RMRCT

ANNUAL REPORT
2002-03



Regional Medical Research Centre For Tribals
Jabalpur

RMRCT



क्षेत्रीय जनजाति आयुर्विज्ञान अनुसंधान केन्द्र
जबलपुर

Regional Medical Research Centre for Tribals
Jabalpur

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महानिदेशक
Prof. N.K. GANGULY
MD, FRC Path. (London), FAMS, FNA, FASc, FNASc
Director General

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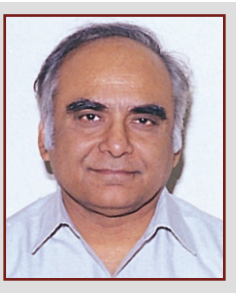
Indian Council of Medical Research
Ansari Nagar, Post Box 4911, New Delhi - 110 029



MESSAGE

I am extremely happy to keep on record our appreciation and satisfactory progress of Regional Medical Research Centre for Tribals (RMRCT), Jabalpur.

Set up, in 1984, the RMRCT addresses itself mainly to the study of the health and nutritional problems of the tribal populations, including nutritional disorders, common communicable diseases, environmental health problems, etc. Infact, it not only provides assistance in planning, monitoring and evaluation of tribal health & other developmental programmes in tribal areas of India (including Madhya Pradesh) as well as in training health functionaries, but simultaneously it is also attempting to estimate the magnitude of health problems posed by other common diseases such as tuberculosis, leprosy, diarrhea, malaria, filariasis, venereal diseases, poliomyelitis, measles, etc. Further, the Centre also studies the blood groups, abnormal hemoglobin and other genetic health problems as well as socio-economic, demographic and cultural profile of the tribal population.

Active participation of Scientists at the Centre in National and International Conferences and adequate training/collaboration with/at other reputed institutes is commendable. The Centre will soon have necessary infrastructure for molecular biology and biotechnology that play a leading role in answering many of the research questions. RMRCT thus has all the potential of being considered as one of the "Centers of Excellence" in the country.

As in the past, the Council will make all endeavors to help this Centre to achieve its ultimate mission.

N.K. Ganguly
Director General

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Fax : 91- 11-6868662, 6856713, 6511547, 6960492, 6529694 E-mail : icmrhqds@sansad.nic.in, gangulynk@icmr.delhi.nic.in



PREFACE

I am indeed happy to present the Annual Report of the centre for the year 2003. The centre got shifted to the main building in 2002 after 18 years of its establishment. The post-earthquake renovation work of the building is in the final stage. Now, the centre is all set to march forward in consolidating the initial achievements and to diversify into advanced areas of haemoglobinopathies and infectious diseases using molecular tools.

During the year the centre has three success stories to report: Control of a)fluorosis b)malaria and c) severity of sickle cell disease. We have started collaboration with CDC, Atlanta, USA in the field of malaria. Every effort has been made to collaborate with State Government Health Departments.

In the area of physical capacity building, there was reasonable progress too. The centre will soon have necessary infrastructure for molecular biology and biotechnology work. The centre will soon receive extramural grants for at least seven research projects submitted by scientists. I expect a quantum jump in generating more extramural funds as well as quality publications in the years to come.

It is important to record that two Junior Research Fellows , one awarded by the ICMR and other by the CSIR have joined the centre for their Ph.D work.

The Voluntary Counselling and Testing Centre at RMRCT is actively participating in National AIDS Control Program. Similarly the NNMB unit of Madhya Pradesh is also functioning from this centre.

The year under report was eventful. Besides the scientific activities, National Science Day, National Technology Day, Rajbhasha Diwas, Annual Day, Vigilance Day and World AIDS Week were celebrated.

Our achievements during the year are significant and I am confident that we will set higher standards for ourselves and will aim to achieve them. At the end, I must acknowledge the cooperation I received from all the staff members: scientific, technical and administrative and also active support (both financial and administrative) from ICMR in running this institute.

A. P. Dash
Director



CAMPUS AT A GLANCE

- Total Land Area (approx). - 12.5 hectare
- Carpet Area of Office Building (approx). - 55000 sq.ft.
- Carpet Area of the Guest House (approx). - 5500 sq.ft.
- Number of Residential Quarters - 65

STAFF AT A GLANCE

Category	A	B	C	D	Total
Scientist*	15	-	-	-	15
Technical		22	38	11	71
Administration	2	7	13	23	45
Library & Information	-	2	3	1	6
TOTAL	**17**	**31**	**54**	**35**	**137**

* Excluding five vacant posts



PUBLICATIONS AT A GLANCE

Papers Published/In Press

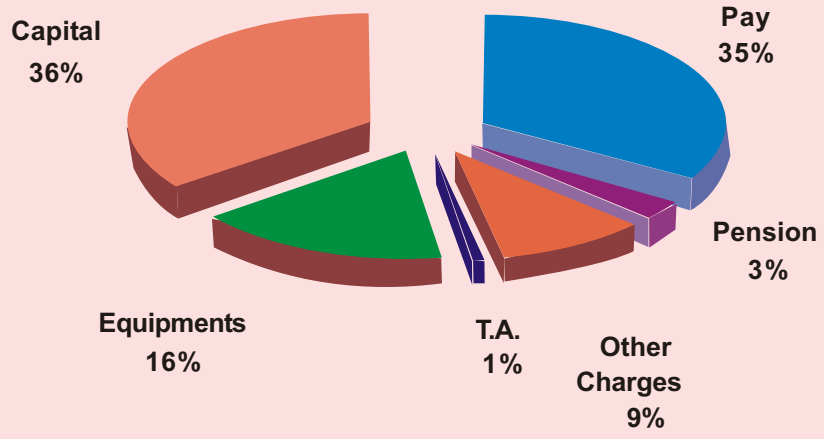
International Journals	-	11
National Journals	-	3
No. of Papers in SCI Journals	-	12
Average Impact Factor	-	1.91

Papers Communicated

International Journals	-	5
National Journals	-	2

BUDGET AT A GLANCE

(Total Budget : Rupees 48.7 Million)



SUCCESS STORIES AT A GLANCE

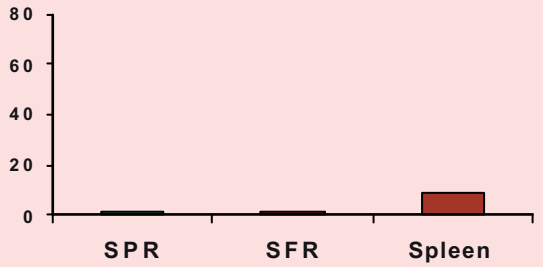


Before Intervention

After Intervention

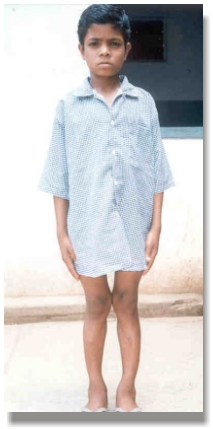
1. Malaria in Betul



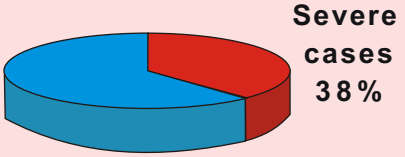


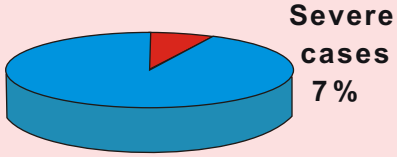
2. Fluorosis in Mandla





3. Sickle Cell Disease in Jabalpur (Severity of Illness)





RMRCT



STAFF POSITION AS ON 31-12-2003

Director

Dr. A. P. Dash, *Ph.D.,D.Sc.,F.N.A.Sc.*
(From 28.2.2003)

Scientific Staff

Dr. Neeru Singh, *M.Sc.,Ph.D.*	Dy. Director (SG) & Officer-in-Charge, MRC Field Station
Dr. G.D. Pandey*, *M. Sc., Ph. D., D.Lit.*	Dy. Director(SG)
Dr. V. G. Rao, *M.B.B.S., M.D.*	Assistant Director
Dr. R. B. Gupta, *M.Sc., Ph. D.*	Assistant Director
Dr. Tapas Chakma, *M.B.B.S.*	Assistant Director
Smt. P. L. Pandey, *M.Sc.*	Assistant Director
Dr. Kalyan B. Saha, *M.Sc., M.P.S., Ph. D.*	Senior Research Officer
Dr. Anup R. Anvikar, *M.B.B.S., M.D.*	Senior Research Officer
Sh. Gyan Chand, *M.Sc.*	Senior Research Officer
Dr. Dasarathi Das, *M.Sc., Ph. D.*	Research Officer
Dr. C.K.Dolla, *M.B.B.S.*	Research Officer
Dr. Surendra Kumar, *M.B.B.S.*	Research Officer
Sh. Dinesh Kumar, *M.Sc.*	Research Officer
Dr. (Miss) K.Damayanti, *M.Sc., Ph. D.*	Research Officer
Dr. Rajiv Yadav**, *M.B.B.S., M.D.*	Research Officer

Technical Staff

Sh. K. V. K. Rao, *M.Com. B. Lib.*	Asst. Lib. & Inf. Officer
Sh. V. Soan, *M.Sc.*	Research Assistant
Dr. Deep Chand Jain, *M.Sc., Ph. D.*	Research Assistant
Dr. Jyotirmoy Roy, *M.Sc., Ph. D.*	Research Assistant
Sh. P. Vinay Rao, *M.Sc.*	Research Assistant
Sh. Arvind Kavishwar, *M.Sc., P.G.D.C.A.*	Research Assistant
Dr. Arvind Verma, *M.Sc., Ph. D.*	Research Assistant
Dr.(Smt.)Alpana Abbad, *M.A., Ph. D.*	Research Assistant
Dr. Bal Krishna Tiwari, *M.A., Ph. D.*	Research Assistant
Sh. Praval Shrivastava, *M.A.*	Research Assistant
Sh. Ajay Kumar Goel, *M.A. (Stat.)*	Research Assistant
Sh. S. B. Singh, *M.S.W.,L.L.B.*	Research Assistant
Sh. M.P.S.S. Singh, *M.Sc.*	Research Assistant
Dr. M. K. Bhondeley, *M.Sc., Ph. D.*	Research Assistant
Smt. Ujwala Das, *M.Sc.*	Research Assistant
Sh. Vijay. S. Gadge, *M.Sc.*	Research Assistant
Sh. Mohan Lal Kori, *M.A.*	Research Assistant
Sh. Pradeep K. Meshram, *M.A., M. Phil.*	Research Assistant
Sh. Niyati Joshi ***, *M.Sc, M.P.S.*	Research Assistant



Dr. R. C. Mishra, *M.A., Ph. D.*	Sr. Artist Cum Photographer
Dr. N. K. Chowdhary, *M.A., Ph. D.*	Medical Social Worker
Sh. Sachchidanand Singh, *M.A. M.Lib.*	Library Information Asst.
Sh. G.P.Shukla, *B. Sc.*	Tech. Assistant
Sh. Prakash Srivastava, *B. A.*	Data Entry Operator, Gr.B
Sh. R.Raghunadh Babu, *M.Sc., DCP, DSADP*	Data Entry Operator, Gr.B
Sh. S. S. Kumbhare, *B. Sc.,C.O.*	Data Entry Operator
Smt.Savinder Rao, *B. Sc., DMLT*	Lab. Technician
Sh. R. K. Minocha, *H. S. C. CMLT*	Lab. Technician
Sh. Chandan Karforma, *B. Sc., DMLT*	Lab. Technician
Sh. Subhash Godbole, *M. Sc., DMLT*	Lab. Technician
Sh. M. L. Patel, *H. S. C.*	Lab. Technician
Sh. Ashok Kumar Gupta, *B. A., CMLT*	Lab. Technician
Sh. Anil Gwal, *B. Sc., DMLT*	Lab. Technician
Sh. L.S. Kaushal, *B. Sc., DMLT*	Lab. Technician
Smt. Canina Luke, *H. S. C.*	Lab. Technician
Sh. Lalit K. Sahare, *H. S. C. , DMLT*	Lab. Technician
Sh. Sujit Kumar Das, *B.Sc., DMLT*	Lab. Technician
Sh. Mahendra Ukey, *H. S. C. DMLT*	Lab. Technician
Smt.Reena Shome, *B. Sc.*	Lab. Recorder
Sh. C. P. Vishwakarma, *B.A.*	Field Assistant
Sh. Shiv Kumar Singh, *B.A.*	Field Assistant
Sh. D.C. Khatarkar, *H. S. C.*	Insect Collector
Sh. S.R. Mishra, *H. S. C.*	Insect Collector
Sh. B.S. Patel, *H. S. C.*	Insect Collector
Sh. M. P. Tiwari, *M.A.*	Insect Collector
Sh. D.K. Mishra, *B.A.*	Insect Collector
Sh. Ajesh Kumar Dubey, *H. S. C.*	Insect Collector
Sh. Rakesh Jaiswal, *H. S. C.*	Insect Collector
Sh. Ghanshyam Ahirwar, *H. S. C.*	Insect Collector
Sh. Rajju Lal Neelkar, *H. S. C.*	Lab. Assistant
Sh. Purshottam Patel, *H. S. C.*	Lab. Assistant
Sh. Ram Kumar Verma, *H. S. C.*	Wireman

Administrative Staff

Sh. C.A. Thomas, *B.Sc., L.L.B.*	Administrative Officer
Sh. B.K. Majumdar, *B.Com.*	Accounts Officer
Sh. Ravi Kant Gupta, *B.A.*	Section Officer
Sh. Gyan Chandra Jain, *B.A.*	Section Officer
Sh. Pramod Kumar Argal, *M.A.*	Assistant
Sh. P.K.Bhalerao, *M.Com.*	Assistant
Sh. Dwarka Prasad Lodhi, *M.A. L.L.B.*	Assistant
Sh. Rajendra Kumar Thakur, *B. Sc.*	Assistant
Sh. Sudesh Kumar Yadav, *M.A., L.L.B.*	Personal Assistant
Sh. Hakim Singh Thakur, *M.A.*	Jr. Hindi Translator



Sh. P.K.Shrivastava, *B.A.*	Upper Division Clerk
Mrs.Filomina Lakra, *B.A.*	Upper Division Clerk
Mrs.Pushpa Umate, *H.S.C.*	Upper Division Clerk
Sh. Bhagwani Prasad, *H.S.C.*	Upper Division Clerk
Sh. Raj Kumar Handa, *H.S.C.*	Upper Division Clerk
Sh. Sailesh Kumar Sahai, *H.S.C.*	Upper Division Clerk
Sh. Vincent Minj[$], *B.A.*	Upper Division Clerk
Sh. Natthi Lal Sharma	Upper Division Clerk
Sh. Satish Kumar Vinodia, *B.Com.*	Upper Division Clerk
Sh. Subash Ch. Muduli, *M.A.,B.Lib.*	Stenographer
Sh. Ram Naresh Dubey, *B.A.*	Lower Division Clerk
Sh. Baishakhu Lal, *H.S.C.*	Lower Division Clerk
Sh. Raghubir Prasad, *H.S.C.*	Hindi Typist

Supporting Staff

Sh.Tulsi Ram Kurmi	Driver
Sh. Ram Narayan	Driver
Sh. Ashok Kumar Saini	Driver
Sh. Paramjeet Singh	Driver
Sh. Ramesh Kumar Gond, *H.S.C.*	Driver
Sh. Genda Lal	Driver
Sh. Ravindra Kumar Katrah	Driver
Sh. P.K.Namdeo, *M.A.*	Motor Mech.
Sh. Pramod Garg, *H.S.C.*	Daftari
Sh. Laxman Prasad	Daftari
Sh. Ganga Bahadur	Library Attendant
Sh. K. Venu Gopal, *H.S.C.*	Store Attendant
Sh. Baidhraj Kachchi	Mali
Sh. Madan Singh Maravi	Peon
Sh. Suresh Kumar Pareha	Peon
Sh. Pritam Lal Gond	Peon
Sh. Dhan Singh Thakur	Lab. Attendant
Sh. Vijay Kumar Kachhi, *M.A.*	Lab. Attendant
Sh. Jagdish Prasad Mishra, *M.A.*	Lab. Attendant
Sh. Jagdish Singh	Lab. Attendant
Sh. Sheikh Saleem	Lab. Servant
Sh. Pramod Kumar Chaubey, *M.A.*	Lab. Servant
Sh. Sukhlal Vishwakarma, *H.S.C.*	Lab. Servant
Sh. Jagdish Prasad Thakur	Lab. Servant
Sh. Suresh Kumar Burman	Lab. Servant
Smt. N.G. Ambujam	Lab. Servant
Sh. Rajendra Prasad Gond	Lab. Servant
Sh. Suresh Jaiswal, *H.S.C.*	Watchman-Cum-Cook
Sh. Umesh Prasad Gautam, *M.A.*	Watchman-Cum-Cook
Sh. Anil Vinodia	Watchman-Cum-Cook



Sh. Rameshwar Prasad	Workshop Helper
Sh. Ramesh Ahirwar	Chowkidar
Sh. Doman Ram	Chowkidar
Sh. Malikhan Singh	Chowkidar
Sh. Santosh Kumar	Chowkidar
Sh. Ram Kumar Mehra	Chowkidar
Sh. Summat Singh	Chowkidar
Sh. Ajay Kumar Soni, *H.S.C.*	Chowkidar
Sh. Santosh Kumar Kol	Chowkidar
Sh. Prem Singh Gond	Chowkidar
Sh. Bhagwan Singh	Chowkidar
Sh. Shesh Naraian	Sweeper
Sh. Arakh Chand Malik	Sweeper
Sh. Vishnoo Prasad	Sweeper
Sh. Sone Lal Dumar	Sweeper
Sh. Pappu Lal Dumar	Sweeper

National Nutrition Monitoring Bureau (M. P. Unit)

Dr. Rakesh Babu, *MBBS*	ARS (Medical)
Mrs. S. J. Khan, *M. H. Sc.*	ARS (Nutrition)
Mr. Gajanan Dhore, *MSW*	Social Worker
Mr. Amar Singh	Driver
Mr. Santosh Maravi	Field Attendant

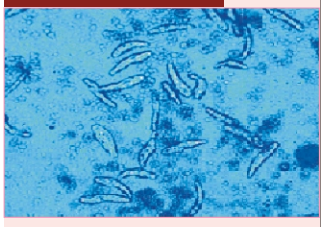
Voluntary Counseling & Testing Centre

Mr. Atul Karkare, *M.A.*	Counselor
Ms. Shradha Shrivastava, *M.A.*	Counselor

* Expired on 07.06.2003
** Joined on the post of R.O. w.e.f. 24.09.2003
*** Joined on the post of R.A. w.e.f. 13.08.2003
$ Retired on 30.04.2003

COMPLETED PROJECTS

1. Differential diagnosis of cercarial dermatitis and scabies with possible control measures in tribal areas of Madhya Pradesh
2. Health and nutritional status of Saharia - A primitive tribe of Madhya Pradesh
3. Prevalence of haemoglobinopathies among the scheduled tribes and scheduled castes of Chhindwara district of Madhya Pradesh
4. Nutrition profile of Baigas - a primitive tribe of Madhya Pradesh
5. Bancroftian filariasis in Panna district of Madhya Pradesh : Clinical, parasitological and immunological approach (a follow up after 11 years)
6. An evaluation of current fertility status among Khairwar tribe of Sidhi district of Madhya Pradesh
7. Study of men as supportive partners in reproductive and sexual health: An investigation among the Khairwars of Sidhi district of Madhya Pradesh
8. Malaria outbreak in Betul



1. Differential diagnosis of cercarial dermatitis and scabies with possible control measures in tribal areas of Madhya Pradesh

Dr. V. G. Rao

Dr. Rajiv Yadav

Starting date: August 2001

Duration: 2 years

Objectives

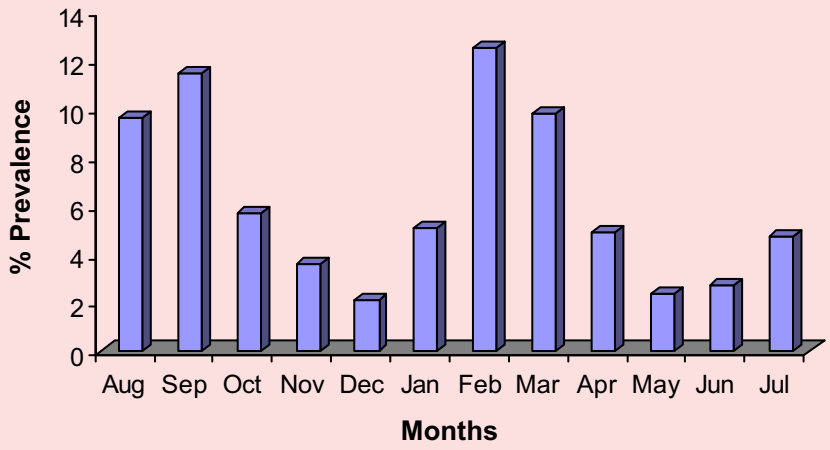
1. To confirm the presence of cercarial dermatitis and scabies.
2. To differentiate cercarial dermatitis from scabies.
3. To study socio-cultural practices related to this condition.

