renowned international and national Journals. She was awarded the ICMR award in 1996 for biomedical research in under-developed areas and was awarded for “Environmental Entomology” for the year 1999 by the National Academy of Science and recently awarded the Vestergaard Frandsen award for exceptional work in the field of vector bionomics and resistance in 2017.

Although Dr Neeru Singh has left this physical world, her contributions will continue to guide and inspire many future generations of scientist in the field of malaria and vector biology and control.

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Supervision of Indoor Residual Spray in tribal areas of Madhya Pradesh, India

A.K.Mishra, Scientist E

Introduction:

Insecticide Residual Spray (IRS) with appropriate insecticides is a key intervention which can be used both to reduce vector population in a given area and to interrupt transmission of disease causing parasites. IRS involves coating the walls and other surfaces of a house with a residual insecticide. For several months, the insecticide kills the mosquitoes and other insects that come in contact with these surfaces. IRS does not directly prevent people from being bitten by mosquitoes. Rather, it usually kills mosquitoes after they have fed if they come to rest on the sprayed surfaces. IRS thus prevents transmission of infection to other persons. The successful implementation of any IRS programme depends on well organized planning, strict timeline, proper monitoring and supervision on all levels, public acceptance, well maintained equipments and trained spraying personnel. The most important aspect is that, IRS must be applied to a very high proportion of households in an area. In case of malaria control, the coverage must be usually more than80%.

In Madhya Pradesh, the main malaria vector control intervention is IRS which is carried out by State Vector Borne Disease Control Programme (SVBDCP) through District Malaria Officers. Presently, Alphacypermethrin 5% is being usually sprayed in most of the selected districts. DDT 50% is also used in few districts. On the request of State Government of Madhya Pradesh, surveys for supervision of IRS programme were conducted by ICMR-NIRTH Jabalpur in the year 2015 in 10 districts dominated by tribes as suggested by the Government to assess the quality, coverage, technique and all other activities of IRS carried out by the staff of District Malaria Officers of different districts.

Methodology:

The concurrent and consecutive surveys were carried out in 10 districts of Madhya Pradesh i.e. Anuppur, Shahdol, Umaria, Mandla, Dindori, Chhindwara, Sidhi, Balaghat, Seoni and Narsingpur, in the months of June, July and August 2015. Out of these districts, Anuppur, Umaria and Narsingpur are under DDT 50% spray and rest are under Alphacypermethrin 5% spray under the Madhya Pradesh SVBDCP. The concurrent surveys were done at the time of spraying and the information regarding spray technique, quality of equipments, squad working etc were collected where as consecutive surveys were carried out to know the coverage, spray quality etc. The ICMR-NIRTH team interacted with the spray squads and villagers and asked about IRS activities. All the information was collected through a questionnaire based format.

In these districts, a total of 63 villages of 42 sub centres of 25 CHCs were covered for consecutive and concurrent surveys. During the survey, the team met with 43 spray squads deputed for spray operation in 34 sub centres of 23 Community Health Centres (CHC) and collected information on spray operation activities i.e. preparation of suspension, pump discharge rate, number of pump strokes done by pump man and distance of pump nozzle from spray surface etc. Apart from these, information regarding training of spray workers and keeping of route chart, time schedule and other records etc were also collected. For consecutive surveys, a total of 700 sprayed houses (10 to 15 in each village) were visited randomly, from where, the team collected information regarding quality of spray, coverage, stencils made on wall etc.

Results:

During the visits it was observed that all the spray squads are trained having sufficient quantity of insecticide along with route chart and spray records. Suspension of the insecticide was made properly. The discharge rate of nozzles of the spray pumps was between normal ranges (740-850 ml per minute) with proper distance of nozzle from spray surface (18-21inches) except in some places of Dindori, Chhindwara and Mandla districts where it was found above the normal range. The number of pumping strokes observed per minute was found higher (22-75) from normal range (20-22) in almost each village of each district as the pump men say that strokes below 22 do not make proper pump pressure. Out of total 700 sprayed houses visited randomly, only 37% house holders got pre information of spray. The quality of spray was found uniform in more than 60% houses in all districts except Dindori, Chhindwara and Mandla districts where the patchy spray was observed in most of the villages. The complete coverage of sprayed houses was only 30% as only 208 out of 700 houses were sprayed completely. The spray in other houses was done partially either in 1 or 2 rooms or only in outer side. In about 37% houses, the stencil was written wrongly by the worker as the rooms not sprayed were also written as sprayed. Out of total 3474 rooms checked, 1948 were sprayed showing the room coverage 56% with the range 38 to 75%. No house was found white washed after spray.

