RMRCT Update

A BIANNUAL NEWSLETTER OF REGIONAL MEDICAL RESEARCH CENTRE FOR TRIBALS, JABALPUR April 2005

TWENTY YEARS OF RMRCT JABALPUR

Dr. Anup Anvikar
Prof. A. P. Dash

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INTRODUCTION

There are 427 Scheduled tribes in India. Each tribe has different health problems owing to the variability in their geographical, socio-economic development, cultural characteristics etc. Geographical isolation, unique cultural and social practices, lack of formal education, poor infrastructural facilities, lack of treatment seeking behavior, poverty, etc. have lead to several health related problems in the form of various communicable and non communicable diseases in tribal populations. Due to their isolation, endogamous marriages are highly prevalent and the coefficient of inbreeding is very high. This leads to a high prevalence of various genetic disorders like sickle cell trait, sickle cell disease, thalassaemias, G-6-PD deficiency etc. Largest concentration of tribals is found in central India i.e. Madhya Pradesh, Chhattisgarh, Bihar, West Bengal, Orissa, Maharashtra, Gujarat, Rajasthan and Andhra Pradesh, which contributes for about 87% of the total tribal population of the country. Almost 25% of the total population of undivided Madhya Pradesh is tribal. In view of these circumstances, ICMR established the Regional Medical Research Centre exclusively for tribals in Jabalpur in 1984. This is the only centre of ICMR devoted to research in tribal health. The thrust areas of research of the centre are haemoglobinopathies & communicable diseases.

HISTORY

RMRCT started functioning from few rooms of the Medical College, Jabalpur in 1984. In the year 1991, it got shifted to its own campus, spread over an area of 12.5 hectares. Initially, residential quarters were built up and the centre started functioning from there. The laboratory building was damaged by a massive earthquake in 1994 soon after its completion. In the year 2002, the centre started functioning from the main laboratory building after it was renovated.

VISION

The vision of the centre is to empower the health status of the tribal communities of India by focusing on action oriented research related to tribal health.

MISSION

- To plan, conduct and coordinate research in order to bring out the specific health problems and health needs of the tribals of the country.
- To conduct epidemiological studies on communicable and non-communicable diseases
- To investigate haemoglobinopathies in tribals and other communities.
- To advise and assist the Government in planning,executing, monitoring and evaluation of regional health programme and in training of health functionaries.

The focus of research has also changed over the years. Initially, it was mainly engaged in community based studies pertaining to health and morbidity of various tribes. It has now shifted towards laboratory based studies along with community based component. Now, there are well-equipped laboratories to support the community based studies. The number of scientists has also increased over the years.

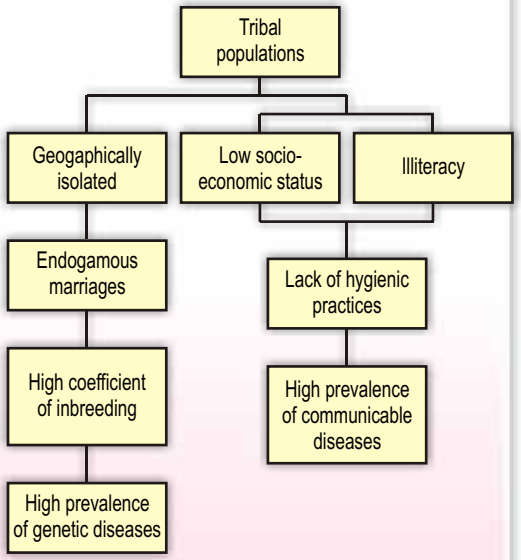
Major areas of research of the centre are

- Community Medicine
- Nutrition
- Genetics
- Vector Control
- Microbiology
- Immunology
- Biochemistry
- Demography
- Biostatistics
- Health Economics

MANDATE

Tribals have their distinctive biological/genetic make up. They serve as unique gene pool which has evolved in the natural settings over thousands of years. Endogamous marriages are highly prevalent in tribals, which lead to a high coefficient of inbreeding. Hence, there is a high prevalence of some genetic disorders. Due to their low socioeconomic status and lack of education, tribals don't follow hygienic practices. This, along with low intake of nutritive food leads to a high prevalence of communicable diseases as well (also shown in flow sheet). The mandate of the centre is to investigate haemoglobinopathies & communicable diseases.