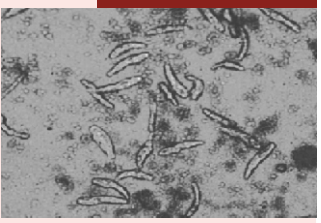
Achievements

A total of 1336 individuals from four villages (two each from Mandla and Seoni district) were studied. Majority of them use local pond / rivulet for bathe. History of itching and development of rash after taking bath in local pond / rivulet was observed in 74.6 % population. A definite seasonal variation was recorded and frequency was higher during August - September and again in February - March (Fig 1.1). Prevalence was almost twice in children as compared to adults ($P<0.001$) and marginally higher in males than in females (Fig 1.2).

Cercarial dermatitis caused by *Schistosoma spindale* was observed in tribal areas of M.P.

Fig 1.1 Seasonal variation of dermatitis





Skin scrapings collected from the lesions (Fig 1.3) were found negative for *Sarcoptes scabiei.* The response to antiscabies treatment (Benzyl Benzoate) was very poor with only 21.9% patients responding to it. Snails from the local ponds were found positive for cercariae.

Cercarien Hullen Reaction (CHR), which is considered to be specific for animal schistosomiasis, was performed on 110 serum samples and was found positive in 42.7% cases. An attempt for sero-diagnosis was also made adopting ELISA and IFA. However, results with both ELISA and IFA were non-conclusive and did not correlate well with the results obtained with CHR (Fig 1.4 & 1.5).

The study leads to the following conclusions:

- Study strongly suggests the presence of cercarial dermatitis in the affected population.
- Specific cultural practices are responsible for the high prevalence of the disease especially in the rural / tribal areas where pond / rivulet is used for bathe.
- There is a need to study the problem in other tribal / rural areas.
- Further studies on immunodiagnosis, natural course and the specific treatment are necessary.

Fig 1.2 Percent prevalence of dermatitis

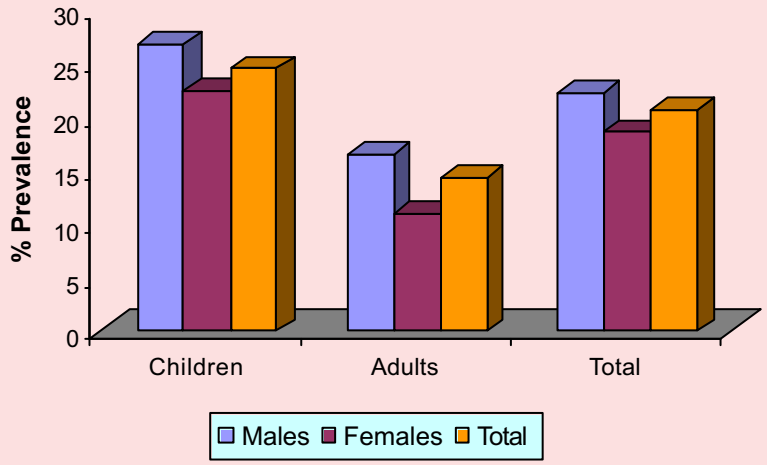




Fig. 1.3 Cercarial Dermatitis in Man



Fig. 1.4 Negative CHR

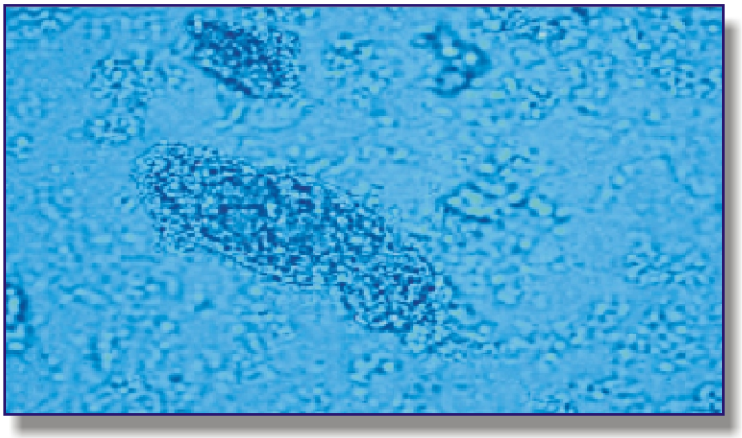


Fig. 1.5 Positive CHR



2. Health and nutritional status of Saharia - A primitive tribe of Madhya Pradesh

Dr. V. G. Rao

Dr. Rajiv Yadav

Starting date: June 2001

Duration: 2 years

Objectives

1. To assess the nutritional status and the dietary intake of various nutrients by the tribe.
2. To suggest intervention strategies for the major health problems of the tribe.

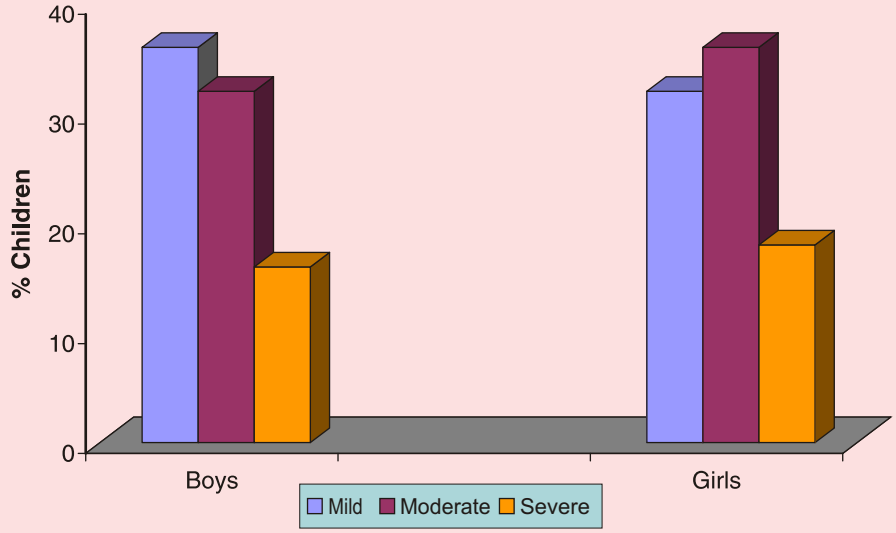
Achievements

The study was conducted on the request of Govt. of Madhya Pradesh in Saharia, a primitive tribe, which resides mainly in northern part of Chambal division of Madhya Pradesh. High prevalence of respiratory tract infections, vitamin A deficiency and malnutrition was recorded in an earlier study conducted by the centre in 1990-1992. The present study was carried out in Sheopur, Shivpuri and Guna districts. A total of 1087 households were covered and the data was collected using structured schedules by trained investigators.

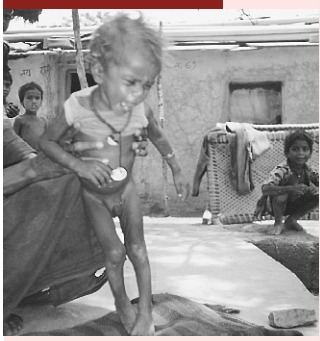
Saharia children were severely under-nourished.

Nutritional status - Majority of the preschool children (85.3%) were found to be under-nourished. Moderate to severe under-nutrition was seen in 53.2% children (Fig 2.1). Though only 11% adults had severe chronic energy deficiency (CED), overall prevalence of CED in adults was 58.7%.

Fig 2.1 Under-nutrition as per Gomez grades



RMRCT



Dietary intake - Consumption of pulses, green leafy vegetables, other vegetables and fats & oils was much below the recommended dietary allowances. Nutrient consumption pattern indicated that there was a gross deficiency in the intake of iron, vitamin A and vitamin C.

Morbidity Profile - Major morbidities recorded were anaemia (93%), skin infections including scabies with secondary infections (18.9%), acute respiratory infections (18.3%) and vitamin A deficiency (7.6%).

The study leads to following conclusions:

- Under-nutrition and anaemia are highly prevalent among Saharia children.
- The diet of Saharias is grossly deficient in iron, vitamin A and vitamin C.
- Major morbidities recorded were anaemia, acute respiratory infections (ARI), skin infections and vitamin A deficiency.
- There is a lack of awareness about environmental sanitation and personal hygiene.

It is recommended that:

- A comprehensive programme comprising of supplementary feeding, early treatment of illness, immunization and health & nutrition education should be immediately started.
- Activities like immunization and distribution of iron, folic acid and vitamin A should be strengthened.





3. Prevalence of haemoglobinopathies among the scheduled tribes and scheduled castes of Chhindwara district of Madhya Pradesh

Dr. R.B. Gupta

Starting date: October 2002

Duration: 1 year

Objective

To find out the prevalence of haemoglobinopathies and G-6-PD deficiency among the scheduled tribes and scheduled caste population of district Chhindwara.

Achievements

Chhindwara is a tribal predominant district having 40% tribal and 12% scheduled caste population as per 1991 census. The main tribes of the area are Gond, Korku and Bharia, while Mehra, Basod and Katiya are the main scheduled castes. The study was carried out in six tribal predominant blocks namely Junnardeo, Damua and Parasia from western, Bichhua and Pandurnna from southern and Amarwada from eastern parts of the district. Sample included 349 Gonds & 250 Korku from scheduled tribes (ST), 181 Katiya, 114 Mehra & 50 Basod from scheduled caste (SC). Fifty eight individuals from other backward classes (OBCs) who reside in same villages, were also screened. Blood samples were analysed for sickle haemoglobin, G-6-PD deficiency and quantitative estimation of foetal haemoglobin (HbF) and haemoglobin A2 (HbA2) following standard techniques. The complete blood count (CBC) using automatic blood cell counter was done on 425 samples.

Sickle Cell Trait was more in Scheduled Castes than Scheduled Tribes of Chhindwara district.





The prevalence of sickle haemoglobin as trait was more in SCs ranging from 21 to 25% as compared to ST groups i.e. 4 to 17% (Fig 3.1). Analysis of samples indicates that sickle haemoglobin is also very common in OBC group. The prevalence of sickle haemoglobin among Gond tribe of this district was low (4.3%) compared to Gonds of Patalkot valley and neighouring districts (12 to 20%). The prevalence of -thalassaemia trait in the district was ranging from 1 to 6% in different groups (Fig 3.1). The prevalence of G-6-PD deficiency in the study area varies from 3.9 to 5.6%. Korku shows highest prevalence of G-6-PD deficiency (5.9%) followed by Mehra (4.8%), Katiya (3.9%) and Gond (3.7%).

Fig. 3.1 Prevalence of haemoglobinopathies and G-6-PD deficiency in Chhindwara district

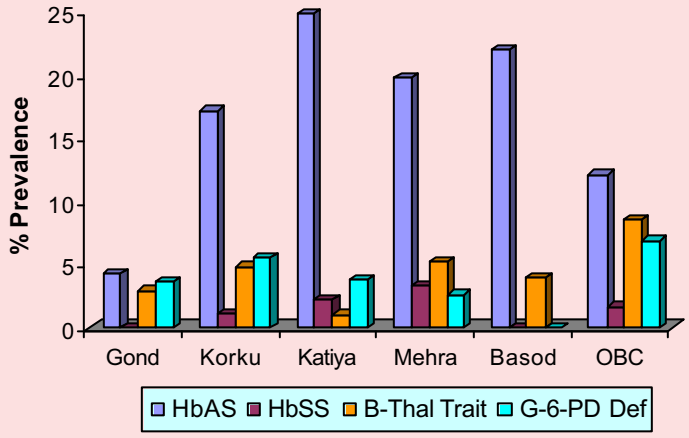


Table 3.1 Prevalence of anaemia in ST and SC population

Population	Type of anaemia			Total Anaemic
	Mild	Moderate	Severe	
Gond	61.3	19.2	1.4	81.9
Korku	63.0	18.3	1.2	82.5
Katiya	54.2	13.6	1.0	68.9
Mehra	44.9	5.6	2.1	52.5
Basod	24.0	2.0	2.0	28.0
OBCs	44.8	15.5	3.4	63.8



Prevalence of anaemia - Anaemia was more common in STs i.e. Gond (82%) and Korku (83%) than SCs i.e. Katiya, Mehra and Basod with 69%, 53% and 28% respectively (Table 3.1). Anaemia was more prevalent in children and adult females (aged over 12 years) as compared to adult males. Most of the anaemic individuals (60 to 90%) were mildly anaemic. Children were worst affected by anaemia in all the groups i.e. 95% of both the tribal groups and 82% of Katiya, 57% of Mehra and 80% of OBC group.

Among the studied population, 13 persons aged 7 to 35 years were found with sickle cell disease (homozygous), in apparently healthy condition. Haemoglobin (Hb) level of these patients varies from 5.6 to 11.2 gm/dl. Two females aged 28 and 35 years were severely anaemic with Hb level of <7g/dl. Foetal haemoglobin (HbF) of these patients varied from 5.7 to 19.4 % (Table 3.2).

The current prevalence rates are expected to give rise to a sizeable number of patients (1 to 2 %) of sickle cell disease in various ST and SC communities. Along with sickle cell disease, a small fraction of population (3 to 5 per 10,000) is expected to suffer from -thalassaemia major. The facilities for genetic counseling, prevention and management programmes should be established in or near the study area. Anaemia control programme needs to be strengthened especially in the tribal areas with a focus on children and women.

Table 3.2 Mean haemoglobin level in sickle cell disease patients

Population	Group	N	Hb(g/dl)	HbF%	HbA_2%
Korku	HbSS	3	8.7?0.1	13.6? 2.5	2.6?0.9
Katiya	HbSS	4	8.4 ?0.8	9.4? 0.8	2.4?0.5
Mehra	HbSS	3	7.4 ?2.6	17.4 ?3.4	3.2?0.4
OBC	HbSS	1	8.4	11.97	3.1
Korku	HbS ? Thal	1	9.8	15.9	4.0
Mehra	HbS ?Thal	1	11.2	11.47	4.1

4. Nutrition profile of Baigas - a primitive tribe of Madhya Pradesh



Dr T. Chakma

Starting date: August 2001

Duration: 2 years

Objectives

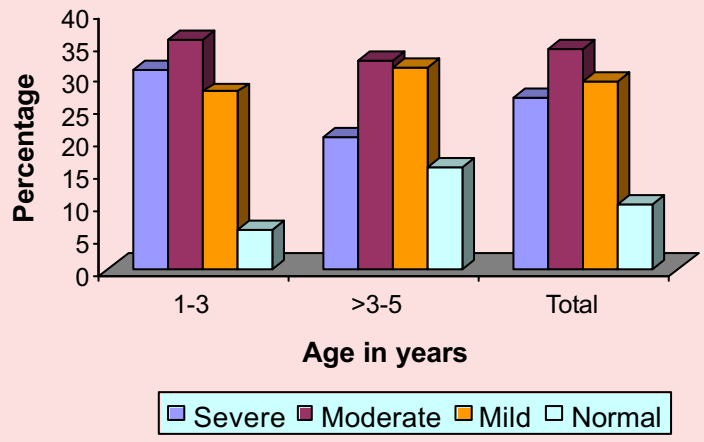
1. To study the food and nutrition consumption pattern.
2. To assess the type and extent of under-nutrition.
3. To study the prevalence of nutritional deficiency disorders.

Achievements

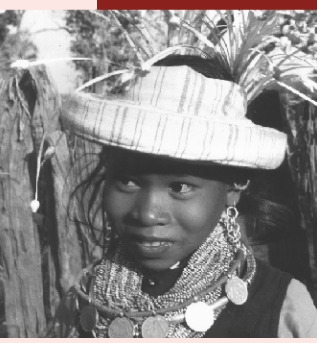
Study was carried out in 7 villages covering 400 households with a population of 3282, out of which, 1545 individuals were clinically examined. The proportion of severe malnutrition in 1-5 year children (Body weight less than 60% of the standard) was 26.6%. Only 9.9% preschool children were found normal in this tribe (Fig 4.1). Seventy six percent adult population had chronic energy deficiency (BMI < 18.5). Body Mass Index (BMI) of more than 25 was observed only in 0.33 % adults (Fig 4.2). Out of the total population surveyed, 14.5% had vitamin A deficiency symptoms (Bitot spots, night blindness and conjunctival xerosis). Vitamin B deficiency was found in 0.9% individuals and prevalence of vitamin D deficiency among children was 0.4 % (Fig 4.3). The prevalence of severe anaemia was found to be 3.2%. The proportion of population, which did not have any clinically detectable morbidity, was 42.8%. Among children (1-14 yrs) upper respiratory infection (URI) was the common morbid condition (21.3%) followed by malaria (19.2%) and scabies (7.8%).

Vitamin A deficiency was observed in about 15% Baiga children.

Fig 4.1 Nutritional status of Baiga children (n=251)



RMRCT



Diet survey was carried out in rainy, winter and summer seasons. A total of 300 households were surveyed. Millets like maize, varugu and rice were found to be staple diet. Some forest based foods like bamboo shoots, mushroom and wild green leafy vegetables are being consumed by Baiga tribe in rainy season.