Conclusion and suggestions:

During the survey it was observed that technique and quality of spray was almost good except that complete house coverage is very poor and that is due to the fact that prior information of spray was not given to all villagers and no supervision was done by any supervisory staff. It was suggested that pre information must

be given to villagers so that at least they can protect their domestic items before spray and do not refuse for spraying in complete house. Therefore, it is recommended that a supervisory staff (MPW/ANM/ASHA or any other) must accompany every squad who can explain to villagers about utility of spray and not to refuse entire house spray. The spray worker must be instructed strictly to write correct number of rooms sprayed on stencils so that the correct balance of insecticide may be calculated. They should wear gloves, mask, goggles etc during spray as precautionary measures.



Figure1. Indoor residual spray in villages

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Workshops//Trainings/Meetings Attended

Dr. V. G. Rao, Scientist G

- Attended review meeting at mantralaya (Vallabh Bhavan) Bhopal chaired by Principal Secretary, Tribal Welfare, Govt. of Madhya Pradesh on 11th May 2017
- Attended MRHRU Review meeting chaired by Jt. Secretary DHR, Govt of India and Addl DG, ICMR at ICMR - NIE, Chennai on 7th June 2017.
- Attended 'Annual National Operational Research Committee meeting' organized by the Central TB Division Govt of India at New Delhi on 6th July 2017.
- Attended review meeting of ICMR Task Force tribal project at NIRT, Chennai on 12th July 2017.
- Attended Directors meeting chaired by the Secretary DHR & DG ICMR at ICMR Hqrs on 18th July 2017
- Attended Scientific Advisory Group (SAG) meeting at ICMR Hqrs on 19th -20th July 2017.

Dr. Tapas Chakma, Scientist G

- Attended selection committee meeting for Asst Prof (Epidemiology) at Central University of Tamil Nadu from 24th to 25th May 2017.
- Attended NHM 10th CRM Dissemination workshop on 2nd June 2017at Vigyan Bhawan, New Delhi.
- Training workshop for partners of various states on the multicentric study on prevalence of Fluorosis at New Delhi on 11th and 12th July 2017.
- Attended workshop on writing of Policy Brief at NIRH Delhi on 24th and 25th July 2017.
- Attended meeting with the MP state Govt.

on the Hypertension management initiative programme on 3rd August 2017.

- Attended Tribal Health Research Forum meeting at ICMR-NIRTH Jabalpur from 16th to 17th August 2017.
- Attended workshop on policy brief writing at ICMR-NIRTH Jabalpur on 18th August 2017.
- Attended National Conference on revising Tribal policies, Research innovation on 29th and 30th August 2017 held at university of Hyderabad and delivered a lecture on Tribal health Scenario of India.

Dr. A.K.Mishra, Scientist E

- Attended meeting with CMHO, DMO Dindori and BMO Bajag CHC at CHC Bajag on 7th July 2017 regarding initiation of ICMR project on “Phase III evaluation of Deltamethrin 62.5 SC-PE” in villages of 2 subcentres, selection of spray squad, training and briefing about the project.
- Attended meetings with DMO Umaria on 25th July, DMO Singrauli on 27th July, and DMO Anuppur on 30th August regarding initiation of ICMR project on “Monitoring of insecticide resistance in Madhya Pradesh%. Selection of villages and CHCs to carry out susceptibility tests were discussed.

Dr. Gyanchand, Scientist E

- Attended workshop on Malaria Control in Gadchiroli district of Maharashtra on 17th July 2017 at Society for Education, Action and Research in Community Health (SEARCH), Gadchiroli. Dr. M. M. Shukla, Scientist F and Dr. K. B. Saha, Scientist E were also attended the workshop.