Health problems of tribal populations



SUCCESS STORIES OF THE CENTRE

1. Fluorosis Control

The centre investigated the problem of fluorosis in Mandla district in 1996. Lot of children were having skeletal deformitiy in the form of genu valgum and dental mottling due to excess fluoride in drinking water. On the suggestion of RMRCT Jabalpur, the Government of Madhya Pradesh closed the contaminated water sources in all the affected villages of Mandla district and also provided alternative water sources. With the installation of alternative water sources, the fluoride level has come down from 9.5-10.8 ppm in 1996 to 1-2 ppm in 2003. The prevalence of genuvalgum was drastically reduced with the use of safe drinking water.



Intervention







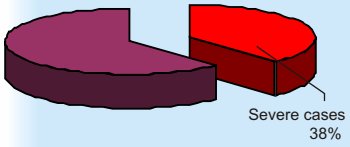
Pre intervention (1996) **Post intervention (2003)**

2. Decreasing the Severity of sickle cell disease

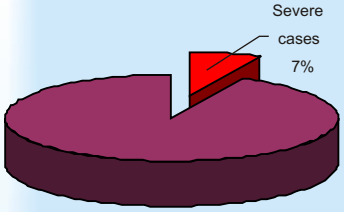
RMRCT has established a sickle cell disease clinic at NSCB Medical College, Jabalpur, in which children having sickle cell disease are being followed (n = 165). Haematological investigations were performed for detection of sickle cell disease. Children having sickle cell disease were treated with folic acid, vitamin B-complex and antipyretic/anti-inflammatory tablets. The patients and their guardians were educated about preventive measures.

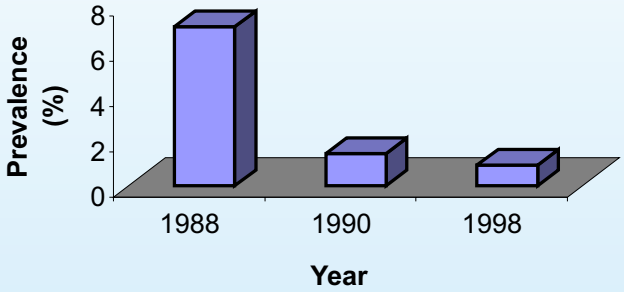
It was found that the number of children having severe manifestations of sickle cell disease decreased from 38% in 2002 to 7% in 2003.

Pre intervention (2002)



Post intervention (2003)





Effect of intervention on yaws

3. Study on Yaws

When it was felt that yaws has been eliminated, the centre detected a prevalence of 7% in Abujhmaria tribe of Bastar district in 1988. Due to intervention measures suggested by the centre, the prevalence of yaws dropped down to 0.9% in 1998.

OTHER STUDIES CONDUCTED BY THE CENTRE

1. Haemoglobinopathies

Sickle haemoglobin and thalassaemia are common forms of haemoglobinopathies in tribal areas of central India. Prevalence of sickle haemoglobin among different tribal populations of central India varies from 0 to 30%. RMRCT studied various tribes of Madhya Pradesh and Chhattisgarh. The prevalence of sickle haemoglobin, β-thalassaemia and G-6-PD deficiency in these tribes are given in Fig.1 and 2.

a. Sickle cell disease

In tribes like Baiga, Hill Maria, Muria, Bharia, Kol and Bhil and Bhillala groups, sickle haemoglobin is commonly seen ranging from 10% to 30%. Highest prevalence of sickle haemoglobin was seen in Pradhans (28.3%) followed by Gonds of Seoni district (18.9%) and Gonds of Balaghat district (14.8%). Sickle haemoglobin was commonly seen in the scheduled castes of central India. Some scheduled caste groups like Jharia and Mehra show very high (more than 30%) prevalence of sickle haemoglobin.

