General Morbidity (n=570)	Percentage	Nutritional Deficiency Disorders (n=570)	Percentage
Scabies	20.9	Emaciation	0.4
Fever	9.8	Marasmus	0.2
Dysentery	2.5	Conjunctival Xerosis	3.3
ARI	9.6	Bitot's Spot	1.8
Cataract	1.4	Angular stomatitis	1.2
PUS	3.2	Cheilosis	1.1
Multiple Boil	2.1	Goiter	2.6

Table 4.4.2: Percent Distribution of worm infestation among Bharia children of Patalkot Valley

Organism	Number	%
E. Histolytica	14	17.7
E. Coli	10	12.6
Ancylostoma duodenale	12	15.1
Ascaris	13	16.5
Giardia	11	13.9
H. Nana	16	20.2
E. Vermicularis	3	3.8
Total	79	100

Table 4.4.3: Percent distribution of anemia according to Hemoglobin level among Bharias of Patalkot valley (n= 262)

Grades of Anaemia (Hb level)	Sex		
	Male (n=108)	Female (n=154)	Total (n=262)
Normal (>12g/dl)	10.2	3.2	6.1
Mild (10-12g/ dl)	50.0	29.9	38.2
Moderate (7-10g/dl)	37.0	65.6	53.8
Severe (<7g/dl)	2.8	1.3	1.9

Fig 4.4.1: Comparison of weight of Bharia children (rural) with rural NNMB

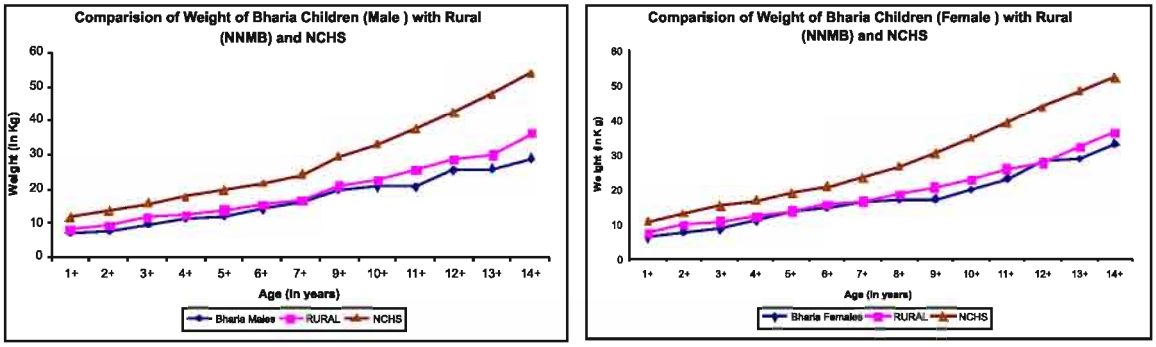
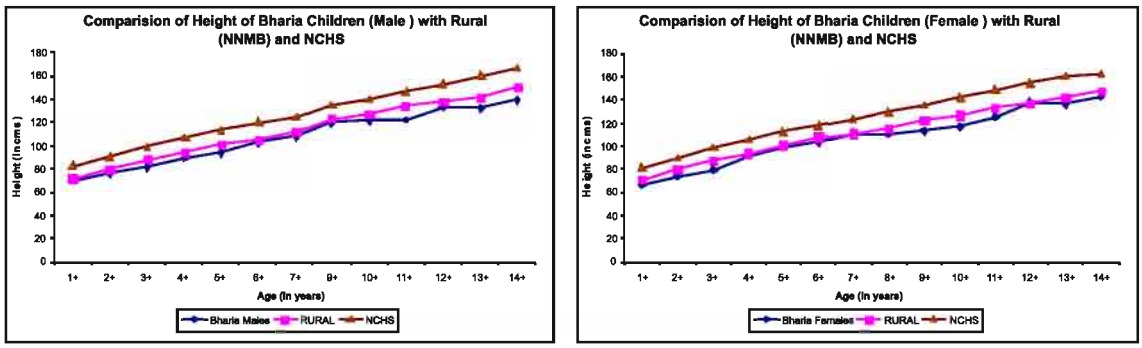


Fig 4.4.2: Comparison of Height of Bharia children (Female) with rural NNMB



5. SOCIAL AND BEHAVIOURAL STUDIES

5.1. Newborn Care among Tribes of Madhya Pradesh: A Case Study of Bhils of Dhar District

Date of Starting	:	December 2007
Duration	:	2 Years
Status	:	Ongoing
PI	:	Dr. R. K. Sharma

Demographic studies carried out among the tribes of Madhya Pradesh reported a very high infant and child mortality. Neonatal mortality contributes about three-fourth of total infant mortality. However, so far, very few attempts have been made to study the newborn care practices in the state, particularly among tribal population. According to 2001 Census, out of 60.35 million population of Madhya Pradesh, 12.2 millions (20.3%) were classified as tribal population. Bhils alone contribute to more than one-third (37.75%) of total tribal population.

Objectives

To study the socio-cultural practices related to newborn care and the cost associated with these practices among Bhils of Dhar district.

Methodology

The estimated minimum required sample is 1000 recently delivered women (RDWs) from 60 Primary Sampling Units (PSU) selected through probability proportion to population size (PPS) sampling technique. From each selected village about 15-20 Bhils RDWs are selected randomly. So far survey is completed in 37 villages. The field work in remaining villages is in progress. Overall 534 women who delivered a live birth during last two years (RDWs) are successfully interviewed.

Findings

Most of the Bhil families are nuclear (66 %) and residing in *kaccha* houses (90%) and merely 2% of them residing in *Pucca* houses. Though 71% households have some agricultural land but most of them are marginal landholders, the average size of landholding is about 5 bigha per household. The hand pumps, mostly public hand pumps, are the main source of drinking water followed by wells.

The mean age of interviewed women is 26 years and most of them got married before the legal age at marriage. Illiteracy, especially the female literacy is widespread among tribes of Madhya Pradesh. The study also shows that only 15% Bhils women can read and write as compared to about 27% their husbands. Most of the Bhil women work as labourer (18 % agriculture labour + 52.8% unskilled worker) for their livelihood.

Pregnancy Care

Antenatal coverage in the study population is almost at par with state average. About 72% women received at least one ANC during their last pregnancy. But more than three-fourth women reported that no health worker such as ANM or AWW visited their home during their last pregnancy.

Table 5.1.1 shows that about 72% women received atleast one ANC and 70% of them received IFA tablets and TT injections. But only half of them reported that they were enrolled at *Anganwadi centres* (AWCs) and only thirteen percent of them received any supplementary food stuff from these AWCs. This indicates the poor coverage of Integrated Nutrition and Health Programme (INHP) in tribal areas. Four out of ten women experienced some kind of complications during their pregnancy and most frequently experienced problems are excessive fatigue (26.9%) and sever headache (19.1%). Other reported complications are swelling on body and face (16.1%) and loss of consciousness (10.9%).

Delivery care

It is important to learn that there is changing trend among the Bhils towards institutional deliveries. More than half of total deliveries (51.4%) took place at government health facilities and another 5% delivered at private health institutes. But still more than 40% deliveries are taking place at home (either at their own home or at women's parent house). The rising proportion of institutional deliveries may be because of government monetary incentive through '*Janani Suraksha Yojana* (JSY)'. More than half non-institutional deliveries are conducted by untrained *dais*. About 23% women experienced some kind of complications during delivery and the commonly reported complications were excessive bleedings (12.5%), convulsion (9.7%) and high fever (8.8%).

Table 5.1.1: Pregnancy care among Bhils women

Items	Percent
Registered with ANM	70.9
Received atleast one ANC	72.3
Home visit during pregnancy by	
ANM	18.2
AWW	26.0
Received IFA Tablets	71.1
Received atleast one TT injection	69.6
Enrolled at AWC	48.8
Received supplementary nutrition for *Anganwadi* Centre	12.7
Pregnancy Complications	
Excessive Fatigue	26.9
Sever headache	19.1
Loss of consciousness	10.9
Swelling on body & face	16.1
High Fever	8.9
N	534

Post-partum care

Check-ups for both mother and baby after the delivery are important for their health. But only 20% women reported that they received any postpartum care. The visit of health workers during post-partum period is also important for identification and management of post-delivery complications. Only 11% women reported that they were visited by ANM after the delivery, while 12% women mentioned the same for AWW. Among the reported post-delivery complications, high fever was reported by 12% women, followed by excessive bleeding (4.9%).