Dr. Praveen K Bharti, Scientist D

- Attended "Launch of National Strategic Plan for Malaria Elimination (2017-22) by Hon'ble Health and Family Welfare Minister, Govt. Of India Shri J.P.Nadda on 12th July, 2017 at Hotel Le Meridien, New Delhi
- Attended workshop on “Working towards Tribal Health: present status and way forward” on 16th August, 2017 and 7th Annual meeting of ICMR - Tribal Health Research Forum (THRF) at ICMR-NIRTH Jabalpur.

Dr. Pradip V. Barde, Scientist D

- Dr Barde gave a lecture at department of



Medicine of Netaji Subhash Chandra Bose Medical College and Hospital, Jabalpur on “Biosafety and Bio-Medical Waste Management” on 13th July 2017, Dr. Barde explained the basics of Biosafety and Bio-Medical Waste Management and briefed about the services provided and research done at Virology Laboratory of the institute. Twenty three doctors and 8 paramedical staff attended the lecture.

Dr. H. V. Manjunathachar, Scientist B

- Attended workshop on ''Care, Management and Experimentation of laboratory animals from 15th -19th May 2017 at NIV, Pune
- Attended Ad-hoc training on " current regulations, handling, breeding, maintenance and techniques in laboratory animal experiments from 15th - 30th June 2017 at NIN, Hyderabad.
- Attended 2nd induction programme cum workshop conducted by ICMR-NIE from 10th to 14th July 2017





Workshops/Trainings/Meetings conducted

- Dr. Soumya Swaminathan, Secretary, DHR, & Director General, Indian Council of Medical Research (ICMR), New Delhi visited ICMR-NIRTH, Jabalpur on 18.May.2017 to review the ongoing research activities of the Institute and addressed the Scientists of ICMR-NIRTH. Dr. V.G. Rao, Scientist 'G', ICMR-NIRTH, welcomed the Secretary, DHR & DG, ICMR and participants. The Scientists of



the institute presented the progress of the research studies. Scientific posters were also displayed by the students and research scholars of the institute. Dr. Swaminathan visited the upcoming Animal House of the ICMR-NIRTH. The meeting concluded with vote of thanks by Dr. Tapas Chakma, Scientist 'G', ICMR-NIRTH.

- A two days workshop to finalize the ethical guidelines for biomedical research on tribal population was held on 21st – 22nd May, 2017 at ICMR-NIRTH, Jabalpur. Dr. Y.K. Gupta, Professor and Head, Department of Pharmacology, AIIMS, New Delhi chaired the meeting. Dr. Vijay Prakash Mathur, Additional Professor, Centre for Dental Education and Research, AIIMS, New Delhi was present as subject expert. The Director and the Scientists of ICMR-NIRTH shared their field experiences in tribal areas, discussed the ethical issues and helped in finalization of the guidelines for biomedical research on tribal population of India.
- Dr. Pradip V. Barde, Scientist D organized three day training from 24th -26th July 2017 for Pathologist and Technicians of Anuppur District for diagnosis of dengue and chikungunya by ELISA.
- A meeting was organized by Dr. V.G. Rao, Scientist G at ICMR-NIRTH Jabalpur on 25th July.2017 with Dr. Rashmi Arora, Scientist G & Head ECD, ICMR, New Delhi. She discussed with all the Institute scientists regarding progress of research projects.
- On the occasion of "International Day of the World's Indigenous Peoples", one day workshop on "Working Towards Tribal Health: present status and way forward" was organized at ICMR-NIRTH, Jabalpur, on 16th August, 2017.Shri Faggan Singh Kulaste, Hon'ble Minister of State for Health & Family Welfare, Govt. of India, graced the occasion as Chief Guest. Other dignitaries who attended the programme includes Padma Shri Dr. Prakash Baba Amte, Director, Lok Biradari Prakalp, Hemalkasa (Maharashtra) and his wife Dr Mandakini Amte, Medical Social Activist; Ms. Leena Nair, Secretary, Ministry of Tribal Affairs, Govt. of India, (through video conferencing); Dr. Soumya Swaminathan, Secretary DHR, Govt. of India & Director General, Indian Council of Medical Research, Shri Vinod Kumar Tiwari, Joint Secretary, Ministry of Tribal Affairs, Govt. of India (through video conferencing), the representatives of the Tribal Welfare Departments and Health & Family Welfare Ministries from Madhya Pradesh, Chhattisgarh, Jharkhand, Odisha, Maharashtra and New Delhi,

programme managers of National Health Programmes, the Head of Divisions of ICMR Hqr. & Directors and Scientists from the ICMR-THRF partner institutes.