Fig 4.2 Distribution of adult population by BMI

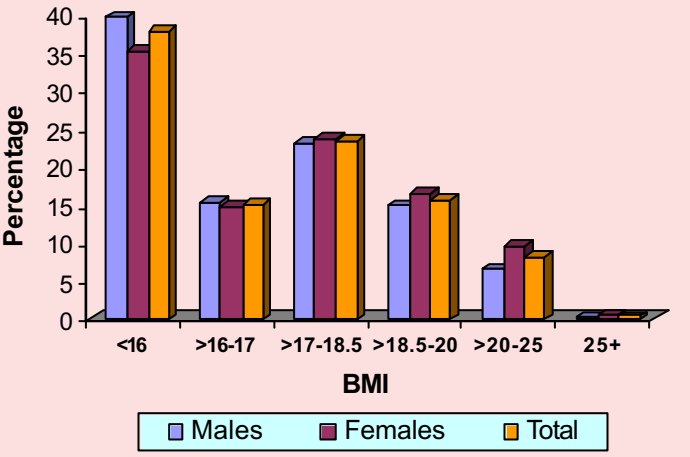
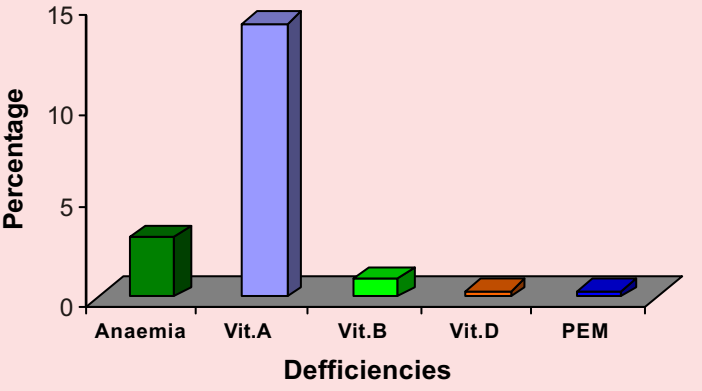


Fig 4.3 Distribution of nutritional deficiency disorders





It was observed that the intake of millets and cereals were more than recommended dietary allowance (RDA) in all seasons. The intake of other vegetables was significantly higher during rainy season ($P<0.001$). The consumption of pulses, roots & tubers, oils & fats, milk and sugar & jaggery was significantly less than RDA in all seasons ($P<0.001$) (Fig 4.4).

Intake of calories, protein, iron, carotene, riboflavin and fat were significantly less than RDA ($P<0.05$). The intake of calcium was very high during summer due to high intake of dry leaves of *Cassia tora*. Intake of vitamin C varies widely with high intake during rainy season to very low during summer (Fig 4.5).

Fig. 4.4 Intake of nutrients in three seasones

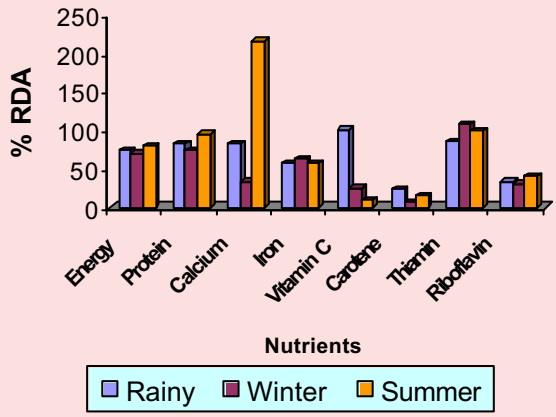
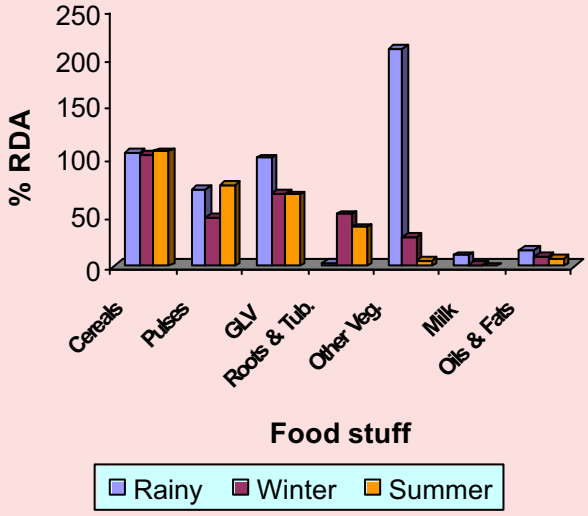


Fig. 4.5 Food intake Baigas in three seasones



RMRCT

5. Bancroftian filariasis in Panna district of Madhya Pradesh : Clinical, parasitological and immunological approach (a follow up after 11 years)

Dr. D. Das

Dr. S. Kumar

Starting date: October 2002

Duration: 1 year

Objectives

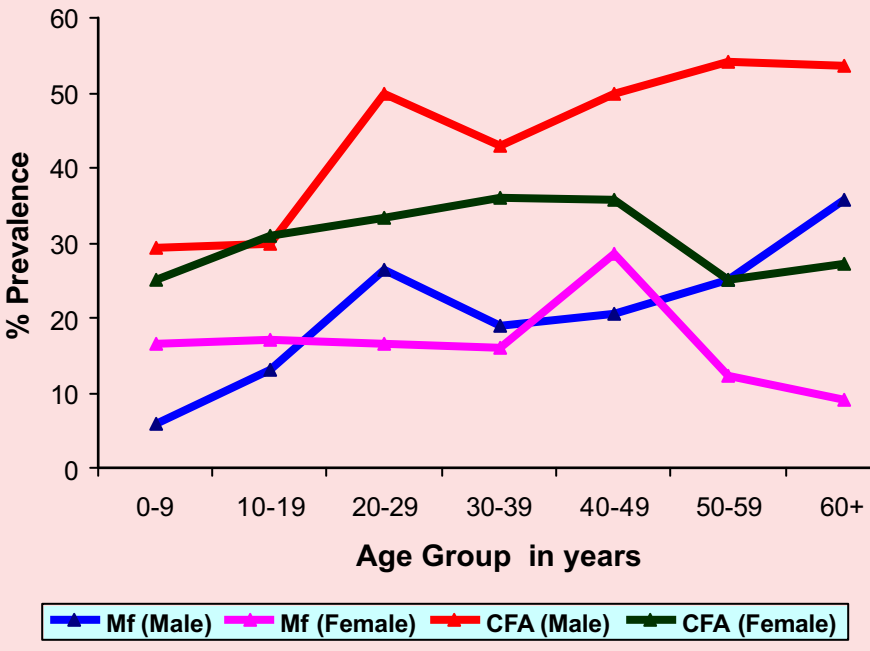
1. To estimate and compare the prevalence of filariasis over 11 years period by using Og4C3 ELISA.
2. To assess the risk factors for infection and disease due to *W. bancrofti* in 0-10 years old children.

Achievements

The centre carried out filariasis prevalence study in Ajaygarh block of Panna district in the year 1991. The present study carried out after a gap of 11 years has many interesting findings. The microfilariae and disease prevalence in this area has gone up to 18.8% and 23.8% respectively from a sample of 467. With the incorporation of Circulating Filarial Antigen (CFA) assay it was found that about 40% of the studied population were infected with filarial adult worm. Higher prevalence of CFA and microfilariae were recorded in males compared to females in almost all age groups (Fig 5.1). Clinical diseases like hydrocele and lymphoedema were recorded mostly in higher age groups of more than 20 years of age (Fig 5.2).

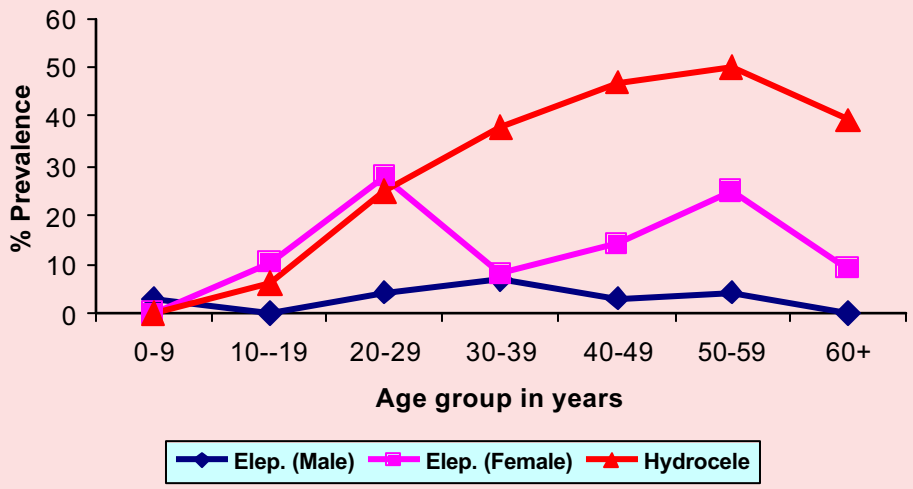
Prevalence of filariasis increased over a decade remarkably.

Fig 5.1 Age specific prevalence of Mf and CFA



The presence of adult filarial worm was recorded in 48% hydrocele patients where as individuals having lymhpoedema was mostly devoid of microfilariae and adult worm. During this study we identified and followed up a group of 43 individuals with microfilariae and 126 individuals without microfilariae from the 1991 study. After 11 years we observed that majority of Mf carriers maintained their original status. About 23% of the microfilaraemic individuals who lost microfilariae over 11 years period, 70% of them were found positive for CFA reflecting adult antigen in them. While comparing the development of clinical diseases in the two groups we observed that about 6% asymptomatic individuals of the 1991 study only developed severe symptoms like lymphoedema.

Fig 5.2 Age specific prevalence of elephantiasis and hydrocele





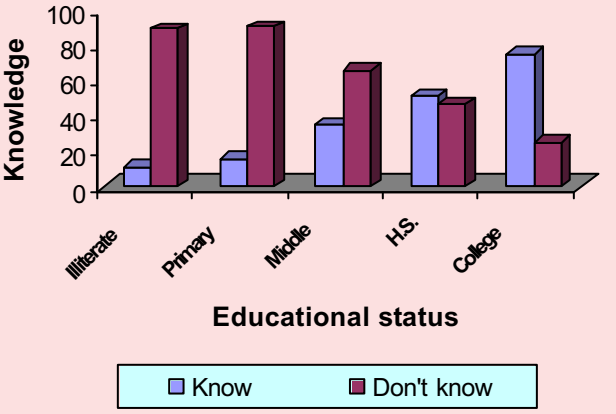
Breeding place of mosquitoes

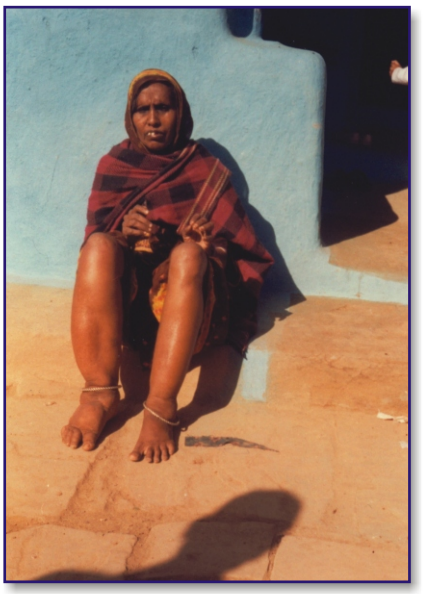
More than 80% study population when assessed for their knowledge about filariasis based on educational qualification and clinical disease failed to correlate mosquito with filariasis (Fig 5.3).

An attempt was also made to find out the prevalence of filarial infection in children born after the 1991 study. The prevalence of microfilariae and acute filarial disease was found to be 8.2% and 16.4% respectively. Stool examination was carried out in these children. It was observed that 58.3% children harboured helminthic infection.

The possible risk factors for acquiring filarial infection include high carrier status, lack of knowledge about the disease, poor hygiene and helminthic infection.

Fig 5.3 Relationship of knowledge about the disease with educational status





Filariasis patient

6. An evaluation of current fertility status among Khairwar tribe of Sidhi district of Madhya Pradesh



Dinesh Kumar

Starting date: July 2002

Duration: 1 year

Objective

To estimate fertility levels among Khairwar tribe and to compare with the earlier study.

Achievements

The study was carried out in 173 Khairwar and 111 non-Khairwar households in 6 villages of Kusmi block of Sidhi district. Out of the total households covered, 133 couples belonged to Khairwar and 99 to non-Khairwar tribe. Average number of children ever born per Khairwar and non-Khairwar eligible women were estimated to be 2.9 and 2.5 respectively. The fertility of Khairwar women in Harrai village was estimated to be 1.3, which is significantly lower than the fertility of other villages of the area ($Z=3.7$, $p<0.05$). Further, the difference in children ever born and survived among Khairwar couples indicates higher infant and child mortality in the tribe as compared to non-Khairwars (Table 6.1)

About one third couples were infertile in Harrai village.

Table 6.1 Children ever born and survived

Tribe	Children ever born*	Children survived
Khairwar (Kusmi)	2.9	2.2
Khairwar (Harrai)	1.3*	1.1
Khairwar(Other Villages)	3.1	2.4
Non-Khairwar	2.5	2.0

*** Children ever born per eligible couple**

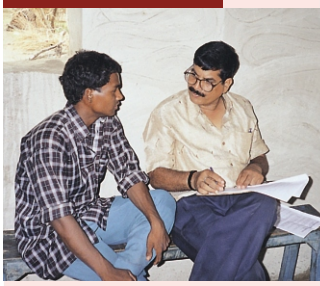


Infertility was also seen in the Kusmi block. It was found that village Harrai has more infertile couples (31.6%) compared to other villages (14.9%). Primary infertility was seen in 15% couples, while secondary infertility in 2.3% couples only in the study area.

A comparative analysis of current age specific fertility data in terms of children ever born (CEB) with 1992 data revealed that fertility in the age group (15-19) has decreased from 0.67 to 0.18 among Khairwars while in non-Khairwars fertility has increased in the same age group. In all other age groups children ever born has increased among Khairwars while it has decreased among non-Khairwars (Table 6.2).

Table 6.2 Age specific fertility status among Khairwar and non-Khairwar tribes (1992 and 2002)

Age group	Khairwar 1992	Khairwar 2002	Fertility Changed	Non-Khairwar 1992	Non-Khairwar 2002	Fertility Changed
15-19	0.67	0.18	-0.49	0.45	0.73	+0.28
20-29	2.0	2.65	+0.65	2.58	1.88	-0.70
30-39	2.18	3.74	+1.56	3.46	3.42	-0.04
40-49	1.95	2.88	+0.93	3.36	3.27	-0.09



7. Study of men as supportive partners in reproductive and sexual health: An investigation among the Khairwars of Sidhi district of Madhya Pradesh

Dr. Kalyan Brata Saha

Dr. Neeru Singh

Starting date: August 2002

Duration: 1 year

Objectives

1. To study the knowledge of men regarding reproductive health particularly RTI, STDs and infertility.
2. To study the knowledge, attitude and practice of family planning among the males.
3. To study the awareness of men regarding prenatal and postnatal care of the women.
4. To study the men's views regarding quality of health services provided at the Government health posts.

Achievements

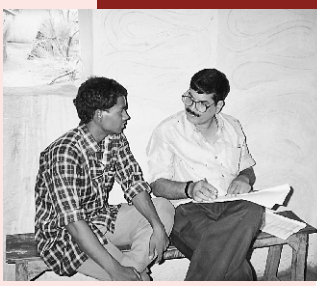
In the study, 260 currently married males were interviewed in 13 Khairwar predominated villages spread over in Kushmi and Waidhan blocks of Sidhi district using structured schedules.

Awareness about RTI / AIDS / Infertility - About 74 percent of the respondents have heard about reproductive tract infections (RTI) but very few among them have proper knowledge of its transmission. Only 17 % of the respondents have ever heard about HIV/AIDS and most of them do not have proper knowledge about its mode of transmission and prevention.

Regarding causes of infertility, a sizeable number of males referred the same due to God's wishes (37 percent). About 41 % could not shed any light towards the cause of infertility. Many of them reported either suffered themselves or their wives suffered from one or the other reproductive health problems but very few among them has ever utilized reproductive health services for treatment.

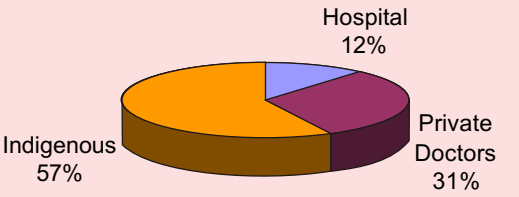
Children ever born and family planning - Their desired number of children (3.56 ± 1.15) exceed the actual number of children born and living (2.38 ± 2.13). As a result they are not concerned about the use of family planning. About 59% of the total males interviewed have ever heard about family planning of which 85% heard about any spacing methods, but only 13.2% were found to have had using family planning at the time of survey.

Khairwar men are less concerned about reproductive health.

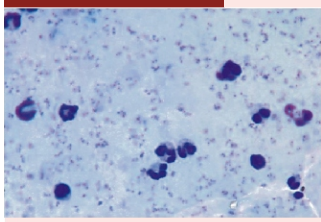


Under five mortality and ANC care - Of the total males interviewed about 44 % of them ever experienced one or more child death under 5 years in their life time. Overall 220 child loss were reported by 114 males, of which 49.1% experienced only one child death, 26.3% experienced loss of two children in their life. The death of children of order three and above was experienced by 24.6% of respondents. The mean number of child death experienced by 114 respondents was 1.95±1.27. Of the total deaths the share of male child (56.7%) was more than the female child (43.3%). Gender specific repeat deaths were experienced more for male child than female child. Of the total males 29% had heard about antenatal care (ANC) practices during pregnancy. Among them only 12% reported to have taken their wives for antenatal check up during their last pregnancy. Most of the deliveries (95%) were occurred at home. About 72% of the males expressed that they take interest in solving reproductive health problems of their wives. Among this group only 12% availed services from Government health posts (Fig 7.1).

Fig 7.1 Type of treatment availed (n=186)



About seven percent of the males interviewed availed Government health facilities during three months preceding the survey. The main reasons cited for not availing the Government health facilities were - not felt need (76.6 percent), health centre not conveniently located (17.9 percent), non-availability of doctors/health workers (8.8 percent), medicine not / rarely given (10.8 percent) etc. Further, most of them expressed a wrong attitude towards different sexual health matters, be it a problem related to masturbation, nightfall or other sexual activities of life. As the above figures suggest and also supported by statements made by their wives in few case studies, the men's participation in reproductive health matters was poor, resulting into under utilization of RCH services and hence depicts a poor reproductive health among them. Findings suggest that there is an urgent need to generate awareness using IEC strategies and strengthen the health delivery system in the remote habitation of these poor people.