Newborn Care

The place or the person with whom the newborn is placed immediately after delivery influence whether newborns are attended adequately, so that problems may be identified without delay. More than one-third (38.4%) women reported that the newborn was let alone for some time after delivery. It is important that in most of the cases baby are dried and wrapped within an hour of delivery. But about 60% babies are given first bath within six hours, mostly within first hour. Almost all women reported using a new razor blade to cut the cord and used new thread that was available at home to tie it. Only 16% women reported that some substances were applied to the cord after cutting. This is very important form programme point of view as application of any substance on cord may increase the risk of infection. Though more than 70% women feed colostrums to their babies, but more than half (56.4%) put their baby to breast first time after three or more days. The practice of offering pre-lacteals to babies is very common, as more than 70% women gave '*gur pani*' to their newborn before initiation of breastfeeding, and about half of children were exclusively breastfed for less than six months (Table 5.1.2).

Table 5.1.2: Newborn care practices among Bhils women

Items	Percent
Very first thing did with baby	
Cord cutting	38.8
Left alone	38.4
Baby was dried	
Within one hours	89.9
After one hours	8.1
Baby was wrapped	
Within one hours	87.8
After one hours	9.4
Baby bathed for first time	
Within 6 hours	60.1
First day (after 6 hrs)	17.2
Later	22.7
Applied some substance after cord cutting	16.3
Applied some substance after cord fell off	47.9

5.2. Behaviour and Vulnerability to Reproductive Morbidity among the Tribal Youths: A Study among the Sahariyas of Madhya Pradesh

Date of Starting	: February 2009
Duration	: 2 Years
Status	: Ongoing
PI	: Dr. K.B. Saha

The disease profile of tribal population indicates that there is increase rise in the veneral diseases like reproductive tract infection (RTI)/ sexually transmitted infection (STI) among them. Today, in the context of RTI/STI/HIV/AIDS the focus of intervention is gradually indicating the importance of critical section of the population called "**Youths**". The primitive Sahariyas tribe is a vulnerable population with scanty information on their behavioural dimensions of reproductive morbidity. Hence the present study is an attempt in this direction with the support from Department of Tribal Welfare, Government of Madhya Pradesh.

Objectives

The study endeavours to understand the social risk factors along with knowledge, attitude, behaviour and practice about various reproductive and sexual matters among tribal youths in the context of emerging diseases- RTI/STI/HIV/AIDS. This in-depth study will help in tribe specific micro-planning.

Methods

The study has two important phase of data collection: Phase I. Qualitative - In this phase participatory rural appraisal (PRA) tools were adopted to collect data. Phase II. Quantitative survey will commence by canvassing a pre-tested interview schedule.

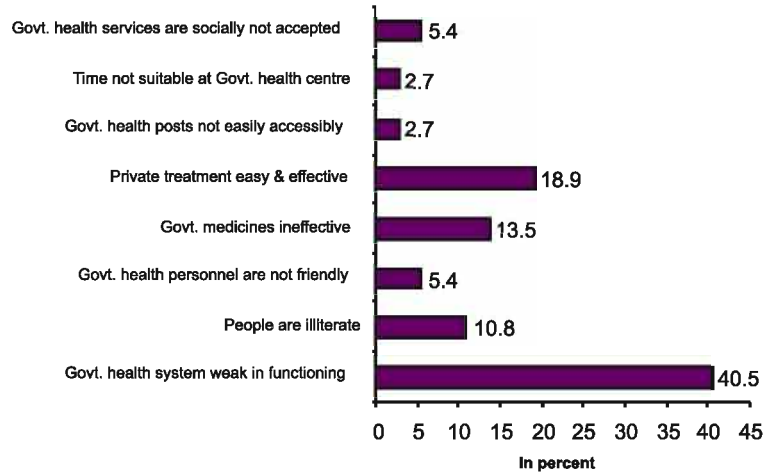
The first phase of study initiated in the year 2009 among the Sahariyas residing in Gwalior district of Madhya Pradesh. Thirty Sahariya youths in the age group 15-24 both married and unmarried male and female from four villages in Barai block participated in the focused group discussions (FGD) on different issues of youth reproductive health.

Findings

The thematic analyses of the discussion are mentioned as: Barring very few most of them had no knowledge of sexually transmitted infection (STI) or other reproductive morbidities. Though many of them have heard about AIDS from TV and radio but are unaware of its proper routes of transmission. They have a feeling that it can be cured but only by a trained doctor. However, none of them have seen any individual suffering from the HIV infection. Some of them mentioned that AIDS is caused by transfusion of infected blood and also from infected mother to child. Syphilis a STI was mentioned by few. While trying to venture in to their knowledge on sexuality, almost half of the participants agreed that masturbation, night wetting and pre-mature

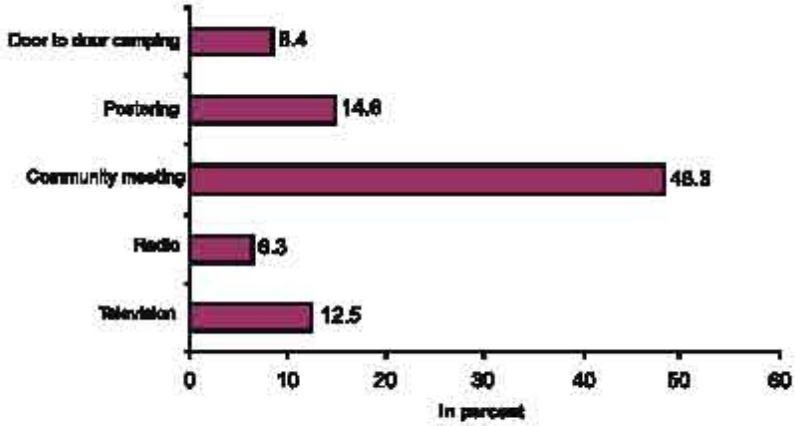
ejaculation is not a disease, while others have different opinions. Almost all of them mentioned that pre-marital sexual contacts are common among the Sahariya males. Most of them argued that it is male who is more responsible for STI. Further they opined that higher coital frequency makes individual vulnerable to STI. Condom is known to them but they decline to use it with the view that it reduces the sexual pleasure. Half of the participants are aware of safe period. They mentioned that though it is not openly accepted in the Sahariya society but youths do mix freely in the place of occupation and other places during feast and fairs and thus have ample scope for sexual indulgence. The in-depth interview with parents, teachers, village leaders and health providers do express concern about the changing behavioural pattern of the Sahariya youths in the present context and their vulnerability to unwanted pregnancy and STI. Matrix ranking was done to assess the popularity of government health system in the Saharia locality and it was found that village medicine man and private health providers are usually preferred during health problems particularly related to reproductive health. The matrix ranking of responses related to non utilization of health services in the village Ghatigaon is shown below in figure 5.2.1.

Fig 5.2.1: Reasons for non utilization of Govt.health services (Matrix ranking), N=37



There was demand both from the youths and others close to them for educating youths on different aspects of sexual and reproductive health and providing such health services at easy reach. The matrix ranking of responses on preferred media to get sexual and reproductive health information is shown in figure 5.2.2. The qualitative information generated helped in the preparation of survey instrument for the second phase of study (the quantitative survey) and same is going to start soon.

Fig 5.2.2: Preferred media to get sexual and reproductive health information (Matrix ranking), N=48



Community participation for matrix ranking at Village Gathigaon

Focus group discussions (FGD) at village Paniyar

5.3. Determinants of utilization of Maternal Health Care Services among Baiga Primitive Tribe in M.P.

Date of Starting	:	January 2009
Duration	:	2 Years
Status	:	Ongoing
PI	:	Dr. Dinesh Kumar

India accounts for more than 20% of the global maternal and child deaths, and also records 20% of births worldwide. The maternal mortality ratio in India is 540 maternal deaths per 100,000 live births, rising to 619 in rural areas. States with high maternal mortality include Rajasthan, Madhya Pradesh, Jharkhand, Orissa, Uttar Pradesh and Bihar. Comprehensive research studies pertaining to maternal health care and its attributing factors among tribal population are scanty and thus make it important to investigate the same in tribal population particularly among the primitive tribal group.

Objectives

1. To determine the utilization/practices of maternal health care services.
2. To study the knowledge, perceptions regarding maternal health services.

