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ANNUAL REPORT 2021-22

Preface

As we present the annual report for the year 2021-2022, it is with immense pride and a sense of purpose that we reflect upon the journey of the ICMR-National Institute of Research in Tribal Health (NIRTH) during this crucial period. This was a year marked by unique challenges and extraordinary achievements, a year that tested our resilience and determination while the world was grappling with the ongoing pandemic, and the diagnosis and testing for COVID-19 were slowing down, we, at NIRTH, remained steadfast in our commitment to public health. This period witnessed a significant shift in our focus towards a different aspect of the pandemic, namely vaccination. In this regard, we commend the pivotal role played by the Indian Council of Medical Research (ICMR) in initiating the vaccination drive, particularly targeting healthcare workers. We stand proud to have been part of this monumental endeavour, ensuring the well-being of those who tirelessly cared for the nation.

One of the highlights of this year was our involvement in ICMR's extensive research on the immune response to precautionary doses of Covishield and Covaxin vaccines. This research not only deepened our understanding but also contributed to the larger scientific community's efforts in the battle against the virus. Further, in line with our commitment to holistic healthcare, we delved into the realm of mental health and social stigma among healthcare professionals dealing with COVID-19 patients. We recognized the importance of their emotional well-being and sought to provide support and insights in this challenging domain.

Our unwavering dedication to tribal health continued, as it has for years. We maintained our focus on key health concerns among tribal populations, including tuberculosis in Saharia tribe, sickle cell disorders, malaria, and the revitalization of ethnomedicine. Notably, our efforts were directed towards the Particularly Vulnerable Tribal Groups (PVTGs), underscoring our commitment to equitable healthcare.

This year, while the world adapted to new norms, we were unrelenting in our mission to raise awareness. We conducted extensive campaigns for mass awareness at Keylong (HP) field station and also at MRHRU Datia (M.P.). We emphasized the importance of strictly adhering to COVID-19 guidelines, ensuring that public safety remained paramount.

As we embark on the journey through the pages of this publication, it brings me great pleasure to reflect upon the remarkable strides we have made in advancing knowledge within the realm of public health. In the past year alone, our collective efforts have yielded an impressive tally of 53 high-impact publications, each delving into crucial topics that resonate with the broader sphere of public health.

We express our heartfelt gratitude to the Secretary DHR and DG, Indian Council of Medical Research for his unwavering support, guidance, and encouragement throughout this period. It is the collaborative spirit and relentless dedication of our team that has allowed us to achieve these milestones.

The year 2021-2022 was a period of renewed commitment. As we faced the challenges posed by the pandemic and tackled the unique health needs of indigenous populations, we were reminded of the significance of our mission. It is with renewed vigour and determination that we pledge to continue serving the health research needs of tribal communities, ensuring their well-being and prosperity.

Dr. Aparup Das

Director, ICMR-NIRTH

CONTENTS

Studies on bionomics of two malaria vectors, *Anopheles culicifacies* and *An. fluviatilis* with special reference to their behavior in response to intervention measures (IRS/ LLINs) in Chhattisgarh state, India. (MERA-India)

PI : Dr. A. K. Mishra, Scientist E

Status : Ongoing

Date of initiation : November 2021

Funding Sources : ICMR MERA-India

Background:

Malaria is a global public health problem including in India. The goals of WHO's Global Technical Strategy for malaria 2016-2030 (GTS) are to reduce malaria and mortality rate globally by at least 90% compared with 2015 levels, and to eliminate malaria from at least 35 countries including India. Malaria epidemiology in India is complex with 9-10 Anopheles species and transmit both *Plasmodium falciparum* and *P. vivax* malaria in different parts of the country. In the national malaria control programme, vector control is one of the important components. Indoor residual spraying (IRS) and LLINs are the two strategies targeted for the control of adult vector species. The proposed study is being carried out in tribal and rural areas of Chhattisgarh state. This study is designed and planned to generate data on the possible behavioral changes due to intensive use of IRS and LLINs for long periods. The studies identify the proportions of vector species resting indoors outdoors and identify their changed behavior in resting, biting and source of feeding and this information would help in finding the impact on the transmission of malaria, and for suggesting appropriate situation specific vector control strategies supported by the data on insecticide intensity assays. Therefore, to accelerate progress towards elimination, it is necessary to add new plan that target changed mosquito behavior and life stages, so that malaria-endemic areas of India can use effective vector control strategies including the new vector control tools that are available.

Methodology:

The study is proposed to be conducted in highly malarious districts Jagdalpur and Kanker of Chhattisgarh state. Chhattisgarh is endemic to malaria and contributes about 16% of annually reported malaria cases in the country with predominance of *P. falciparum* (NVBDCP). Districts Jagdalpur and Kanker are situated in the southern part of Chhattisgarh state (Figure 1) with annual parasite incidence (API) ranging from 7.0 to 16.0 during the last 3years and *Plasmodium falciparum* accounting ~ 90% of total malaria cases (Directorate of Health Services, Govt. of Chhattisgarh). About 53.7% of the district area is covered with deciduous forest with largely tropical vegetation. *An. culicifacies* and *An. fluviatilis* are the main malaria vectors.

Two CHCs from each of the two districts and 3/4 villages, representing forest, foothill and plain ecotypes, from each CHC were selected. Studies would be undertaken monthly/seasonally covering pre-monsoon, monsoon, post monsoon and winter seasons. The study would involve laboratory and field evaluation components as detailed under and will be carried out simultaneously. IRS and LLINs are 2 main intervention measures for malaria vector control.

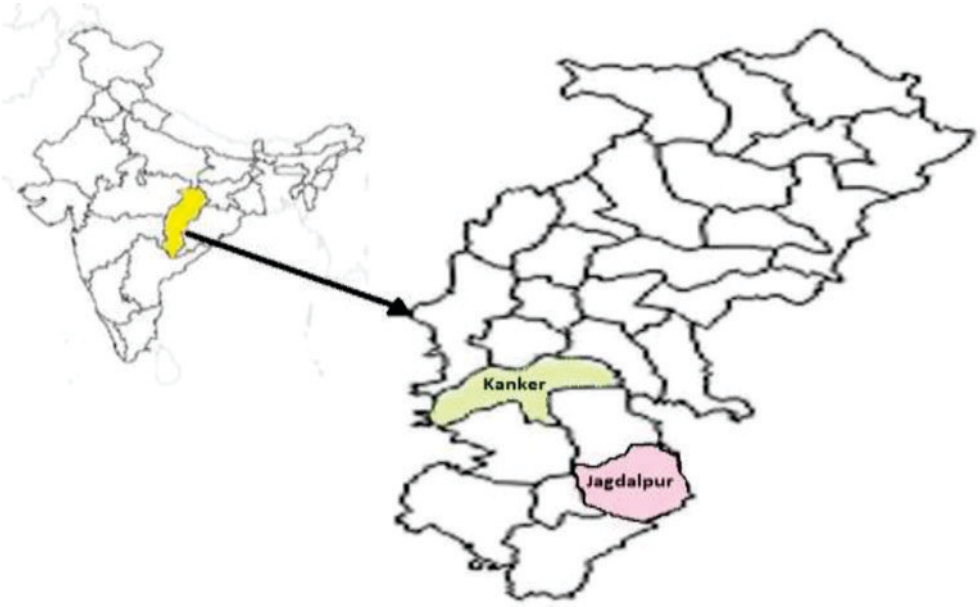


Figure 1. Map of Chhattisgarh showing study districtsKanker and Jagdalpur

A team of ICMR-NIRTH visited in the months of November 2021 in the proposed villages of Chhattisgarh and selected villages for regular entomological activities with the consent of state authorities. Meetings were conducted with SPO and state entomologist in Raipur and with concerned DMOs and BMOs and briefed and discussed about the study. The team carried out preliminary entomological activities. In second survey carried out in January 2022, the routine entomological collections were started. The indoor resting mosquito collections were done by hand catch and pyrethrum spray collections in all 6 villages in each district. Light trap catches indoor and outdoor and mosquito landing indoor and outdoor on human were done in 2 villages in each district. The study involves laboratory and field evaluation components i.e. blood meal analysis, vector incrimination, sibling species identification, susceptibility tests etc. All the mosquitoes collected by different methods were identified using standard keys for species and abdominal conditions. *An. culicifacies* and *An. fluviatilis* collected from different collections were stored for vector incrimination, sibling species determination and blood meal analysis

Results:

The survey carried out in the month of January revealed that two known malaria vectors viz. *An. culicifacies* and *An. fluviatilis* are prevalent in both the districts. In Kanker district, in indoor resting collections, the per man hour anopheline density was 5.8 of which *An. culicifacies* proportion was highest (75%). Six percent *An. fluviatilis* were also collected. During indoor light trap catches, no *An. culicifacies* and *An. fluviatilis* were trapped however, in outdoor light trap catches the *An. fluviatilis* proportion was 30%. In district Jagdalpur, the per man hour density of anophelines was low (2.5) of which *An. culicifacies* and *An. fluviatilis* proportion was 17 and 26 respectively. During light trap catches, no *An. culicifacies* were caught, however, 33% and 50% *An. fluviatilis* were trapped in indoor and outdoor catches respectively. During pyrethrum spray catches and human landing catches, no mosquito was caught.

Title: Demonstration of Malaria Elimination in Mandla, M.P (MEDP)

PI : Dr. Praveen Bharti , Scientist E

Status: Completed

Date of initiation: 2017

Date of Completion: Nov 2020

Funding sources: FDEC India

Background with objective: Malaria is a major infectious tropical disease which mainly affects the population living in rural and tribal areas of India. Mandla is one of the malaria endemic region of Jabalpur division of Madhya Pradesh (M.P.) The main objective of this project was to demonstrate feasibility of malaria Elimination in the Mandla district of M.P.

Methodology: Malaria elimination demonstration project (MEDP) was conducted in close collaboration of FDEC India, ICMR-NIRTH, Jabalpur and State Govt. (in Public-Private Partnership mode) in Mandla district of M.P. (started in 2016, May 2020). The project covered the population of 11.5 Lacs (entire district) in 1233 villages of Mandla district and adopted T4 strategy (Track, Test, Treat, and Track) for control and management of malaria along with vector control measures(Fig.1). Active and passive surveillance was adopted with T4 strategy (Track, Test, Treat, and Track) for control and management of malaria. Vector control measures: Alphacypermethrin (5%) was used for IRS along with LLIN distribution. IEC/BCC consisting of calendars, flip-books, job aids, posters, booth were developed with feed back from community and communicated in schools, haat bazar and in door to door surveillance

Results:. A total of 357144 febrile patient were screened for malaria, out of which 673 (0.19%) were found positive. The *P. falciparum* and *P. vivax* ratio were found to be 68:32, which indicated higher burden of malaria due to *P. falciparum* as compared to *P. vivax*. Age wise analysis revealed that 69% cases were from individuals more than 15 years of age, followed by 21% from five to 15 years, and 10% cases from children under five years of age. Three rounds of mass screening and treatment survey was conducted. Further analysis showed that during the first year (June 2017 to May 2018) (Fig.2), the malaria positivity rate of indigenous cases was 0.30 (377/123,641), while in year 2 it was 0.16 (169/103,143), and in year 3 it was 0.01 (127/130,359) ($p<0.001$). At the end, the project demonstrated 91% reduction in indigenous cases of malaria in 3 years with optimum use of current intervention and prevention tools (Fig.3)

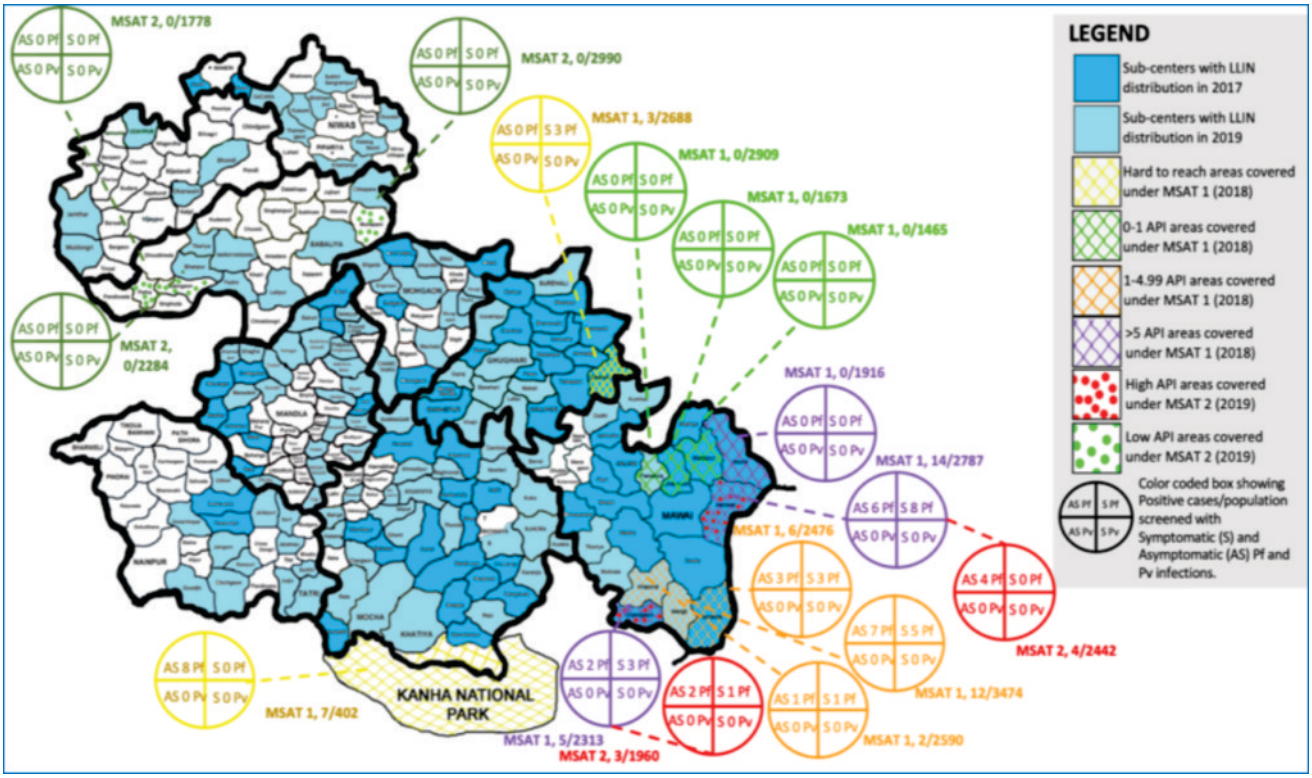


Fig 1: Three mass screening and treatment (MSAT) exercises from September 2017 to February 2020

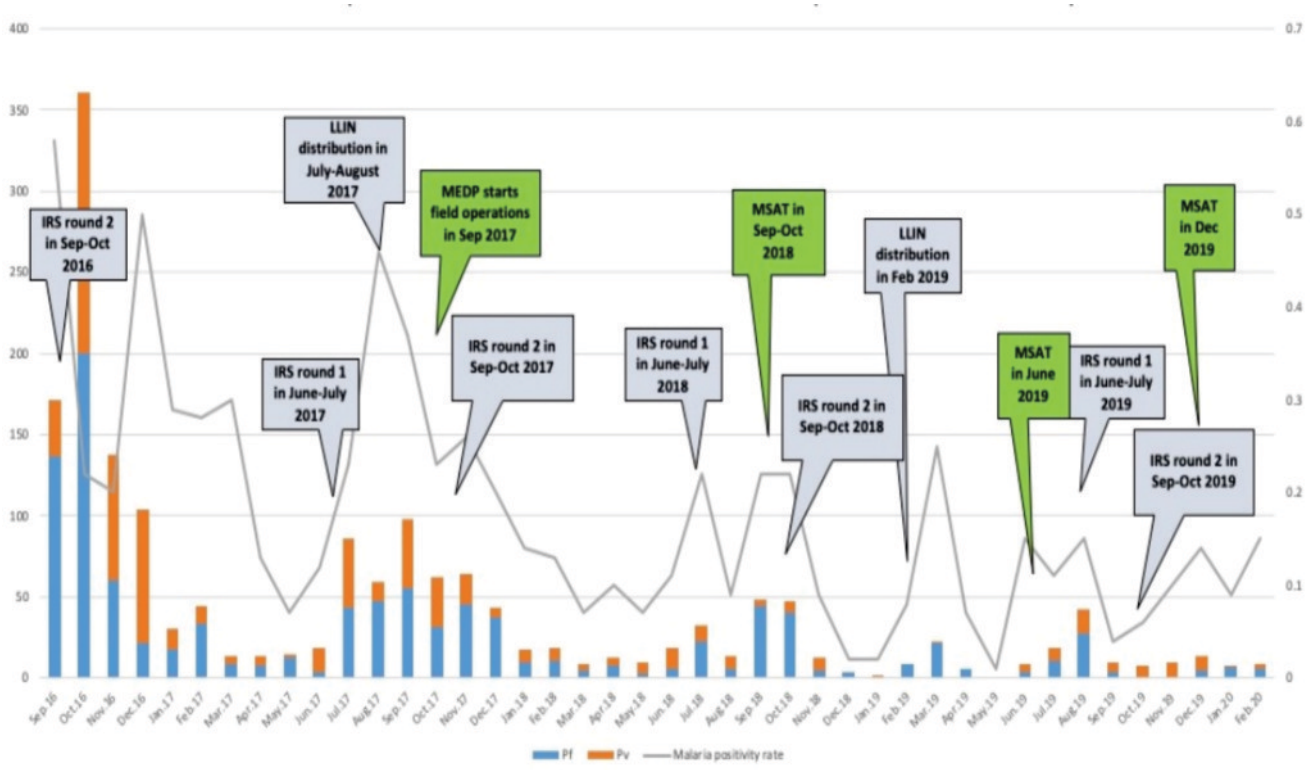


Fig 2 : Month-wise and species-wise malaria cases from June 2016 to May 2020 in Mandla district with major events in the timeline. These events include introduction of various vector control interventions, field operations by MEDP, mass screening and treatment.