8. Malaria outbreak in Betul

Dr. Neeru Singh

Dr. M.M. Shukla

Dr. A.K. Mishra

Starting date: October 2000

Duration: 3 years

Objectives

1. Malaria outbreak investigation in Betul.
2. To assess the impact of intervention measures.

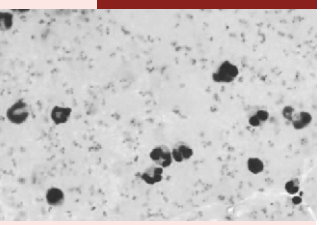
Achievements

An outbreak of malaria was recorded in Betul district (Fig 8.1) in 2000, which caused very high morbidity and mortality in ethnic tribal population. Govt. of M.P. requested our centre to investigate the outbreak and to suggest remedial measures. We surveyed 40 villages of 3 worst affected PHCs in Oct 2000 and collected 2467 blood smears from fever cases, of which 1300 were positive for malaria (SPR > 50%) with over 90% *P. falciparum* (Fig 8.2). Out of 700 children (2 to 9 years) examined for splenomegaly (Fig 8.3), more than 500 were found with enlarged spleen (Spleen rate >70%). Insecticide susceptibility test showed only 10% *An. culicifacies* susceptible to DDT. In view of the very high prevalence of falciparum malaria certain recommendations were given by us, which were implemented by Govt. of M.P. These recommendations are as under-

1. DDT should be replaced immediately by an effective insecticide such as synthetic pyrethroid.
2. Prompt treatment of all fever cases preferably with SP.
3. Use of rapid diagnostic test for on the spot diagnosis and treatment.
4. Release of larvivorous fishes in all breeding places.
5. Frequent health camps in villages for prompt diagnosis and treatment.
6. Health education using electronic and print media.
7. Spraying of watch huts in agricultural field.
8. Use of personal protection measures i.e. bednets, repellents etc.

Post intervention follow up - Monitoring of epidemiological situation revealed steady decline in malaria situation. There were 54, 62 and 98 % reduction in SPR and 67, 81 and 99% reduction in SFR in 2001, 2002 and 2003 respectively (Fig 8.2).

Transmission of malaria reduced drastically after intervention.



Spleen rate also showed sharp decline i.e. 21, 65 and 88% reduction in 2001, 2002 and 2003 respectively (Fig 8.3). If we look at NAMP data in 2001, Betul was contributing 10% malaria and 12% *P. falciparum* cases in MP (Fig 8.4), while in 2003, malaria and *P. falciparum* contribution by Betul was reduced to 1.4 and 0.8% respectively.

Monitoring of entomological results also revealed a sharp reduction in anopheline density in 2002 (26%) and in 2003 (63%) as compared to 2000 (Fig 8.5).

Fig 8.1 Map showing Madhya Pradesh, Betul (A) and India (B)

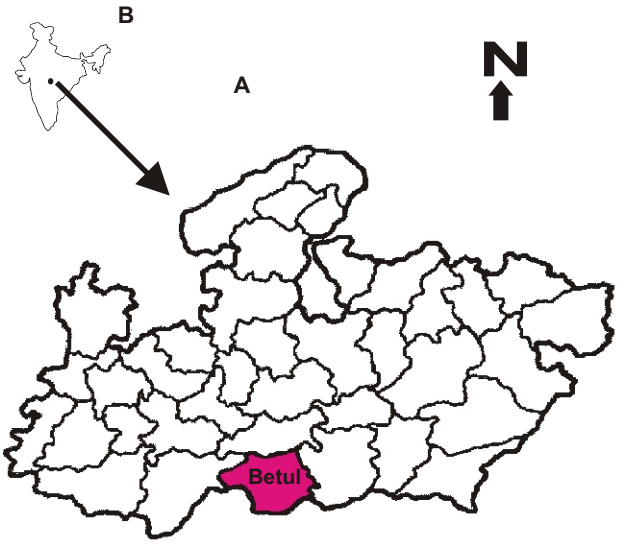
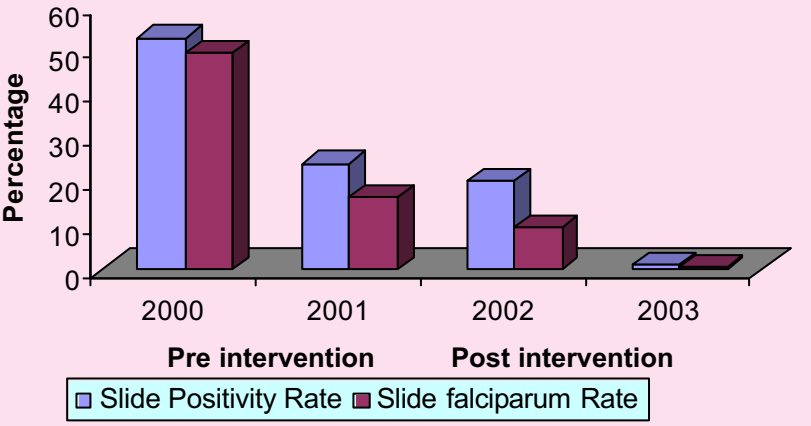


Fig 8.2 Malaria prvalence in study area of Betul



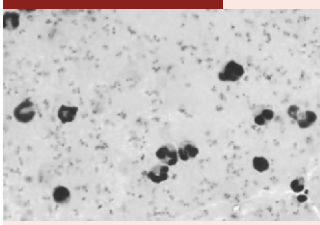


Fig 8.3 Spleen Enlargement in Study Area of Betul

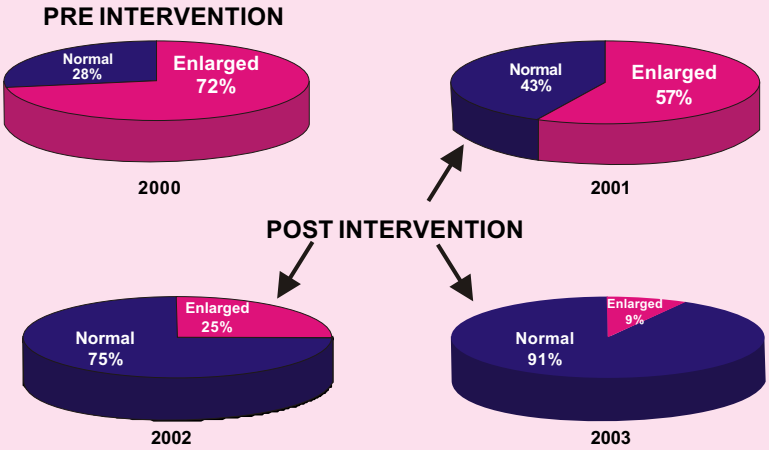
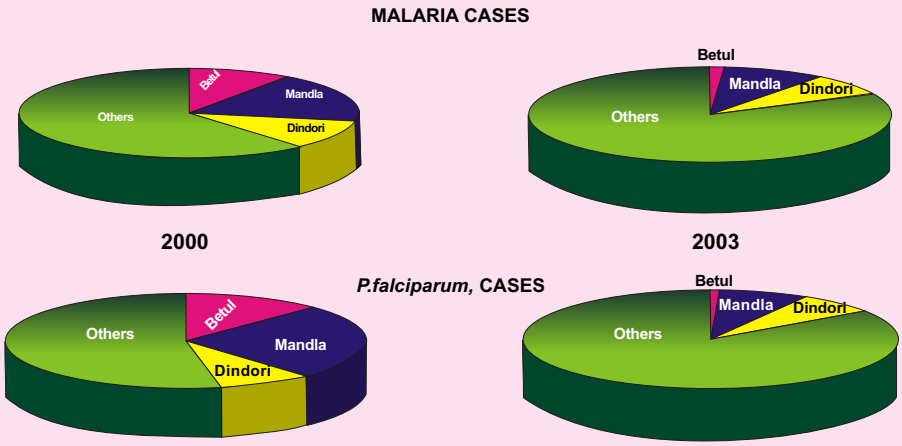


Fig 8.4 Malaria and *P. falciparum* contribution in M.P.



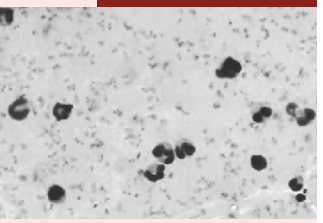
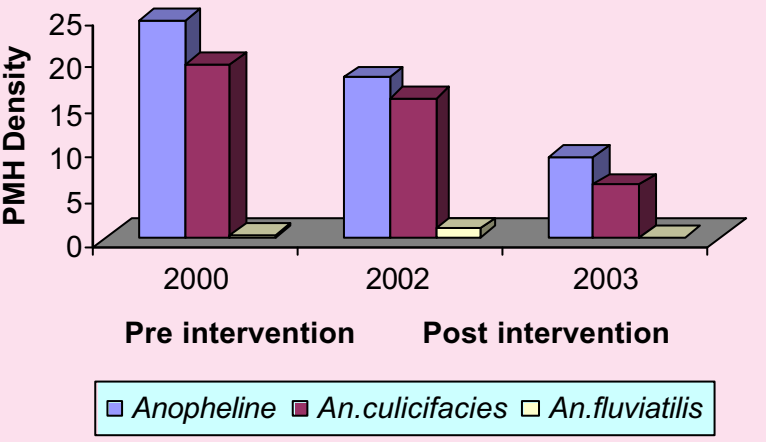


Fig. 8.5 Mosquito density (PMH) in study area of Betul



ONGOING PROJECTS

1. Morbidity profile of sickle cell disease in Central India
2. Prevalence of haemoglobinopathies among the scheduled tribes and scheduled castes of Shahdol district of Madhya Pradesh
3. Evaluation of effect of intervention (safe drinking water) on endemic fluorosis in Mandla.
4. An investigation on mass infertility among Khairwar tribe of Sidhi district
5. Impact of health education and counseling on knowledge, attitude & practices on sickle cell anaemia in Baiga tribe of Dindori district
6. Transmission dynamics of malaria in tribal areas
7. Impact of ICDS input on health and nutritional profile of pre-school children in Kundam block of Jabalpur district
8. Prevalence of dengue in Jabalpur city
9. Nutritional status of adolescents in tribal areas of Madhya Pradesh

1. Morbidity profile of sickle cell disease in Central India



Dr. R.B. Gupta

Dr. Rajiv Yadav

Dr. V. Bharadwaj
(Medical College, Jabalpur)

Starting date: October 2001

Duration: 5 years

Objectives

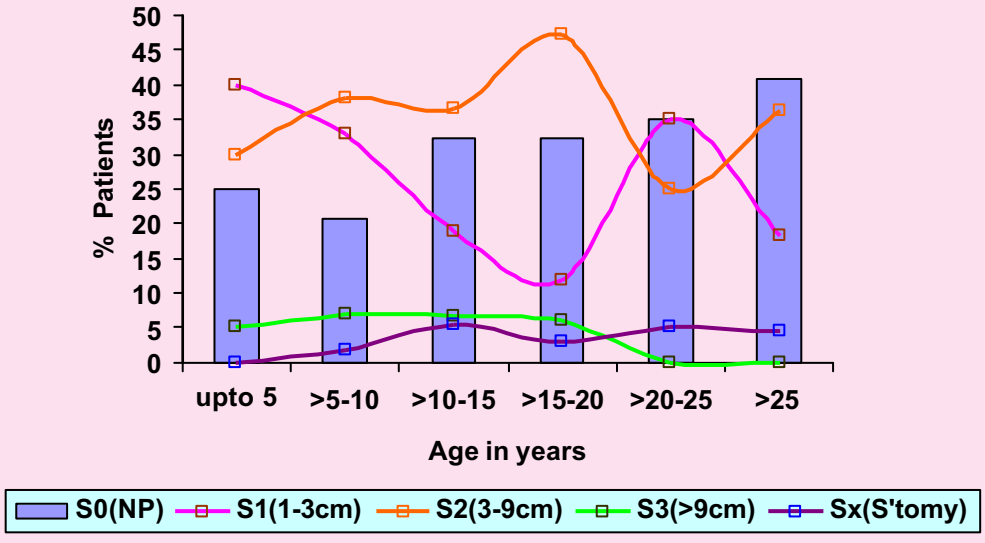
1. To study the clinical and haematological profile of sickle cell disease.
2. To develop strategies for prevention and management of sickle cell disease.

Salient Findings

In sickle cell clinic, operational at department of Paediartics, NSCB Medical College, Jabalpur, a total of 268 patients were registered till the end of 2003. Among the main clinical complications for which patients sought medical intervention, were painful crises of bones and joints (40%), recurrent fever (36%), abdominal pain (16%) and generalized or extreme weakness (15%). Splenomegaly was the commonest clinical sign recorded in 71% patients. Massive splenomegaly (>9cm) was seen in 8.5% patients, while 3.2% patients underwent splenectomy (Fig 1.1). Nine percent of the patients aged 5 to 30 years required multiple (>7 units) blood transfusions.

Marked reduction in clinical severity of Sickle Cell Disease recorded after intervention.

Fig 1.1 Spleen size of sickle cell patients



RMRCT



The severity of the disease was graded into mild, moderate and severe types by using a 13 - point scale. The patients were followed after an interval of three months in steady state and were also requested to attend the clinic if they fall sick in between. The patients were counseled to avoid disease-precipitating factors like stress, exposure to cold etc. and advised to take adequate water and seek medical intervention promptly, if fall sick. They were given folic acid (daily) and anti-inflammatory agents SOS. Only 121 patients attended the clinic regularly for one year and a marked reduction in severity of disease was recorded (Fig 1.2).

Table 1.1 CBC profile of SCD patients

Group	Hb (gm/dl)	PCV (%)	TRBC (x^{12}/l)	MCV (fl)	MCH (pg)	MCHC (%)	HbF (%)	HbA_2 (%)	Retic (%)
Male	8.93 ± 2.29	26.7 ±6.15	3.39 ±0.89	79.31 ±12.10	26.78 ±5.08	33.53 ±3.17	13.52 ±5.67	3.12 ±1.71	5.08 ±2.58
Female	8.77 ± 1.93	25.97 ±5.52	3.20 ±0.68	81.44 ±11.74	27.93 ±4.57	33.81 ±3.52	13.1	3.84 ±2.34	6.2 ±2.36
Children	7.68 ± 1.72	23.42 ±4.93	3.00 ±1.03	81.65 ±15.24	27.18 ±5.29	33.10 ±6.07	12.22 ±5.27	2.74 ±0.95	8.67 ±5.86





Generally, the patients had higher level of foetal haemoglobin (above 10%) with mild to moderate level of hemolytic crises. There were wide variations in all the haematological parameters especially in Hb, MCV, MCH and MCHC (Table 1.1).

About 80 to 90% of patients of various age groups had the weight below 5th centile and almost all the patients had weight lower than 50th centile as per NCHS standard. About 46% of patients (range 25 - 57%) had lower height than the 5th centile in various age groups. About 72% of the patients of various age groups (range 60 - 80%) had lower height than their corresponding weight (Fig 1.3). About three-fourth of the patients above 18 years of age had various degree of chronic energy deficiency (CED). About 3 to 8% of the patients had normal values for the body mass index (Fig 1.4).

Fig 1.2 Severity index after one year of follow up

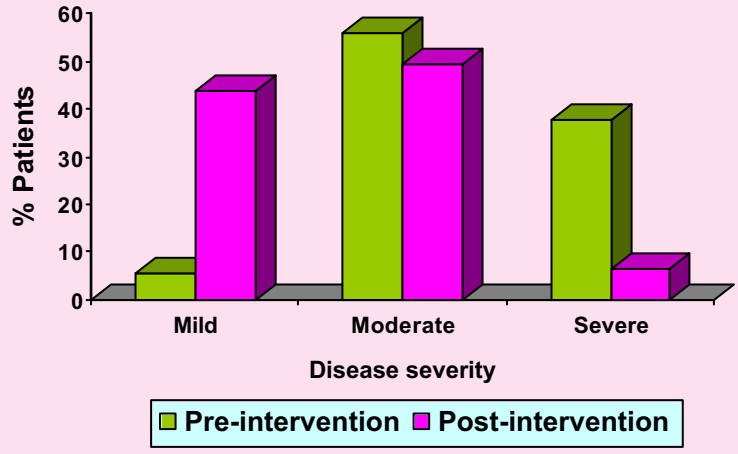




Fig 1.3 Weight for height centile distribution of SCD patients (NCHS standard)

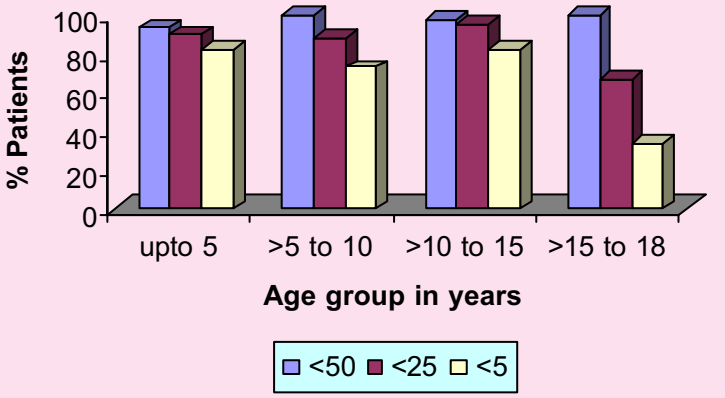
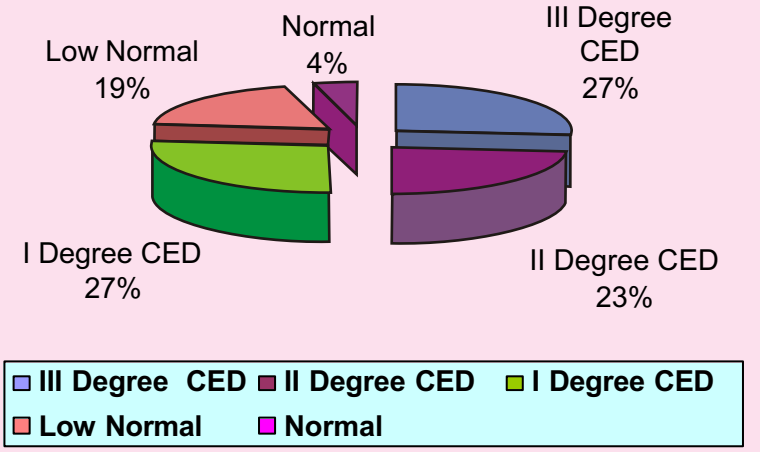


Fig 1.4 Body mass index of SCD patients (above 18 years)





2. Prevalence of haemoglobinopathies among the scheduled tribes and scheduled castes of Shahdol district of Madhya Pradesh

Dr. R.B. Gupta

Starting date: November 2002

Duration: 2 years

Objective

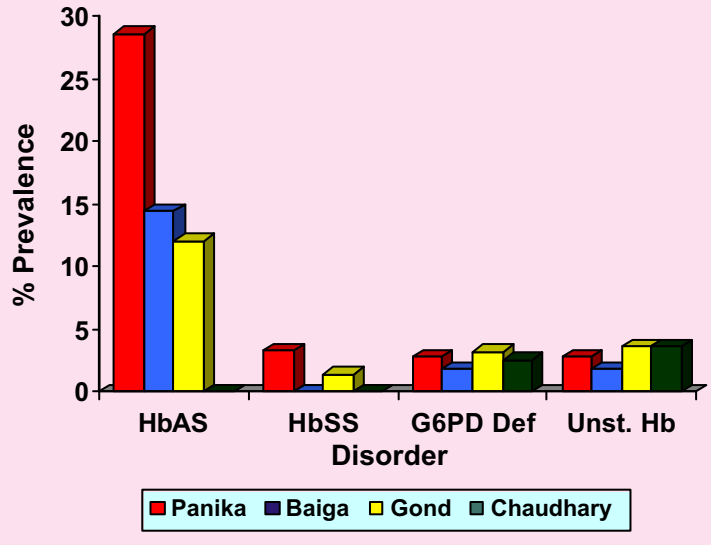
To find out the prevalence of haemoglobinopathies and G-6-PD deficiency among the scheduled tribes and scheduled castes of district Shahdol.