Methodology

The survey initiated among the Baiga ever married women in the reproductive age group (15-49) years in Dindori district of M.P. Probability proportion to size sampling design was adopted to select the sampling units. Institutional ethics committee approved the study and written consent was obtained from study individuals. All the households of the study area were listed by a house-to-house census. Information on maternal health care utilization, knowledge and perception, etc of ever married women was collected through a structured interview schedule by trained investigators.

Findings

A total population of 709 out of 142 households was covered in nine villages in Bajag block of Dindori district. One hundred and thirty eight ever married women were interviewed to know the level of health care utilization by them. Average household size was 5 persons and most of the population lived in nuclear families (81%). The source of drinking water is important because waterborne diseases including diarrhea and dysentery are prevalent in tribal areas. It has been found that about 29% of households were using drinking water from stream/river. In order to determine the maternal health care utilization out of 138 women, 106 experienced maternity during last five year. Out of them 67(63.2%) women had received antenatal checkup. The main source of ANC were ANM/Nurse (46.2%) followed by Govt. doctor (6.6%) and another 6.6% received ANC from private doctors (Fig 5.3.1). The average age at delivery of first birth was

found to be 18.4 years. Most of the women delivered at home (93.4%). About three-fourth of the deliveries were assisted by untrained Dai, while 16% by trained Dai and 9.4% by ANM and LHV.

Despite increasing efforts to prevent early marriages in tribal population, substantial numbers of people continue to practice child marriage, which carry immense health and social disadvantages. Knowledge regarding maternal health care services was reported by 43(31.1%) women indicating that the majority of them were not aware of any such services. Further a small number of ever married women (12.3%) knew about the danger signs of pregnancy complications (Fig 5.3.2) and is an again matter of concern.

The study is under progress.

Figure 5.3.1: Sources of antenatal care

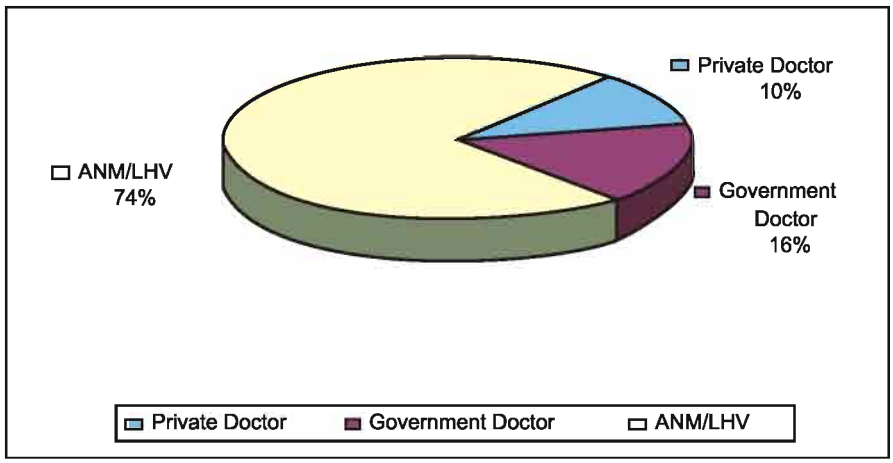
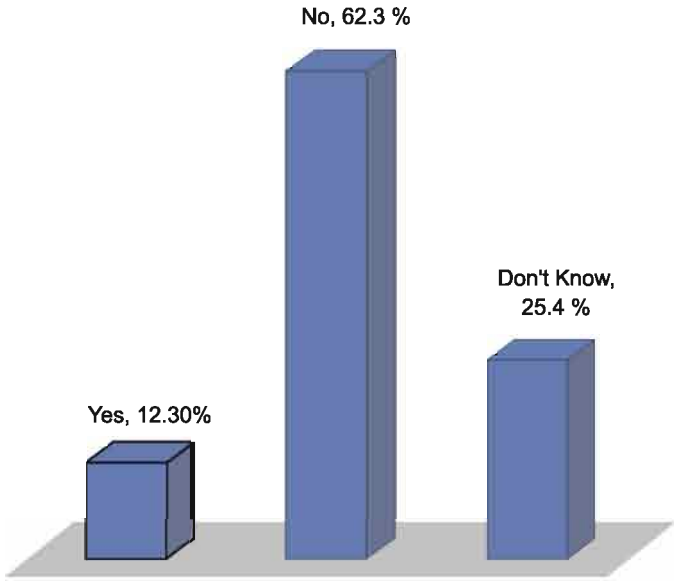


Figure 5.3.2: Women's knowledge about danger signs of Pregnancy



6. REGULAR ACTIVITIES

6.1. Sickle Cell Clinic

Regional Medical Research Centre for Tribals (ICMR) offers the facilities for diagnosis of haemoglobinopathies to the patients of Medical College, Jabalpur and other public sector hospitals of the area. The public sector hospitals of the area do not have facilities for such investigations. During the period from April 2008 - March 2009, a total of 835 persons suspected to be suffering from hemolytic anaemia as referred by various public sector hospitals were analysed for haemoglobinopathies, of which 117 persons were identified as sickle cell disease, 151 as sickle cell trait, 6 as β-thalassaemia trait, 10 as β-thalassaemia major, one case of HbDD (homozygous) and one case of haemoglobin E trait. These patients and their parents were briefed about presentation and possible prognosis of the disorders and the preventive measure to be taken in order to avoid further birth from any such patients. We were approached by eight couples from the Sindhi community for the diagnosis of the β-thalassaemia trait just after marriage and sought advice for the prevention of birth of a β-thalassaemia major baby. Only two couples were from high risk group. They were given appropriate counselling. The sickle cell disease patients were requested to get them registered in the Sickle Cell Clinic.

6.2. Integrated Counseling and Training Centre (ICTC) and State Referral Laboratory (SRL) for HIV

This ongoing activity of HIV testing and counseling continued this year also. Total of 630 clients were tested this year for HIV, of which 107 turned out to be reactive. The centre also worked as a SRL whereby External Quality Assurance Scheme (EQAS) is carried out for different ICTC's and blood banks. Apart from this it was testing centre for the sentinel surveillance program during November 08 to February 09. Total of 7000 specimens were tested from 19 sentinel sites for ANC, STD and FSW.

6.3. National Nutrition Monitoring Bureau, MP Unit

National Nutrition Monitoring Bureau (NNMB) Madhya Pradesh unit is functioning from this institute since 1987 covering both Madhya Pradesh and Chhattisgarh. In the year 2008-09 "Assessment of Diet & Nutritional Status of the Tribal Population-Second repeat Survey" has been completed and third repeat survey is in progress. A total of 4800 households from 120 villages are selected from Madhya Pradesh and Chhattisgarh for all activities except dietary survey. The calculated sample size for the dietary survey was 1200 households. Till date 11 villages have been covered and the data has been sent to NIN central laboratory for analysis.

6.4. Library

The library of RMRCT continues to cater the documentation and information needs of the scientists and other research staff of this Centre as well as other institutes like NSCB Medical College, Veterinary College, Home Science College, Rani Durgawati Vishwavidyalaya etc. It also extents services to research personnel from other Universities/ Institutes of National and International standard.

Library is equipped with modern furniture, air-conditioners and compactors for its reading rooms. Library is member of Consortium of National Medical Library (NML), New Delhi. Library is also a member of E-J Server provided by Total IT Solutions, New Delhi, which has access to 595 E-Journals, 313 E-Books. Photo Copy facility is also available at Library. Library also extends LAN facilities to Scientists and other research staff of the centre through broadband connection.

The library has the following resources:-

New additions (Apr 2008-Mar 2009)	
Books / Journals	303
Subscribed Periodicals 1. International Periodicals 2. Indian Periodicals	 41 21
Total Library Collection	**3607**
Books	1166
WHO Publications	587
Bound Foreign Journals	1114
Bound Indian Journals	740
MEDLINE CDs	21
Other CDs	26
Census Floppies	60
Member of Following Consortia	
E-Journals	21
www.nmlermed.in	1516
Total IT E_J_Server	E-Journals = 595
Total IT E_J_Server	E-Books = 313
Total IT E J Server	Databases = 20


Reading Arrangement in the Library

6.5. Human Resource Development

The centre and its scientist are recognized by the Rani Durgawati Vishwavidyalaya, Jabalpur for guiding research work leading to Ph.D degree. This year eleven students from various universities/institute completed their M.Sc. dissertation under the able guidance of the scientists of the centre. One senior research fellow at the centre sponsored by CSIR was awarded Ph.D from Jabalpur University and three more students are pursuing their Ph.D work in the centre.