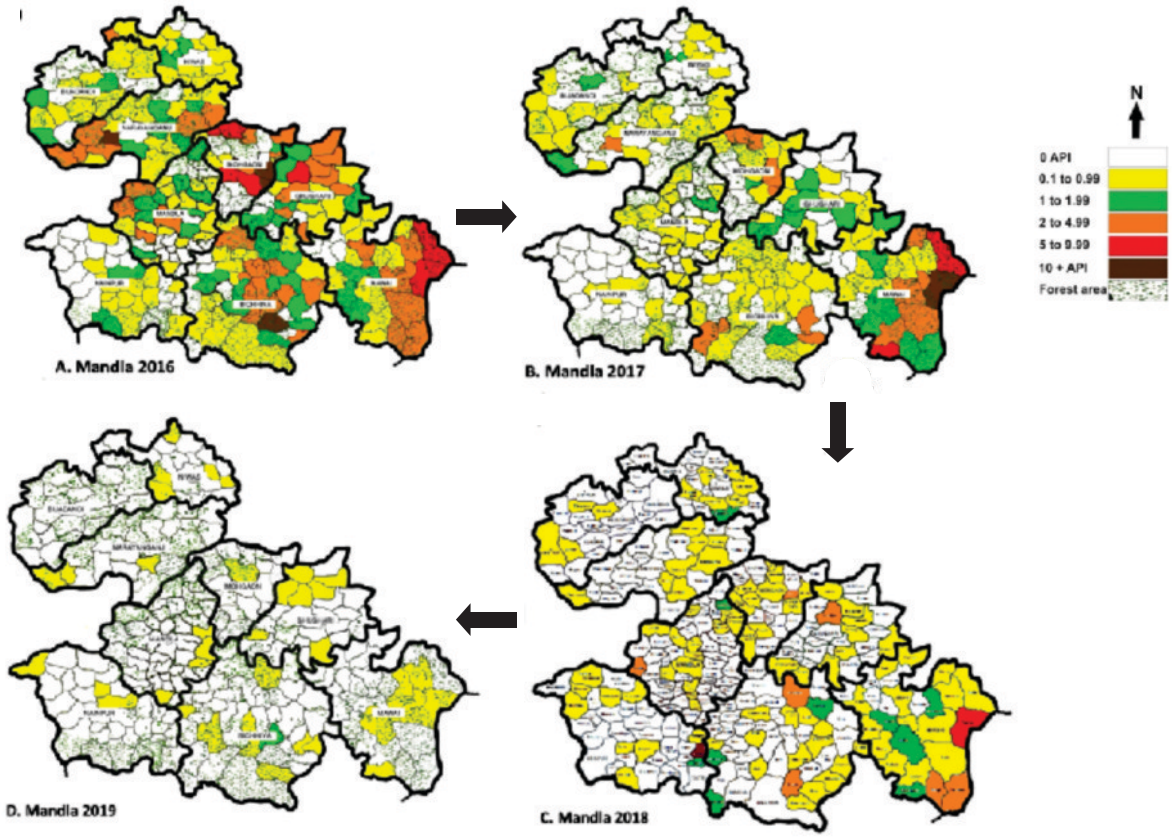


Fig 3 : Map of Mandla showing malaria prevalence (API) from 2016 to 2019

Conclusion: The results of this study demonstrated that malaria elimination in India is feasible and achievable within a stipulated timeline using existing tools. With active surveillance imported malaria cases were identified and treated, which prevented outbreaks of malaria. The results of MSAT showed the significance of its utility in moderate and high transmission areas. Further, this project has revealed that monitored utilization of resources increases the quality of services that are needed for malaria elimination.

Title: Study of asymptomatic malaria burden and malaria vector dynamics in Mandla district of Madhya Pradesh: Malaria Elimination Demonstration Project (MEDP)

PI : Dr. Praveen Bharti , Scientist E

Status: Completed

Date of initiation: February 2019

Date of Completion: February 2022

Funding sources: ICMR, New Delhi

Background with objective: The main objective of the project are

1. To determine burden of the symptomatic malaria and characterization of malaria parasite using molecular tools (to support the MEDP).
2. To determine the seasonal density, diversity, Plasmodium specific sporozoites rate of malaria vectors and to assess insecticide susceptibility status of these vectors (to support the MEDP). 3. To determine the prevalence of sub-microscopic/ sub- RDTs asymptomatic malarial infection in selected areas of symptomatic malaria (low and high incidence) of Mandla district, M.P. (Research Component).
4. To assess the transmissibility potential of asymptomatic malaria subjects/cases (Research Component).

Methodology: The study was being carried out at two different blocks of Mandla district; Mawai and Narayanganj. The sites were selected on the basis of last six month field data on incidence of symptomatic malaria. All people residing at selected sites and willing to participate in the study were screened for malaria. Screening and eligibility criteria were as follows: Inclusion criteria: Patients without any clinical symptoms of malaria Exclusion criteria: 1. Presence of fever due to other reasons. 2. Patients with an age of less than 1 year. 3. Patients with other chronic disease.

A team of researchers visited door to door along with trained technician and people were approached for their interest to participate in the evaluation of malaria infections. RDT were performed to provide quick result to subjects for management of infection and antimalarial drugs as per national programme guidelines were provided if found positive for malaria. Thin and thick smear was prepared for additional microscopic examination and confirmation at ICMR-NIRTH, Jabalpur. Blood samples were collected in filter paper for further research work. All the cases were tested by RDT and microscopy and when found positive; treatment was given as per National treatment guideline. The slide/ samples were dried and transported to ICMR-NIRTH Jabalpur laboratory for staining and analysis according to standard protocols.

Results: A total of 195,279 febrile cases were screened using RDT of which 17,405 samples were screened by light microscopy and PCR. Out of the 17,405 clinically suspected malaria cases screened using RDTs, 196 cases (1.13%) were found positive; 136 *Plasmodium falciparum*, 52 *P. vivax* and 8 mixed infection of *P. falciparum* and *P. vivax*. Out of 17, 209 RDT negative cases, 17 cases (0.1%) and 280 cases (1.63%) were found positive by microscopy and

PCR, respectively. Further, of the 136 *P. falciparum* positive cases by RDT, 70 (51.47%) cases tested positive by microscopy and 109 (80.14%) tested positive by PCR. However, one case was diagnosed as *P. vivax* by microscopy and three mixed *P. falciparum* and *P. vivax* and *P. ovale* by PCR diagnosis. At the same time, out of the 52 P. vivax cases diagnosed by RDT, 30 (57.69%) and 35 (67.30%) were also confirmed as *P. vivax* by microscopy and PCR, respectively. However, one case was diagnosed as *P. falciparum* and 2 were found to be mixture of *P. falciparum* and *P. vivax* using PCR. Out of the 8 mixed infections of *P. falciparum* and *P. vivax* diagnosed by RDT, PCR revealed two *P.falciparum*, two *P.vivax*, two mixed infections (*P. falciparum and P. vivax*), and two negative cases. None of these were found positive by microscopy. The malaria prevalence diagnosed either by RDT, microscopy or PCR was 2.73% (476/17405). The prevalence of LDMI was 1.51% (95% CI: 1.33 – 1.70). Of the 476 malaria cases, 101 (21.22%) cases were found positive by all three diagnostic methods. Univariate and multivariate logistic regression analysis revealed that cases that had illness during summer season (OR = 1.90; aOR = 1.47) and were screened within 3 days of febrile illness (OR = 5.27; aOR = 5.17) were the most significant predictors of LDMI.

Table 1 : Monthly prevalence of malaria and low-density infection in active fever surveillance diagnosed by RDT, microscopy and PCR

Months	Fever Cases Screened	RDT Positive (%)	Microscopy Positive (%)	Gametocyte (%)	PCR Positive (%)	Total Malaria Positive# (%)	LDMI Prevalence + (%)	LDMI Proportion ++ (%)
January	904	8 (0.88)	7 (0.77)	5 (71.42)	34 (3.76)	35 (3.87)	26/904 (2.88)	26/35 (74.29)
February	928	16 (1.72)	10 (1.08)	0	16 (1.72)	23 (2.48)	6/928 (0.65)	6/23 (26.09)
March	1907	44 (2.31)	24 (1.26)	7 (29.16)	81 (4.25)	90 (4.72)	42/1907 (2.20)	42/90 (46.67)
April	853	8 (0.94)	4 (0.47)	0	26 (3.05)	26 (3.05)	15/853 (1.76)	15/26 (57.69)
May	865	3 (0.35)	3 (0.35)	0	25 (2.89)	25 (2.89)	21/865 (2.43)	21/25 (84.00)
June	1061	6 (0.57)	4 (0.38)	4 (100.00)	10 (0.94)	10 (0.94)	4/1061 (0.38)	4/10 (40.00)
July	1489	22 (1.48)	13 (0.87)	3 (23.07)	34 (2.28)	36 (2.42)	13/1489 (0.87)	13/36 (36.11)
August	2188	39 (1.78)	21 (0.96)	4 (19.04)	48 (2.19)	59 (2.70)	17/2188 (0.78)	17/59 (28.81)
September	2624	11 (0.42)	8 (0.30)	4 (50.00)	64 (2.44)	65 (2.48)	54/2624 (2.06)	54/65 (83.08)
October	2093	20 (0.96)	12 (0.57)	3 (25.00)	48 (2.29)	52 (2.48)	31/2093 (1.48)	31/52 (59.62)
November	1426	10 (0.70)	4 (0.28)	1 (25.00)	31 (2.17)	35 (2.45)	25/1426 (1.75)	25/35 (71.43)
December	1067	9 (0.84)	8 (0.75)	5 (62.50)	19 (1.78)	20 (1.87)	9/1067 (0.84)	9/20 (45.00)
Total	17405	196 (1.13)	118 (0.68)	36 (30.50)	436 (2.50)	476 (2.73)	263/17405 (1.51)	263/476 (55.25)

Table 2 : Logistic regression analysis of factors associated with low-density infection of malaria

Factors		n/d (%)	cOR (95% CI)	aOR (95% CI)
Area of residence	Low endemic	79/145 (54.48)	1 (reference)	1 (reference)
	High endemic	184/331 (55.59)	1.05 (0.71-1.55)	1.04 (0.68-1.61)
Age Group	Child	24/47 (51.06)	0.83 (0.45-1.52)	0.96 (0.49-1.87)
	Adult	239/429 (55.71)	1 (reference)	1 (reference)
Season	Spring	74/148 (50.00)	1 (reference)	1 (reference)
	Summer	40/61 (65.57)	1.90 (1.02-3.54)*	1.47 (0.75-2.87)
	Monsoon	84/160 (52.50)	1.11 (0.71-1.73)	0.99 (0.60-1.62)
	Winter	65/107 (60.75)	1.55 (0.93-2.56)	1.44 (0.83-2.50)
Duration of febrile illness	<=3 days	197/274 (71.90)	5.27 (3.55-7.82)***	5.17 (3.47-7.70)***
	>3 days	66/202 (32.67)	1 (reference)	1 (reference)

Table 3 : Demographic characteristics of the individuals tested during mass survey and treatment

Age group	Cluster 1 (Hard to reach)	Cluster 2 (API: >5)	Cluster 3 (API: 1-4.99)	Cluster 4 (API: 0-1)	Total
0-1 yrs	92 (2.07)	361 (2.05)	212 (2.18)	840 (1.49)	1505 (1.71)
1-4 yrs	280 (6.31)	1042 (5.92)	547 (5.63)	2926 (5.19)	4795 (5.44)
4-8 yrs	273 (6.15)	1299 (7.37)	698 (7.19)	3674 (6.52)	5944 (6.74)
8-14 yrs	450 (10.14)	1778 (10.09)	1023 (10.54)	5871 (10.41)	9122 (10.35)
Above 14 yrs	3342 (75.32)	13136 (74.57)	7229 (74.46)	43069 (76.39)	66776 (75.76)
Sex					
Female	2318 (52.24)	8906 (50.56)	4901 (50.48)	28649 (50.81)	44774 (50.80)
Male	2119 (47.76)	8710 (49.44)	4808 (49.52)	27731 (49.19)	43368 (49.20)

Conclusion: Univariate logistic regression analysis revealed that asymptomatic malaria was significantly lowest in cluster 4 (OR = 0.01; 95% CI = 0.005 – 0.026; p<0.0001); during third round of MSaT survey (OR = 0.11; 95% CI = 0.07 – 0.18; p<0.0001) and significantly higher in moderate to high endemic areas (OR = 88.30; 95% CI = 39.35 – 198.17; p<0.0001). However, the asymptomatic malaria cases were not significantly different between age groups and gender (p>0.05). Further, analysis of symptomatic malaria showed significantly lower in cluster 2 (OR = 0.30; 95% CI = 0.16 – 0.57; p<0.0001) and 3 (OR = 0.08; 95% CI = 0.03 – 0.21; p<0.0001) compared to the cluster 1. The symptomatic malaria in moderate to high areas was likely to be 88 times higher than low endemic areas (OR = 88.30; 95% CI = 39.35 – 198.17; p<0.0001). Symptomatic malaria cases among age groups, gender and round of MSaT survey did not differ significantly.

Title: Immune response to pre-cautionary dose of Covishield/Covaxin among healthy adult population: an ICMR Cohort study, India

PI : Dr. Vidhan Jain, Scientist D

Core team: Dr. Nivedita, Gupta, Dr. Leyanna Susan George, Dr. Priya Abraham, Dr. Gajanan Sapkal, Dr. Pragya D Yadav, Dr. Sheela Godbole, Dr. Manoj Murhekar

Status : Ongoing

Date of initiation : 2022

Date of Completion :

Funding Sources : ICMR, New Delhi

Background with objective : Since January 2022, COVID-19 cases have been rising rapidly in countries where Omicron VOC has reported, indicating its high transmissibility. Studies have reported evasion of the immunity acquired naturally as well as by vaccination by the Omicron VOC. However, protection remains high for severe disease and hospitalization. India's COVID-19 vaccination programme has been proposed to initiate additional third dose for healthcare and frontline workers and individuals aged above 60 years with comorbidities. Limited studies from India have documented dynamics of immune response of additional third dose of COVISHIELD/COVAXIN vaccine using homologous regimen. In this context, we propose to establish a cohort in ICMR institutes receiving additional third dose to characterize the humoral and cellular immune response.

Objective

1. To characterize SARS-CoV-2 specific humoral (S1 RBD and N protein) and cellular immune response after homologous precautionary third dose of COVISHIELD/COVAXIN vaccine at different time points

2. To estimate the incidence of SARS -CoV-2 symptomatic infection posts third dose of COVID-19 vaccine

Methodology :

IgG antibodies estimation(S1-RBD): All sera samples will be tested for the presence of IgG antibodies against S1-RBD, using Abbott SARS-CoV-2 IgG II Semi-Quant chemiluminescence immunoassays (this will be done at NIV, Pune).

IgG antibodies (Nucleocapsid protein): 30% of the randomly selected serum samples will be tested for IgG antibodies against N protein using in-house ELISA at ICMR-NIV Pune.

Real time assay for SARS-CoV-2 diagnosis: Real time RTPCR assay would be performed using E, Rdrp and ORF1b genes which are specific for SARS-CoV-2 from individuals who have symptoms suggestive of COVID-19 post third dose at the respective ICMR-centers.

Results : Up to March 2022 only 10 participants were included in the study from ICMR-NIRTH, Jabalpur (all in Covisheild category). All participants received booster dose.

Title: Assessment of Neonatal Screening Approaches for Sickle Cell Disease and The Effect of Early Intervention in Management of the Disease in Tribal Populations.

PI : Dr. S. Rajasubramaniam, Scientist E

Status : Ongoing

Date of initiation : October 2019

Date of Completion : May 2024

Funding Sources : ICMR, New Delhi

Background with objective : The inherited disorders of hemoglobin are the commonest monogenic disorders in India and pose major drain on our health recourses. Sickle cell disease is an important public health problem in India with highest prevalence amongst the tribal ethnic groups. Many children with sickle cell disease are at increased risk for severe morbidity (e.g. severe hemolytic anemia, splenic dysfunction, painful crisis and bacterial infections) and mortality during the first 3 years of life. At present there is no national neonatal screening program in India and children get identified only when they become symptomatic. There is therefore an urgent need to diagnose babies with sickle cell disease at birth so that complications can be ameliorated by early intervention and prophylactic penicillin and anti-pneumococcal vaccination can be started within the first few months.

Objectives: To undertake a newborn screening program for Sickle cell anemia in tribal populations of different states for (a) early detection (b) to understand the magnitude of the problem and (c) to understand the barriers for undertaking such program.

Establish a cohort to study the clinical trajectories of affected individuals.

Assess the benefit of early comprehensive care of affected babies.

Evaluate the genotypic and phenotypic correlation to understand role of genetic modifiers for disease severity.

Methodology : The cord blood samples will be collected from neonates from the umbilical cord or by heel prick up to 48 hours after birth on a Guthrie Card. The collected samples will be processed using HPLC. Samples positive for sickle hemoglobin or any other variant will be retested in 6 weeks along with parental and family screening.
Affected children will be registered and followed every 3 months for clinical evaluation.
Brief results: The study is ongoing in 3 tribal dominated districts of Madhya Pradesh namely in Samnapur CHC, Dindori District, Nainpur CHC in Mandla District and Elgin hospital in Jabalpur District. Here majority of newborns are screened
During the report period 3397 new born babies have been tested for various hemoglobinopathies (Table 1), among them 223 were found to be Sickle Cell carriers, 14 were homozygous for Sickle Cell Disease and 4 were sickle β-thalassemia (SBT) and 2 newborns were identified to be β-thalassemia carrier.

Table 1: Community wise distribution of new born screened in Madhya Pradesh

Name of the tribal area	Mandla (CHC-Nainpur)	Dindori (CHC-Samnapur)	Jabalpur (Elgin hospital)	Total
Name of tribal community screened	Gond & Baiga	Gond & Bharia	Gond & Muslim	
Number of the villages screened	450	422	515	1387
Scheduled Tribe	583	250	189	1022
Scheduled Caste	84	25	439	548
Other Backward Class	228	108	707	1043
Muslims	7	0	319	271
Others	17	19	151	326
General	30	20	221	187
Number of the samples screened in each Study site	949	422	2026	3397

Table 2: Overview of hemoglobinopathies status among new born screened in Madhya Pradesh

Hemoglobinopathies	Mandla (Nainpur)	Dindori (Samnapur)	Elgin hospital (Jabalpur)	Total
Sickle Cell Carrier	107	55	61	223
Sickle Cell Disease	5	4	5	14
Sickle Beta halassemia	2	1	1	5
Beta Thalassemia Trait	15	6	6	27
Thalassemia major	2	1	0	3
Sickle-E disease		1		
FE	1			
Hb-Lepore	1			
Normal	799	339	1949	3087
Other Variants	21	16	4	41

Fig. 1

Title: Sickle Cell Anemia Control and Treatment

PI : Dr. S. Rajasubramaniam, Scientist E

Status : Ongoing

Date of initiation : April 2019

Date of Completion : March 2024

Funding Sources : M.P. State Govt.