There are seven primitive tribes in the states of Madhya Pradesh and Chhattisgarh. High prevalence of sickle hemoglobin was found among Baigas of Baigachak area of district Dindori (20.3%), Bharias of Patalkot valley of district Chhindwara (20.3%) and Abujhmarias of Bastar district (22.5%).

b. β -thalassaemia

β-thalassaemia has not been studied well among the different tribal populations of central India. It is suspected to be prevalent in almost all the tribal populations with a low prevalence rate ranging from 1 to 3%. Some tribes, which have low prevalence of sickle haemoglobin, have higher prevalence of β– thalassaemia. High prevalence of β-thalassaemia trait was observed in primitive tribes Saharias (9.4%) and Hill Korwas (10.6%). A prevalence of 6.6% was recorded in Kamar, another primitive tribe of Chhattisgarh. Among the non primitive tribes, a prevalence of 5.9% was recorded among Kols.

c. α -thalassaemia

α-thalassaemia type II is widely prevalent among the Gonds of central India with prevalence rate of 85%, however, α– thalassaemia type I was absent.

Fig. 1: Prevalence of haemoglobinopathies in some Tribes of central M.P.

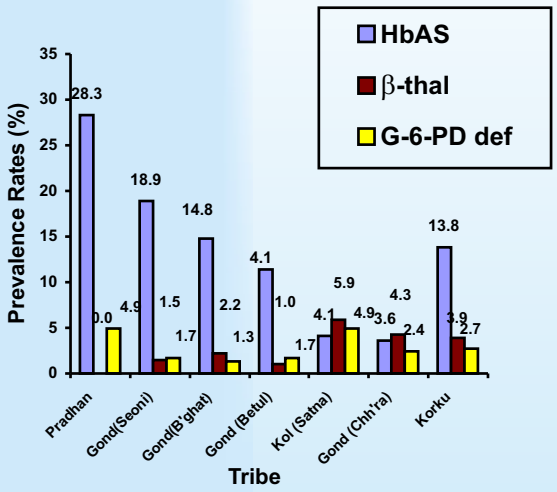
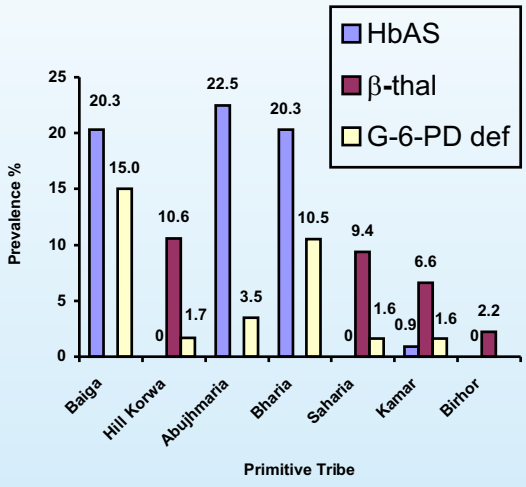


Fig. 2: Sickle Hb, β-Thal & G-6-PD def. in Primitive Tribes of M.P.



2. Infertility

Khairwar is a sub tribe of Gond tribe, mostly confined to the northeastern Madhya Pradesh. The total population of Khairwars in the state is estimated to be about 14 lakhs. It was reported to us by the state Govt. that the tribe is dwindling since last three decades. To investigate the problem, an epidemiological study was undertaken. The study was carried out in 23 randomly selected Khairwar villages with a population of 2800 spread over in four different blocks of Sidhi district. As high as 4.2% individuals above the age of 18 years were having atleast one STD. Six villages of Kusmi block were particularly affected. Blood samples collected from the available symptomatics of these villages revealed that, 61% blood samples were found VDRL reactive. All the samples were subjected to *Treponema pallidum* Haemagglutination assay (TPHA) which revealed rather higher positivity at 63.4%. This was significantly higher as compared to the other blocks of Sidhi district.