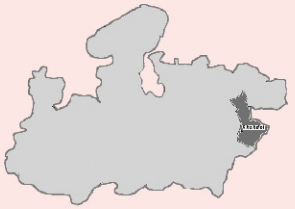
Salient Findings

The study is being carried out in Shahdol district, where the scheduled tribe (ST) and scheduled caste (SC) population were 46.3 and 7.7% respectively (1991 Census). In total, 252 Gond, 210 Panika and 219 Baiga from the tribal group and 195 Chaudhary from the SC group were studied. Blood samples were analysed for sickle haemoglobin, G-6-PD deficiency and quantitative estimation of foetal haemoglobin (HbF) and haemoglobin A2 (HbA2) following standard techniques. The CBC was done using automatic blood cell counter.

High prevalence of Sickle Cell Trait in Scheduled Tribes.

Fig 2.1 Genetic disorders among STs and SCs in Shahdol district





The prevalence of sickle haemoglobin as trait was higher in STs ranging from 12.0 to 28.6%. It was absent in Chaudhary, a SC group of this area, whereas SCs of neighboring districts showed very high prevalence (20 - 30%) of sickle haemoglobin. The prevalence of sickle haemoglobin among Gonds was 12% and among Baigas, 14.4%. Analysis for -thalassaemia is in progress. The prevalence of G-6-PD deficiency in the study area varies from 1.8 to 3.2%. The prevalence of unstable haemoglobin ranged from 1.8 to 3.6%.

Anaemia was significantly higher (P<0.001) in STs (66.6%) than SCs (46.2%) (Table 2.1). There were 10 persons with sickle cell disease (homozygous) in apparently healthy condition. Haemoglobin (Hb) level of these patients varied from 6.3 to 11.7 gm/dl (Table 2.2). Sickle cell disease is very common in the study area especially in Panika tribe. About 10 - 30 per thousand populations of various tribes is expected to suffer from sickle cell disease. It requires suitable intervention for prevention and management of the disorders.

Table 2.1 Prevalence of anaemia in scheduled castes and scheduled tribes in Shahdol district

Population	Anaemia			
	Mild (%)	Moderate (%)	Severe (%)	Total (%)
Panika	39.8	7.6	0.9	48.3
Baiga	58.0	16.9	1.8	76.7
Gond	61.2	11.2	0.8	73.2
Chaudhary	38.5	7.2	0.5	46.2

Table 2.2 Mean haemoglobin level in sickle cell disease patients in Shahdol district

Population	Group	N	Hb (g/dl)	PCV (l/l)	TRBC $X10^{12}$/l	MCV (fl)	MCH (pg)	MCHC (l/l)
Panika	HbSS	7	9.2±1.8	0.236±.052	3.1±0.6	73.6±7.2	28.0±3.1	38.0±2.2
Gond	HbSS	3	9.5±2.1	0.273±.066	3.7±0.6	74.0±5.0	25.7±1.5	34.8±1.0

3. Evaluation of effect of intervention (safe drinking water) on endemic fluorosis in Mandla.

Dr. T. Chakma

Starting date: August 2002

Duration: 1 year

Objective

To evaluate the effect of intervention on fluorosis.

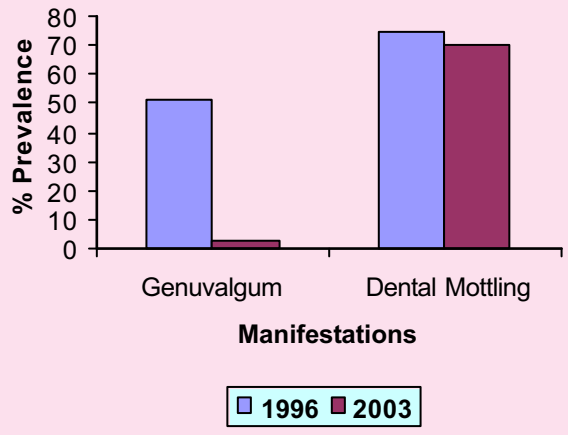


Salient Findings

On the suggestion of the RMRCT Jabalpur, the Government of Madhya Pradesh sealed the potable water sources in two villages of Mandla district and also provided with alternative water sources in1996. With the installation of alternative water sources, the fluoride level has come down from 10.8 ppm in 1996 to 1 ppm in 2003. The prevalence of genuvalgum was drastically reduced with the use of safe drinking water. There was a marked reduction in children having high urinary fluoride level (Fig 3.1). The improvement was also seen in the radiological features. The multiple growth arrest lines have disappeared in most of the children's radiological pictures.

Clinical manifestations of Fluorosis reduced drastically with the use of safe drinking water.

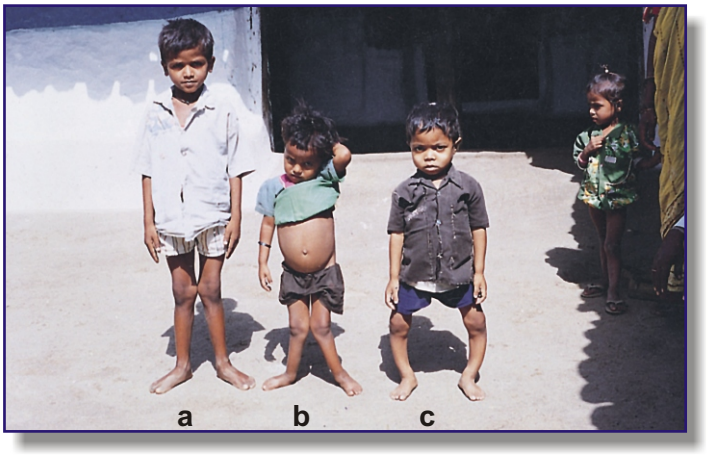
Fig. 3.1 Clinical manifestations before and after Intervention



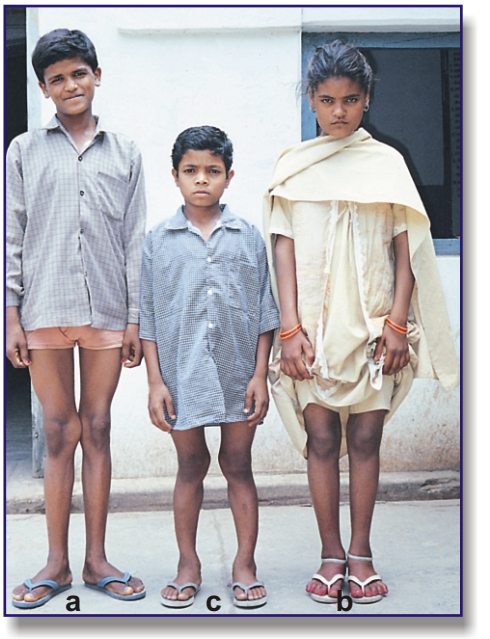
RMRCT



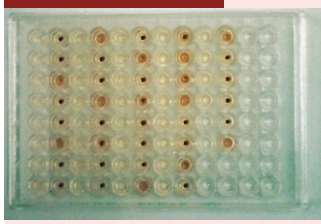
Skeletal fluorosis before (1996) and after (2003) intervention



1996



2003



4. An investigation on mass infertility among Khairwar tribe of Sidhi district

Dr. T. Chakma

Dr. Anup R. Anvikar

Starting date: January 2003

Duration: 2 years

Objective

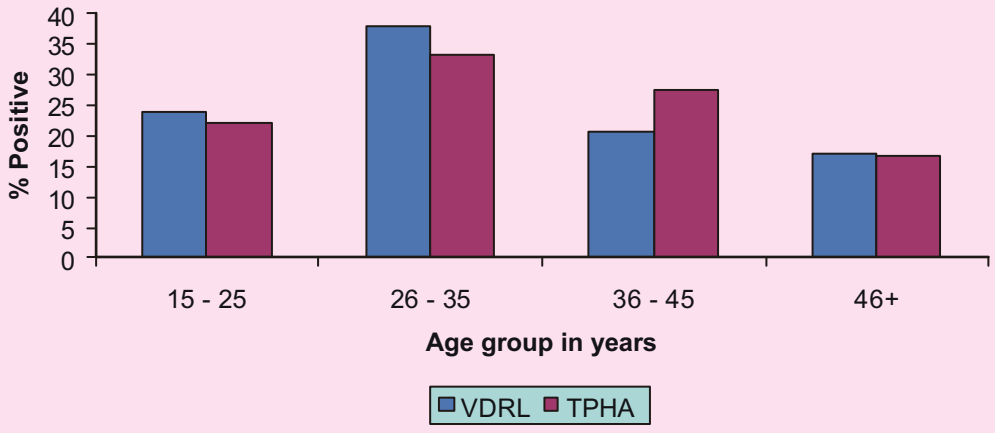
To find out the etiological factors responsible for infertility.

Salient Findings

A total of 77 blood samples were collected from the eligible infertile Khairwar individuals. About 46% blood samples were positive for syphilis by VDRL and TPHA tests. (Fig 4.1). Semen analysis was carried out in the field. All the semen samples were normal in terms of quantity, pH, count and motility. Vaginal swabs were collected from 12 infertile females and examined for *Candida, Trichomonas, Chlamydia*, gonococci, and *Gardnerella.* Four samples were found positive for *Candida albicans*. *Chlamydia* antibodies were detected in 80% females. IgM antiphospholipid antibodies were seen in 64% females. Radiological investigations are yet to be performed.

TPHA reactivity was seen in 46% individuals

Fig 4.1 VDRL and TPHA reactivity





5. Impact of health education and counseling on knowledge, attitude & practices on sickle cell anaemia in Baiga tribe of Dindori district

P. L. Pande

Starting date: October 2002

Duration: 5 years

Objectives

1. To screen the population for sickle cell anaemia.
2. To impart health education to the community and high-risk couples using IEC strategies.
3. To assess the impact of intervention on prevalence of sickle cell anemia.

Salient Findings

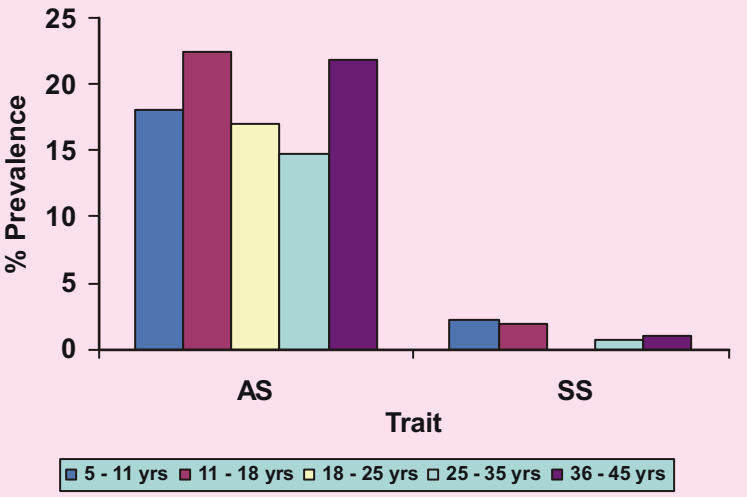
Nine hundred ninety individuals belonging to Baiga tribe from 20 villages were screened randomly for the prevalence of sickle cell anaemia. Further 861 individuals were interviewed, one from each household using a structured schedule to know their knowledge, attitude and practices about sickle cell anaemia.

Among the screened population 20% showed the presence of sickle cell disorder. The age specific distribution of the sickle cell disorder is shown in Fig 5.1.

The basic demographic characteristic relevant in understanding sickle cell anaemia as revealed from the survey is that most of the marriages take place at the age of 18 to 21 years within a radius of 20 km of the villages. Marriage endogamy is usually practiced. About 38% of the marriages were found to be consanguineous. Not a single villager was found to be aware of sickle cell disease. As part of intervention, door-to-door health education on sickle cell anaemia is in progress.

Sickle Cell Anaemia was observed in 20% tribal population of Dindori District.

Fig 5.1 Sickle cell disease in Baigas





6. Transmission dynamics of malaria in tribal areas

Gyan Chand

Dr. Neeru Singh

Dr. Nutan Nanda, MRC, Delhi

Dr. Hema Joshi, MRC, Delhi

Starting date: November 2002

Duration: 3 years

Objectives

1. Dynamics of transmission in villages as well as at places of their occupational activities.
2. Bionomics of vector species to develop appropriate control strategies.
3. Parasitological parameters in relation to transmission and treatment.
4. Population movement in relation to forest based economy.
5. Socio-cultural aspects, knowledge, attitude & practices towards disease and health.

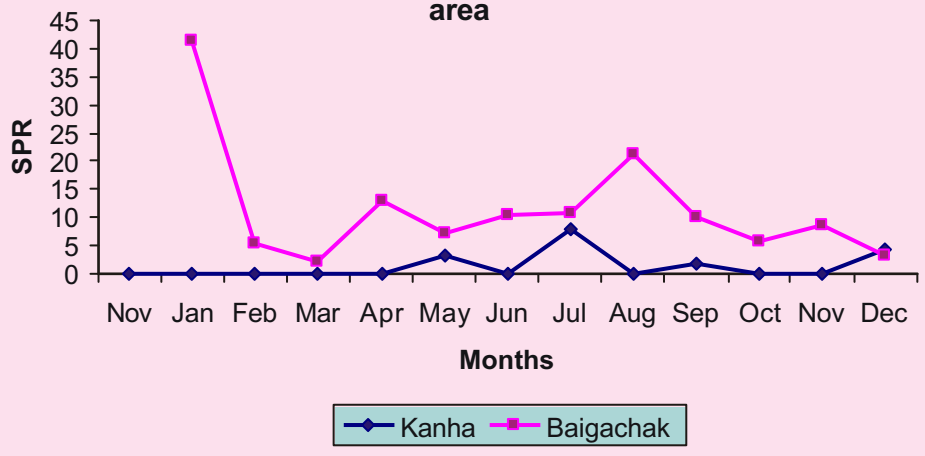
Salient Findings

Study is being carried out in Baigachak (Dindori district) and Kanha villages (Mandla district). These two tribal districts are highly malarious in the state of M.P. Together these districts contribute about 29% of the state's malaria cases and 40% of *P. falciparum* infection while its population is only 2.44% of the states population.

Parasitological - Four villages have been selected in each of these areas. It is recorded that malaria transmission is persistent in Baigachak area and no malaria case was found in Kanha from November till April. Over all slide positivity rate (SPR) & slide falciparum rate (SFR) in Baigas has been recorded 10.9 and 8.1%, which was significantly higher than the corresponding figure in Kanha i.e. 1.5 & 1.2% respectively (P<0.05). *P. falciparum* contributes 74.2 and 80% of total malaria cases respectively in these two areas. Age group wise SPR shows that people of all ages were positive for malaria but SPR was higher in children in Baigas while no malaria case has been found in children in Kanha. (Fig 6.1, Table 6.1).

Incidence of malaria in Baigachak is more where composition of *An. fluviatilis* is high.

Fig 6.1 Monthwise slide positivity rate in study area





Entomological - *Man Hour Density* : Man hour density was monitored in study villages using hand catch methods. Mosquitoes were collected from fixed and random catching stations in each village. Over all MHD of anophelines were significantly higher (25.1) in Kanha than the Baiga chak (7.74) ($p<0.05$). Similarly density of *An. culicifacies* was also higher in Kanha villages (13.4) than the Baigachak villages (3.85). Density of *An. fluviatilis* was almost similar in both areas. *An. culicifacies* was seen only in monsoon months in Baigas. The ratio of *An. culicifacies* versus *An. fluviatilis* was 32.6:1 in Kanha and 13.56:1 in Baiga chak area respectively (Fig 6.2 & 6.3). Slide positivity rate was also higher in Baigachak where composition of *An. fluviatilis* was also higher (Fig 6.4).