Background with objective : The successful eradication and control of communicable diseases in last 3 decades has highlighted the need to control common genetic disorders to improve the health status of rural Indian population, particularly the underprivileged communities. These communities carry high disease burden due to various hemoglobinopathies. In central India, especially in the tribal predominant states like Madhya Pradesh, haemoglobinopathies (sickle cell disease) is the most common genetic disorder and contributes significantly to **Public Health Crisis**. The persons with heterozygous (with single gene) state remain unaffected while the homozygous (with 2 copies of the gene) present various complications and die early in most cases. The heterozygotes remain undetected or unidentified leading to accumulation of sickle cell disease burden in the community. The technical and infra-structural facilities for diagnosis and management of sickle cell disease are uncommon in many district level hospitals. Although the disease is genetic in origin but with the help of modern health care facilities, screening and dedicated management, longevity and quality of life of affected individuals can be significantly improved.

Methodology : Screening of all newborn children, children of ages between the ages of 6-18 years (school going children) in all Block level hospitals or Community Health Centers and Ashram schools.
Districts hospitals to obtain facilities and technical expertise for diagnosis (confirmation) and management of sickle cell disease. Confirmation of suspected cases at ICMR-NIRTH.

All women attending Ante-natal clinic will be screened for sickle hemoglobin and β-thalassemia trait using solubility test, CBC and NESTROFT. Diagnosis of suspected cases will be done at ICMR-NIRTH. Husband of the carrier / trait women to be screened for these disorders. High risk couples need be given appropriate counseling and awareness regarding disease profile. Patients with sickle cell disease and their parents will be given appropriate supportive health care and health education for prevention.

A special sickle cell clinic to be established in districts.

Mass awareness campaign on sickle cell disease especially focused on backward communities should be conducted in the state.

Health Education in Schools.

Results : Under this flagship program, scheduled training and monitoring of District level screening was delayed due to Covid19 pandemic and Lockdown. However, 47 district hospitals have obtained Bio-Rad D10 HPLC for carrying out screening and in house teting of anemia and ANC patients are being carried out.

Honorable Governor visited the Institute and inaugurated the Apex Referral laboratory established for the project on December 8, 2021.

Trainings for Medical officers and Community Health Officers on Diagnosis and management of Sickle Cell Disease were held in Alirajpur District (November 28-December 1, 2021) and Jhabua District (December 16-19, 2021) wherein 203 MOs & CHOs were trained.

Title: Evaluating morbidity profile of Sickle Cell anemia among Indian patients

PI : Dr. S. Rajasubramaniam, Scientist E

Status : Ongoing

Date of initiation : July 2018

Date of Completion : NA

Funding Sources : ICMR - Intramural

Background with objective: A patient of sickle cell disease suffers from severe anemia and other complications like painful crises of limbs and other parts of the body, vaso-occlusive crises, hepatosplenomegaly, hepatic and splenic sequestration, osteomyelitis, leg ulcers, gall stones, acute chest syndrome, etc. Sickle cell Disease is caused by mutation in beta globin gene leading to abnormal hemoglobin production. There are five major haplotypes for sickle cell disease. Arab-Indian haplotype is commonly found in Indian sickle cell disease patients. This abnormal hemoglobin (HbS) in the presence of hypoxia polymerize to form abnormally shaped red blood cells. This leads to severe hemolytic anemia, acute vaso occlusive complications, Chronic organ damage and early death.

Hydroxyurea (HU) is an oral drug proven to have laboratory and clinical efficacy on SCD patients. The severity of symptoms is reduced due to induction of HbF production. HU also exerts its effect on leukocytes, reticulocytes and the endothelium.

Results : During the report period 30, patients were recruited to receive hydroxy urea therapy. In all 453 patients have been recruited so far in the Sickle Cell Clinic since May 2018 till March 2022. Presenting Clinical symptoms were noted and appropriate therapeutic intervention was provided by Clinical in charge. Follow up analysis showed that 129 patients with fifth follow up showed more than 80% increase in HbF levels the number of severe and moderate cases has been reduced and shifted to mild category with continuous usage of HU.

Morbidity Profile of Sickle cell disease in Central India

PI: Dr. Rajiv Yadav Scientist-E

Status : Ongoing

Date of Initiation :

Date of Completion :

Funding Sources : ICMR - Intramural

Objectives of the study:

- To study the clinical and hematological profile of the sickle cell disease patients.
- To develop strategies for management and prevention of the sickle cell disease in context to Central India.

Methodology : All the Registered Patients were referred from various OPD's of NSCB Medical College, Jabalpur and various district hospitals of the state to genetics laboratory of NIRTH for the diagnosis of haemoglobinopathies. Patients those identified as sickle cell disease were registered in sickle cell clinic for detail clinical assessment and follow up. The clinical history, clinical findings and various investigations were recorded in structural proforma and advised them to come for follow-up every three months.

Findings: Sixty-three sickle cell disease patients were registered in the Sickle cell clinic (in collaboration with Government Medical College, Jabalpur) during April 2021-March 2022. All these patients were from Balaghat, Damoh, Dindori, Jabalpur, Katni, Mandla, Narsingpur, Panna, Raisen, satna, Seoni, Shahdol. Sidhi, Singroli and Umaria districts. About 57% were Male and 43% were female. Majority (55.6%) of the patients were belonged to Scheduled caste and 19.1% were from tribal communities. About 19.1% were Other backward class and 6.2% were from Muslim & others. About 30% of patients had history of multiple blood transfusions (blood transfusions of more than 2 times) and 41% of patients had no history of blood transfusion. About 79% of the patients had their onset of the disease before 5 years of age followed by 5-10 yrs age (21%).

A total of 1305 SCD patients were registered in the SCD clinic up to March 2022. All the Patients and their parents were advised to avoid disease precipitating or aggravating factors like exposure to extreme climate, hard work, dehydration etc. and also advised to seek appropriate medical intervention quickly upon any minor ailment. They were given folic acid (5 mg) to be taken daily. The anti-pyretic and anti-inflammatory drugs were also given to take on emergency. Up to March 2021, a total of 835 SCD patients were regularly attended for follow-up. Severity index was calculated by converting the clinical observations into numerical value in these patients. After intervention, the percentage of severe and moderate cases has been reduced and shifted to mild category.

It is observed that supplementation with folic acid and quick administration of anti-pyretic/anti-inflammatory drugs along with health education to avoid disease precipitating factors shown positive effect to decrease the severity of the disease. A total of 129 registered SCD patients were died up to March 2022 and their mean age was 14.9 8.9.

Highlight of project in 2-3 bullets: · Sixty three sickle cell disease patients were registered in the Sickle cell clinic during April 2021-March 2022.

Majority (55.6%) of the patients belonged to Scheduled caste and 19.1% were from tribal communities.

After intervention, the percentage of severe and moderate cases have been reduced and shifted to mild category.

A total of 1305 SCD patients were registered in the SCD clinic up to March 2022.

Title : The effect of Hydroxyurea on the clinical profile of Sickle Cell Disease patients in Central India

PI: Dr. Rajiv Yadav Scientist-E

Status : Ongoing
Date of Initiation :
Date of Completion :
Funding Sources: ICMR - Intramural

Objectives of the study: To know the effect of hydroxyurea on the clinical profile of sickle cell disease patients. · To study the hydroxyurea induced increase in HbF and other blood counts.

Methodology: The study has been carried out jointly by National Institute for Research in Tribal Health (NIRTH) and Netaji Subhash Chandra Bose (NSCB) Medical College & Hospital, Jabalpur.

STUDY DESIGN: Interventional, Prospective as well as Retrospective Cohort study.

STUDY AREA: Sickle cell disease patients of SCD clinic coming from different parts of Madhya Pradesh

STUDY POPULATION: All the patients registered with SCD Clinic (New or old).

Findings: Till March 2022, A total of 453 SCD patients have received hydroxyurea. Among these,351 were in first followup and 284 patients were in second followup. 223 patients were in third followup and 163 patients were in fourth followup. 129patients were in fifth followup. in more than 83% of patients, HbF was found to be increased. Severity index was calculated by converting the clinical observations into numerical value in these patients. It is observed that the percentage of severe and moderate cases has been reduced and shifted to mild category with continuous usage of HU.

Highlight of project in 2-3 bullets: A total of 453 SCD patients have received hydroxyurea.

- Fetal hemoglobin was found to be increased in more than 80% of cases.
- Severity index of the disease was decreased with continuous usage of HU.
- Very few side affects have been observed.

Title : Mental Health and Social Stigma among Healthcare Personnel Involved in the Management of Covid-19 Patients in India.

PI : Dr. Tapas Chakma, Scientist G

Status : Ongoing

Date of Initiation : July 2021

Date of Completion : September 2021

Funding Sources : Intramural

Introduction

Coronavirus disease 2019 (COVID-19) was first identified in Wuhan City in China in December 2019, after which the disease has spread to 219 countries and territories. As on 18th February 2021, there are about 110 million persons confirmed cases and 2.44 million deaths due to this dreaded disease. The COVID-19 pandemic has put some health systems under immense pressure and stretched others beyond capacity. During the initial period of the pandemic healthcare personnel all over the world had faced tremendous pressure owing to concerns about their personal safety, safety of their loved ones, and shortage of equipments such as ventilators and protective gears. These providers were working across different layers of the health system, right from those involved in screening, testing, quarantining and isolation care to those involved in treating of COVID-19 patients. While some of the health care providers functioned from health institutions like hospitals, quarantine facilities there were others working in the field involved in door to door screening and sensitization of the people within the communities such as ANMs, ASHAs and local healthcare volunteers. Some of these workers returned home during early epidemic and faced loss of jobs and reduced revenues and lingering uncertainty. The others were put to longer working hours and reduced salaries that added to the rising challenges of the health care providers. Added to these challenges were the misperceptions, misinformation and anxieties in the general population which stigmatized and blamed the health system. This resulted in the abuse and violence against health care providers in many parts of India. Stressful working conditions, rising number of patients, long working hours with limited personal protection equipment, no time to eat or sleep had an immense impact on the mental health of the healthcare providers that needed to be addressed. It was imperative to understand the mental health status, social stigma and coping strategies from the perspective of different healthcare personnel in India that would provide ways to mitigate the current circumstances and help build resilience in the management of future unpredictable and inevitable situations. This understanding will enable to formulate, design and implement need-based intervention strategies for the healthcare personnel for coping with these psychological factors as well as practical challenges.

Methodology

Study population

The study group consisted of doctors, nurses, ambulance emergency response teams, lab personnel, and others who were directly involved in patient care in COVID designated hospitals, from facilities involved in triaging services and referrals to the COVID designated hospitals or labs processing the COVID samples. In addition to healthcare workers, the study included the accredited social health activist (ASHA) and community health workers involved in case identification, contact tracing, prevention and control measures for COVID 19. The health care workers were further stratified as those employed in private and public facilities.

Study Design

The study was a mixed methods design (Embedded Correlational Model) (Figure 2) in which a qualitative component is embedded within a quantitative framework. The quantitative component provided the distribution of persons at risk of psychological distress, including burnout, anxiety and the qualitative component provided answers to the extent of social stigma, perceptions and coping mechanism of health care providers

Quantitative survey

The quantitative component was undertaken as a cross-sectional survey of all health care personnel (Box1) who met the inclusion exclusion criteria. From a study published in China (13) it was found that 50.4%, 44.6%, 34.0%, and 71.5% of all participants reported symptoms of depression, anxiety, insomnia, and distress, respectively. Assuming a prevalence of psychological morbidity of 50% among the health care providers, a minimum sample size to determine the proportion of mental health problems with an alpha error of 5% is given by the formula where p is the proportion and l is the margin of error

$$n = \frac{1.96^2}{l^2} pq = 384.16$$

This sample was inflated for 15% non-compliance to obtain a sample size of 452~450. Accounting for a design effect of 2.0 for possible clustering in view of including health personnel from the same facility the minimum sample size required was 450X2= 900 at a national level from ten study sites. To ensure equal participation of all types of health workers it was decided to include 14 doctors, 14 nurses, 14 aux. nurses, 14 laboratory staff 14 support staff and 14 wards boys plus 3 ASHA workers and 3 CHWs per centre. Assuming that about 20% of the health workers in each state who would be engaged in COVID-19 management belong to private health facilities, this sample was divided as 180 health personnel from private facilities and 720 personnel from public health facilities all over India. Ideally the sample should have been proportionately divided among various strata of health workers based on their availability in the management of COVID but for the sake of simplicity and nature of this quick survey, we divided the sample size equally across each stratum. The sample size required from each stratum of health care personnel was as follows:

Box1: Minimum Sample size to be covered per site

Type of healthcare worker	Public health facilities –	Private/Trust facility *
	Institutional	
Doctors	11	3
Nurses	11	3
Auxiliary nurses	11	3
Laboratory staff	11	3
Supporting staff (ambulance teams)	11	3
Ward boys, House-keeping / Sanitation workers, canteen staff, security guard)	11	3
	Non-institutional (Public)	
ASHA	3	
Community Health Workers	3	
Total	72	18

***Note: Districts where private hospitals were not available could be covered from the Govt. Health facilities**

Results

Profile of the participants

The study included 967 consenting health care workers who were telephonically interviewed between September-November 2020.

Of the 967 respondents 79% were public health facilities and from urban areas

Just over half were women (54.4%)

62.6% were temporary staff

Forty eight percent of the respondents fell in the age group 25-34 years

Other descriptive characteristics are identified in the profile below and appendix VI

Factors associated with risk of psychological distress (GHQ total score >=2)

Occupational factors

Of the 967 HCWs, 512(53%) of the HCWs had GHQ score above 2. Of the 463 (47.9%) medical healthcare workers (nurses and doctors) 65.3% had GHQ >=2 which was statistically significant as compared to nonmedical HCWs (45.5%). Across the participating states, the highest proportion of HCWs with higher GHQ of more than 2 was observed in Delhi (93%) Tamil Nadu (69.1%) closely followed by the HCWs of Meghalaya (67.4%). The lowest percentage was reported in Gujarat (31%).

Among the HCWs the medical HCWs reported higher GHQ (65.3%) as compared to the non-medical HCWs (45.5%). The pattern was similar in all states except Delhi which reported more percentage of non-medical HCWs with higher GHQ although the percentage varied across the states.

Of the various activities, those involved in isolation of COVID cases (57.9%), caring the patients with symptoms (58%), those in the intensive care units (58.3%), those involved in contact tracing (60.1%) and screening (59.9%) and in transporting COVID patients were at significantly higher risk of psychological distress. Of the total 48 HCWs who reported transporting the COVID patients (5%) as their main occupation there were 79 others who were involved in quarantine, contact tracing, isolation or symptoms identification. 46 HCWs who reported being involved in all activities related to the management of COVID patients and 56.5% had significantly high levels of GHQ. However, those involved in sample testing alone did not show a higher GHQ level. Community care workers alone had lower GHQ levels but if these HCWs were also involved in other occupations like contact tracing, isolation, end of life support or bereavement then they reported higher GHQ levels.

Heavy workload

Longer working time per week was found to be a risk factor for higher GHQ levels. Those HCWs who worked for more than 9 hours per day were more at risk of psychological distress (65.4%) as compared to those who worked for lesser time per week (47.4%).

Occupational Burnout

Figure 1 shows the mean scores of the three sub scales of burnout viz. Emotional Exhaustion, Depersonalization and Personal Accomplishment against the GHQ scores. As the GHQ score increased from 0-5, the mean emotional exhaustion score and depersonalization score showed an increasing trend from 13.36 to 18.28 and 5.87 to 7.34 respectively indicating a positive association of the of burnout with psychological distress.

However, the mean personal accomplishment score did not vary much across the GHQ scores. Assuming a GHQ score cut-off as 2, it was observed that the corresponding cut-off for emotional exhaustion was 16 and for depersonalisation it was 7. The mean depersonalization score for those with GHQ>=2 was higher (7.25) as compared to those with GHQ <2 (6.10) whereas the mean personal accomplishment score for HCWs with GHQ>=2 was 8.12 as compared to 8.37 among HCWs with GHQ<2.

Sociodemographic factors

More female HCWs (56.1%) were at risk of psychological distress as compared to males (49.2%) which was statistically significant (p=0.03). Women HCWs were observed to have a significantly higher GHQ levels in Kerala (64.3% vs 38.2%) and Maharashtra (59.2% vs 36.6%) whereas in other states this distribution was not statistically significant. Overall age and marital status had no impact on the risk of psychological distress although approximately 60-70% of the HCWs were married. HCWs who were alone / not residing with family had higher proportion with GHQ>=2 (58.1%) as compared to those who had their family members with them (50.8%). Those who are in the higher income group of more than 20000 salary per month were found to be having higher GHQ scores of more than 2 as compared to those in the lower income group. This was statistically significant in Kerala, Madhya Pradesh and Maharashtra. There were missing data for this factor from Assam and Odisha. Education has a significant impact on the GHQ scores with graduate and above being at higher risk than those who are lesser qualified. Overall 58.1% of HCWs who are graduate and above yielded a GHQ score of more than 2 as compared to 41.8% in the other group.

Psychological factors

The present nature of professional duties demanded the participants to stay separately from their families for longer durations. This distance induced distress, hence resulting in a feeling of longing. This was more pronounced for female participants with children because they were worried about not being able to provide care to them and perform their household responsibilities. Participants also expressed a constant fear and anxiety about getting infected and exposing their families to the virus, because of taking care of patients. Another source of distress was the experience of stigmatizing attitudes, as they experienced, hurtful social distancing, avoidance, rejection, and refusal.