3. Filariasis

About nine districts (Panna, Chhatarpur, Satna, Rewa, Tikamgarh, Damoh, Katni, Sidhi, Chhindwara) in Madhya Pradesh are affected due to filariasis. The worst affected districts are Panna and Chhatarpur. A survey in the year 2002-03 by RMRCT, Jabalpur in Panna district showed 18.8% and 23.8% microfilariae and disease prevalence. With the incorporation of Circulating Filarial Antigen (CFA) assay it was found that about 40% of the studied population was infected with filarial adult worm. Clinical disease in the form of hydrocele and lymphoedema was observed mostly in individuals of more than 20 years of age.

4. Diarrheal diseases

The centre conducted a study on incidence of acute diarrhea in tribal preschool children. The incidence of diarrhea was 2.1 episodes per child per year. During the year 2004-05, 690 episodes of diarrhea were recorded. Bacterial enteropathogens, other than diarrheagenic *E. coli* were isolated from 12 children. *Shigella* sp was isolated from 7 samples, *Vibrio cholerae* from 2 and *Salmonella* sp from 2 samples. *Giardia lamblia* was identified in 31, *Entamoeba histolytica* in 5 , and *Entamoeba coli* in 8 children. Enteroaggregative *E. coli* (Eagg EC) was isolated from 40 samples. Enterotoxigenic *E. coli* (ETEC) was isolated from 2 samples and Enteropathogenic *E. coli* (EPEC) from 9 samples.

5. Study on tuberculosis

The centre conducted a study to find out the prevalence of tuberculosis in Karhal block of Morena district of Madhya Pradesh in 1992. About half of the total population of the block is tribal. A total of 22,250 individuals from 37 villages were covered. Only 10.8% children below nine years of age had BCG scar. The prevalence of tuberculosis infection among children below nine years of age was 16.9%. About 5.7% adults above the age of 15 years were found to be symptomatic. The sputum positive tuberculosis was 12.7 per thousand. The sputum positive rate was higher among the tribals (15/1000) as compared to the non tribals (9.7/1000).



A Saharia with TB spine

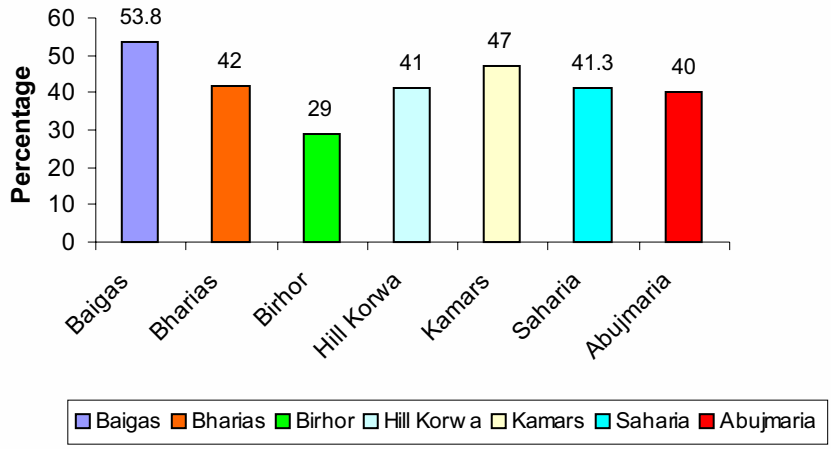
6. Nutritional studies

The centre has conducted nutritional surveys in various primitive as well as non primitive tribes of Madhya Pradesh and Chhattisgarh. There was a high prevalence of anemia (29 to 53.8%)among the primitive tribes (Fig. 3). There was severe malnutrition among Kamar, Bharia and Saharia tribes.



A Saharia child having marasmus

Fig. 3: Prevalence of anemia among primitive tribes



The authors acknowledge the contribution of Dr. R.B. Gupta and Dr. Tapas Chakma, Assistant Directors, RMRCT Jabalpur in preparing this article.