The artists from "Savarkar Lok Kala Parisad" from Gadasarai, district Dindori Madhya Pradesh presented different folk dances and cultural programmes.

- Seventh annual meeting of ICMR-Tribal Health Research Forum (THRF) and meeting to review the annual progress of Tribal Health Research Units (THRUs) were held on 17th August, 2017 at CMR-NIRTH, Jabalpur, under the chairmanship of Dr P.L. Joshi, Former Director, NVBDCP, New Delhi.

  Dr. V.G. Rao, Scientist 'G', ICMR-ICMR-NIRTH, Jabalpur welcomed the dignitaries and participants. Dr. J.P. Naraian, Senior Visiting Fellow, UNSW, Au, & Former Director, WHO SEARO attended the meetings as the resource person. Dr. Harpreet Kaur, Scientist 'E', ECD, ICMR gave the introductory remark.



The Directors, the Head of Divisions of ICMR Hqrs. and Scientists of ICMR-THRF partners and THRU's institutes/centres presented the work carried out on tribal health.

The meeting concluded with vote of thanks by Dr. S. Rajasubramaniam, Scientist `E', ICMR-NIRTH, Jabalpur

- A training workshop on 'Policy Brief Writing' was organized at ICMR-NIRTH, Jabalpur on 18th August 2017. The resource persons for the workshop were Prof. Kanchan Mukherjee, Professor and Chairperson, Centre for Health Policy, Planning and Management (CHPPM), School of Health Systems Studies (SHSS), Tata Institute of Social Sciences (TISS), Mumbai and Dr. Suchita Bhattacharyya, visiting fellow at University of Liverpool, UK. Dr. V.G. Rao, Scientist 'G', ICMR-NIRTH, Jabalpur welcomed the faculty and participants. Scientists of the institute participated in the workshop.





Events

- 'International Yoga Day' was organized on 21st June, 2017 in ICMR-NIRTH Jabalpur. Dr. V.G. Rao, Scientist 'G' welcomed the respected guests and informed about the research activities and achievements of the Institute. On this occasion, Mr. Yashwant Chitale, who has been associated with Yoga for more than 40 years, was the special honour-guest in the program. Shri Chitale ji with her associate Mrs. Tambe, demonstrated various types of useful yoga asnas and Pranayam. Dr. P.V. Barde, Scientist 'D' thanked all the participants

  In the morning from 6 to 7 AM, a program on Yoga under 'Common Yoga Protocol', issued by the Government of India, Ministry of AYUSH was held in the





premises of the Institute, in which Sri Arvind Kavishwar demonstrated yoga asnas. Dr. V.G. Rao, Scientist 'G' took part with large number of officers and employees of the institute.

- Dr. Aparup Das has taken over the charge of the Director, ICMR-NIRTH, Jabalpur on 28th August.2017.The Scientists and Administrative Officer of the institute welcomed the Director. The Director, addressed the Scientists and staff at auditorium of the institute, he also briefed the staff and advised them to continue to work with enthusiasm and self motivation.



Obituary



Dr Neeru Singh (1956-2017)

Dr Neeru Singh, former Director of National Institute for Research in Tribal Health (NIRTH) passed away on 19th August 2017 after severe illness. The Global Scientific community has lost a renowned malariologist. Dr Neeru Singh started with humble beginning in 1984 as Research Officer at NIRTH (formerly known as Regional Medical Research Centre for Tribals (RMRCT) and then expanded man power and became the Director of NIRTH in 2007. In between she worked in National Institute of Malaria Research (NIMR) formerly known as Malaria Research Centre as officer in-charge of Field Unit Jabalpur. She devoted more than 32 years' of her life for ICMR in malaria epidemiology and vector control. She was the member of various international and national scientific societies and Government committees and published more than150 research papers in