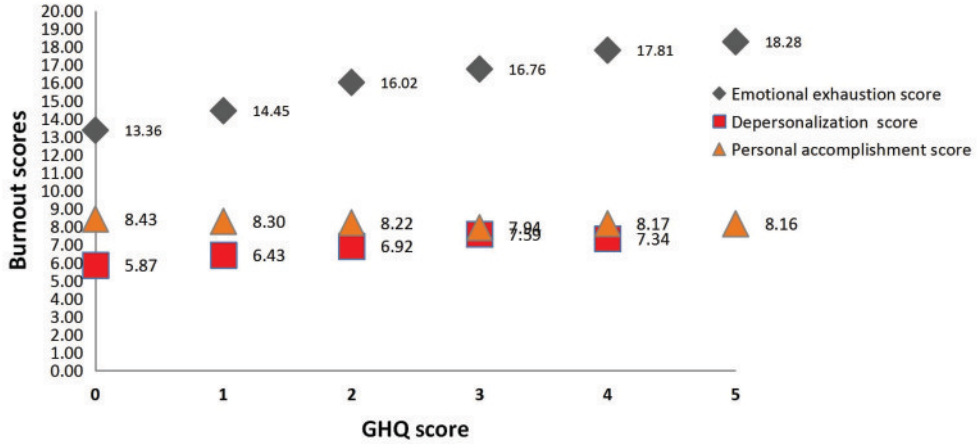


Figure 1 Mean score of emotional exhaustion, depersonalization and personal accomplishment for total GHQ scores.

Factors associated with occupational burnout

All the HCWs responded to the questions related to occupational burnout. The mean score for emotional exhaustion was 15.43+/-3.67 for all the states put together. However among the states Delhi reported the highest emotional score of 17.73 +/- 4.03 closely followed by Meghalaya (16.74+/- 3.19 and Tamil Nadu (16.12+/- 3.85). Within the dimension of emotional exhaustion nearly 50% of the HCWs kept thinking about work related issues even during off duty hours and this prevented them to enjoy with their families. More than 35% of the HCWs felt sleepless and had loss of appetite, felt frustrated and worried constantly about their work. However, more than 75% of the HCWs felt satisfied with their work despite all work-related problems.

Occupational factors

The average emotional exhaustion score was highest among doctors (16.4+/3.87) as compared to others (Figure). The Medical HCws reported Delhi the average EE score among medical HCWs was 17.54+/-3.96 as compared to non medical HCWs 18.03 +/-4.16, These scores were higher than those from other states, Odisha reported the lowest EE scores of 13.9+/-2.96. The mean depersonalization score was 6.71 for all states together although Delhi recorded a score of 7.84+/-2 followed by Meghalaya with a score of 7.79 and Tamil Nadu with a score of 7.24. All the states scored very high for personal accomplishment to an average of 8 points. Longer working hours of more than 8 hours per day increased the Emotional exhaustion score and the depersonalization score . The job being temporary or permanent had no effect on any scale of the burnout score. Over 7% of the HCWs reported a total depersonalization score of >=10 which means nearly 7% lost patience at work, were insensitive to people around , expressed anger at work or felt guilty for problems of the colleague or client.

Sociodemographic factors

The Burnout scores did not vary significantly between men and women. Graduates and above had higher scores of emotional exhaustion (15.73+/-3.78 vs 14.78+/- 3.34)) and depersonalization scores (6.88 ± 1.79 Vs 6.34 ± 1.53) while they had lower personal accomplishment score (8.15+/-1.07 vs 8.44+/-0.95). Those who resided with families showed a lower score for emotional exhaustion and depersonalisation score as compared to those living alone.

Psychological factors

Most participants experienced great pressure and stress as their busy schedules with no breaks made them feel exhausted and fatigued. For a few of them, working in such a situation was a necessity, as they were responsible for financially supporting their family. In addition, one of the major on-the-job challenges was wearing the PPE kit for long hours as part of their work routine. It not only restricted their activities like eating, drinking, using a restroom but also caused a lot of physical discomforts like suffocation, sweating, dehydration, breathlessness, etc. Amidst taking care of others and handling the pandemic, they had to battle with their own well-being. Higher workload resulted in limited time for self-care, relaxation, and even disruption in their eating patterns and sleep routine.

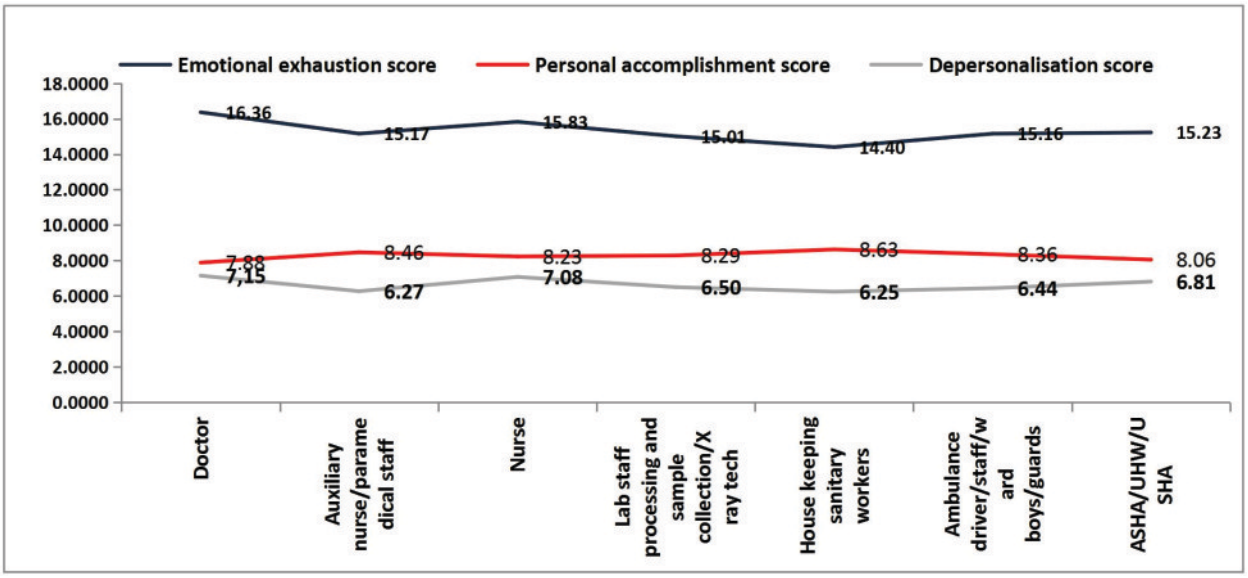


Figure 2: Mean burnout scores of different types of occupation

Subscales of Burnout

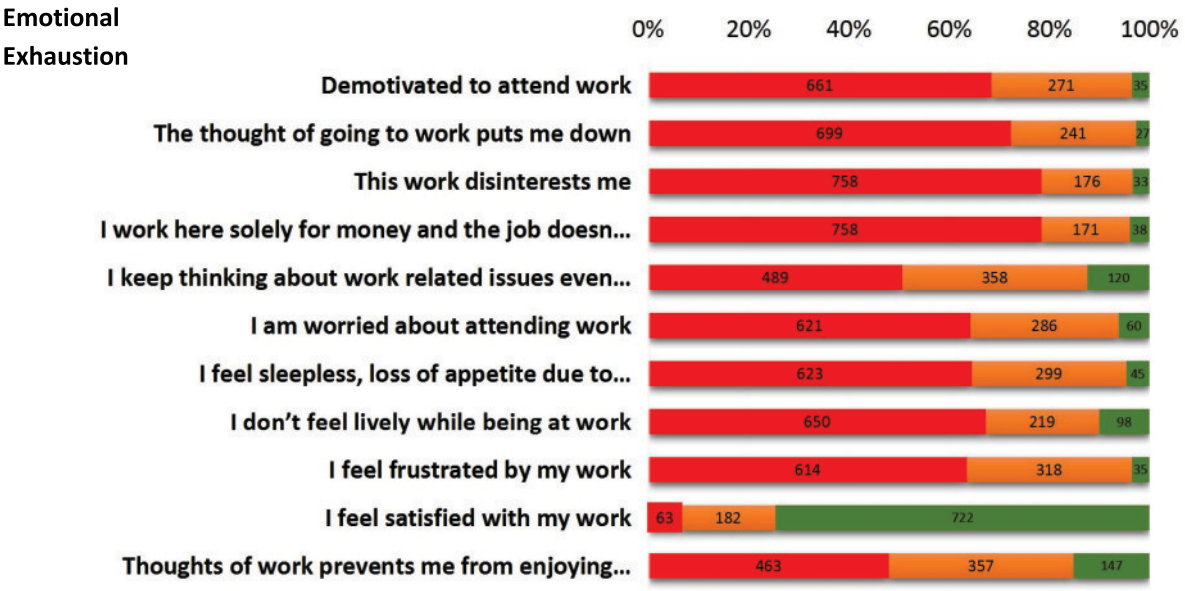
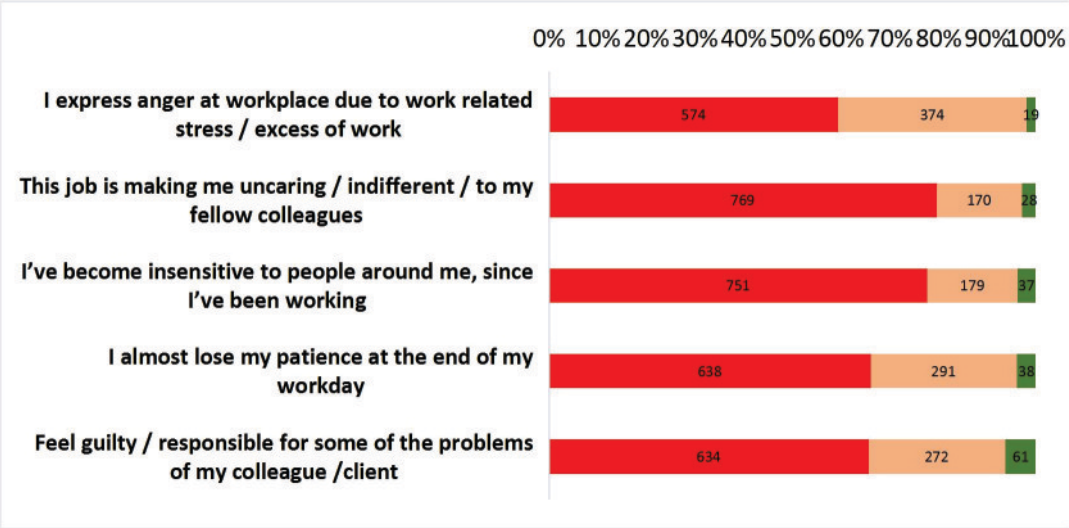


Figure 3 : Subscales of Burnout

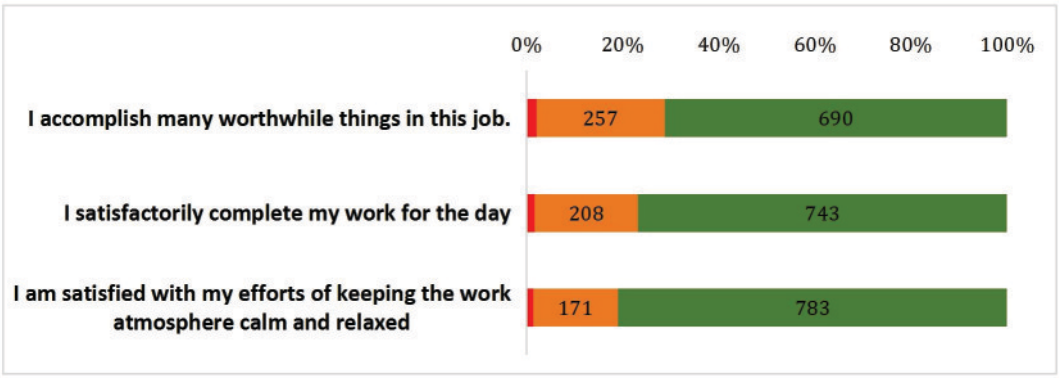
Overall Mean emotional exhaustion score 15.43+/-3.67

Depersonalisation



Overall mean Depersonalisation score 6.71±1.73

Personal accomplishment



Overall mean personal accomplishment score 8.24+/1.04

Never Sometimes Always

Figure 3 : Item-wise distribution of subscales of burnout

Conclusion

This study finding provided insight and understanding of the mental health and social stigma faced by the healthcare professionals due to COVID management at different levels. This understanding could help in evolving feasible acceptable and timely need-based interventions for health care providers that address these concerns. The interventions based on these findings we hope will protect the interests of health care workers and provide the support they need medically, health system related and most importantly the psychosocial and emotional support to cope with the management of this difficult illness. This has public health implications as all these need-based interventions will in turn reflect in the provision of holistic quality COVID care that would make a difference to prevent morbidity and mortality due to COVID 19, promote screening, timely testing and treatment of this dreaded disease.

The study findings are useful to identify the various mental health issues including anxiety, depression, burnout and social stigma faced by healthcare personnel faced during the COVID-19 pandemic. The study findings will also be useful for managing and planning interventions to mitigate mental health problems among healthcare personnel in future epidemic/pandemic scenarios in the country.

Title : India Hypertension Management Initiative

PI : Dr. Tapas Chakma, Scientist G

Status : Ongoing

Date of initiation : April 2018

Date of Completion :

Funding Sources : Extramural

Objectives of the study: The objective of the project is to reduce cardiovascular disease morbidity and mortality in India. Projects main focus on the major risk factor namely hypertension.

- Implement an intervention package to improve hypertension treatment and control rates in India.
- Identify major policy interventions to reduce consumption of artificial trans-fat and of sodium (Details of this component are yet to be worked out).

Achievements: The India Hypertension Control Initiative (IHCI), launched in the State in **April 2018**, is a multi-partner initiative with the Ministry of Health & Family Welfare, Indian Council of Medical Research, State Government, WHO India and Vital Strategies. The project aims to reduce premature cardiovascular deaths by strengthening hypertension management and control using evidence-based strategies. In 1st phase three districts Chhindwara, Bhopal and Ratlam were included.

In The second phase of the study, three more districts have been included i.e. Ujjain, Sehore and Seoni. Thus, a total of 2,36,936 cases have been registered i.e. about 20.4% of the estimated hypertensives in the program from 6 districts covering 1,028 health facilities in 6 districts, including 712 SHC-HWCs.

Overall quarterly follow-up was 75% in (Q4-2021), i.e. 5% increase as compared to Q3-2021. In Q4-2021, highest follow-up rate was in Ratlam (83%) & lowest in Ujjain (67%). Maximum improvement was reported in Ujjain (12%) followed by Sehore (9%), Bhopal (8%) & Chhindwara (6%). Ratlam and Seoni reported decline of 1% each. This shows that patients' retrieval system is not uniform across the districts; also the follow up by ASHA is minimal in all districts.

Besides, there was 3% increase in BP control rate in Q4 (50%) as compared to Q3 (47%). This was 5% decline reported in Missed visit rate and 3% increased Un-control rate was reported in Q4 2021 as compared to Q3 2021. In Q4 2021, highest control rate was reported by Ratlam (63%), lowest by Ujjain (39%). Highest uncontrol rate was reported by Sehore (31%) lowest by Chhindwara (18%). Highest missed visit rate was observed in Ujjain (33%) and lowest in Ratlam (10%).

Retention rate were better in SHC-HWCs and PHCs. Very poor retention rates at CHCs and DHs. There was overall improvement in the quarterly cohort BP control rates from the beginning from 26% in Q3 2018 to 50% in Q4 2021. In Q4-2021, there was improvement in all the districts of Madhya Pradesh.

IHMI programme has also been also been initiated last year in two districts of Chhattisgarh namely Raipur and Durg in the year March 2020. Total facility in Raipur-822, and in Durg 557 initiated the programme. In the current year three more districts Dhamtari-666, Bilaspur-620, Mahasamund-365 have been initiated. So far 55129 cases have been registered i.e. 8.5% of the estimated hypertensives. The registration has been still low.

The blood pressure control has improved from 25.7% in March 2021 to 49.4% in March 2022. Missed visit also significantly reduced from 45.2% in March 2021 to 16.6% in March 2022. The study is in progress.