PAPERS PUBLISHED/ IN PRESS/ACCEPTED (OCTOBER 2004 - MARCH 2005)

1. Mishra K., Raj D.K., Dash A.P., Hazra R.K. Combined detection of *Brugia malayi* and *Wuchereria bancrofti* using single PCR. **Acta Tropica** 93(3):233-237.
2. Das D., Kumar S., Babu B.V., Dash A.P. (2005) Knowledge about filariasis among endemic population of rural Madhya Pradesh, India. **Annals of Tropical Medicine and Parasitology** 99(1):101-104.
3. Anvikar A.R., Chakma T., Rao V.G.(2005) HIV Epidemic in central India: Trends over 18 years (1986 - 2003). **Acta Tropica** 93(3):289-294.
4. Pande P.L., Singh M.P.S.S., Choudhary N.K. (2005). Occurrence of B-Thalassaemia among sindhi community of Jabalpur, Madhya Pradesh (central India) **Journal of Human Ecology** 17:157-158.
5. Dolla C.K., Meshram P., Shrivastava P., Karforma C., Das S., Ukey M.(2005) Nutritional status of Kodaku pre-school children in central India. **Journal of Human Ecology** 17(3):229-231.
6. Kumar D. (2005) Tribal literacy disparity in India . **Current Science** 88(5):676.
7. Singh N., Gyan Chand, Nagpal A. C. Risk factors for malaria among professionals working in forest of Central India. **Journal of Association of Physicians of India** (In press).
8. Das D., Kumar S., Sahoo P.K., Dash A.P. Bancroftian filariasis in two villages of Madhya Pradesh: a survey of microfilaraemia and circulating antigenemia. **Indian Journal of Medical Research** (In press).
9. Chakma T., Meshram P., Rao P.V., Singh S.B., Dolla C.K. Nutritional status of pre-school children in Baigas- A primitive tribe of central India. **Indian Pediatrics**(Accepted).
10. Rao V.G., Yadav R., Bhondele M.K., Uike M., Dolla C.K., Kumar S. Undernutrition and childhood mortality among tribal pre-school children of M.P. **Indian Journal of Medical Research** (Accepted).
11. Rao V.G., Sugunan A.P., Murhekar M.V., Sehgal S.C. Malnutrition and high childhood mortality among Onges- A primitive tribe of A & N islands. **Public Health Nutrition**(Accepted).

12. Chakma T., Meshram P., Rao P.V., Singh S.B., Kavishwar A., Babu R. Diet and nutritional status of adolescents of Baiga primitive tribe of central India. **International Electronic Journal of Rural and Remote Health**(Accepted) .
13. Chakma T., Meshram P., Rao P.V., Singh S.B. Nutritional status of Baigas- A primitive tribe of Madhya Pradesh. **Indian Journal of Medical Research** (Accepted).

PAPERS COMMUNICATED

1. Rao V.G., Agrawal M.C., Vohra S., Singh B.K., Singh K.P., Bhondeley M.K., Anvikar A.R.: CHR as a tool for assessing human schistosomiasis in India. **Journal of Infectious Diseases**.
2. Gupta R.B., Solanki S.S., Singh N. Splenic infarction in an Indian youth - A brief report. **Current science**.
3. Saha K.B., Saha U., Pandey A. Towards developing communication strategies for HIV/AIDS control among the Scheduled Tribes and Scheduled Castes women in North- eastern India. **Journal of Biosocial Science**.
4. Saha K.B. Rethinking on ethical restrictions and relaxations in social science researches. **The National Medical Journal of India.**
5. Anvikar A.R., Dolla C. K., Gadge V., Shukla G.P., Rao S., Karforma C., Rao V.G. Diarrheagenic *Escherichia coli* and acute diarrhea in tribal preschool children of central India. **American Journal of Tropical Medicine & Hygiene** (Revised manuscript submitted).
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 International Family Planning Perspective.**
7. Rao V.G., Savargaonkar D.D., Anvikar A.R., Dolla C.K., Bhondeley M.K., Ukey M. Reproductive tract infections in tribal women in central India. **WHO Bulletin**.
8. Saha K.B., Jain D.C., Chatterjee U.C. Can men fill the gap? Experience of male involvement in reproductive health among disadvantaged Khairwar tribe of central India. **Acta Tropica.**

CONFERENCES/WORKSHOPS/MEETINGS ATTENDED

Prof. A. P. Dash was faculty at the Indo-US Workshop on Cerebral Malaria at RMRCT, Jabalpur from 3rd to 5th October 2004.