6.6. Establishment of New Laboratory

Swine Flu (H1N1) Testing Laboratory

In view of global pandemic due to swine flu, a testing facility for H1N1 is established at the centre to assess the burden and to help in its control. Concerned staff was trained at NIV, Pune for testing H1N1. The testing is done as per the standard protocol and guidelines of Ministry of Health and Family Welfare. The state health authorities have been informed about the same.

6.7. RMRCT Publications

(a) Tribal Health Bulletin

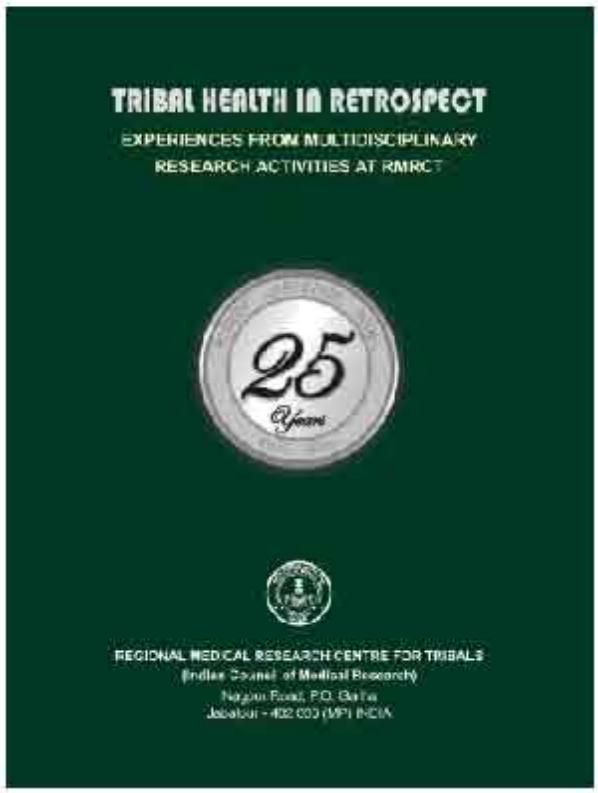
Centre published a biannual and bi-lingual Tribal Health Bulletin, which published peer-reviewed papers related to various health aspects. This year Vo. 12, No. 1&2 is published.

(b) RMRCT Update

Centre also published biannual RMRCT Update highlighting the regular activities of the Centre. This year Vol. 5, No. 2, 2008 and Vol. 6, No. 1, 2009 are published.

(c) Tribal Health in Retrospect

On the eve of the silver jubilee year celebration, centre published 'Tribal Health in Retrospect' highlighting the Centre's research activities carried out during last 15 years.



7. PUBLICATIONS

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8. CONFERENCE/WORKSHOP/ MEETING ATTENDED

Following scientist of the centre have presented papers in the oral sessions of the International Symposium on Tribal Health held at RMRCT, Jabalpur during 27th February - 1st March 2009.

Dr. Neeru Singh	**Dr. R. S. Balgir**	**Dr. V.G. Rao**
Dr. T. Chakma	**Dr. R.B. Gupta**	**Dr. K.B. Saha**
Dr. Jyothi Bhat	**Dr. R. K. Sharma**	

Many other scientists and technical staff of the centre presented papers in poster sessions.

Dr. Neeru Singh

- Attended Indo-US VAP Workshop on 'Development of Vaccines for *P.vivax* Malaria' held on 17th & 18th June 2008 at Hyatt Regency, New Delhi.
- Attended Second meeting of Technical working group of NIH on 27th & 28th July 2008 in Washington, USA.
- Attended workshops on 'Continued Medical Education (CME) on emerging and re-emerging infectious diseases in India' and 'Rapid diagnostic techniques' during 6th -7th November 2008 as a resource person at SMIMS Tadong, Gangtok, Sikkim.
- Attended Expert meeting on "Pregnancy malaria, Diagnosing infection, Predicting disease" during 13th - 14th November 2008 at Merieux Conference Center, Annecy, France.
- Attended 57th Annual Meeting of the American Society of Tropical Medicine and Hygiene (ASTMH) during 7th-11th December 2008 in New Orleans, Louisiana, USA.
- Attended workshop on malaria in pregnancy in Raipur on 29th & 30th December 2008.
- Attended a meeting with State health officers In Bhopal on 5th January 2009.
- Attended a meeting with CMO, DMO and other Health officers regarding malaria control in Mandla on 9th February 2009.

Dr. V. G. Rao

- Presented a paper at 13th International Congress on Infectious Diseases held at Kuala Lumpur, Malaysia during 19th - 22nd June 2008.
- Presented a paper at First International conference of South East Asia Region (The Union) & 63rd National conference on Tuberculosis & Chest Diseases (SEAR, NATCON 2008) held at New Delhi during 8th-10th September, 2008.

Dr. T. Chakma

- Attended as key resource person and delivered lectures at "Workshop on Research

Methodology" organised by Dept. of Physiology, MGM Medical College, Indore, during 1st- 5th July 2008.

- Attended as key resource person and delivered a lecture at "Fluorosis sensitization workshop for Administrator, Health Professionals and Policy Makers of West Bengal" organized by Directorate of Health services and UNICEF West Bengal on 30th July 2008.
- Attended as key resource person and delivered two lectures in "Regional workshop on the Geogenic contamination of the ground water" on 21st & 22nd March 2009 at Patna, organized by Central Ground water Board and UNICEF Bihar.

Dr. S. R. Qamra

- Delivered a plenary lecture in National Conference on Recent Trends in Ecological Researches in India with Focus during 17th - 19th November 2008 at Ranchi.
- Presented a paper in International Conftoerence on Fundamental and Translational Research on HIV/AIDS: Global Perspective during 5th- 8th Oct. 2008 at NIRRH, Mumbai.
- Invited to attend Latest Approaches to HIV Infection Management - A focus on HIV/TB and HIV/hepatitis co-infections. During 3rd- 6th March 2009 at Hyatt Regency Delhi.
- Presented a paper in a Seminar and Workshop on Tribal Women Health Social and Economic Upliftment during 4th - 6th February 2009 at Raipur.

Dr. K.B. Saha

- Attended as resource person the Review Meeting of Short Term Training Programme on Research Methodology, organized by Indira Gandhi National Open University, Regional Centre on 8th May 2008 at Jabalpur.
- Attended Ethics Committee Meeting of NSCB Medical College at Jabalpur on 11th August 2008 and 5th February 2009.
- Attended NIRD's Off-campus Training Workshop on Participatory Rural Appraisal for Development of Rural Infrastructure at Chhattisgarh State Institute of Rural Development, Raipur on 15th September 2008.

Dr. C.K. Dolla

- Completed Master Degree in Public Health (MPH) from VIT, Netherlands in September 2008.

Dr. Jyothi Bhat

- Attended a workshop on tuberculosis to review tuberculosis situation in Madhya Pradesh and to discuss findings of the TB prevalence survey undertaken by RMRCT in

tribal population on 3rd June, 2008.

- Presented a paper at 13th International Congress on Infectious Diseases held at Kuala Lumpur, Malaysia during 19th - 22nd June 2008.
- Presented a paper at First International conference of South East Asia Region (The Union) & 63rd National conference on Tuberculosis & Chest Diseases (SEAR, NATCON 2008) held at New Delhi during 8th -10th September 2008.
- Attended the workshop for SRL in-charge organized by NACO at National Institute of Biologicals, Noida during 30th March - 3rd April, 2009.

Dr. R.K. Sharma

- Attended Training cum Workshop on Stochastic Models and their Applications at Department of Statistics, Banaras Hindu University (BHU), Varanasi during 22nd September - 4th October 2008.

9. EVENTS

9.1. Independence Day and Republic Day Celebrations

The centre celebrated 62nd Independence Day on 15th August 2008 and 60th Republic Day on 26th January 2009 with great enthusiasm. Dr. Neeru Singh, Director of the Centre hoisted the National Flag at main Building of the centre.

Hoisting of National Flag

9.2. Hindi Fortnight (1st to 5th September 2008)

On this occasion an appeal was made by the Director to all the officers and staff of the Centre to do their official work as much as possible in Hindi. Various competitions were organized at the centre to promote working in Hindi among the employees. The winners of the competitions were presented with cash prizes and certificates by Director of the centre.