Progress of IHCI : 2018 - Aug 2022

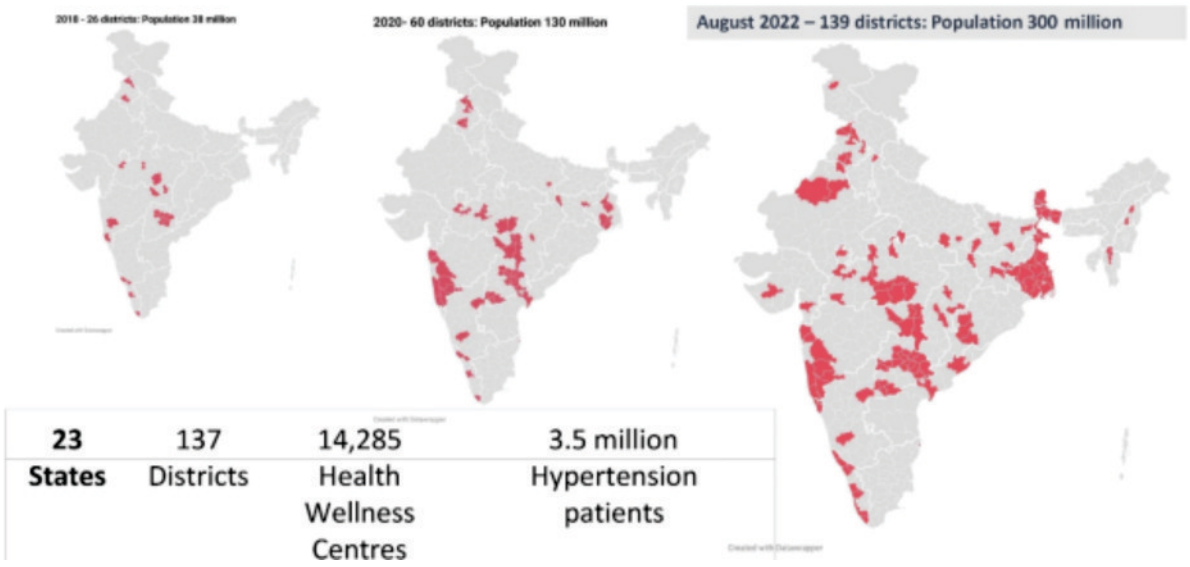


Figure 1 : Progress of IHCI 2018-2022

Proportion of HTN individuals registered among estimated by district till Dec-21 in Madhya Pradesh

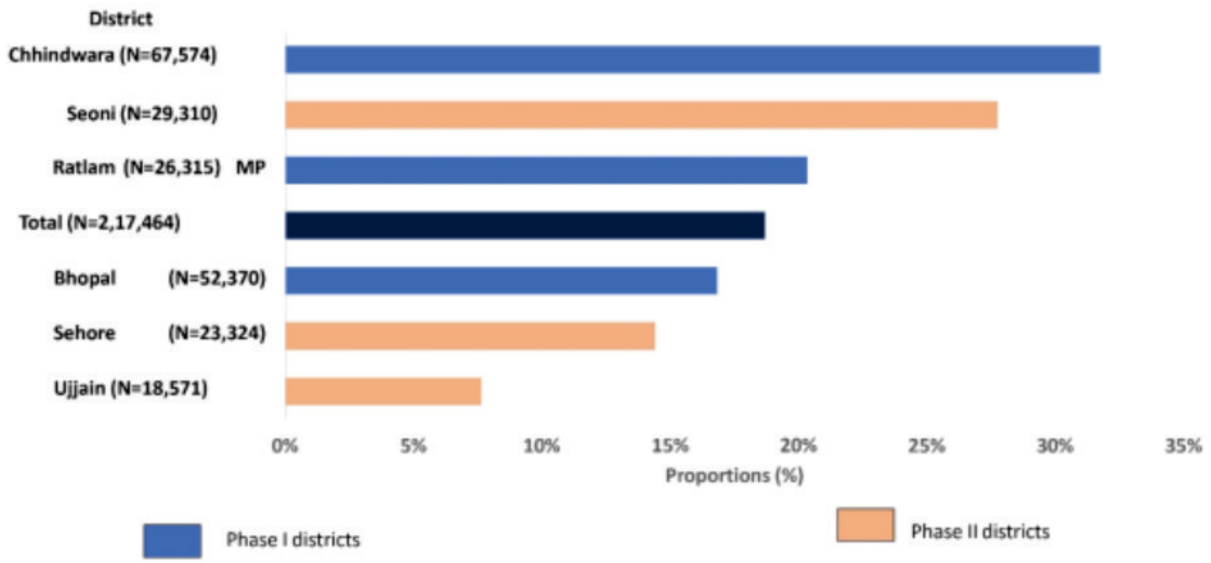


Figure 2 : Proportion of HTN individuals registered among estimated by district

Registration of individuals with dypertension by Quarter for Q4-2019, 2020 & 2021, Madhya Pradesh

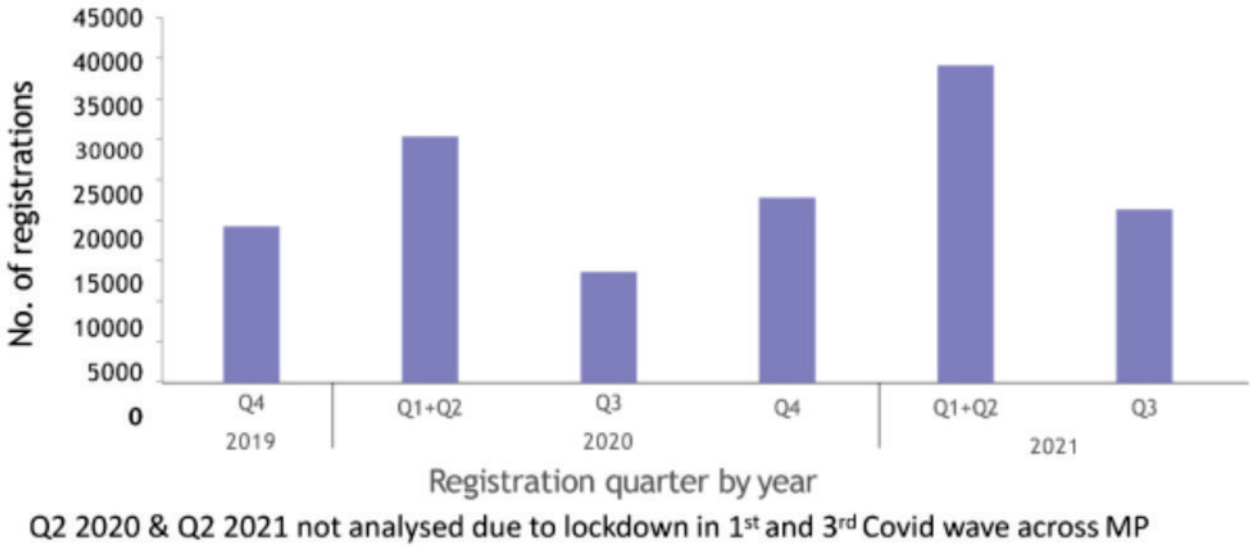


Figure 3 : Registration of individuals with hypertension

Proportion of individuals with HTN Followed-up by quarter, 2020 & 2021, Madhya Pradesh

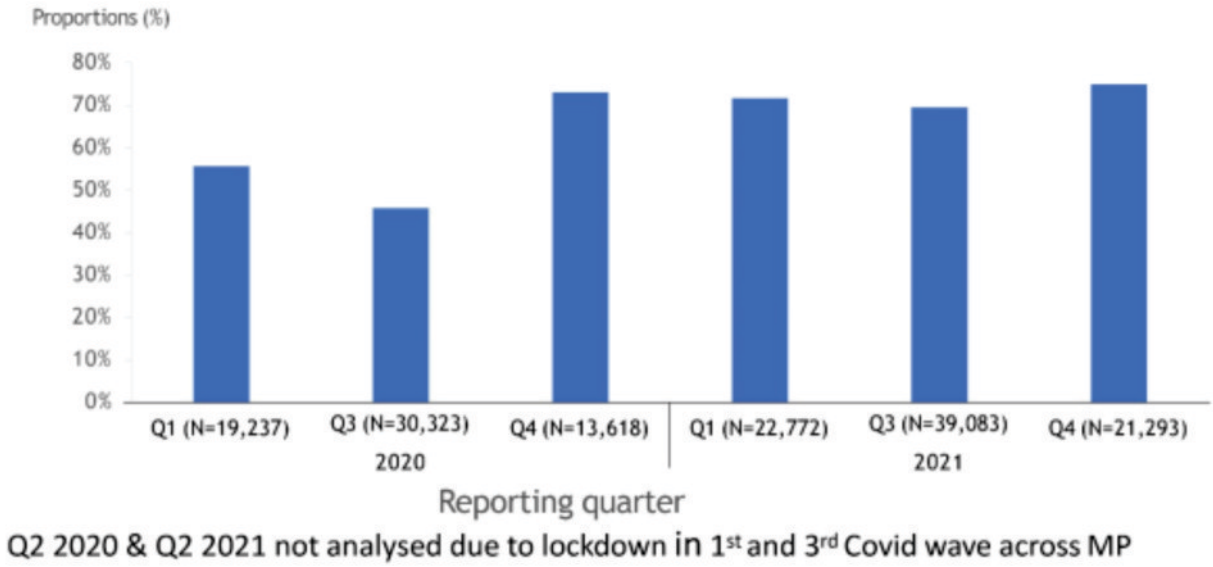


Figure 4 : Progress of IHCI 2018-2022

Proportion of Controlled among HTN individuals under care for by district, 2020 vs 2021, Madhya Pradesh

Figure 5 : Proportion of Controlled among HTN individuals under care for by district Progress report of Chhattisgarh

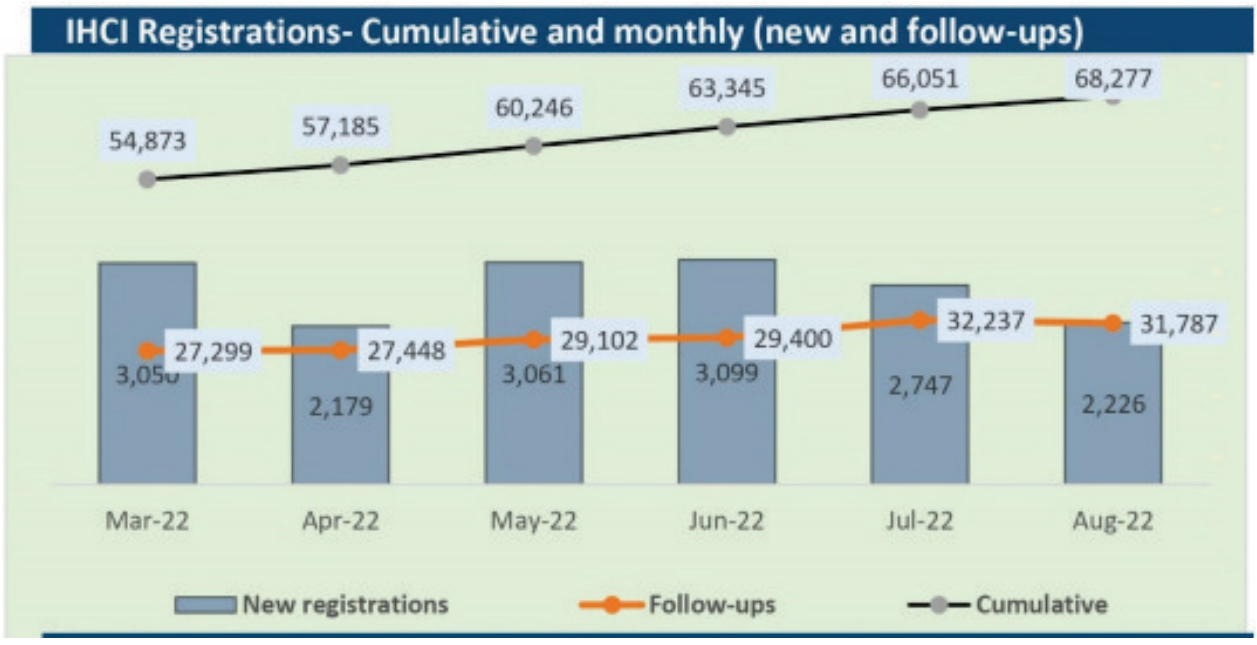


Figure 6 : IHCI Registration – Cumulative and monthly (new and follow-ups) of Chhatisgarh

Table 1 : District wise performance in Chhattisgarh

District	Total Registrations	Proportion of estimated hypertensives registered	HTN treatment outcomes of patients registered till Dec 2021 and BP assessment in Jan-Mar 2022				Decentralization		
			BP control (%)	BP uncontrol (%)	Missed visits (%)	Visited, BP not checked (%)	# HWCs implementing IHCI	Total registrations at HWCs	Total follow up at HWCs
Raipur	27457	15.8%	68.9	18.3	12.7	0.1	79	0	3491
Durg	18056	10.0%	53.3	28.8	13.5	4.3	99	0	4848
Bilaspur	8371	6.2%	45.8	25.0	28.1	1.1			
Dhamtari	9084	16.7%	41.2	28.8	29.1	0.8	101	0	1851
Mahasamund	5300	5.3%	24.5	27.9	47.3	0.3			
State total	68277	10.58%	57.4	23.5	17.5	1.6	279	0	10190

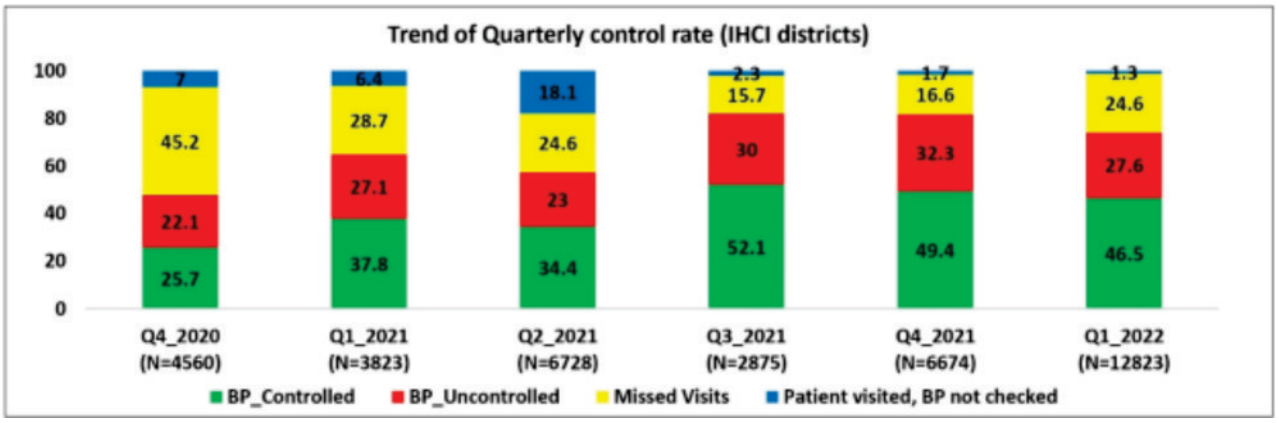


Figure 7 : Trends of Quarterly control rate (IHCI districts) in C.G.

Title : Human pulmonary paragonimiasis in crab eating communities and smear negative suspected TB cases from some states of India

PI : Dr. Tapas Chakma, Scientist G

Status : Ongoing

Date of initiation : February 2019

Date of Completion :

Funding Sources : ICMR Delhi

Background: Pulmonary paragonimiasis is often misdiagnosed as smear negative pulmonary tuberculosis due to overlapping clinical manifestations and radiological picture of the two diseases. Studies have revealed that pulmonary paragonimiasis is one of the important public health concerns in northeastern (NE) region of India. However, in mainland India public health importance of paragonimiasis is not known. Studies have shown presence of lung flukes in felines, canines and other animals from different states of India. However, there is no comprehensive study available on human paragonimiasis in other states of India from where lung flukes have been reported in animals. Although a few human case reports have been published, yet no molecular evidence is available about the species of lung flukes involved. Besides, information on crab species acting as intermediate hosts in mainland India is also lacking. So, in order to fill up this gap in knowledge about occurrence of human pulmonary paragonimiasis in India the present study is proposed. Therefore, it is important to survey fresh water crab eating communities and smear negative TB cases in various states of India where the probability of finding human foci of pulmonary paragonimiasis is high. In the present study community surveys will be carried out in freshwater crab eating communities and smear negative TB cases from West Bengal, Odisha, Madhya Pradesh, Karnataka, Kerala, Arunachal Pradesh and Manipur to detect pulmonary paragonimiasis in humans and also to identify potential freshwater crab intermediate hosts, and confirm identification of lung fluke species prevalent in different regions in India using DNA sequencing technology.

Objective

a. To detect human pulmonary paragonimiasis in fresh-water crab eating communities of India and smear negative pulmonary TB cases from some states of India.

b. To examine local fresh-water crabs for metacercarial infection due to *Paragonimus* species.

Methodology:

Study type

a. Active surveys: Cross-sectional door-to-door surveys will be carried out in the selected villages for detection of pulmonary paragonimiasis in selected fresh-water crab eating communities (exploratory survey).

b. Passive surveillance: Smear negative suspected TB cases attending PHC/Microscopy centers in the selected villages will be screened for pulmonary paragonimiasis.

Study Area : Mandla/Balaghat & Umaria : Study areas will be chosen purposely depending on crab eating behavior of the local communities and geographical areas which have high probability of detection of lung flukes based on previous reports of infection in wild felines, canines and other wild animals.

Tools - Clinical Samples – Blood, sputum & Questionnaire.

Lab Methods

1. Direct microscopy - to detect the eggs of the flukes.
2. AFB- to detect TB
3. ELISA -To detect IgG Antibodies against lung flukes.

Results

- A total of 62 villages were covered from Mandla/Baihar and 50 villages from Umaria district were covered.
- From these villages 7262 individuals from Mandla/Baihar and 7709 from Umaria were registered and screened for paragonimiasis.
- A total of 3715 Sputum samples from Mandla/ Baihar and 3605 from Umaria were screening for lung fluke eggs.
- Simultaneously blood samples were also collected from 3413 individual from Mandla/ Baihar and 2390 from Umaria for Antibody screening for lung fluke antigen.
- 03 blood samples were found to be positive in Baihar, by ELISA. However their sputum and stool samples were negative.
- A total of 1213 Crabs were collected and dissected from Mandla/ Baihar and 1234 from Umaria.
- 10 crab samples were tested Positive from Baihar of paragonimiasis and none of the crab were positive from Umaria.

	Mandla/ Baihar	Umaria
Total village covered	62	50
Screened individuals	7262	7709
No. of males.	-	-
No. of Females.	-	-

Table 1. Sputum screening for lung fluke eggs.

	Mandla/ Baihar	Umaria
Sample Collected	3715	3605
Sample tested	3715	3605
Positive	0	0

Table 2. Antibody screening for lung fluke antigen.

	Mandla/ Baihar	Umaria
Sample Collected	3413	2390
Sample tested	3413	2390
Positive	03	03

Table 3. Crab collection and dissection.

	Mandla/ Baihar	Umaria
Sample Collected	1258	1284
Sample tested	1213	1234
Positive	10	0
Preserved	45	30

*45 crabs were preserved from Mandla/Baihar and 50 crabs were preserved from Umaria for further investigation at ICMR-RMRC Dibrugarh.

Results of Crab Dissection

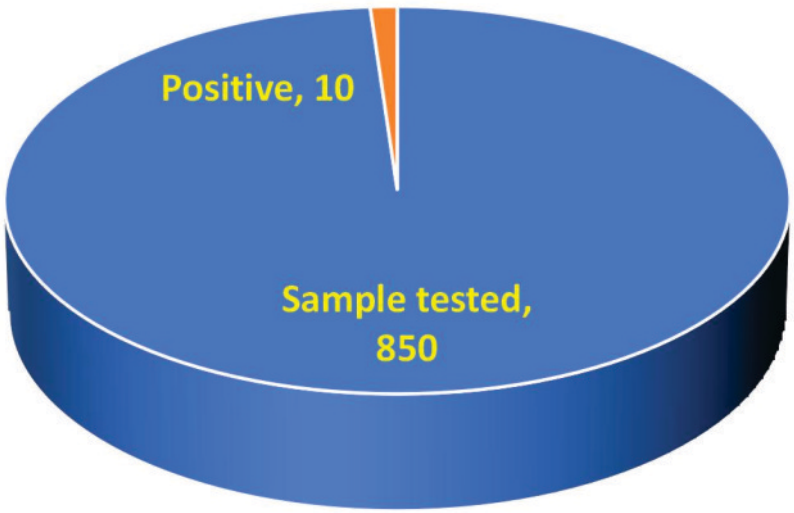


Fig.1

Demographic Characteristics of the Studied Population

Table 4 Age & Gender representation of Mandla/ Balaghat & Umaria.