Prof. A. P. Dash attended the International Symposium on Emerging Viral Infections at NIV, Pune from 11th to 13th October 2004.

Prof. A. P. Dash attended the Scientific Advisory Committee meeting of VCRC, Pondicherry on 4th and 5th November 2004.

Prof. A. P. Dash chaired the oration lecture at Joint Annual Conference of Indian Society for Malaria and Other Communicable Diseases and Indian Association of Epidemiologists at NICD, Delhi on 19th November 2004.

Prof. A. P. Dash attended the Scientific Advisory Committee meeting of CRME, Madurai on 26th and 27th December 2004.

Prof. A. P. Dash attended the Indian Science Congress at Ahmedabad from 3rd to 7th January 2005.

Prof. A. P. Dash delivered a lecture in workshop on clinical management of Malaria during pregnancy at RMRCT Jabalpur on 1st March 2005.

Dr. V. G. Rao attended the 28th National Conference of Society for STD and AIDS at Jabalpur from 2nd to 4th November 2004 and also presented paper.

Dr. V. G. Rao attended and presented the paper in the Joint Annual Conference of Indian Society for Malaria and Other Communicable Diseases and Indian Association of Epidemiologists at NICD, Delhi from 19th to 21st November 2004.

Dr. R.B.Gupta attended WHO-ICMR workshop on Haemoglobinopathies from 29th-31st October 2004 at Pt. Jawaharlal Nehru Memorial Medical College, Raipur .

Dr. T. Chakma attended the WHO Workshop on Health Sector Reforms at IIT Chennai on 5th October 2004.

Dr. T. Chakma attended Third Global TEPHINET conference at Beijing, China from 8th to 12th November 2004 and also presented a paper.

Dr. T. Chakma chaired a session at the National Workshop on Nutritional Effects of Fluorosis at Chennai on 19th November 2004.

Dr. T. Chakma delivered a lecture on Gender & AIDS at a workshop organized by Urban RCH Project, Jabalpur on 2nd December 2004.

Mr. Gyanchand attended the International Symposium on Emerging Viral Infections at NIV Pune from 11th to 13th October 2004 and also presented paper.

Dr. K. B. Saha attended and presented paper at the International Conference on men as supportive partners in Sexual and Reproductive Health at NIRRH, Mumbai from 28th November to 1st December 2004.

Dr. K. B. Saha participated as invitee in the teleconferencing on District level household survey and RCH project at State Population Resource Centre, Bhopal on 14th and 15th December 2004.

Dr. K. B. Saha was invited to present a paper in National Seminar on Tribal Demography, Health and Development in India organised by IIPS Mumbai at Raipur on 25th and 26th February 2005.

Dr. Anup Anvikar attended the International Symposium on Emerging Viral Infections at NIV Pune from 11th to 13th October 2004 and also presented paper.

Dr. Anup Anvikar attended and presented paper in the Joint Annual Conference of Indian Society for Malaria and Other Communicable Diseases and Indian Association of Epidemiologists at NICD, Delhi from 19th to 21st November 2004.

Mr. Gyanchand attended & also presented a paper at the Sixth International Symposium on 'Vector and vector borne diseases' organized by Department of Zoology, Punjabi University, Patiala from 18th to 20th February 2005.

Dr. D. Das attended the International Symposium on Emerging Viral Infections at NIV Pune from 11th to 13th October 2004 and also presented paper.

Dr. C. K. Dolla participated in AIDS awareness camp at Jamgaon, a tribal village of Jabalpur district on 1st December 2004.