Dr. V.G. Rao, Scientist 'F' collecting the Prize from the Director

9.3. Vigilance Week (1st -7th November 2008)

National vigilance week was observed during 1st to 7th November 2008 to generate awareness among the employees for sincere and dedicated service free from corruptions. Oath was also taken by all employees of the centre not to indulge in corrupt practices.

Employees taking oath

9.4 National Science Day Celebration

The centre organized the Poster session on the Occasion of National Science Day on 27th February 2009.

Exhibition of Posters

9.5 Foundation Day

The centre celebrated its 25th foundation day on 1st March 2009. On this occasion Dr. B. N. Saxena, former Add. Director General, ICMR and Founder Director of the Centre delivered the foundation day lecture. Prizes were also distributed to the workers those completed 25 years of services at this centre.

On the eve of Foundation day celebration of RMRCT, Jabalpur, the centre felicitated Dr. Vishwa Mohan Katoch, Secretary to the Government of India, Deptt. of Health Research, Ministry of Health & Family Welfare and Director General of Indian Council of Medical Research, New Delhi, on 27th February 2009.

10. APPENDICES

10.1. Joining / Promotion /Transfer / Retirement / Joining

- Mr. R.K. Gupta resumed his duty after deputation on 12th May 2008.
- Dr. R.S. Balgir, Scientist 'F' joined the centre on 19th May 2008.
- Mrs. Tazia Anwar Ali, Laboratory Technician joined the centre on 30th June 2008.
- Mr. Devprakash Dube, Chowkidar joined the centre on 29th August 2008.
- Mr. W. H. Venkataseshan transferred from CME, Madurai and joined the centre as Administrative Officer on 24th November 2008.

Promotion

- Under five yearly scientist cadre assessment scheme of ICMR three scientists of the centre are promoted to next higher post.
  - Dr. V.G. Rao to Scientist F
  - Dr. K.B. Saha to Scientist D
  - Mr. Gyan Chand to Scientist D
- Mr. R. K. Gupta, Section Officer at the centre was promoted to Administrative Officer through DPC on 25th September 2008.

Transfer

- Dr. Dasharathi Das, Scientist C was transferred to RMRC, Bhubhaneshwar on 23rd May 2008.
- Mr. R. K. Gupta, Administrative Officer transferred to CME, Madurai on 10th November 2008.

Retirement

- Mr. P. K. Argal, Assistant at the centre voluntarily retired on 2nd January 2009.

10.2. Foreign Visits

Dr. Neeru Singh

- Washington USA during 27th - 28th July 2008.
- Annecy, France during 13th -14th November 2008.
- New Orleans, Louisiana, USA during 7th-11th December 2008.

Dr. V. G. Rao

- Kuala Lumpur, Malaysia during 19th - 22nd June 2008.

Dr. C.K. Dolla

- VIT, Netherlands in September 2008.

Dr. Jyothi Bhat

- Kuala Lumpur, Malaysia during 19th - 22nd June 2008.

10.3. Visits

Dr. S.K. Bhattacharya, Add. DG, ICMR, New Delhi visited the Centre on 17th May 2008 and had a discussion with centre's Scientists.

Shri. G. B. Mukherjee, IAS, Principal Secretary, Ministry of Tribal Affairs, Government of India, New Delhi visited the Centre on 14th July 2008.

Dr. Rashmi Arora, Scientist F, ICMR, New Delhi and Dr. D. Gadkari, Former Director, NIV, Pune visited the centre on 21st August 2008.

Dr. Manju Sharma, Former Secretary, DBT, New Delhi visited the Centre on 12th September 2008.

10.4. Workshops / Training / Meetings Conducted

Five day training was jointly organized by RMRCT and M.P. State AIDS Control Society, Bhopal for laboratory technicians of Primary Health Centre's on Testing of HIV during 28th July - 1st August 2008.

A workshop was organized on "Integrated Fluorosis Mitigation" for medical officers of Mandla and Dindori District on 4th - 10th September 2008. The training was supported by Dept. of Tribal Welfare, Govt. of M.P.

Induction training for freshly appointed Laboratory Technicians of ICTC was organized jointly by RMRCT & MPSAC during 9th - 13th February 2009.

Training on External Quality Assurance Scheme for Blood Bank Officers and Technicians was organized jointly by RMRCT & CGSACS on 5th - 6th March and 24th - 25th March 2009.

Scientific Advisory Committee Meeting

21st Scientific Advisory committee meeting held on 22nd December 2008. Progress report of ongoing and recently completed research projects and new proposals were discussed in the SAC meeting.

International Symposium on Tribal Health

On the eve of Silver Jubilee celebration, the centre organized an International Symposium on Tribal Health during 27th February - 1st March 2009. It is a landmark forum that invites delegates not only from India but from different parts of the globe. The symposium marked to be a lively forum for interaction and addressed all major public health problems commonly prevalent among various tribal communities. In the symposium 14 important themes such as malaria,

other vector borne diseases, HIV & other viral diseases, tuberculosis, other infectious disease, haemoglobinopathies & allied disorders, non-communicable diseases, nutritional, fluorosis, reproductive and child health and demography, behavioural and health seeking studies, indigenous medicines, medical ethics and climate change and health were identified and deliberations were made. There was an overwhelming response from many national and international subject experts from institutes of repute.

Shri Jagannath Singh,Hon'ble Minister of Scheduled Caste and Scheduled Tribe, Govt. of Madhya Pradesh lighting the lamp.

More than 300 experts, academicians, scientists, researchers, scholars, students, administrative and programme managers and industrial persons participated in this mega scientific event. Besides oral and poster presentations the symposium had provided a platform for versatile plenary sessions and invited lectures on key health issues by some of most eminent scientists. The symposium is instrumental in bringing tribal health problem particularly in India and its central region at global level and generated inquisitiveness among the national and international researchers and program managers to collaborate and work in this area for the welfare

Inauguration of Symposium (On the dias : Left to Right)- Dr. Neeru Singh, Prof. R. C. Mahajan, Dr. V. M. Katoch, Shri Jagannath Singh, Dr. G. P. S. Dhillon, Shri M. Rajamani, Shri Sanjeev Datta.

A glimpse of an oral presentation

A glimpse of a poster session

and development of these underprivileged people.

During this occasion Hon. Minister of Scheduled Caste and Scheduled Tribe of Govt. of Madhya Pradesh, Shri Jagannath Singh, releases on 27th February 2009 the centre's profile entitled, "Tribal Health in Retrospect: Experiences from Multi-disciplinary Research Activities at RMRCT" depicting its

Valedictory Session (On the dias : Left to Right) Dr. Neeru Singh, Dr. K. D. Baghel, Lat. Gen. D. Raghunath, Dr. S. M. Paul Khurana, Dr. B. N. Saxena, Prof. R. C. Mahajan, Dr. Deepali Mukherjee

achievements during last 25 years. The document will be very useful for persons working on health particularly on tribal health. The centre also released the "Tribal Health Bulletin" No.12 (1&2), and RMRCT Update Vol.5, No.2, October, 2008 issued from the same dais on 27th February 2009.

The valedictory session of the symposium was graced by the Prof. S.M. Paul Khurana, Vice Chancellor, Rani Durgawati Vishwa Vidyalaya Jabalpur and Dr. K.D. Baghel, Dean, NSCB Medical College Jabalpur. Dr. B.N. Saxena, former Add. Director General, ICMR and Founder Director of the Centre delivered the valedictory speech.