Age group	Male (%)	%	Female	%	Total	%
5 – 9	285 **(4.3)**	4.3%	274	4.6%	562	4.4%
10-14	532	8.0%	459	7.7%	995	7.8%
15-19	761	11.4%	731	12.2%	1497	11.8%
20-29	1305	19.6%	1257	21.0%	2567	20.2%
30-39	1414	21.2%	1259	21.0%	2681	21.1%
40-49	1104	16.6%	996	16.6%	2108	16.6%
50-59	751	11.3%	724	12.1%	1478	11.6%
60-69	479	7.2%	252	4.2%	732	5.8%
70+	39	0.6%	30	0.5%	69	0.5%
Total	6670		5982		12689	
Mean ±SD						

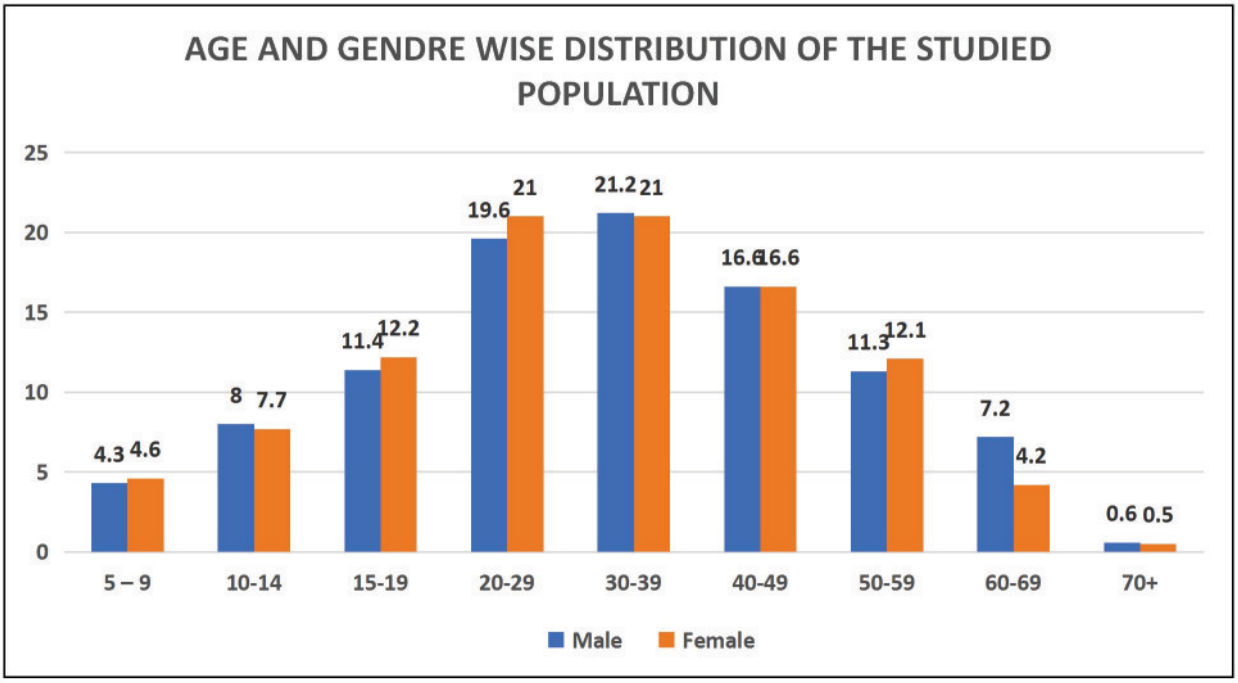


Fig.2

Table 5 Consumption of fresh water crabs by covered population.

Consumption of fresh water crabs	Frequency	percent
Yes	10387	81.9
No	1568	12.4
Total	12689	100.

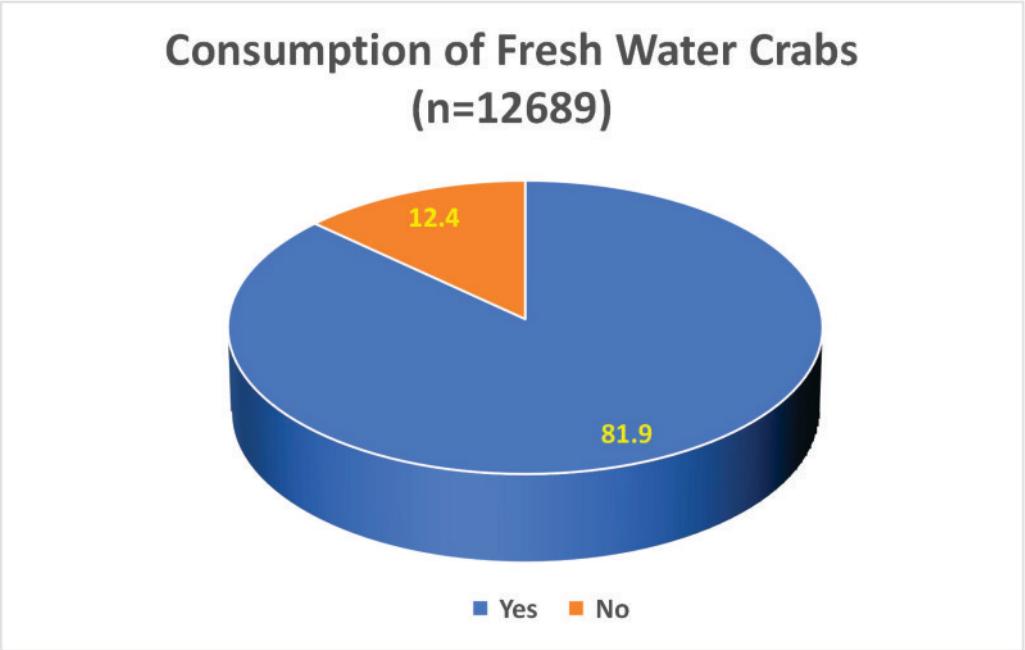


Fig.3

Table 6 Frequency of population Belongs to tribal community.

Category	Number	Percent
Tribals	10622	83.7
No Tribals	1813	14.3
Total	12689	100.0

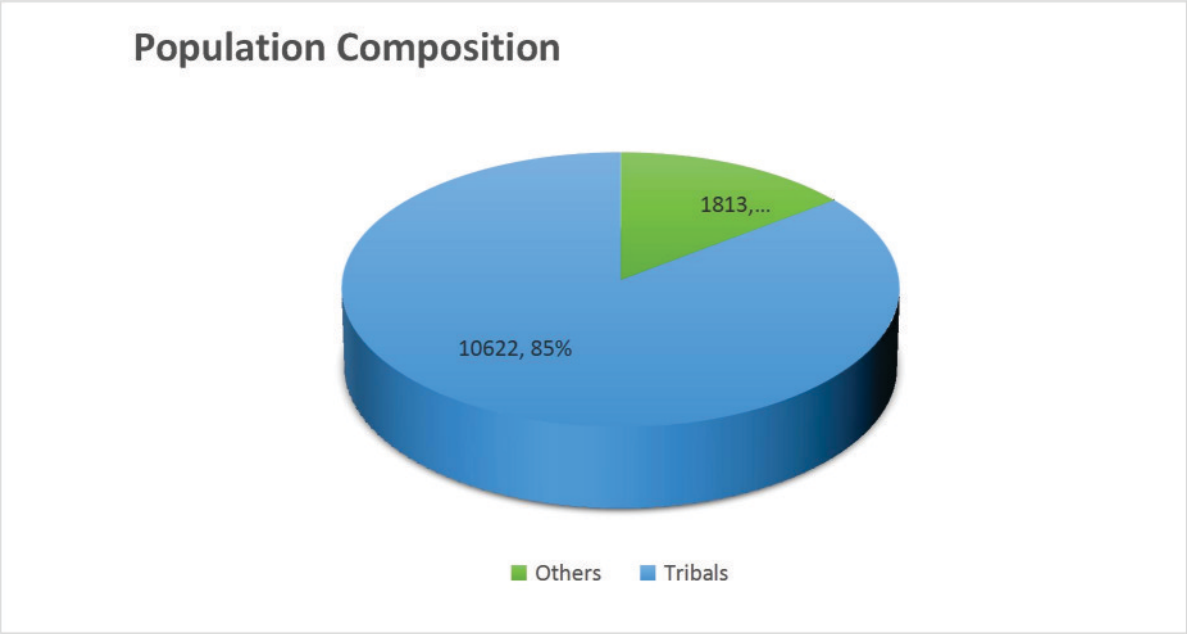


Table 7 Educational qualification of the study participant.

Level of education	Numbers	percent
Illiterate	5319	41.9
Secondary	6403	50.4
Higher Secondary	469	3.7
Graduate/Degree/Diploma/ Post-graduate	276	2.2
Any other-specify	222	1.7

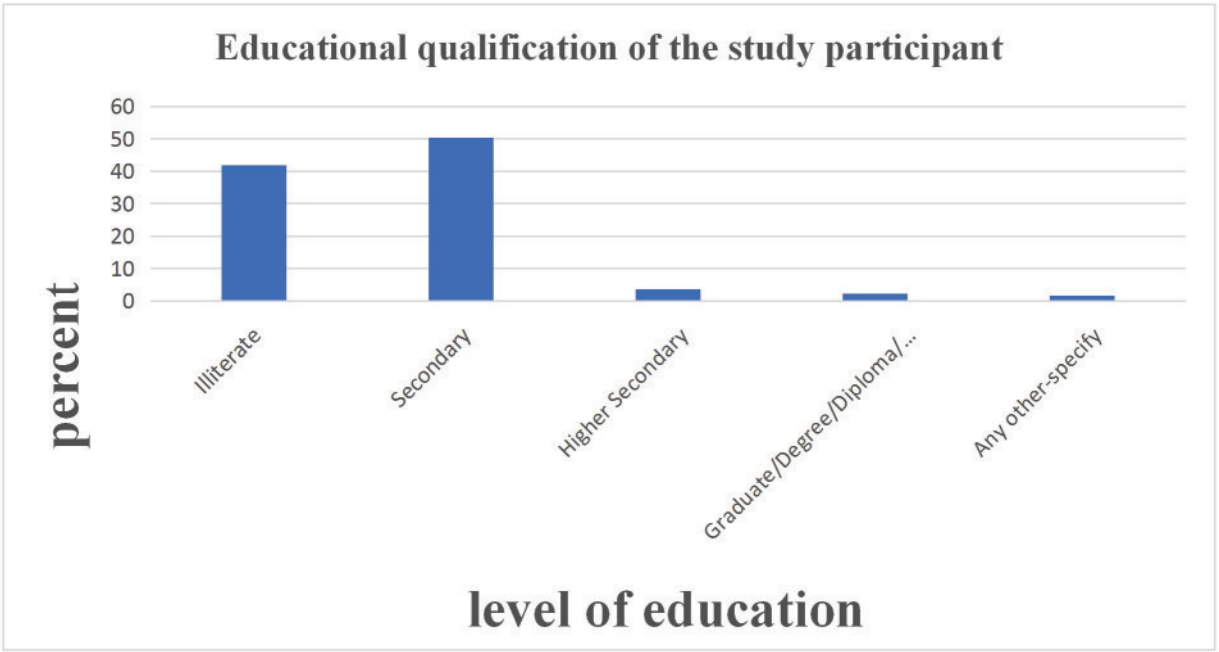


Table 8 Occupation of the study participant of the population

Occupation	Numbers	Percent
Own cultivation and laborer	1815	14.3
Agri. Laborer	4120	32.5
Small business	17	0.1
Construction laborer	383	3.0
Govt Service	70	0.6
Private Service	233	1.8
Student	2541	20.0
Housewife	3469	27.3
Others (Non worker)	10	0.1
Total	12689	100

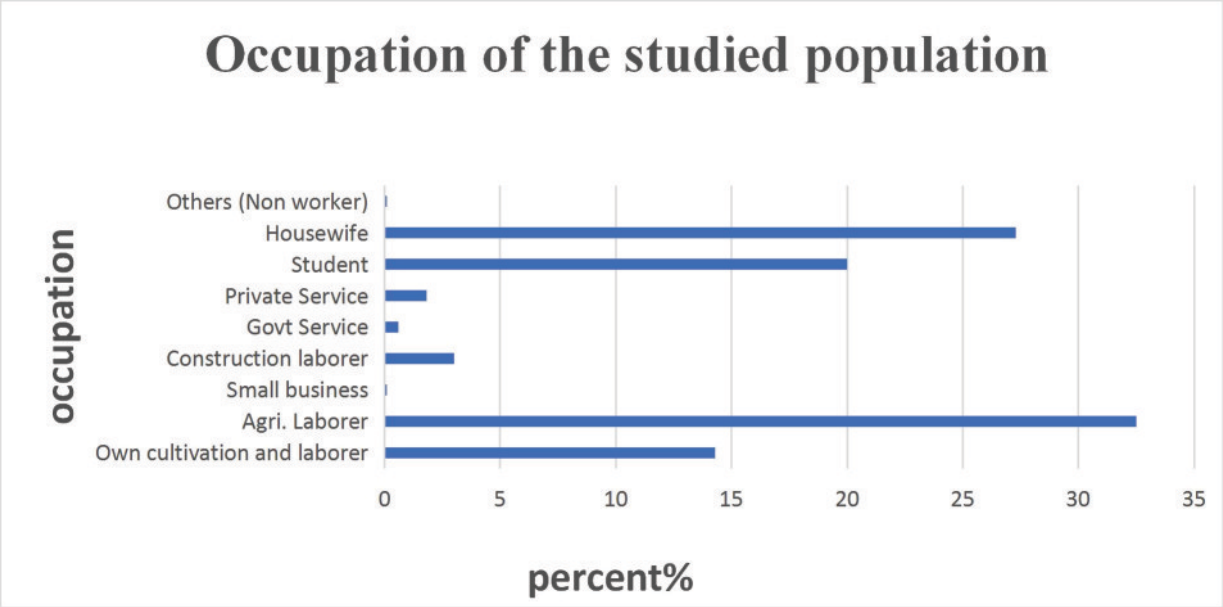
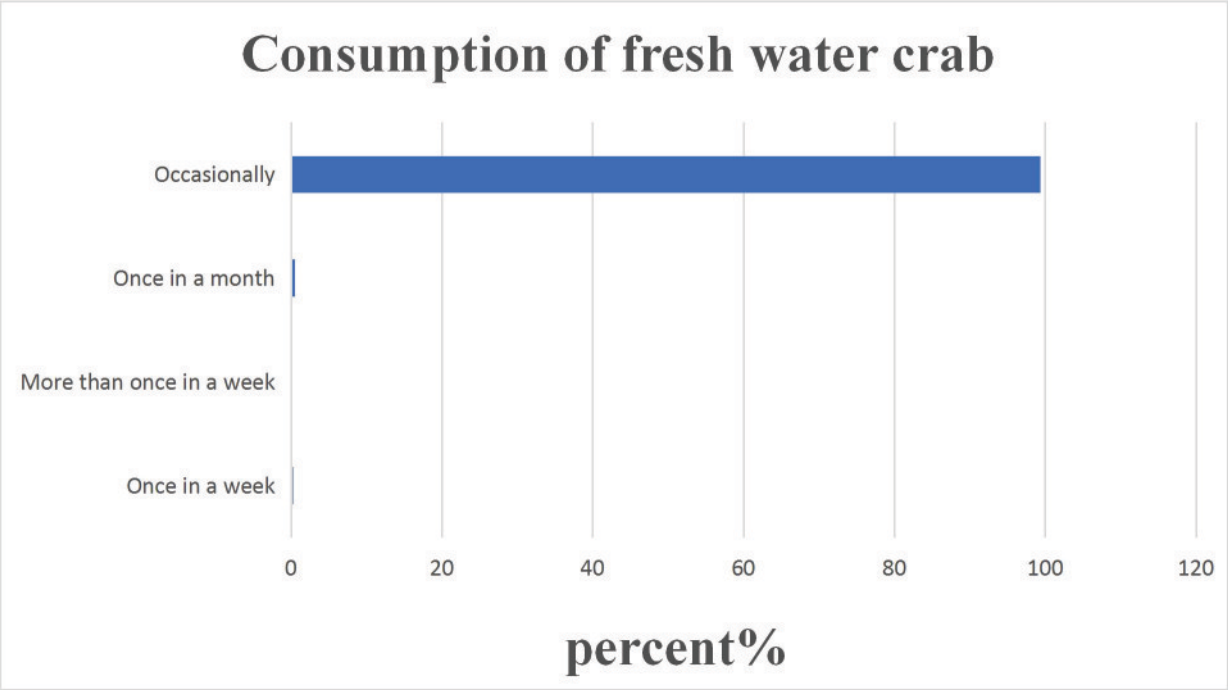


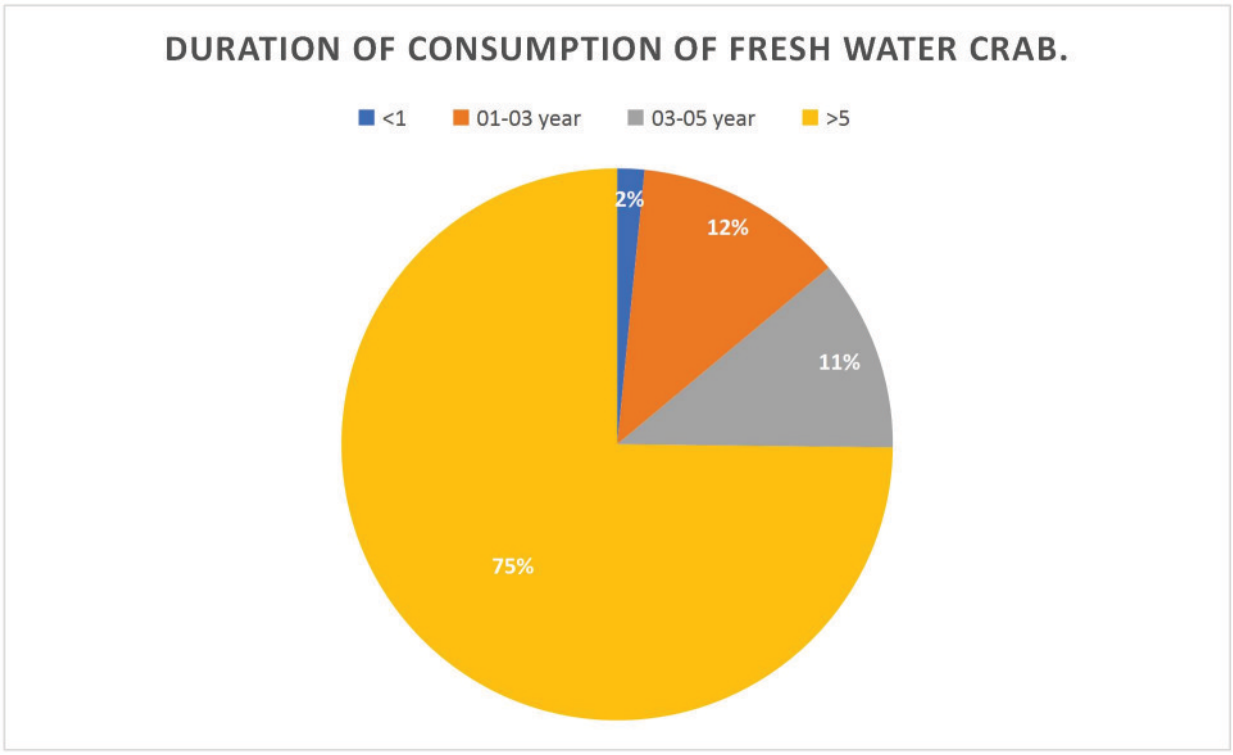
Table 9 Duration of Consumption of fresh water crab.