Dr. C. K. Dolla participated in International Symposium on Human Papilloma Virus and Carcinoma Cervix at ICPO, Noida from 9th to 12th February 2005.

Dr. C. K. Dolla participated and presented paper at the 49th Annual Conference of IPHA at Institute of Clinical Epidemiology, Lucknow from 11th to 13th February 2005 .

Dr. C. K. Dolla attended training for System Administration on LAN at ICMR HQ, New Delhi from 21st to 25th march 2005.

Dr. Surendra Kumar attended a training program on Biomedical Information Retrival at NIC, New Delhi from 27th to 30th July 2004.

Dr. Surendra Kumar participated in AIDS awareness camp at Jamgaon, a tribal village of Jabalpur district on 1st December 2004.

Dr. Rajiv Yadav attended a training program on Biomedical Information Retrival at NIC, New Delhi from 15th to 18th March 2005.

Dr. Deepali Savargaonkar attended the International Symposium on Emerging Viral Infections at NIV Pune from 11th to 13th October 2004 and also presented paper.

Dr. Deepali Savargaonkar attended the 28th National Conference of Society for STD and AIDS at Jabalpur from 2nd to 4th November 2004 and also presented paper.

Mr. Vijay Gadge attended the National Workshop on Bioinformatics and its Applications at Institute of Life Sciences, Bhubaneswar from 10th to 13th January 2005.

Mr. P. Vinay Rao presented a paper at the 36th annual meet of Nutritional Society of India at University of Mysore on 5th and 6th November 2004.

Mr. Arvind Kavishwar attended the Workshop on Biomedical Information Retrieval at NIC, New Delhi from 14th to 17th December 2004.

Dr. Arvind Verma presented a paper at the National Conference on Human Health and Nutrition held at Thane on 12th and 13th December 2004.

Mr. S. B. Singh presented a paper and also received the best paper award at the 36th annual meet of Nutritional Society of India at University of Mysore on 5th and 6th November 2004.

Mr. S. B. Singh presented a paper at the National Conference on Human Health and Nutrition held at Thane on 12th and 13th December 2004.

Mr. S. B. Singh attended a training program on Biomedical Information Retrival at NIC, New Delhi from 15th to 18th March 2005.

Mr. Pradeep K. Meshram presented a paper at the 36th annual meet of Nutritional Society of India at University of Mysore on 5th and 6th November 2004.

Mr. Subhash Godbole attended WHO-ICMR workshop on haemoglobinopathy from 29th-31st October 2004 at Pt. Jawaharlal Nehru Memorial Medical College, Raipur.

Mr. Sujit Das attended a training program on Biomedical Information Retrival at NIC, New Delhi from 15th to 18th March 2005.

18TH SCIENTIFIC ADVISORY COMMITTEE MEETING

The Scientific Advisory committee meeting of the centre was held on 16th & 17th November 2004. The meeting was chaired by Dr. Sandip Basu, Director, National Institute of Immunology, New Delhi. The committee appreciated the progress made by the centre during last one year particularly the publications of the centre. The committee approved six new projects.



SAC meeting in progress

VIGILANCE WEEK (1st to 7th November 2004)



Vigilance week was observed at RMRCT from 1st to 7th November 2004. On this occasion, an oath was taken by the employees not to indulge in corrupt practices.

Observation of vigilance week

WORLD AIDS DAY (1st December 2004)



As a part of the World AIDS Week celebration, the RMRCT team visited nearby villages and educated the people about prevention of AIDS on 1st December 2004 by showing films on AIDS, Group Discussions, Poster Exhibition etc.