Decorated Office Building and Campus of RMRCT on the eve of Silver Jubilee

10.5. Committees

Scientific Advisory Committee

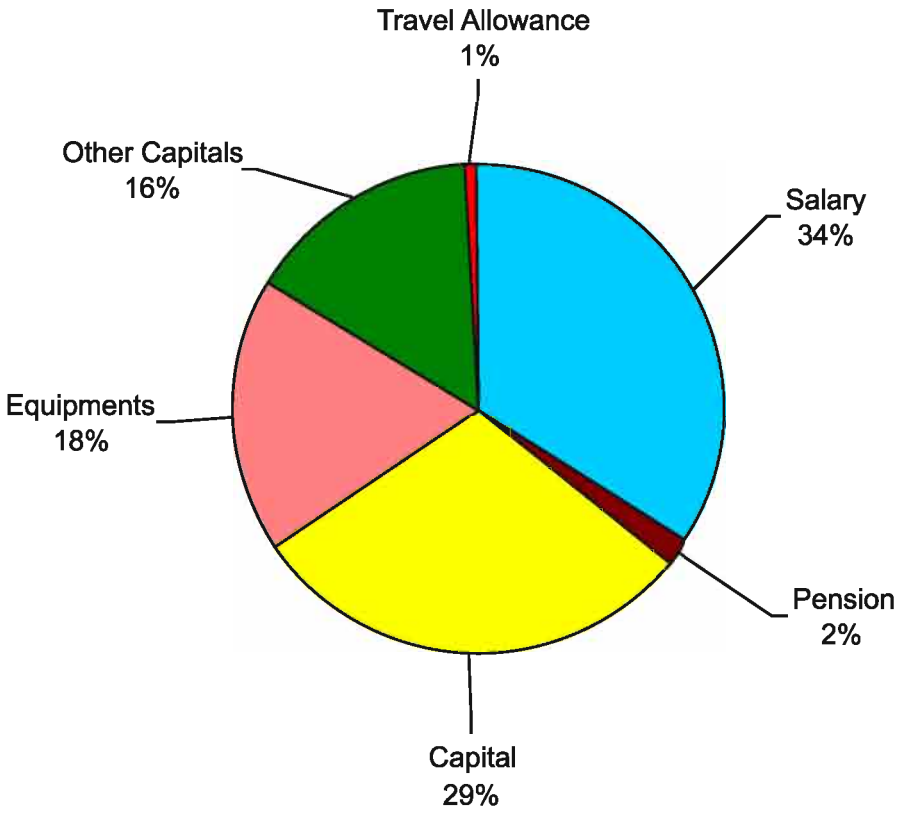
1	**Lt. Gen. Raghunath** Principal Executive Sir Dorabji Tata Centre for Research in Tropical Diseases, IISC Campus, Bangalore	Chairman
2	**Prof. R.C. Mahajan** S.N. Bose INSA Research Professor & Emeritus Professor Department of Parasitology PGI, Chandigarh	Member
3	**Dr. P.R. Narayanan** Director Tuberculosis Research Centre Chetput, Spur Tank Road, Chennai	Member
4	**Dr. D.S. Agrawal** B-24, Swasthya Vihar New Delhi	Member
5	**Dr. S. Pattanayak** B-91, Swasthya Vihar, Vikas Marg, New Delhi	Member
6	**Prof. A.P. Dash** Director National Institute of Malaria Research Shamnath Marg, Delhi	Member
7	**Dr. S. Subharao** Emeritus Medical Scientist Deptt. of ECD Indian Council of Medical Research Ansari Nagar, New Delhi	Member
8	**Dr. Dipali Mukherjee** Scientist F Division of ECD Indian Council of Medical Research Ansari Nagar, New Delhi	Member
9	**Dr. Neeru Singh** Director Regional Medical Research Centre for Tribals Nagpur Road, Jabalpur	Member Secretary

Ethics Committee

1	**Dr. Arun Sharma** Professor & Head Department of Radiology NSCB Medical College, Jabalpur	Chairman
2	**Dr. S. P. Pandey** Professor & Head Department of Pharmacology NSCB Medical College, Jabalpur	Member
3	**Dr. B. K. Sahu** Professor & Head Department of Rural Development Rani Durgavati Vishwavidyalaya, Jabalpur	Member
4	**Dr. Pushpa Kirar** Professor & Head Department of Radiotherapy NSCB Medical College, Jabalpur	Member
5	**Mr. Jamal Akhtar Baig** Director, ENFORE (NGO) G-2/167, Sameer House, E-8 Gulmohar Bhopal - 462039	Member
6	**Dr. Karuna Verma** Head, Deptt. of Biological Sciences Rani Durgavati Vishwavidyalaya, Jabalpur	Member
7	**Mr. Ashish Shroti** Advocate, High Court of Madhya Pradesh Kamala Nehru Nagar, Yadav Colony Chowk Jabalpur - 482002	Member
8	**Dr. Gayatri Sinha** Professor & Dean, Deptt. of Philosophy Rani Durgawati Vishwavidyalaya Jabalpur	Member
9	**Mr. Komal Prasad Viswakarma** At. Mukunwara, Post- Ghatpiparia Ta. & Dist. Jabalpur	Member
10	**Dr. V. G. Rao** Scientist F RMRCT, Jabalpur	Member Secretary

10.6. Budget

Budget 2008-09
(Total Budget Rs. 1195.44 Lakhs)



10.7. राजभाषा नीति के कार्यान्वयन एवं अनुपालन से संबंधित प्रगति रिपोर्ट

क्षेत्रीय जनजाति आयुर्विज्ञान अनुसंधान केन्द्र (भा.आ.अ.प.), जबलपुर में भारत सरकार, गृह मंत्रालय, राजभाषा विभाग की राजभाषा नीति के समुचित कार्यान्वयन एवं अनुपालन के लिए सतत् प्रयास किए जा रहे हैं। प्रतिवेदन अवधि अप्रैल, 2008 से मार्च, 2009 के दौरान भारत सरकार सरकार, राजभाषा विभाग द्वारा निर्धारित लक्ष्यों को प्राप्त करने के संबंध में की गई कार्रवाई की संक्षिप्त जानकारी निम्नानुसार है :–

1. राजभाषा नीति कार्यान्वयन समिति

राजभाषा विभाग के आदेशानुसार इस अनुसंधान केन्द्र में 'राजभाषा कार्यान्वयन समिति' गठित है :–

1. डॉ. नीरू सिंह, निदेशक – अध्यक्ष
2. डॉ. व्ही.जी.राव, वैज्ञानिक 'एफ' – सदस्य
3. श्री बरुण कुमार मजूमदार, लेखा अधिकारी – सदस्य
4. श्री ज्ञानचंद जैन, प्रशासनिक अधिकारी – सदस्य
5. श्री हाकिम सिंह ठाकुर, कनिष्ठ हिंदी अनुवादक – सदस्य

प्रत्येक तीन माह में इस समिति की बैठक होती है, जिसमें इस अनुसंधान केन्द्र में राजभाषा कार्यान्वयन एवं अनुपालन की स्थिति की समीक्षा की जाती है तथा सरकार द्वारा निर्धारित लक्ष्यों को प्राप्त करने हेतु आवश्यक उपायों की संस्तुति की जाती है। अभी तक इस समिति की कुल 65 तिमाही बैठकें आयोजित की जा चुकी हैं।

2. हिंदी पत्राचार

इस केन्द्र द्वारा प्रतिवेदनाधीन वर्ष 2008–09 के दौरान सरकार द्वारा निर्धारित लक्ष्य के अनुरूप अधिक से अधिक मूल रूप से हिंदी में पत्राचार करने का प्रयास किया जा रहा है। और 'क' क्षेत्र के साथ–साथ 'ख' एवं 'ग' क्षेत्रों में मूल हिंदी पत्राचार बढ़ाने के लिए प्रयास किए जा रहे हैं।

3. धारा 3(3) एवं राजभाषा नियम–5 का अनुपालन

राजभाषा अधिनियम, 1963 (यथासंशोधित 1967) की धारा 3(3) के अनुपालन में सामान्य–आदेश, परिपत्र, निविदा सूचना एवं निविदा प्रपत्र आदि निर्दिष्ट दस्तावेजों के अतिरिक्त रिक्त पदों के विज्ञापन आदि भी हिंदी व अँग्रेजी में द्विभाषी रूप में जारी किए जाते हैं।

4. प्रशिक्षण

इस केन्द्र के अधिकांश अधिकारियों एवं कर्मचारियों को हिंदी का कार्यसाधक ज्ञान/प्रवीणता प्राप्त है और यह केन्द्र राजभाषा नियम 10.4 के अंतर्गत अधिसूचित है।

राजभाषा विभाग के निर्देशों के अनुसार जिन कर्मचारियों को हिंदी टंकण एवं हिंदी आशुलिपि के सेवाकालीन प्रशिक्षण की आवश्यकता थी, उन सभी को हिंदी शिक्षण योजना, राजभाषा विभाग, जबलपुर कार्यालय से हिंदी टंकण/हिंदी आशुलिपि का प्रशिक्षण दिलाया गया है और इस मद में भी शत–प्रतिशत लक्ष्य प्राप्त कर लिया गया है।