Duration (Year)	No. of cases	Percent
<1	159	1.3
1-3	1282	10.1
3-5	1169	9.2
>5	7769	61.2
Total	12689	100.0

Table 10 frequency of Consumption of fresh water crab

Crab Eating Habit	Frequency	Percent
Once in a week	26	0.2
More than once in a week	1	0.0
Once in a month	59	0.5
Occasionally	12603	99.3
Total	12689	100.0





1. Total village covered in Mandla/Baihar 62 Umaria 50.
2. Screened individuals 7262 in Mandla/Baihar and 7709 in Umaria.
3. **Sputum screening for lung fluke eggs.**
   Sample Collected and tested 3715 for Mandla/ Baihar and 3605 for Umaria.
4. **Antibody screening for lung fluke antigen.**
   Sample Collected and tested 3413 for Mandla/ Baihar and 2390 for Umaria.
   03 sample were found to be positive in Baihar, **03** sample were detected positive in umaria **- ELISA.** When screened for sputum and stool it was detected negative.
5. **Crab collection and dissection.**
   Sample Collected 1213 for Mandla/ Baihar and 1234 for Umaria.
6. **10 crab samples tested Positive in Baihar.**

Project- Metabolic Syndrome among three PVTGs of Central India

PI : Dr. Suyesh Shrivastava, Scientist C,
Co-PI - Dr. Tapas Chakma, Scientist G

Status - Ongoing
Date of Initiation- September 2021
Date of Completion- Ongoing
Funding Sources- Extramural

Background

Metabolic syndrome is a cluster of conditions or metabolic irregularities which can risk to develop cardiovascular diseases (CVD) in any individual. Around 17 million people die from cardiovascular conditions each year, accounting for 30% of all fatalities. In a report of International Diabetes Federation (IDF), 2006 it was estimated that one third population of world's population has metabolic syndrome. In 2001, the National Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III) devised a definition for the metabolic syndrome (National Cholesterol Education Program, 2002), which was updated by the American Heart Association and the National Heart Lung and Blood Institute in 2005 (Grundy et al., 2005). According to the NCEP ATP III definition, metabolic syndrome is present if three or more of the following five criteria are met: waist circumference over 40 inches (men) or 35 inches (women), blood pressure over 130/85 mmHg, fasting triglyceride (TG) level over 150 mg/dl, fasting high-density lipoprotein (HDL) cholesterol level less than 40 mg/dl (men) or 50 mg/dl (women) and fasting blood sugar over 100 mg/dl. Demographic transition among tribe is accompanied by a "risk transition"- from which arise the need for surveillance of NCDs and the root cause of these diseases which might be Metabolic Syndrome. Metabolic Syndrome among the tribe (especially among PVTG) residing central India have not been studied earlier.

Objectives-

1. To estimate the prevalence of metabolic syndrome among adults of three PVTGs population of Madhya Pradesh and Chhattisgarh.
2. To estimate the proportion of diabetics and pre-diabetics meeting each of the ATP-III criterion for metabolic syndrome.

Methodology

The present study is a cross-sectional study, community-based survey of adults of either sex aged between 20 – 65 years, with the sample size of 5670. The study sites includes Dindori, Bilaspur (GPM district, undivided portion of Bilaspur), Korea, Shivpuri, Morena, Gwalior, and Chhindwara of Central India. The three particularly vulnerable tribal groups (PVTGs) included in the study were Baiga, Bharia, Saharia. The participants were subjected to anthropometric measurements, Blood pressure & Glucose level measurements and also responded to the WHO STEP tool and an open ended food frequency questionnaire. For the biochemical measurements, 2 ml blood sample and 5 ml urine sample were collected from each respondent.

Results-

As on 22nd September 2022, 2574 respondents have been interviewed and subjected to the anthropometric and biochemical measurements. Sample collection of Dindori, Chhindwara, and Gwalior district of MP is completed with 792 Baiga, Bharia and Saharia respondents each respectively. GPM (Gaurella, Pendra, Marwahi) undivided portion of Bilaspur is also started for the sample collection in the month of September 2022 with 174 baiga repondents till date. Morena district of MP has also been established as a new site and is ready for the collection of data. Analysis of 726 (434 males & 292 females) respondents from Dindori are taken in to account. Out of which 40.63% were observed to be hypertensive, 13.77% are observed to be diabetic, 42.28% respondents had dyslipidemia (either HDL less than the expected & triglyceride more than the expected for the sexes), and 9.22% respondents were observed to have both hypertension and *diabetes mellitus*. These significant number indicates emerging conditions of non-communicable diseases in Baiga tribe.In our findings, 13.19% of total respondents were found with Metabolic syndrome, in which males accounted for 6.94% and females for 6.25% according to NCEP ATP III criteria. The alcohol usage in the participants were observed to be 66%, 9% participants were using smoking tobacco, 14% were using chewing or smokeless tobacco and 11% paticipants were observed to be using both chewing and smoking tobacco. Participants found with Metabolic syndrome, there are 31.70 Males and 2.50% Females using tobacco and 65.85 Males and 52.50% Females using alcohol. The major constituent of the meals were observed to be carbohydrate with its constituent of 58% in the diet and protein was observed to constitute only 17% in the diet.

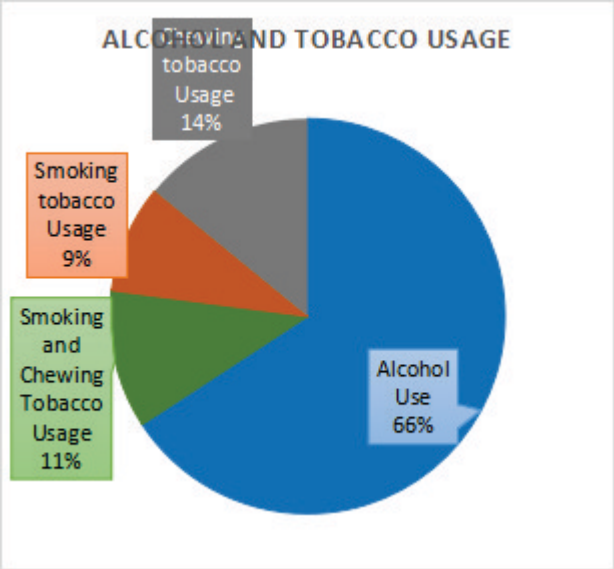


Fig. 1 Prevalence of alcohol and tobacco use in study participants of Dindori district.

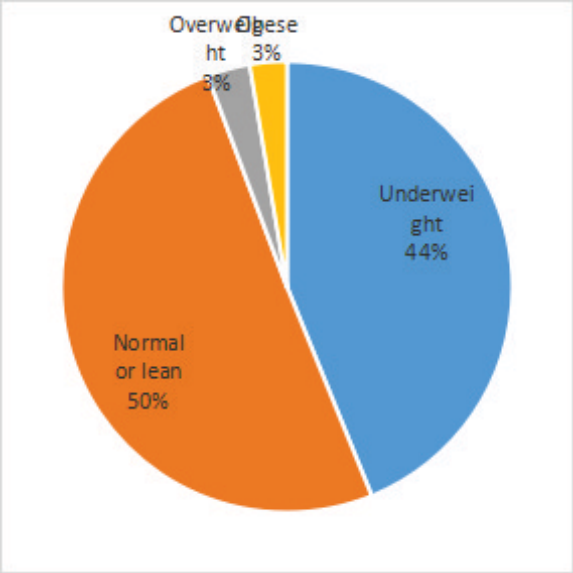


Fig.2 Body Mass Index (BMI) calculation in study participants of Dindori district.

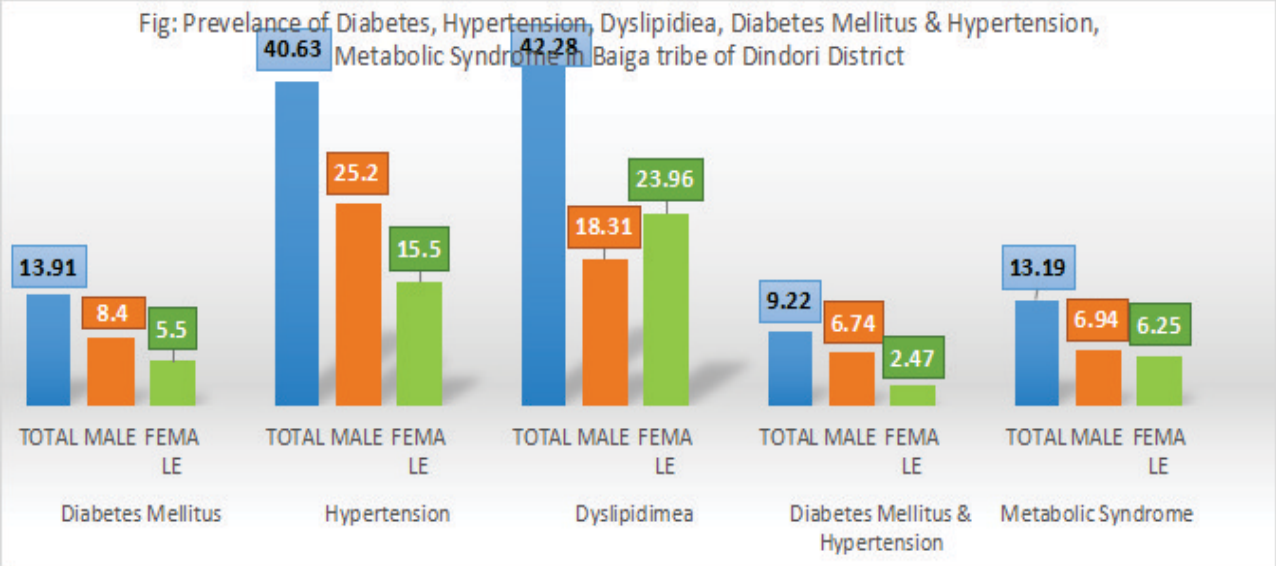


Fig 3: Prevelance of Diabetes, Hypertension, Dyslipidiea, Diabetes Mellitus & Hypertension, Metabolic Syndrome in Baiga tribe of Dindori District

Fig.4 a b & c showing field work and lab work for the data collection

Title: Development of isothermal amplification-based rapid and sensitive colorimetric diagnostic test for leprosy bacilli

PI : Dr. Pushpendra Singh, Scientist E

Status : Ongoing

Date of initiation : 2021

Date of Completion :

Funding Sources : Intramural

Background with the objective: The World Health Organization has recognized improved access to effective leprosy diagnostic testing as a public health priority. Nucleic acid-based leprosy tests have been limited to centralized laboratories and specialized research settings in high-burden leprosy nations such as India. Requirements such as a constant electrical supply, air conditioning and skilled, computer literate operators prevent implementation of such tests in many field settings. Isothermal DNA amplification methods enable the adoption of simpler, less energy-intensive detection systems that are more adapted to low-resource situations and allow for the correct identification of a disease in a short period of time. Recombinase Polymerase Amplification (RPA) has emerged as a novel, isothermal technology for use in the molecular diagnosis of infectious diseases. Unlike many other isothermal technologies, RPA does not require elevated or precise temperatures and may proceed at temperatures between 25°C and 42°C. Three key enzymes are used in the RPA process: recombinase, single-stranded DNA-binding protein (SSB), and strand-displacing polymerase. If the target sequence is present, an exponential DNA amplification process is initiated using two opposing primers, similar to PCR.

Objective: To investigate the use of RPA to detect Mycobacterium leprae DNA from patients presented with Paucibacillary (PB) and Multibacillary (MB) cases

Brief methodology: An RPA assay was designed to target the RLEP sequence (present in 37 copies), a region that has been shown to have high sensitivity for diagnosing leprosy using PCR.

DNA extraction from a skin biopsy, blood and slit skin smear slides

Oligonucleotide primers and probes used to develop the RPA assays were designed

DNA, primers were added to a tube provided by Twist Amp kits The final RPA reaction volume is 50u1

The RPA reactions were incubated at 39°C and 42°C for 15, 30 and 45 mins

After that, the tubes containing RPA product were again incubated/heated at 65°C for 10 mins or treated with 10% SDS (to stop the reaction)

RPA product containing an amplified fragment of the target region was electrophoresed in agarose gel

Brief results: The 450 by (RLEP) fragments were amplified by using inhouse designed primers

Each amplification reaction was analyzed on 2% agarose. Gels were stained with ethidium bromide and photographed using gel documentation system. A 100bp DNA marker was included on every gel for comparison purposes.

Title: Development of simple and cost-effective methods for detection of mycobacterial DNA in leprosy and TB patients directly in clinical samples

PI : Dr. Pushpendra Singh, Scientist E

Status : Ongoing

Date of initiation : 2020

Date of Completion :

Funding Sources : Intramural

Background with objective : With a rise in infections caused by pathogenic mycobacteria diseases (tuberculosis and leprosy) and advancements in mycobacterial culture methods in recent years, a significant workload on mycobacteria species identification has been upheld in normal clinical laboratories. This is especially notable in high throughput laboratories where numerous mycobacterial isolates must be quickly processed for clinical sample identification. Several commercial methods for fast detection of mycobacteria employing various molecular-based technologies had been developed for everyday usage. Despite their simplicity, these tests are frequently suitable for limited test volumes and are too costly for high throughput laboratories to utilize in a normal clinical diagnostic context. Delay in the diagnosis of patients augments the transmission of infection and allows progression of the disease and more severe disability. Delays in diagnosis greater than ten years have been reported in India. To reduce this delay, it is important to diagnose the samples early and accurately with simplified methods that may also be used in field settings. Therefore, with this project, we intend to design simplified tools to detect mycobacterial infections and which has the potential to become field friendly tests.

Objective: To design molecular assays that can detect mycobacterial infections in a simplified and rapid manner.

Methodology : A single set of primers was designed in the desired conserved area flanking the 45-bp deletion in *M. leprae* rpoT gene which targets 195-bp region in *M. leprae* and 240-bp region in *M. lepromatosis* that simultaneously detect and differentiate between *M. leprae* and *M. lepromatosis.*

PCR was carried out using GoTaq® Green Master Mix at initial denaturation of 95°C for 3 minutes, followed by 45 cycles of denaturation at 94°C for 45 seconds, annealing at 60°C for 1 minute and extension at 72°C for 45 seconds and the final extension at 72°C for 8 minutes. Agarose gel electrophoresis (2.5%, 80V, 60 minutes) was used for visualizing the PCR products

LAMP assay was carried out by using Warm Start colorimetric 2X master mix (incubation at 65°C for 45 mins) and compared its performance with conventional PCR. Later, restriction analysis was done by enzyme EcoRV (GAT|ATC) of the LAMP and PCR amplified products targeting the *M. leprae* repetitive (RLEP) sequence.

Brief results: The newly designed primers showed an expected single band of 195-bp in *M. leprae* and showed conserved sequences with a 45 bp deletion upon alignment. Similarly, it showed a 240bp band with *M. lepromatosis* in agarose gel.

- For 105 clinical samples of suspected leprosy cases, the LAMP assay provided more rapid conventional PCR successfully amplified 92 samples. The LAMP products showed an and accurate results by successfully amplifying the RLEP region in 100 samples whereas expected cleavage pattern upon restriction digestion confirming the specificity of RLEP sequences.

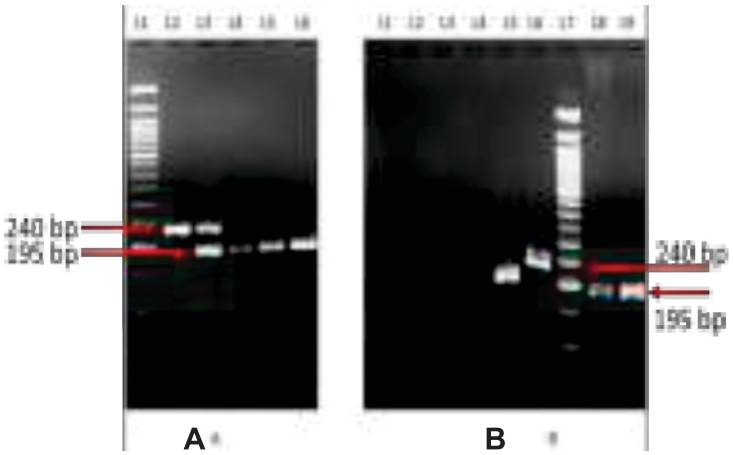
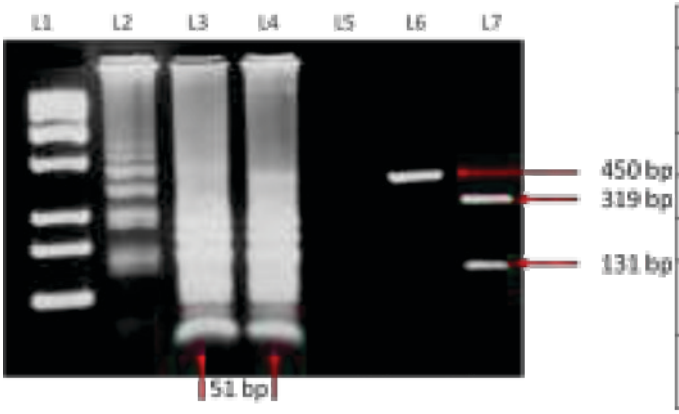


Figure A & B : Difference in amplicon size of the spot region can differentiate M.Leprae (195 bp) vs M. lepromatosis (240 bp) as shown in Figure A & B.