World AIDS day celebration

NATIONAL SCIENCE DAY (28th February 2005)



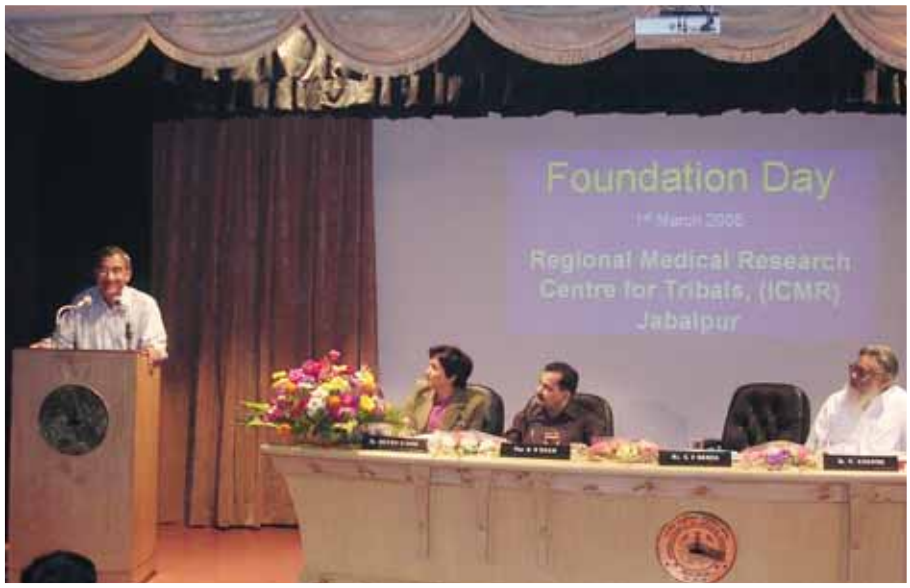
National Science Day was celebrated at the Centre on 28th February 2005. On this occasion, a scientific exhibition highlighting the activities of the centre over last two decades was displayed. The exhibition was inaugurated by Dr. Amarjit Kaur, Dean, NSCB Medical College, Jabalpur. Dr. Kaur appreciated the exhibition and congratulated Prof. A. P. Dash, Director of the centre, scientists and staff members for the achievements of the centre. The exhibition was seen by students as well as faculty of different institutes of the city.

FOUNDATION DAY (1st March 2005)

The Regional Medical Research Centre for Tribals (ICMR) Jabalpur celebrated its 21st Foundation Day on 1st March 2005. Prof. A. P. Dash, Director of the centre welcomed the guests and also briefed the audience regarding the activities of the centre. The Chief Guest of the function was Shri S.P. Nanda, IAS, Director General, Gopabandhu Academy of Administration, Bhubaneswar. He appreciated the work done by the centre over the last 2 decades. He explained the importance of using indigenous technology in treatment /control of various tropical diseases like hepatitis, diarrhea, typhoid. He also told that India has the potential to become super power of the world.

Dr. Dhananjay Sharma, Professor of Surgery NSCB Medical College, Jabalpur delivered the Foundation Day lecture on this occasion. He spoke on Ten Commandments for scientists. He explained the importance of various practices of science quoting examples of noble laureates. He told about the importance of publishing the scientific achievements.

Honourable Justice M. V. Tamaskar talked on the importance of hard work and told that one should never give up unless the target is achieved.



Sh. S. P. Nanda addressing the audience.



Prof. A. P. Dash addressing the audience.

TSUNAMI RELIEF

RMRCT team consisting of Dr. Surendra Kumar and Dr. Rajiv Yadav, Research Officers participated in Tsunami relief operation in Kerala from 28th December 2004 to 10th January 2005. They joined the team of Centre for Research in Medical Entomology (ICMR), Madurai and examined & treated about 2700 patients. Among the major morbidities observed were acute diarrheal diseases & respiratory infections.





Announcement - National Symposium on Tribal Health

RMRCT Jabalpur is going to host National Symposium on Tribal Health on October 19-21, 2005. The symposium will focus on various aspects of tribal health in the form of communicable and non-communicable diseases. There will be sessions on haemoglobinopathies, nutrition, malaria, tuberculosis, hepatitis etc. in relation to tribal health. It will cover tribal health in relation to sociocultural aspects too. An important event of the symposium will be 'Brain Storming Session' on Tribal Health and a CME on 'Tribal Hepatitis'. We look forward to your participation in the symposium to enable us to make it a grand success.

For details, log on to www.icmr.nic.in or contact

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