5. हिंदी–दिवस/हिंदी–पखवाड़ा

राजभाषा विभाग के निर्देशों के अनुसार केन्द्र में प्रति–वर्ष हिंदी–दिवस एवं हिंदी पखवाड़ा मनाया जाता है। इस दौरान निदेशक महोदया द्वारा केन्द्र के सभी अधिकारियों एवं कर्मचारियों से सरकारी कामकाज अधिकाधिक हिंदी में करने की अपील की जाती है, कर्मचारियों के लिए हिंदी प्रतियोगिताएँ आयोजित की जाती हैं।

इस केंद्र में 'हिदी पखवाड़ा (1–15 सितंबर, 08) के अंतर्गत आयोजित हिंदी प्रतियोगिताओं एवं हिंदी प्रोत्साहन योजना के विजेताओं को दिनांक 29 सितंबर, 2008 आयोजित राजभाषा पुरस्कार वितरण समारोह में केंद्र निदेशक डॉ. नीरू सिंह द्वारा नकद पुरस्कार एवं प्रमाण–पत्र प्रदान किए गए:–

I. हिंदी प्रतियोगिताएं

1. हिंदी टंकण

प्रथम पुरस्कार	श्री रामानुज कुमार, आँकड़े प्रवि प्रचालक, परियोजना, राष्ट्रीय मले अनु संस्थान फील्ड स्टे
द्वितीय पुरस्कार	श्री शैलेश कुमार सहाय, उ.श्रे.लि.
तृतीय पुरस्कार	श्री राजकुमार हांडा, उ.श्रे.लि.
सांत्वना पुरस्कार	श्रीमती पुष्पा उमाटे, उ.श्रे.लि.
सांत्वना पुरस्कार	श्रीमती फिलोमिना लकड़ा, उ.श्रे.लि.

2. हिंदी टिप्पण एवं प्रारूप–लेखन

प्रथम पुरस्कार	श्री सतीश कुमार विनोदिया, सहायक
द्वितीय पुरस्कार	श्री जगदीश प्रसाद मिश्रा, क्षेत्र सहायक
तृतीय पुरस्कार	श्री के.वेनुगोपाल राव, भंडार परिचारक
सांत्वना पुरस्कार	श्री रामकुमार वर्मा, वायरमैन
सांत्वना पुरस्कार	श्री एस.के.उपाध्याय, क्षेत्र प्रयोग.परिचारक, परियोजना, राष्ट्रीय मले.अनु.संस्थान फील्ड स्टे. जबलपुर

3. तात्कालिक हिंदी निबंध (वैज्ञानिक/अधिकारी समूह)

प्रथम पुरस्कार	डॉ. आर.के.शर्मा, वैज्ञानिक 'बी'
द्वितीय पुरस्कार	डॉ.राजीव यादव, वैज्ञानिक 'बी'
तृतीय पुरस्कार	श्री दिनेश कुमार, वैज्ञानिक 'सी'
सांत्वना पुरस्कार	डॉ.अशोक कुमार मिश्र, वैज्ञानिक 'डी' राष्ट्रीय मले.अनु. संस्थान फील्ड स्टे. जबलपुर
सांत्वना पुरस्कार	डॉ.सुरेन्द्र कुमार, वैज्ञानिक 'सी'

4. तात्कालिक हिंदी निबंध (कर्मचारी समूह)

प्रथम पुरस्कार	श्री जगदीश प्रसाद मिश्रा, क्षेत्र सहायक
द्वितीय पुरस्कार	श्री एस.के.उपाध्याय, क्षेत्र प्रयोग.परिचारक, परियोजना, राष्ट्रीय मले.अनु.संस्थान फील्ड स्टे. जबलपुर
तृतीय पुरस्कार	श्री सुभाष गोडबोले, प्रयोगशाला तकनीशियन
सांत्वना पुरस्कार	श्री प्रमोद कुमार चौबे, प्रयोग. परिचारक
सांत्वना पुरस्कार	श्री प्रदीप कुमार मेश्राम, अनुसंधान सहायक

5. हिंदी तात्कालिक–भाषण (वैज्ञानिक/अधिकारी समूह)

प्रथम पुरस्कार	डॉ.व्ही.जी.राव, वैज्ञानिक 'ई'
द्वितीय पुरस्कार	डॉ. आर.के.शर्मा, वैज्ञानिक 'बी'
तृतीय पुरस्कार	डॉ.एम.एम.शुक्ला, वैज्ञानिक 'ई' राष्ट्रीय मले. अनु. संस्थान फील्ड स्टे. जबलपुर
सांत्वना पुरस्कार	डॉ.आर.बी.गुप्ता, वैज्ञानिक 'ई'
सांत्वना पुरस्कार	डॉ.अशोक कुमार मिश्र, वैज्ञानिक 'डी' राष्ट्रीय मले अनु. संस्थान फील्ड स्टे. जबलपुर

6. हिंदी तात्कालिक–भाषण (कर्मचारी समूह)

प्रथम पुरस्कार	श्री समर बहादुर सिंह, अनुसंधान सहायक
द्वितीय पुरस्कार	श्री एस.के.उपाध्याय, क्षेत्र प्रयोग.परिचारक, परियोजना, राष्ट्रीय मले.अनु.संस्थान फील्ड स्टे. जबलपुर
तृतीय पुरस्कार	श्री उमाशंकर तिवारी, आँकड़े प्रविप्रचालक परियोजना, राष्ट्रीय मले.अनु.संस्थान फील्ड स्टे. जबलपुर
सांत्वना पुरस्कार	श्री प्रमोद कुमार चौबे, प्रयोग. परिचारक
सांत्वना पुरस्कार	श्री प्रबीण कुंड, आँकड़े प्रवि.प्रचालक परियोजना, राष्ट्रीय मले.अनु.संस्थान फील्ड स्टे. जबलपुर

II. मूल रूप से हिंदी में सरकारी कामकाज (टिप्पण/आलेखन) करने के लिए प्रोत्साहन योजना

प्रथम पुरस्कार	श्री आर.के.हांडा, उ0श्रे0लि0
द्वितीय पुरस्कार	श्री के.वेनुगोपाल राव, भंडार परिचारक

6. प्रकाशन

इस अनुसंधान केन्द्र से जनजातियों की विशिष्ट स्वास्थ्य समस्याओं के अध्ययन एवं अनुसंधान के बारे में प्रकाशित 'ट्राइबल हैल्थ बुलेटिन' (अँग्रेजी में) तथा हिंदी में 'आदिवासी स्वास्थ्य पत्रिका' के नाम से प्रकाशित की जाती है। इस पत्रिका का खण्ड 12 अंक 1 एवं 2 जनवरी एवं जुलाई, 2006 प्रकाशनाधीन है।

10.7. Staff List

Staff position as on 31st March 2009

Scientist Cadre

Dr. Neeru Singh, MSc, PhD	Director & Scientist G	
Dr. R. S. Balgir, PhD	Scientist F*	Bio-Chemistry & Immunology
Dr. V. G. Rao, MBBS, MD	Scientist F	Community Medicine
Dr. Tapas Chakma, MBBS, MAE	Scientist E	Community Medicine
Dr. R. B. Gupta, MSc, PhD	Scientist E	Genetics
Dr. S. R. Qamra, MSc, PhD	Scientist D	Anthropology
Dr. Kalyan B. Saha, MSc, MPS, PhD	Scientist D	Demography
Shri Gyan chand, MSc	Scientist D	Entomology
Shri Dinesh Kumar, MSc	Scientist C	Statistics
Dr. Surender Kumar, MBBS	Scientist C	Community Medicine
Dr. Chandra K. Dolla, MBBS	Scientist C	Community Medicine
Dr. Rajiv Yadav, MBBS, MD	Scientist B	Genetics
Dr. Jyothi Bhat, MBBS, MD	Scientist B	Microbiology
Dr. Ravendra K. Sharma, MPS, MPhil, PhD	Scientist B	Economics