Table 6.1 Age group wise slide positivity rate in two areas

Area	Indices	Age groups				
		0-1	1-4	5-8	9-14	15+
Kanha	SPR	0 (17)	0 (32)	6.4 (47)	2.7(37)	0.5(209)
	SFR	0	0	4.26	2.7	0.5
Baiga	SPR	18.2(11)	17.8(73)	19.7(61)	16.9(77)	7.07(382)
	SFR	9.1	12.3	13.0	13.0	5.76

Figures in parenthesis show number of samples



Study Area



Fig 6.2 Monthwise MHD of *An.culicifacies* in study areas

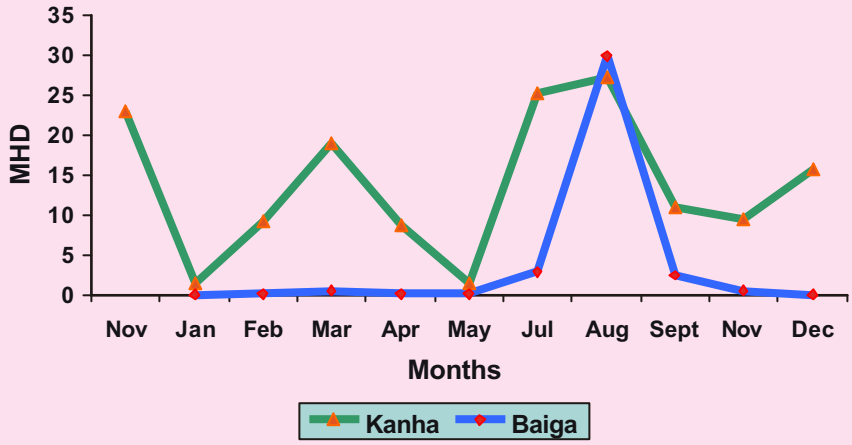


Fig 6.3 Monthwise MHD of *An. fluviatilis* in study areas

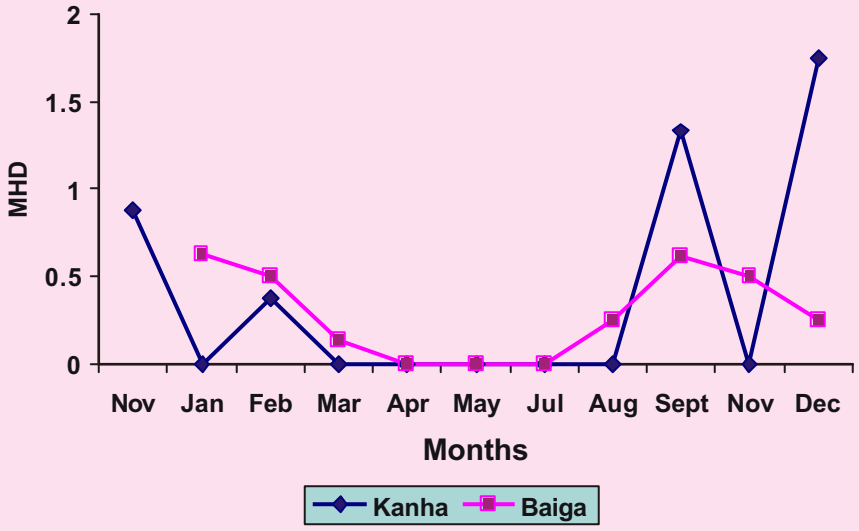
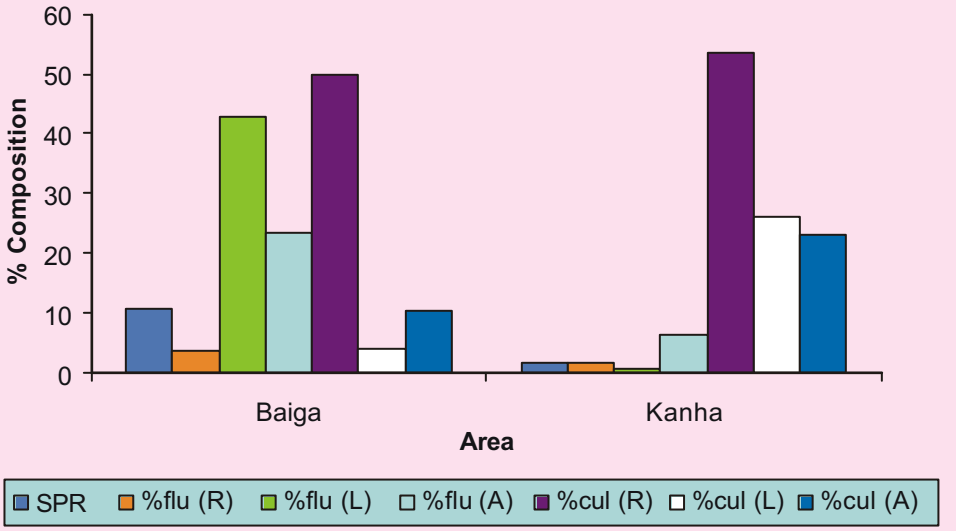




Fig 6.4 Association of slide positivity rate and vector composition



(R-Resting, L-Light trap, A-Animal bait, flu- *An.fluviatilis*, cul- *An.culicifacies*)

Insecticide Susceptibility Test - *An. culicifacies* was tested against DDT 4% and Deltametherine 0.05% as per the WHO standard method. Mortality of 16.6% and 11.7% was observed in Kanha and Baigachak area respectively against DDT 4% after 24-hour recovery period. Cent percent mortality was observed against Deltametherine 0.05% within one hour of exposure period.

Sibling species - Specimens of *An. culicifacies* were examined by polytene chromosome preparation at MRC, Delhi. Species C is the predominant species at both sites. Only few specimens were identified as species A/A1 from Baigachak area.

Out door activity / migration activity of Tribals - In all 92 and 51 persons were interrogated from Kanha and Baigachak area for their out door activities between 7:00 pm to 6:00 am and their migration to other places every month from March to October. Major out door activity in Kanha area were Mahua collection when they spend most of the night under Mahua tree followed by labour work. Tribals of Kanha generally go beyond 30 km and more of Baigachak area engage themselves with in 15 km range in the same area. During monsoon, no outdoor activity is seen in either site. Study is in progress.



7. Impact of ICDS input on health and nutritional profile of preschool children in Kundam block of Jabalpur district

Dr. Surendra Kumar

Dr. C.K.Dolla

Starting date: October 2002

Duration: 2 years

Objective

To assess the impact of ICDS on health and nutritional status of preschool children.

Salient Findings

The present study was conducted in tribal preschool children, in non-ICDS villages. One hundred and ninety four children were enrolled in the study in first phase. The ICDS villages will be studied in the second phase. It was observed that 87% children were under-nourished. Grade I malnutrition (Gomez classification) was observed in about 40% children, where as severe malnutrition was observed in about 13% children (Fig 7.1).

It was observed that about half of the children were completely immunized. Acute respiratory infection (ARI) was found to be the most common infection followed by diarrheal diseases (Fig 7.2).

Fig 7.1 Malnutrition in non - ICDS villages

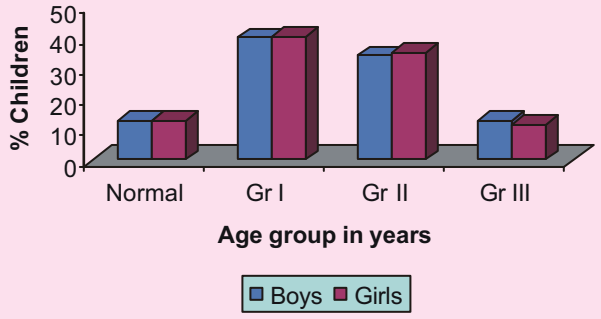
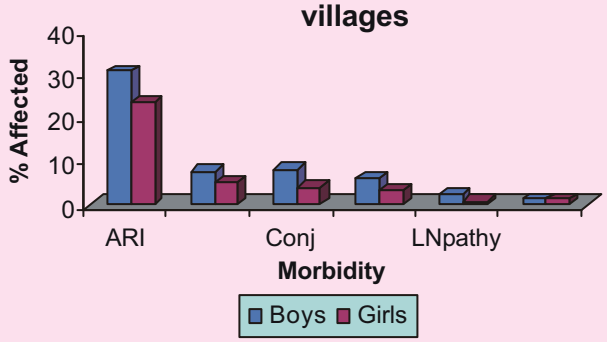


Fig 7.2 Morbidity profile of children in non-ICDS villages



ARI was the commonest morbid condition in preschool children.

RMRCT

8. Prevalence of dengue in Jabalpur city



Gyan Chand

Dr. Lalita Kabilan
(CRME, Madurai)

Dr. N. Arunachalam
(CRME, Madurai)

Starting date: November 2003

Duration: 2 years

Objectives

1. To study the prevalence of dengue vectors in different seasons and it's potential breeding habitats.
2. To determine the virus infection in vector species in the study area.
3. To determine the prevalence of dengue virus infection in human by Haemagglutination inhibition (HI) technique.

High prevalence of *Aedes aegypti* makes Jabalpur city vulnerable for Dengue outbreak.

Salient Findings

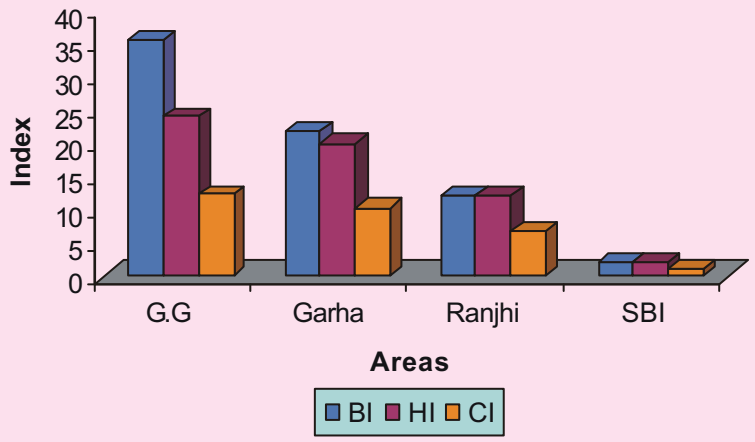
Four areas of Jabalpur city have been surveyed during November and December 2003. The areas have been selected randomly covering all directions and socio-economic groups. Every fourth household in each area was searched for water holding containers and presence of *Aedes* larvae in those, using flashlight. Larvae from these containers were collected and reared separately to adult stage for identification of the species. Stegomyia indices i.e. House index (HI) Container index (CI) Breteau index (BI) and Pupal index (PI) were calculated

In all 481-house hold were surveyed in the above two months. Overall HI, CI and BI were 15.4, 8.4 and 18.9 respectively. Overall *Aedes aegypti* infestation were three fold higher than threshold level of >5% of HI and near to threshold level of BI (>20%).

Area-wise House, Container and Breteau Index - Prevalence of *Aedes* species was not uniform in all the areas. All the indices were higher in Gwari ghat (GG) area and lowest in SBI colony (Fig 8.1). Breteau index is much more higher in Gwari ghat and Garha area even in last week of December indicates that with the onset of favourable condition (post monsoon) the density of *Aedes aegypti* would make up and epidemic of dengue may erupt.

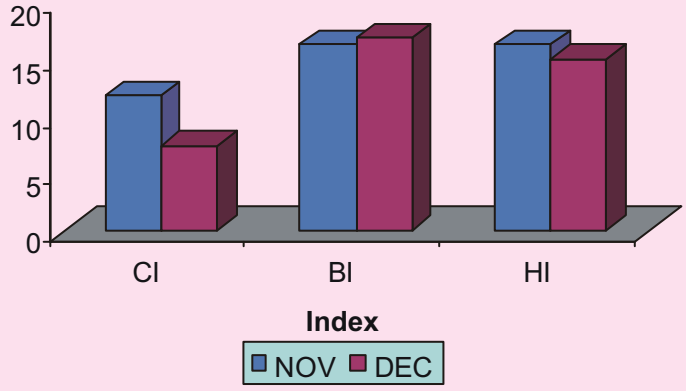


Fig 8.1 Breteau, House and Container Index in study areas



Month-wise prevalence of *Aedes aegypti* - Overall Breteau index and House index were similar in both the months but container index were lower during December. (Fig 8.2)

Fig 8.2 Container, Breateu and House indices of *Ae. aegypti* (CI,BI,HI)

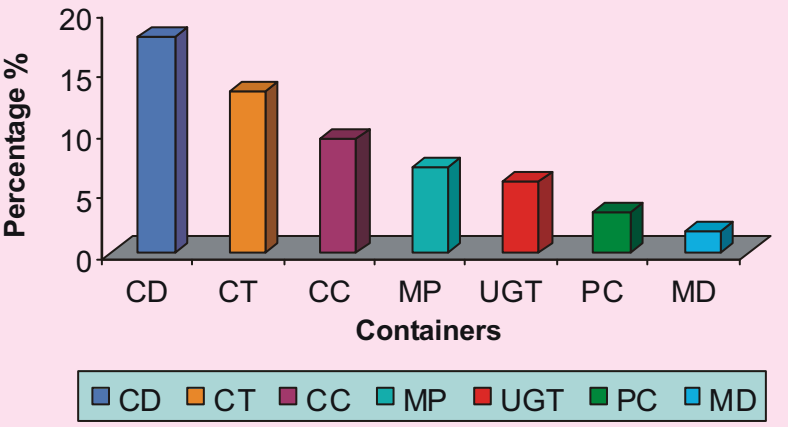




Aedes aegypti breeding habitat- Ceramic drum (CD), cement tank (CT) and cement cestern (CC) recorded to be more favourable breeding sites for *Aedes aegypti* as more than 10% of these containers were found infested with *Aedes* larvae. Mud Pot including discarded (MP), underground tank (UGT), plastic container (PC) and metal drum (MD) were also found supporting breeding of *Aedes* (Fig 8.3)

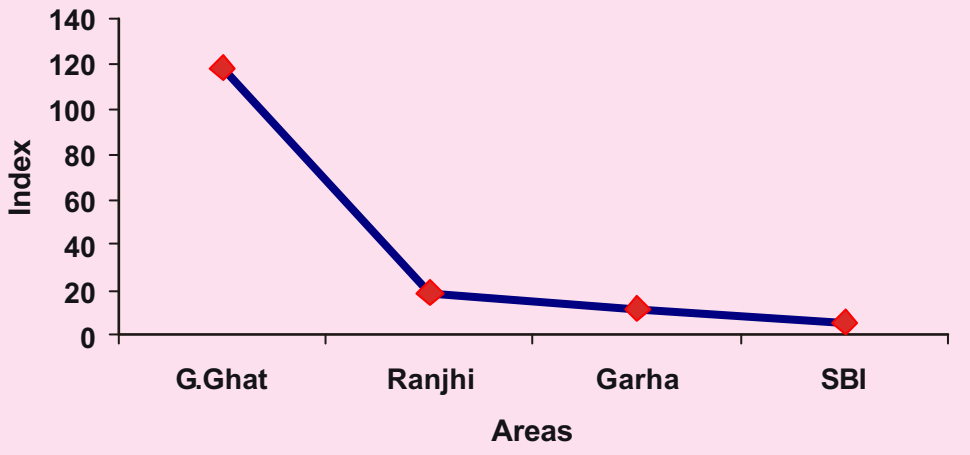
High prevalence of *Aedes aegypti* makes Jabalpur vulnerable for Dengue outbreak.

Fig 8.3 *Aedes* infestation in different water holding containers



Pupal Index - A total of 1493 pupae were found in all the positive containers. Highest Pupal index was observed in Gwarighat area followed by Ranjhi area. (Fig 8.4)

Fig 8.4 Showing pupal index in study areas





Species composition - A total of 411 specimens of *Aedes* larvae were reared up to adult stage in the laboratory. *Aedes aegypti* shared 94.2% of all the emerged adults and rest were *Aedes albopictus* (Table 8.1 & 8.2)

Table 8.1 Species composition of *Aedes* (emerged from larvae)

Month	*Ae. aegypti*		*Ae. albopictus*		Total	%
	Male	Female	Male	Female		*Ae. aegypti*
Nov.	91	108	9	13	221	90.0
Dec.	89	99	0	2	190	99.0
Total	180	207	9	15	411	94.2

Table 8.2 Area wise composition of *Aedes* sp. (emerged from larvae)

Area	*Aedes* Species	*Ae. aegypti*	% *Ae. aegypti*
Garha	66	66	100
Gwarighat	262	246	94
Ranjhi	80	72	90
SBI Colony	03	03	100
Total	411	387	94.2



Common Breeding sites of *Aedes aeygpti*



9. Nutritional status of adolescents in tribal areas of Madhya Pradesh

Dr. K. Damayanti

Dr. Tapas Chakma

Starting date: January 2003

Duration : 2 years

Objectives

1. To assess the nutritional status through anthropometry in tribal and non-tribal adolescents and study the influence of socio-cultural and economic factors on it.
2. To assess the dietary intake and food habits of tribal and non-tribal adolescents.
3. To study the growth pattern of tribal and non-tribal adolescents in a cross sectional sample.

Salient Findings

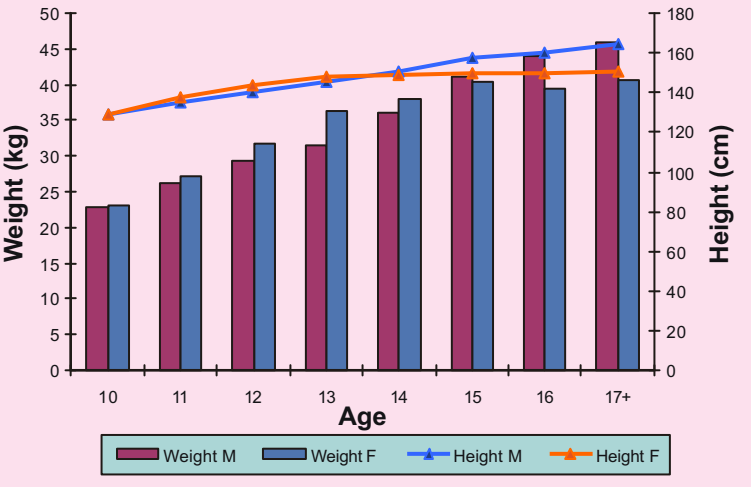
Four hundred forty tribal adolescents were covered for anthropometry, socio-economic parameters and dietary intake against the pre decided sample size of 1000 tribals and non-tribals each.

The preliminary analysis of the data revealed that with respect to height, girls were taller than boys up to the age of 13-14 years and then boys overtook the girls and finally boys are 11 cm. taller than girls at 17-18 years. With respect to weight also, tribal adolescent girls were heavier than boys up to the age of 16 years and then boys overtook the girls in the 17-18 years age group (Fig 9.1).

Adolescents are deficient in iron and calcium consumption.

The mean intake of iron and calcium was very low compared to Recommended Dietary Allowances (RDA). The carotene and calcium intakes were higher than reported values due to higher consumption of green leafy vegetables by few households. The consumption of protein was almost equal to RDA (Table 9.1, Fig 9.2).

Fig 9.1 Mean height and weight of tribal adoloscent



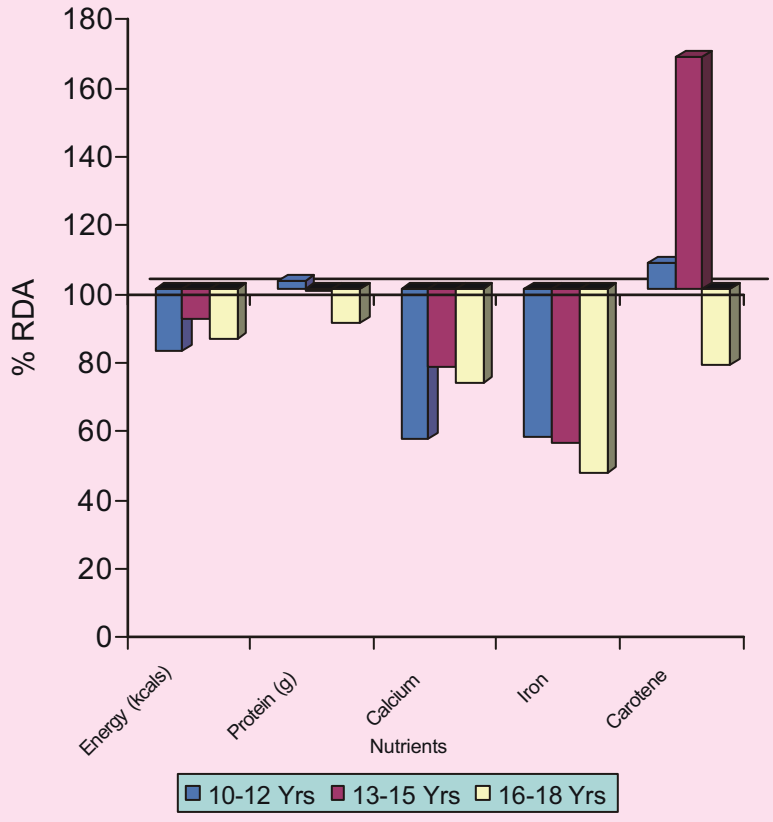
RMRCT



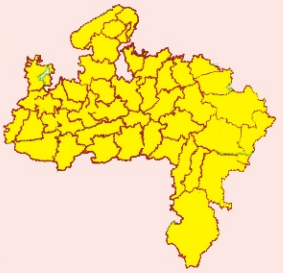
Table 9.1 Mean nutrient intake of tribal adolescents

Age Group	Energy (kcal)	Protein (g)	Calcium (mg)	Iron (mg)	Carotene (µg)	Thiamine (mg)	Riboflavin (mg)
10-12	1712± 324	56.8± 14.9	339± 300	15.1± 5.9	2582± 4344	1.31± 0.5	1.8± 2.3
13-15	2060± 474	67.7± 18.0	464± 352	19.1± 7.1	4027± 4954	1.6± 0.7	2.7± 2.7
16-18	2016± 281	63.9± 13.6	365± 288	18.6± 7.1	1874± 3151	1.5± 0.6	1.5± 1.7

Fig 9.2 Intake of nutrients as percent of RDA



RMRCT



Studies approved by SAC 2003

1. Cerebral malaria related complications (Dr.Neeru Singh)
   (A collaborative study with CDC and Morehouse School of Tropical Medicine, Atlanta : Study funded by NIH, USA)

2. Preparation of field site for malaria vaccine trial (Dr.Neeru Singh)
   (A collaborative study with CDC, Atlanta)

3. Cercarial Dermatitis - A study of natural history, immuno-diagnosis and the effect of ivermectin in tribal population of Madhya Pradesh (Dr. V. G. Rao)

4. Community prevalence and etiology of sexually transmitted infections in tribal areas of Madhya Pradesh (Dr. V. G. Rao)

5. Health and nutritional status of tribals of Chhattisgarh with special reference to micro-nutrient deficiency disorders (Dr.V.G. Rao)

6. Genomic diversities and variations in sickle haemoglobin among some tribal populations of Madhya Pradesh (Dr. R.B. Gupta)

7. Molecular genesis of cervical cancer in Jabalpur and its correlation with diet intake pattern (Dr. T. Chakma)

8. Survey of ground water fluoride level in Jabalpur (Dr. T. Chakma)

9. Assessment of iodine deficiency disorders in Baigachak area of district Dindori (Mrs. P.L. Pande)

10. Men's participation in reproductive and sexual health - An investigation among the Primitive tribes of undivided Madhya Pradesh (Dr. K.B. Saha)

11. Epidemiologic and etiologic study of acute diarrheal diseases in preschool children of tribal area of Madhya Pradesh (Dr. Anupkumar Anvikar)

12. A study of markers of Hepatitis B, C & HIV in tribes of Orissa (Dr. Anupkumar Anvikar)

13. Concomitant infection of intestinal parasites with filariasis (Dr. Dasarathi Das)

14. Burden of disease estimation in primitive tribes of Madhya Pradesh & Chhattishgarh (Dr.C.K. Dolla)

15. Tobacco related diseases in Gond tribe (Dr. Surendra Kumar)

16. Study of population growth and health status among 'Kamars' a primitive tribe in Raipur district of Chhattisgarh (Dinesh Kumar)

17. Impact of daily and intermittent iron supplementation on anaemia among adolescents in the tribal area (Dr. K. Damayanti)

18. Assessment of body composition and resting metabolic rate in patients with sickle cell disease (Dr. K. Damayanti)

19. Clinical trial of arteether in paediatric patients of uncomplicated *P. falcifarum* malaria in Jabalpur (Dr.Rajeev Yadav)



International Collaboration

The centre is collaborating partner with Centers for Disease Control, Atlanta in the study "Preparation of field site for malaria vaccine trial". The scientists of CDC visited the centre to initiate study.

The centre is collaborating partner with Moore School of Medicine and CDC, Atlanta. NIH, USA grants an amount of US$ 200000 to pursue the study.





Scientists from CDC, Atlanta visiting RMRCT

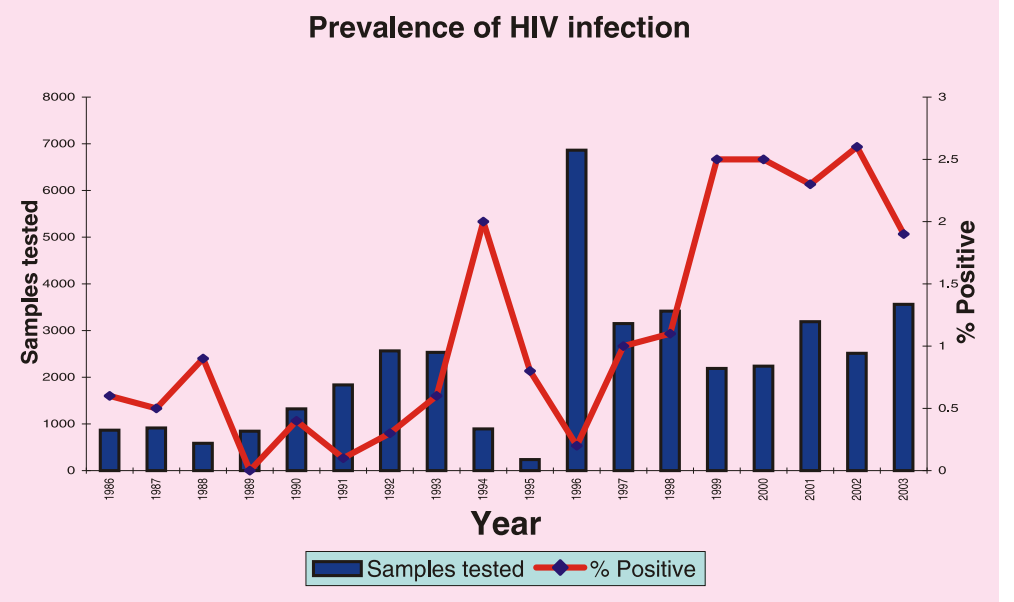
Regular Activities

Voluntary Counseling and Testing Centre

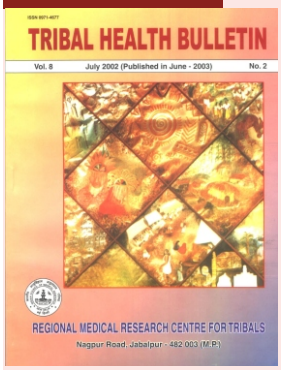
The HIV Surveillance Centre, functioning since 1986 was renamed as Voluntary Counseling and Testing Centre in the year 2001. The centre, besides performing HIV testing, also provides pre test and post test counseling. The centre has also been recognized as State level referral laboratory for HIV testing.

During the year, 68 of 3562 samples were found positive for HIV. The centre participated in Sentinel Surveillance Program of National AIDS Control Organization, in which 3112 serum samples from low & high-risk groups were tested, and 21 samples were found positive. The prevalence of HIV infection showed an increasing trend over last 18 years.

The centre also conducted a training program on 'External Quality Assurance Scheme' for Blood Bank Officers in association with Madhya Pradesh State AIDS Control Organization, Bhopal.







National Nutritional Monitoring Bureau (NNMB) activities

NNMB MP Unit is functioning from the centre since 1986. The unit is undertaking different nutritional surveys in the state. The unit is presently involved in micronutrient deficiency survey in Madhya Pradesh and Chhattisgarh. So far a total of 78 villages have been surveyed in Madhya Pradesh and Chhattisgarh to collect data on micronutrient.

Ph.D Programme

The centre is affiliated to Rani Durgawati University, Jabalpur for Ph.D. programme. Mrs. Sujata Sinha and Mr. Pravin Kumar have joined as Junior Research Fellows under ICMR and CSIR fellowships respectively.

Training Programme

WHO sponsored training workshop on rapid assessment of tools of Malaria during pregnancy will be organized at RMRCT, Jabalpur from 26 to 29 April 2004. Dr. Neeru Singh, Deputy Director (SG) is the course coordinator. This workshop will cater to the needs of four South East Asian Regional Countries i.e. India, Bangladesh, Myanmar and Indonesia.

Other Activities

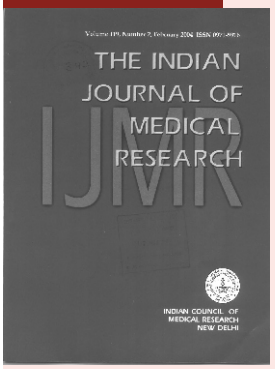
1. Tribal Health Bulletin - RMRCT is publishing the Tribal Health Bulletin biannually dealing with research articles related to tribal health.
2. RMRCT Chronicle - The Centre is going to publish RMRCT Chronicle biannually updating the activities of Centre.
3. Seminar / Journal Club activities for scientific staff are being organised regularly.
4. Regular computer classes and administrative seminars for staff are also organised.



Publications

Papers Published / In Press / Accepted

1. Raj R.K., Das B.R., Dash A.P. and Supakar P.C. (2003). Identification of Telomerase activity in gametocytes of *Plasmodium falciparum*. **Biochemical and Biophysical Research Communications** 309 (3) 685-688. IF 3.055
2. Sarin R., Dash A.P. and Dua V. K. (2003). Albendazole sulphoxide concentrations in plasma of endemic normals from a lymphatic filariasis endemic region using liquid chromatography. **Journal of Chromatography** 799 : 233-238. IF 1.911
3. Singh N., Mishra A.K., Shukla M.M. and Chand S.K. (2003). Forest malaria in Chhindwara, Madhya Pradesh (Central India) - A case study in an ethnic tribal community. **American Journal of Tropical Medicine and Hygiene** 68 (5) 602-607. IF 2.063
4. Singh N., Valecha N., Nagpal A.C., Mishra S.S., Verma H.S. and Subbarao, S.K. (2003). The hospital and field-based performances of the OptiMAL® test, for malaria diagnosis and treatment monitoring in Central India. **Annals of Tropical Medicine and Parasitology** 97 (1) 5-13. IF 0.978
5. Valecha N., Singh N., Yadav R.S., Vasdev, Agrawal A. and Subbarao S.K. (2003). Field evaluation of OptiMAL® rapid malaria diagnostic test in India. **Acta Parasitologica** 48 (3) 229-232. IF 0.700
6. Singh N., Saxena A. and Shrivastava R. (2003). *Plasmodium vivax* infection in placenta and congenital malaria in Central India. **Annals of Tropical Medicine and Parasitology** 97 (8) 875-878. IF 0.978
7. Rao V.G., Agrawal M.C., Yadav R., Das S.K., Sahare L.K., Bhondele M.K., Minocha R.K. (2003). Intestinal parasitic infections, anaemia and undernutrition among tribal adolescents of Madhya Pradesh. **Indian Journal of Community Medicine** 28 (1) 26-29.
8. Saha K. B., Saha U. and Shajy K.I. (2003). Child care and utilization of health services in some North Indian states. **The Eastern Anthropologist** 56 (1) 75-91.
9. Das D. (2003). Purchase of Scientific Instruments. **Current Science** 85 (8) 1115.IF 0.533
10. Singh N., Saxena A. and Singh M.P. Changing scenario of malaria in Central India, the replacement of *Plasmodium vivax* by *Plasmodium falciparum*. (1986-2000). **Tropical Medicine and International Health** (In press). IF 1.779
11. Singh N. and Nagpal A. C. Performance of the OptiMAL® dipstick test for management of severe and complicated malaria cases in a tertiary hospital, Central India. **Journal of Infection** (In press). IF 1.493



12. Singh N. and Saxena A. Usefulness of rapid on site *P. falciparum* diagnosis (Parachek® Pf) in forest migrants and among indigenous population at the site of their occupational activities in Central India. **American Journal of Tropical Medicine & Hygiene** (In press). IF 2.063

13. Singh N., Kataria O. and Singh M.P. The changing dynamics of *Plasmodium vivax* and *P. falciparum* in Central India. Trends over a 27-year period (1975-2002). **Vector Borne Zoonotic Diseases** (In press). IF 0.00

14. Rajamani S., Anantharaman L., Mylavarapu V.S. Sivaram, Mirsamdi N., Chaudhary D., Lohiya N. K., Gupta R. B. and Roy R. P. Remote communications in deoxyhemoglobin S fiber assembly: Inhibitory effect emanating from enhanced flexibility of the AB region of the alpha chain is annulled by a mutation at its EF corner. **Journal of Biological Chemistry** (In press). IF 7.368

Papers communicated

1. Gupta R.B., Solanki S.S. and Singh N. Splenic infarction in an Indian youth - A brief report. **American Journal of Haematology**

2. Anvikar A. R., Chakma T. and Rao V. G. HIV Epidemic in Central India: Time Trends over 18 years (1986 - 2003). **Acta Tropica**

3. Das D., Kumar S., Sahoo P.K. & Dash A. P. Prevalence of *Wuchereria bancrofti* antigenemia in Madhya Pradesh, India. **Indian Journal of Medical Research**

4. Das D., Kumar S., Babu B. V. and Dash A. P. A study on knowledge of lymphatic filariasis among endemic population of rural Madhya Pradesh, India. **Acta Tropica**

5. Saha K.B. Call for rethinking on ethical restrictions and relaxations in social science research. **Current Science**

6. Kumar D., Joshi N., Roy J., Jain D.C. Continuity of Infertility among Khairwar Tribe of Central India: A test of multivariate hypothesis. **Journal of Health, Population and Nutrition**

7. Verma A. Neonatal and postnatal mortality among a primitive tribe of Central India: Socio-cultural perspectives. **Journal of Health, Population and Nutrition**

Publication in Book

Pandey G. D. and Roy J. (2003). Fertility differentials in Khairwars of Madhya Pradesh. In Adak et. al. (Eds) : Demography and Health Profile of the Tribals (A study of M.P.). Anmol Publications Pvt. Ltd., New Delhi. pp. 244-249



Conferences / Workshops Attended

Dr. A. P. Dash

1. Attended workshop on Dengue at Chennai, 19th & 20th June 2003.
2. Attended workshop on Intellectual Property Rights at ICMR, New Delhi on 13th & 14th August 2003.

Dr. Neeru Singh

1. Attended 1st International Conference on Medical Entomology and chaired a session in Bhopal, 19th & 20th January 2003.
2. Attended a workshop on "Fundamentals of International Clinical Research" organized by US Embassy at Delhi, 11th & 12th November.

Dr. V. G. Rao

1. Participated as faculty in the training programme on External Quality Assurance Scheme-III organized by Regional Medical Research Centre for Tribals, Jabalpur and M. P. State AIDS Control Society, Bhopal, 22nd May 2003.
2. Attended training on "Online searching of Biomedical Data bases" at National Informatics Centre (NIC), New Delhi during 15 - 19 September 2003.
3. Attended the XXXV Annual Conference of the Nutrition Society of India and presented a paper on Nutritional status of Saharia- a primitive tribe of Madhya Pradesh at the National Institute of Nutrition, Hyderabad.
4. Attended XIII Annual Conference of Association of Physicians of India, M.P. Chapter at Pachmarhi, Madhya Pradesh, 14th & 15th June, 2003

Dr. R. B. Gupta

Attended the Interactive Biotechnology Meet organized by the Department of Biotechnology, Government of India in collaboration with Dept. of Biodiversity and Biotechnology, Government of Madhya Pradesh at Pachmarhi, 30th & 31st May 2003.

Dr. T. Chakma

Attended IX Asian Congress of Nutrition, New Delhi, and presented a paper "Low intake of calcium and other micronutrients in aggravating skeletal fluorosis among tribal children of Mandla, Central India" 23-27 February 2003.

Mr. Gyan Chand

1. Attended 1st International conference on Medical Entomology organized by Literature Museum Society and Department of Pathology, Mahatma Gandhi Medical College, Bhopal and presented a paper, 19th & 20th January 2003.
2. Attended state malaria workshop at Korba, organised by Govt. of Chhattisgarh, 23 -25 January 2003.



Dr. Kalyan B. Saha

Attended meeting of "ICMR Forum for Epidemiology" at National Institute of Epidemiology, Chennai and presented the summary of the Epidemiological studies of last decade conducted by RMRCT (ICMR), Jabalpur, 12th & 13th October 2003

Dr. Anup R. Anvikar

Attended Fourth Sir Dorabji Tata Symposium on Acute Respiratory Disease, Banglore, 10th & 11th March 2003.

Dr. C. K. Dolla

1. Attended Fourth Sir Dorabji Tata Symposium on Acute Respiratory Disease, Banglore, 10th & 11th March 2003.
2. Attended training on Biomedical Research and Internet at NIC, Delhi, 8-10 July 2003.
3. Attended training on Decentralised Management of Rural Health Care Programme at National Institute of Rural Development, Hyderabad, 1-6 September 2003.

Dr. S. Kumar

1. Attended training on biomedical research and internet at NIC Delhi, 8 -10 July 2003.
2. Attended training on Decentralized Management of Rural Health Care Programme at National Institute of Rural Development, Hyderabad, 1- 6 September 2003.

Dr. K. Damyanti

1. Attended IX Asian Congress of Nutrition at New Delhi and presented a paper on "Changes in BMR during pregnancy in rural Indian women," 23-27 February 2003.
2. Attended National Seminar on Childhood Nutrition and presented a paper on "Nutritional status in late childhood in the tribal areas of Madhya Pradesh" organized by Department of Food & Nutrition, Govt. Home Science College, Jabalpur, Madhya Pradesh, 9th & 10th December 2003.
3. Attended XXXV Annual conference of the Nutritional Society of India, Hyderabad and presented a paper entitled "Nutritional status of the adolescents in the tribal area of Madhya Pradesh", 12th &13th December 2003.

Dr. Rajiv Yadav

1. Attended National Seminar on Child and Nutrition organized by the Department of Food and Nutrition, Govt. Home Science College, Jabalpur, 9th & 10th December 2003.
2. Attended Workshop on Medicinal Plants- Tissue Culture and Phytochemical Investigations, Birla Institute of Scientific Research, Jaipur, 16 -18 October 2003.

Dr. J. Roy

Attended P.C. Biswas Centenary National Seminar on "Peoples of India": Anthropological Perspective, organized by Department of Anthropology, Delhi University, Delhi and presented a paper, 29 - 31 March 2003.



Other Scientific Activities

Prof. A. P. Dash

1. Member, Selection Committee Meeting at Institute of Life Sciences Bhubaneswar on 28th & 29th May 2003.
2. Attended Joint Coordination Board Meeting of TDR at New Delhi on 23 -25 June, 2003.
3. Attended Finance Committee Meeting of Institute of Life Sciences, Bhubaneswar on 26th June 2003.
4. Attended meeting of the State Biotechnology Board Orissa, Bhubaneswar on 27th June 2003.
5. Attended Governing Body Meeting of Institute of Life Science, Bhubaneswar on 28th June 2003.
6. Attended meeting on dedication of Institute of Life Sciences to the Nation by Honourable Prime Minister of India at Bhubaneswar on 15th July 2003.
7. Attended Project Review Committee Meeting on Vector Borne Diseases at ICMR, New Delhi on 21st & 22nd July 2003.
8. Attended Meeting on Filariasis Mass Drug Administration at VCRC, Pondichery on 3rd & 4th September 2003.
9. Attended meeting on Development of Common Protocol on Tribal Health at Regional Medical Research Centre, Bhubaneswar, 17th and 18th September 2003.
10. Chairman, Selection Committee Meeting at NCCS, Pune for selection of Research Fellows on 23rd September 2003.
11. Member, Scientific Advisory Committee meeting at Regional Medical Research Centre, Bhubaneswar, 25-27 September 2003.
12. Attended Centre's Day at CRME, Madurai on 1st October 2003.
13. Attended Society Meeting of Institute of Life Sciences Bhubaneswar at New Delhi on 9th November, 2003.
14. Attended meeting of the Library Committee at New Delhi on 4th December 2003.
15. Attended ICMR awards function at ICMR, New Delhi on 14th December 2003.
16. Attended meeting of the Tribal Task Force at ICMR, New Delhi on 17th December 2003.
17. Attended Indo-French Meeting on Dengue at Pune on 18th & 19th December 2003.
18. Member Secretary, Scientific Advisory Committee meeting at CRME, Madurai, 28- 30 December 2003.