Technical Cadre

Shri V. Soan, MSc	Technical Officer
Dr. N. K. Choudhary, MA, PhD	Health Educator
Dr. R.C. Mishra, MA, PhD	Sr. Artist cum Photographer
Dr. D. C. Jain, MSc, PhD	Research Assistant
Dr. Jyotirmoy Roy, MA, PhD	Research Assistant
Dr. Manoj K. Bhondeley, MSc, MPhil, PhD	Research Assistant
Dr. Bal Krishna Tiwari, MA, PhD	Research Assistant
Shri Praval Srivastava, MA	Research Assistant
Shri P. Vinay Rao, MSc	Research Assistant
Dr. Arvind Verma, MSc, PhD	Research Assistant
Dr. Alpana Abbad, MA, PhD	Research Assistant
Shri M.P.S.S. Singh, MSc	Research Assistant
Shri Arvind Kavishwar, MSc, PGDCA	Research Assistant
Shri Ajay K. Goyal, MA	Research Assistant
Shri Samar Bahadur Singh, MA, LLB	Research Assistant
Shri Pradeep K. Meshram, MA, MPhil	Research Assistant
Shri Vijay S. Gadge, MSc, DMLT	Research Assistant
Shri Mohan Lal Kori, MA	Research Assistant
Smt Ujjwala Das, MSc	Research Assistant
Smt. Maya Pandey, MA	Research Assistant
Smt. Savinder Rao, BSc, CMLT	Tech Assistant
Shri G. P. Shukla, BSc	Tech Assistant

Shri Chandan Karforma, BSc, DMLT	Tech Assistant
Shri Rajendra K. Minocha, Hr. Sec, DMLT	Tech Assistant
Smt Canina Luke, Hr. Sec	Lab Technician
Shri Subhash Godbole, MSc	Lab Technician
Shri Shiv Kumar Singh, MA	Lab Technician
Shri Purshottam Patel, Hr. Sec, CMLT	Lab Technician
Shri Mohan Lal Patel, Hr. Sec	Lab Technician
Shri Mahendra K. Ukey, Hr.Sec, DMLT	Lab Technician
Shri L. S. Kaushal, BSc, CMLT	Lab Technician
Shri C. P. Vishwakarma, BA	Lab Technician
Shri Ashok K. Gupta, BA, CMLT	Lab Technician
Shri Anil Gwal, BSc, CMLT	Lab Technician
Shri Lalit K. Sahare, Hr. Sec, DMLT	Lab Technician
Smt. Nazia Anwar Ali	Lab Technician**
Shri S. R. Mishra, Hr. Sec	Insect Collector
Shri Rakesh K. Jaiswal, Hr. Sec	Insect Collector
Shri M. P. Tiwary, MA	Insect Collector
Shri Ghanshyam Ahirwar, Hr. Sec	Insect Collector
Shri D. K. Mishra, BA	Insect Collector
Shri D. C. Khatarkar, Hr. Sec	Insect Collector
Shri B. S. Patel, Hr. Sec	Insect Collector
Shri Ajesh Kumar Dubey, Hr. Sec	Insect Collector
Shri Jagdish P. Mishra, MA	Field Assistant
Shri Vijay K. Kachhi, MA	Lab Assistant
Shri Jagdish Singh, IX	Field Assistant
Shri Rajju Lal Neelkar, Hr. Sec	Technician
Shri Dhan Singh Thakur, VIII	Lab Assistant
Shri Sheikh Salim, IV	Lab Attendant
Shri Promod Choubey, MA, Dip. T	Lab Attendant
Smt. Reena Shome, BSc	Lab Recorder
Shri Suresh K. Burman, VIII	Lab Servant
Shri Sukhlal Vishwakarma, Hr. Sec	Lab Attendant
Shri Rajendra P. Gond, VIII	Lab Servant
Shri Jagdish P. Thakur, VIII	Lab Attendant
Shri Prakash Sangle	Lab Servant
Smt Shashi Prabha Mishra	Lab Servant
Shri Shamshad Ali Ansari	Lab Servant

Library

Shri K.V.K. Rao, MCom, BLib	Asst. Lib. & Inf. Officer
Shri S.N. Singh, MA, MLib	Library Information Asst.
Shri Ganga Bahadur, VIII	Jr. Library Attendant

National Nutrition Monitoring Bureau (M.P. Unit)

Dr. Rakesh Babu, MBBS	ARS
Mrs. S. J. Khan, MHSc	ARS
Shri Gajanan Dhore, MSW	Social Worker

Voluntary Counseling & Testing Centre

Ms. Sharddha Shrivastava, MA	Counselor
Shri K. K. Verma, BSc, PGDCP&DT	Lab. Technician
Shri Manish Vishwakarma, Hr. Sec, DMLT	Lab. Technician

Administrative Cadre

Shri Ravi K. Gupta, BA	Administrative Officer***
Shri W. H. Venkataseshan	Administrative Officer@
Shri B. K. Majumdar, BCom	Accounts Officer$
Shri Gyan Chand Jain, BA	Section Officer
Shri Sudesh K. Yadav, MA, LLB	Personal Assistant
Shri P. K. Argal, MA	Assistant#
Shri P. K. Bhale Rao, MCom	Assistant
Shri D. P. Lodhi, MA, LLB	Assistant
Shri S. K. Vinodia, BCom	Assistant
Shri Rajendra K. Thakur, BSc	Assistant
Shri Hakim Singh Thakur, MA	Jr. Hindi Translator
Smt. Pushpa Umate, MA	Upper Division Clerk
Shri Bhagwani Prasad, Hr. Sec	Upper Division Clerk
Shri Raj Kumar Handa, Hr. Sec, BCom-I	Upper Division Clerk
Shri Raghubir Prasad, Hr. Sec	Upper Division Clerk
Shri P. K. Srivastava, MA, LLB	Upper Division Clerk
Smt. Filomina Lakra, BA	Upper Division Clerk
Shri Sailesh K. Sahai, Hr. Sec	Upper Division Clerk
Shri Baisakhu Lal, Hr. Sec	Lower Division Clerk
Shri Ram N. Dubey, Hr. Sec	Lower Division Clerk
Shri Subhash C. Muduali, MA, BLib	Stenographer
Shri Subash S. Kumbhare, BSc, Com.Opt.	Data Entry Operator Gr. B
Shri Promod Kumar Garg, Hr. Sec	Record Sorter
Shri Laxman Prasad, VIII	Record Sorter
Shri Rameshwar Prasad, HSC	Workshop Helper cum Driver
Shri P. K. Namdev, MA	Motor Mechanic
Shri Tulsi Ram Kurmi, HSC	Driver
Shri Ram Narayan, IX	Driver
Shri Ashok Kumar Saini, VI	Driver
Shri Paramjeet Singh, IX	Driver
Shri Ramesh Kumar Gond, Hr. Sec	Driver
Shri Genda Lal, VIII	Driver
Shri Ravindra Kumar Katrah, VIII	Driver

Shri Baidraj Kachhi, VII	Mali
Shri Madan Singh Maravi, HSC	Peon
Shri Preetam Lal Gond, VIII	Peon
Shri Suresh K. Pareha, IV	Peon
Shri K. Venugopal Rao, Hr. Sec	Store Attendant
Shri Ramesh Kumar Ahirwar, VII	Head Watchman
Shri Suresh Jaiswal, Hr. Sec	Watchman cum Cook
Shri Umesh Gautam, BCom	Watchman cum Cook
Shri Anil Vinodia, HSC	Watchman cum Cook
Shri Doman Ram	Watchman
Shri Malikhan Singh, HSC	Watchman
Shri Santosh Sonkar, IV	Watchman
Shri Ajay K. Soni, Hr. Sec	Watchman
Shri Santosh K. Kol, VIII	Watchman
Shri Prem Singh Gond, VIII	Watchman
Shri Bhagwan Singh, HSC	Watchman
Shri Ram K. Mehra, VIII	Watchman
Shri Summat Singh, VIII	Watchman
Shri Munna Lal Choudhary, V	Watchman
Mr. Devprakash Dube	Watchman
Shri Ram K. Verma, Hr. Sec	Wireman
Shri Shesh Narayan, HSC	Sweeper
Shri Arakh C. Malik, VIII	Sweeper
Shri Vishnu Prasad, VIII	Sweeper
Shri Sone Lal Dumar, VI	Sweeper
Shri Papu Lal Dumar, VIII	Sweeper

Note

* Joined the centre on 19.05.2008
**Joined the centre on 30.06.2008
*** Joined on 23.09.2008 & transferred to CRME, Madurai on 10.11.2008
@ Joined the centre on 24.11.2008
$ Add. Charge of Administrative Officer upto 22.09.2008
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