Dr. Neeru Singh

1. Attended ICMR Director's meetings in Mumbai on 18th & 19th January 2003.
2. Attended Scientific Advisory Group meeting at ICMR HQ, Delhi and presented highlights of molecular tools used by the centre. 13th & 14th February 2003



3. Attended Biomedical board meeting at ICMR HQ, Delhi on 17th February 2003 and presented a project on "Preparation of field site for malaria vaccine trial".

4. Attended Biomedical board meeting for project submission at ICMR, New Delhi on 12 - 14 May 2003.

5. Attended meeting with Health Commissioner and Director, Health Services Govt. of Madhya Pradesh on 28th & 29th May 2003.

6. Attended a meeting of MP Council of Science & Technology and presented a status paper at Pachmarhi on 30th & 31st May 2003.

7. Attended a meeting on Biological control of malaria at Mantralaya, Ballabh Bhavan, Bhopal on 23rd June 2003.

8. Attended a State level meeting on malaria in Narmada valley on 4th July 2003 at Bhopal.

9. Attended a meeting on malaria at Raipur on 5th & 6th July 2003 organized by Health Department of Chhattisgarh.

10. Discussed modality with Dr. Y.D. Sharma regarding CDC collaborative project at AIIMS, Delhi on 13th & 14th August 2003.

11. Attended a meeting on 'Development of Common Protocol on Tribal Health', Regional Medical Research Centre, Bhubaneswar, 17th & 18th September 2003.

12. Attended Task force meeting on "tribal health" at ICMR HQ, Delhi on 16th & 17th December 2003.

13. Reviewed one research paper each for American Journal of Tropical Medicine & Hygiene, Tropical Medicine and International Health and Indian Journal of Malariology.

Dr. V. G. Rao

1. Represented the Council at Swasthya Mela organized by district hospital Mandla, sponsored by Ministry of Health and Family Welfare, Govt. of India on 28 - 30 March, 2003.

2. Delivered a lecture on Iodine Deficiency Disorders at Gurgaon (Haryana) on 24th November 2003.

3. Participated as a resource person in the National Seminar on Child Nutrition organized by Home Science College, Jabalpur on 9th & 10th December 2003.

Dr. R. B. Gupta

1. Providing expertise to NSCB, Medical College, Jabalpur in identification of sickle cell disease patients.

2. Attended a meeting on 'Development of Common Protocol on Tribal Health', Regional Medical Research Centre, Bhubaneswar, 17th & 18th September 2003.

Dr. T. Chakma

1. Delivered a guest lecture on Geographical distribution of diseases in Central India, in a reorientation course organised by Academy Staff College, Jabalpur, 8th February 2003.

2. Attended a meeting on 'Development of Common Protocol on Tribal Health', Regional Medical Research Centre, Bhubaneswar, 17th & 18th September 2003.



Dr. Kalyan B. Saha

Attended Ethical Committee Meeting of NSCB Medical College, Jabalpur as member on 30th October 2003.

Dr. Anup R. Anvikar

1. Delivered a lecture on counseling of HIV/AIDS in a workshop for Medical Officers organized by Regional Health and Family Welfare Training Centre, Jabalpur on 25th February 2003.
2. Delivered a lecture on Diagnosis of HIV infection to Blood Bank Officers at workshop on 'External Quality Assurance Scheme', Jabalpur, 20th May 2003.
3. Attended a meeting on HIV Sentinel Surveillance as Technical Expert at M.P. State AIDS Control Society, Bhopal, 25th July 2003.
4. Attended a meeting on 'Development of Common Protocol on Tribal Health', Regional Medical Research Centre, Bhubaneswar, 17th & 18th September 2003.

Dr. D. Das

1. Attended a meeting on 'Development of Common Protocol on Tribal Health', at Regional Medical Research Centre, Bhubaneswar, 17th & 18th September 2003.
2. Delivered a lecture on "Host-parasite interactions and immune responses" at Academic Staff College, Rani Durgawati Viswa Vidyalaya on 30th December 2003.

Mr. K.V.K. Rao

Attended a meeting of the Library Committee at New Delhi on 4th December 2003.

Mr. S. N. Singh

1. Attended the ICMR Training Programme on Full Text Electronic DB's Retrieval System organized by ICMR at National Institute of Nutrition, Hyderabad, 26th July 2003.
2. Attended Libsys training course 1st level on acquisition, cataloging, circulation, serial and system administration organized by LIBSYS Corporation at Delhi, 25th August to 4th September 2003.

Dr. Arvind Verma

Delivered a lecture on Sampling procedure and its application to Post Graduate students at Department of Nutrition, Government Home Science College, Jabalpur on 30th December 2003.

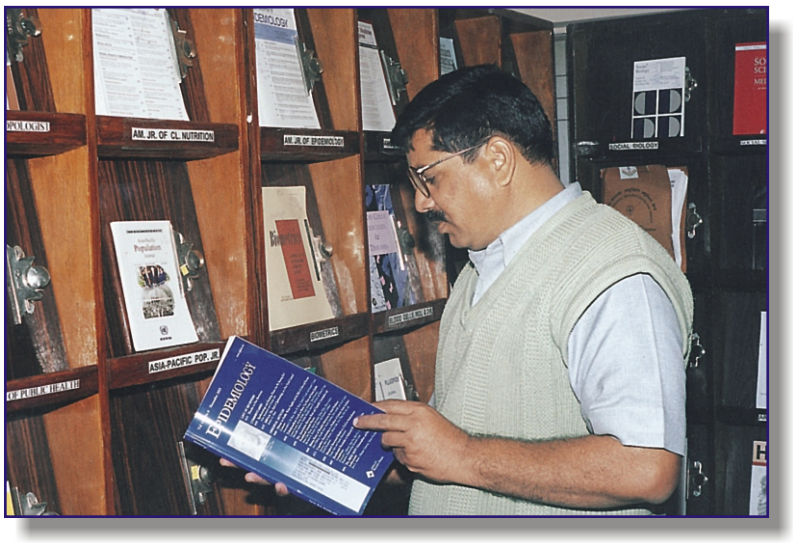


Library

The RMRCT library has a rich collection of books and periodicals, which caters to the needs of researchers working in multidisciplinary aspects of health. Currently the library holds more than 1000 books and 400 WHO publications. During the year, the centre has subscribed 96 journals including 49 foreign journals covering various disciplines ranging from Social Sciences to Molecular Biology. In addition, 17 books (including gratis copy) and 29 WHO publications / books have been added to the library.

Under modernization of library programme, the ICMR has allocated an additional amount of Rs. 4.3 lakh during the year 2003. With this allocation, the facilities of the library have been enhanced with installations of latest computers with colour laser printer, Medline CDs from 1966, library software (Libsys), internet facilities through ISDN line and photocopying machine.

Besides the scientists and staff of the centre, the library facilities are being widely used by other institutes as well.





Art and Photography Section

The section is actively engaged in different scientific, artistic and publication activities. The section has a huge collection of high quality and lively photographs highlighting habitat, environment, cultural and socio-economic life of various primitive and non-primitive tribal groups. Further the section is also involved in designing the art works for various posters, layouts, regular issues of Tribal Health Bulletin, Annual Reports and other publications from time to time.

The section also covers extravagantly the important events of the centre. The paintings created by the section are the assets of the centre.

Computer Section

The centre is having a full-fledged computer section equipped with the latest Pentium - 4 machines, colour laser printers, scanner, internet facility and different softwares essentially required for research and other activities. The computer section of the centre has been specifically involved in:

- Assisting the scientists in data entry, validation, analysis and in designing scientific slides for presentations.
- Supports the accounts and establishment section in their activities pertaining to accounts, pay roll and records etc.





Members of the 17th Scientific Advisory Committee

Lt. Gen. D. Raghunath
(Chairman)
Principal Executive,
Sir Dorabji Tata Centre for Research in Tropical Diseases,
Bangalore

Dr. G. Padmanabhan
Indian Institute of Sciences,
Bangalore



Dr. D.S. Agarwal
B-24, Swasthya Vihar,
Delhi

Dr. P. Narayanan
Director,
Tuberculosis Research Centre,
Chennai

Dr. Arvind Pandey
Director,
Institute for Research in Medical Statistics,
New Delhi

Dr. Salil Basu
Foundation for Research & Development for Underprivileged Group,
New Delhi

Dr. Seyed E.Hasnain
Director,
Centre for DNA Finger Printing & Diagnostics,
Hyderabad

Dr. Sandeep Basu
Director,
National Institute of Immunology,
New Delhi

Dr. J. Mahanta
Director,
Regional Medical Research Centre,
Dibrugarh

Dr. Abhay Bang
Director,
SEARCH, Shodhgram,
Gadchiroli



Dr. (Mrs.) A.V.Shrikhande
Prof. & Head Pathology,
Indira Gandhi Medical College,
Nagpur



Commisioner
Dept of Tribal Welfare,
Govt. of M.P.,
Bhopal

Health Commisioner
Govt. of M.P.,
Bhopal

Director
Tribal Research Institute,
Govt. of M.P.,
Bhopal

Commisioner
Dept of Tribal Welfare,
Govt. of Chhattisgarh
Raipur



Director
Health Services,
Govt. of M.P.,
Bhopal

Director
Health Services,
Govt. of Chhattisgarh
Raipur

Director
Tribal Research Institute,
Govt. of Chhattisgarh,
Raipur

Dr. Lalit Kant
Sr. DDG, (ECD)
ICMR, New Delhi



Dr. Dipali Mukherjee
Chief, (ECD)
ICMR, New Delhi

Dr. Rashmi Arora
DDG, (ECD)
ICMR, New Delhi

Dr. Nandan Singh
4-1-897, Tilak Road, Vogkunda
Hyderabad

Dr. A.P. Dash,
(Member Secretary)
Director,
RMRCT (ICMR),
Jabalpur



Members of Ethics Committee

1 **Dr. A. S. Rathore** (Chairman)
Prof. & Head,
Deptt. of Radiotherapy,
NSCB Medical College,
Jabalpur

2 **Dr. (Mrs.) Shashi Khare**
Prof. & Head,
Deptt. of Gynaecology,
NSCB Medical College,
Jabalpur

3 **Dr. (Mrs.) Kiran Hasija**
Prof. & Head,
Deptt. of Biochemistry,
NSCB Medical College,
Jabalpur

4 **Dr. A.C. Nagpal**
Associate Prof.,
Deptt. of Medicine,
NSCB Medical College,
Jabalpur

5 **Dr. H. S. Verma**
Associate Prof.,
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10 **Dr. T. Chakma** (Member Secretary)
Asstt. Director,
RMRCT,
Jabalpur



Calendar of Events 2003

1. National Science Day was celebrated on 28th February.
2. National Technology Day was celebrated on 12th May.
3. The Centre organized a workshop on 'External Quality Assurance Scheme' for Blood Bank Officers from 20th to 22nd May.
4. Meeting of Scientific Advisory Committee of the Centre was held on 9th and 10th August.
5. Rajbhasha Day was celebrated in the Centre on 12th September where prizes were distributed to staff for promotion of Hindi language.
6. The Centre celebrated Annual Day on 4th October.
7. Vigilance Day was observed on 3rd November.
8. World AIDS Week was celebrated in the Centre from 1st to 7th December.



National Science Day Celebration



World AIDS Day Celebration



EQAS Training



राजभाषा नीति के कार्यान्वयन एवं अनुपालन से संबंधित प्रगति रिपोर्ट

क्षेत्राीय जनजाति आयुर्विज्ञान अनुसन्धान केन्द्र, जबलपुर में भारत सरकार, गृह मंत्राालय, राजभाषा विभाग की राजभाषा नीति के समुचित कार्यान्वयन और अनुपालन के लिए सतत प्रयास किए जा रहे हैं :–

1. राजभाषा नीति कार्यान्वयन समिति

केन्द्र के निदेशक प्रोफेसर ए.पी. दाश की अध्यक्षता में गठित इस समिति में वरिष्ठ वैज्ञानिक और प्रशासनिक अधिकारी सम्मिलित हैं । प्रत्येक तिमाही में इस समिति की बैठक होती है और सरकार द्वारा निर्धारित लक्ष्यों को प्राप्त करने के उपायों पर विचार–विमर्श कर आगे की कार्यनीति निर्धारित की जाती है । अभी तक इस समिति की 46 बैठकें हो चुकी हैं। समिति की पिछली बैठक दिनांक 30/12/2003 को आयोजित हुई ।

2. हिन्दी पत्राचार

इस केन्द्र से भेजे जाने वाले पत्रा, तार, फैक्स–संदेश आदि हिन्दी में ही भेजे जा रहे हैं । इस मद में केंद्र द्वारा शत–प्रतिशत लक्ष्य प्राप्त कर लिया गया है । 'ग' क्षेत्रा को भेजते समय आवश्यकतानुसार पत्रा का हिन्दी अनुवाद भी साथ में भेजा जाता है ।

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

राजभाषा अधिनियम, 1963 (यथासंशोधित, 1963) की उपर्युक्त धारा के अनुपालन में सामान्य–आदेश, परिपत्रा आदि द्विभाषी रुप में ही जारी किए जाते हैं । रिक्त पदों के विज्ञापन, निविदायें भी समय–समय पर द्विभाषी प्रकाशित किए जाते हैं ।

राजभाषा नियम–5 के अनुपालन हेतु हिन्दी में प्राप्त पत्राों, आवेदन/अभिवेदन आदि के जवाब अनिवार्यतः हिन्दी में ही दिए जाते हैं ।

4. प्रशिक्षण

इस केन्द्र के अधिकतर अधिकारियों/ कर्मचारियों को हिन्दी का कार्यसाधक ज्ञान/प्रवीणता प्राप्त है और यह केन्द्र राजभाषा नियम 10(4) के अन्तर्गत अधिसूचित है ।

सभी अधिकारियों एवं कर्मचारियों से उनके हिन्दी ज्ञान संबधी जानकारी प्राप्त कर हिन्दी का कार्यसाधक ज्ञान अथवा निर्धारित स्तर तक हिन्दी ज्ञान न रखने वालों को हिन्दी शिक्षण योजना से हिन्दी प्रशिक्षण दिलाए जाने की योजना है ।

RMRCT



हिन्दी टंकण में प्रशिक्षण पूरा कर लिया गया है । निजी सहायक भी हिन्दी शिक्षण योजना से हिन्दी आशुलिपि का प्रशिक्षण प्राप्त कर चुके हैं । वर्तमान में एक आशुलिपिक द्वारा हिन्दी आशुलिपि का प्रशिक्षण लिया जा रहा है ।

5. कार्यशालाएं एवं प्रोत्साहन योजनाएं और हिन्दी–दिवस / पखवाड़ा

इस केन्द्र में समय–समय पर हिन्दी प्रशिक्षण कार्यशालाओं का आयोजन कर अधिकारियों / कर्मचारियों को हिन्दी में सरकारी कार्य करने हेतु प्रोत्साहित किया जाता है । इसके अतिरिक्त प्रतिवर्ष प्रोत्साहन योजना संचालित की जाती है, जिसमें कर्मचारी बढ़कर हिस्सा लेते हैं और उन्हें निर्धारित नकद पुरस्कार दिए जाते हैं । वर्ष 2002-03 में कुल नौ कर्मचारियों को ये पुरस्कार दिए गए । हिन्दी दिवस / पखवाड़े के अंतर्गत हिन्दी की टंकण, टिप्पण–आलेखन एवं निबंध–लेखन प्रतियोगिताएं आयोजित की गईं और दिनांक 12/9/2003को एक कार्यक्रम में विजेता कर्मचारियों को नकद पुरस्कार एवं प्रमाण–पत्रा प्रोफेसर ए.पी. दाश, निदेशक द्वारा प्रदान किए गए ।

6. हिन्दी में प्रकाशित साहित्यिक कृतियां एवं सहायक–साहित्य

इस केन्द्र में अधिकारियों / कर्मचारियों को पढ़ने के लिए हिन्दी की श्रेष्ठ साहित्यिक कृतियां–कहानी, कविताएं, उपन्यास आदि उपलब्ध कराए जाते हैं । इसके अतिरिक्त राजभाषा विभाग द्वारा प्रकाशित कार्यालय सहायिका, बृहत प्रशासन शब्दावली, देवनागरी तार, आवेदन प्रारुप, शब्दावली, शब्दकोश आदि के रुप में सहायक–साहित्य भी उपलब्ध कराया जा रहा है ।

7. प्रकाशन

इस अनुसंधान केन्द्र में जनजातियों के स्वास्थ्य से संबंधित एक बुलेटिन हिन्दी और अंग्रेजी में प्रकाशित होता है । हिन्दी में यह 'आदिवासी स्वास्थ्य पत्रिका' शीर्षक से प्रकाशित किया जा रहा है ।

8. राजभाषा निरीक्षण

दिनांक 18-19 सितम्बर, 2003 को भारतीय आयुर्विज्ञान अनुसंधान परिषद मुख्यालय नई दिल्ली से वरिष्ठ हिन्दी अधिकारी एवं हिन्दी अधिकारी के दल द्वारा इस केन्द्र में राजभाषा नीति के कार्यान्वयन एवं अनुपालन के संबंध में निरीक्षण किया गया तथा हिन्दी में किए जा रहे कार्यों की समीक्षा की गई तथा संतोष व्यक्त किया गया ।

OBITUARY



Dr. G. D. Pandey
(5th October 1952 to 7th June 2003)

Dr. G.D. Pandey, Deputy Director (Senior Grade) passed away at the age of 51 on 7th June at Delhi. A dedicated researcher in the field of statistics and social science joined RMRCT as Senior Research Officer in 1985 and rose to the post of Deputy Director (Senior Grade). Dr. Pandey was born on 5th October 1952 in a respectable family in Bihar. He did his M.Sc. (Statistics) in 1971 and Ph.D. in Statistics in 1976 from Banaras Hindu University. He was awarded D.Litt on the topic "Fertility and Family Planning in Primitive Tribes of Madhya Pradesh" by Rani Durgawati University Jabalpur in 1999.

His D.Litt. Thesis was published in book form in 2002. Five students have been awarded Ph.D. degree under his guidance. Dr. Pandey made outstanding contribution in the development of RMRCT and published more than 65 research papers in National & International Journals. His contribution in the field of health care aspects among tribals will always be remembered and pave the way for the generations to come.

He was the recipient of first Chandrasekaran award of Indian Association for Studies in Population in 1989. He served as Lecturer in Medical Statistics, Government Ayurvedic College, Lucknow and Research Officer, State Institute of Health and Family Welfare , Lucknow. His absence has created a vacuum in RMRCT as well as in the country, which is difficult to fill up. He is survived by his wife, a son and two daughters.

May the departed soul rest in peace in heavenly abode.



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