Lane	Sample name
L1	100bp ladder
L2	LAMP undigested clinical sample
L3	EcoRv digested clinical sample
L4	EcoRv digested clinical sample
L5	blank
L6	Conventional PCR amplicon undigested clinical sample
L7	Conventional PCR amplicon EcoRv digested clinical sample

Figure C : The LAMP amplicon can be identified by 51 bp band after restriction digestion of the amplicon.

Title: - Establishment of SL VRDL at ICMR-NIRTH, Jabalpur

PI : Dr. Pushpendra Singh, Scientist E

Status : Ongoing
Date of initiation : Dec 2019
Date of Completion :
Funding Sources : DHR, Govt. of India

Background with objective : This project aims to establish a viral diagnosis and research laboratory at this institute with following objectives:

- To provide diagnosis of viruses of public health importance
- To conduct research on viruses of public health importance
- To conduct outbreak investigates in collaboration with state health authorities

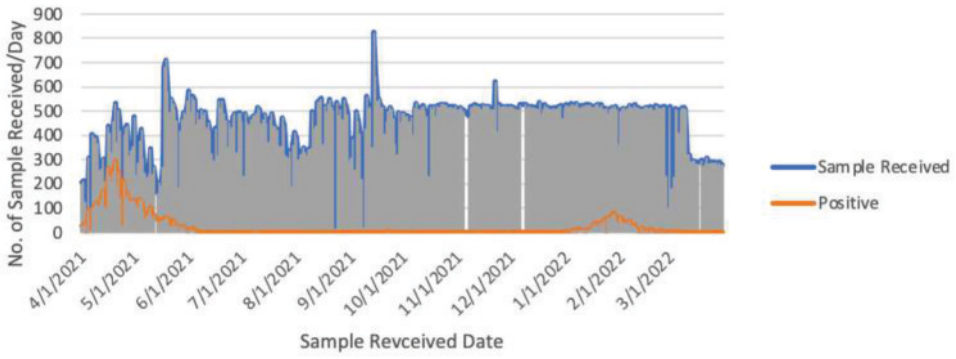
Brief methodology: Samples referred from different government health facilities are tested using serological and molecular tools. Diagnosis for more than 20 viruses is provided following syndrome-based approach as per DHRs protocol followed across the country.
Research work on molecular and serological characterizations of viruses, epidemiological trends of virus's clinical relationship with molecular characteristic are done.
The laboratory helps state government during Outbreaks, epidemics and pandemics by providing timely diagnosis, helping in field invitations suggesting control majors and future precautions etc

Results : In 2021-2022 we tested more than 1.5 lakh sample from mostly from Balaghat (92.49%) and Jabalpur (6.95%) district of MP. The overall positivity rate in our tested sample was 4.60% in 2021-2022.
In addition,

- Laboratory also performed diagnosis and serotyping of dengue.
- Diagnosis for more than 1500 samples for hepatitis etc was provided
- Diagnosis for Measles and Rubella for more than 800 samples was provided.

2020-2021 we tested nearly one lakh samples from 20 district of MP,

highest sample from Katni (28.75%) followed by Narshngpur (24.15%), Balaghat (19.03%), Jabalapur (12.50%), and others. number of sample received/day and number of positive cases is presented in Figure below:



Title: A pilot demonstration project for reduction of tuberculosis in Saharia Tribe

PI : Dr. Ravindra Kumar, Scientist C

Status : Ongoing

Date of initiation : September 2021

Date of Completion :

Funding Sources : Extramural

Background with objective : The main objectives of the study are:

1. To demonstrate reduction in tuberculosis (TB) in Saharia dominated district (Sheopur) of Madhya Pradesh using innovative operational strategies.
2. To establish mechanism and processes for enhanced testing and treatment of tuberculosis cases.

The specific objectives of this study are:

1. To compare the reduction of tuberculosis in Saharia and Non-Saharia.
2. To identify the prevalence of tuberculosis infection (TBI) in household and social contacts.
3. To strengthen existing healthcare system through capacity building at village/panchayat level and awareness generation.

Methodology : The study is planned to be carried out in Sheopur district of Madhya Pradesh. Panchayats sarpanch and secretaries, health and wellness centers, ASHA and ANMs will be involved for finding of presumptive TB cases. screening will be done through hand held X-Ray device and molecular confirmation of TB will be done by Trunat. After the intervention of 6 months and follow-up, an end-line survey will be performed (10-11 months) and the estimated end-line prevalence will be compared with the prevalence rate of Sheopur district in year 2015.

Results : PI and project coordinators visited various officials of state such as PS, Department of Panchayat and Rural Development, Director, Directorate of Panchayati Raj, State TB officer, Deputy Director Health and Wellness Center, Director, Directorate of Health Services, Madhya Pradesh and CMHO, DTO, District Magistrate, CEO, Panchayati Raj, Sheopur and gave an overview of the project and asked to provide support in the project.
Subsequently, our team visited all villages, panchayat and subcentres of the district to create awareness for TB and met with following officials i.e. Janpad CEO, Panchayat Sachiv, Community Health Officers (CHOs), Medical officers, Auxiliary Nurse Midwife (ANM) and discussed the aim and benefits of the project.
So far total 14 camps were done at sub centers of Karhal and Vijaypur Block which covered around 75 villages. During the camp total 340 presumptive TB cases were screened, in which total 232 X-ray and 301 sputum (on spot sample) taken for diagnosis. Of which 41 patients were microbiologically confirmed MTB. X-Ray for TB was positive in 48 cases. Treatment also started for 43 patients and Contact screening has done for 112 contacts and TPT has been started for 89 contacts. E-poshan has given to 15 patients who are under BMI 18.5 kg/m2.

Relevant Figures

Patient follow-up

IEC of MPW

IEC activity at Schools

Chest X-ray

using Hand Held Device

Title: B-VOCAL SCD – Burden of Vaso -Occlusive pain Crisis: A Cross sectional observation study among patients with Sickle Cell Disease in India

PI : Dr. Ravindra Kumar, Scientist C

Status : Ongoing

Date of initiation : Jan 2022

Date of Completion :

Funding Sources : Novartis India Private Limited (THB)

Background with objective : Sickle cell disease (SCD) results in severe complications such as vaso-occlusive pain crisis (VOC), acute chest syndromes, hemolytic crisis, pulmonary hypertension, nephrotic syndrome, and end-organ damage. VOC is the hallmark of SCD, and it is one of the frequent complications encountered in SCD. Evidence from the studies has shown that VOC has a serious impact on QOL and is associated with a significant economic burden among patients and healthcare systems that cater to SCD patients. However, there is a lack of data on the economic burden of VOC and its impact on QOL in India.

Hence, this multicenter, nationwide cross-sectional study aims at examining the point prevalence of VOC, exploring its management, and understanding the current unmet need with the HU therapy in the management of SCD. In addition, the study also aims to evaluate the QOL of SCD patients and the economic impact of VOC on SCD patients and the health care system.

Primary Objective

To estimate the point prevalence of VOC among the SCD patients visiting the health care set up during the study period

Secondary Objectives

1. To estimate the point prevalence of patients with complicated and uncomplicated VOCs during the study period
2. To determine the pattern of HU use in the VOCs management
3. To measure the proportion of patients with chronic complications and End Organ Damage
4. To assess the QOL of SCD patients with and without VOC
5. To evaluate the cost of illness of VOC on patients, society, and the health care system

Methodology :

A total of 20 centres located across SCD prevalent states in India, consisting of mix of Government, Private hospitals and NGO-run hospitals based on the reimbursement of care patients receive, has been selected for the study.

Study population: At least 1000 SCD adult and pediatric (>2 years of age) patients of any genotype visiting the various centers in the SCD prevalent states.

This study will use primary data through patient interviews and patient records in the centers where patient data is captured systematically in their Case Records / Files [Hard copy / Electronic medical record (EMR). All the patient data will be collected using a structured electronic case record form (eCRF) on the index visit. The patients who are fulfilling the eligibility criteria will be issued a unique subject ID at each center during the index visit. The data will be collected from SCD patients visiting the health care centers with VOC as a presenting complaint.

Results : At ICMR-NIRTH, we have subject enrollment 10 (08 Adults and 02 Pediatric) subjects till date. Out of ten, 2 have VOCs.

Title: Impact of new, one-minute, sensitive diagnostic with innovative malaria elimination plan

PI: Dr. Anil Verma, Scientist C

Status: Ongoing

Date of initiation: Jan 2020

Date of Completion: November 2021

Funding sources: India Health fund

Background: Malaria is the leading cause of death due to protozoan parasite and one of the major public health concerns in India. Majority of the burden is reported from tribal areas where there is need for early diagnosis and correct treatment. Malaria is primarily diagnosed by microscopy and rapid diagnostic test (RDT at primary health center (PHC) and community health center (CHC). These tools are either time consuming or less sensitive for low density cases. Therefore, there is an acute need for improved malaria diagnostics methods that are not only cost effective and fast but also advanced in many ways like highly accurate in sensitivity and specificity.

Objective: To evaluate new point-of-care malaria diagnostic device and its comparison with current gold standard tests to determine the accuracy of the new point-of-care instrument.

Methodology: The study was conducted at the malaria clinic of ICMR-National Institute of Research in Tribal Health located at selected study sites in Udaipur (Rajasthan), Jhabua (M.P.) and Jagdalpur (Chhattisgarh). All febrile patients attending the OPD of selected PHC/CHC at study sites are screened for malaria using RDT, Microscopy and Device . A small amount of blood sample was collected using the venipuncture method after informed consent along with anthropological and demographic information for screening. A few drops of blood were stored on Whatman fllter paper 42 for PCR analysis. The dried blood samples (DBS) were stored at 4°C in a drying box containing sachets of desiccant at study sites and transported to NIRTH Jabalpur at 4°C/ dry ice. DNA extraction was done using commercial kits (Qiagen) following manufacturer's protocol. All the DNA samples were stored at -20°C until used. Diagnostic results of RDT. Microscopy, PCR and Device are compared to ascertain the accuracy of Gazelle(Device).

Fig: A representative image of the point-of-care device

Fig: Map of India showing study sites in different states

Results: The study was conducted three different study sites at Sheopur (M.P.), Kotra (Rajasthan) and Jagdalpur (CG). After the screening of about 20,000 fever cases, a total of 3000 volunteers were enrolled for the study at three study sites. A total of 600 samples (Kotra (11%), Sheopur (10%) and Jagdalpur (35.3%)) were found malaria positive by microscopy and RDT. Further, analysis of all 3000 samples by PCR has revealed positive cases of Pf (25%), Pv (5.3%) ,Pm (0.1%), Pf+Pv (4.5%), other mixed (0.9%) infections. Further comparison of results of microscopy, RDT, PCR and Device needs to be done.

Conclusion: (in case of completed project): The performance of the device was found on par with RDT but below PCR. Further, the results of the study show that the differentiation of *P.falciparum* and *P. vivax* are possible on the basis of hemozoin.

Title: Revitalizing ethnomedicine among Baiga of MP - an exploratory research

PI : Dr. Nishant Saxena, Scientist B

Status : Ongoing

Date of initiation : April 2019

Date of Completion : March 2022

Funding Sources : ICSSR IMPRESS, Ministry of Education, Govt. of Inida, New Delhi

Background with objective : Studies from across the globe, and not just in India, have shown that tribal groups have their own unique ways of defining health, disease and also dealing with it. Almost all these communities have traditional healers or the ethnomedicine practitioner (EMP) who are carrying forward the traditional knowledge gathered over generations of habitation close to nature. Most importantly, it has been seen that tribes approach this traditional medicine man first when facing health issues irrespective of their education level. However, most of the studies investigating the tribal traditional medicine system do not consider the voices of the patients of these healers. This is where the present study scores over the others. Also, the EMPs or the traditional healers are mostly projected as though as service providers, but no efforts were made to holistically understand their practices in nitty-gritty. The present study fills in these gaps and provides answers to many questions on both the healer and patient side largely ignored so far and that too in a Particularly Vulnerable Tribal Groups (PVTG), *i.e.* Baiga of Madhya Pradesh.

Methodology : The field work was carried out in the *'Baigachak'* area of Dindori district which comprises of about 52 villages in Bajag, Samnapur and Karanjia tehsils. The study was completed in two phases in a sequential manner. In the first phase the focus was on compilation of a list of EMPs and their patients using snow-ball method. In the second phase in-depth collection of data for documenting the traditional medicinal practices of the healers and associated experiences of their patients was carried out. Anthropological methods and techniques, mostly qualitative in nature, like observation, ethnography, in-depth interviews along with structured interview schedules and audio-visual documentation were used.

Results : The study has been successful in reaching out to 117 EMPs or 'Gunia' (local term for the community healer) of the *Baigachak* area, mostly belonging to the Baiga tribe, and to their 327 patients or beneficiaries. Detailed in-depth data has been reported from both the practitioner and patient perspective to understand the practice holistically. We unearthed the concept of '*Dham'* or '*Chowki'*, *i.e.,* a unique way of providing cure to the community by EMPs wherein they have developed folk centres for providing traditional therapies including faith healing. These centres have the facility of waiting area, cooking area and also endowed with the facility of boarding and lodging for patients and their families for long-term stay. Also, usage of about 93 herbal combinations have been recorded from the area. Many of these medicinal plants are now present in the Tribal Traditional Medicinal Plants Garden maintained in the campus of ICMR-NIRTH at Jabalpur. In addition to the above, the research tools (i.e. structured interview schedules) developed under the study for collecting first-hand information from the EMPs and their patients has been well validated and accepted by funding agency. However, it was felt during the study that an ethnobotanist needs to be included in the team for precise identification of medicinal plants.

Conclusion:

- Data collected from 117 EMPs and 327 of their patients from remotely located 52 villages of *Baigachak* area in Dindori district of Madhya Pradesh pertaining to traditional medicine practices.
- The concept of 'Dham' or 'Chowki' unearthed for the first time – it is a unique way of providing cure to the community by EMPs.
- Usage of about 93 herbal combinations have been recorded from the area.

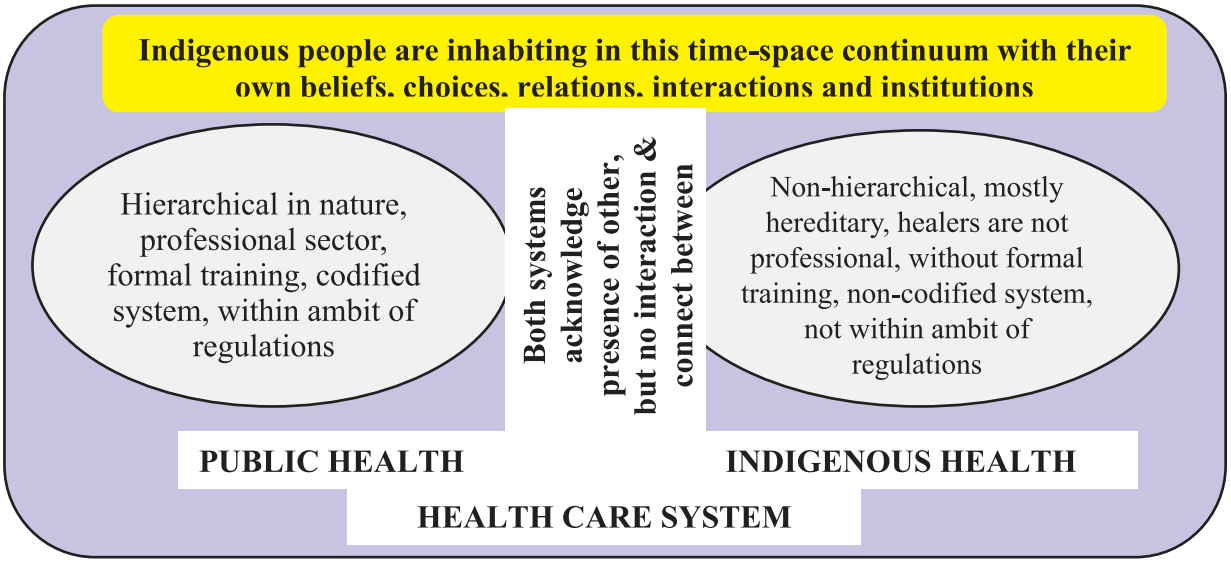


Figure 1: Status-quo of health care system in areas inhabited by tribal populations in India (source: Saxena et al., 2021)

Figure 2: Patients waiting for their turn in the waiting area of a '*Dham'* located in the Bajag block of Dindori district, Madhya Pradesh

Title: Understanding the perspective and coping strategy for recently emerged COVID-19: An exploratory study in tribal population of Himachal Pradesh and Madhya Pradesh

PI : Dr. K. B. Saha, Scientist F

Status : Completed

Date of initiation : August 2021

Date of Completion : December 2021

Funding Sources : ICMR, New Delhi

Background with objective: COVID-19 pandemic has wreaked havoc and is creating confusion, panic and anxiety among people all over the world. No such systematic information is available from the tribal areas. The main objective of the study is to understand the operational issues and challenges faced by the health providers to respond to Covid-19 and the level of awareness and human behaviour related to stigma, discrimination, anxiety and mental health related to COVID-19 pandemic among different section of the population and the coping strategy.

Methodology: This is a rapid survey which includes both quantitative technique and qualitative in-depth interviews. Non-probabilistic sample design was adopted to select the respondents. The survey was conducted during September to November 2021 in four geo-cultural tribal dominated areas in Himachal Pradesh and Madhya Pradesh among the target group of the tribal population to understand the situation.

Results: There is paucity of trained service providers including health infrastructure in all the four tribal areas. Overall the awareness of COVID-19 was better in Lahaul & Spiti (Fig.1). It was observed that Scheduled tribes (88%) were less aware of COVID-19 symptoms compared to other social groups. About 76% of the respondents were reported to be aware of the place of diagnosis and treatment for COVID-19 infection. Forty-nine percent reported handwash using soap as preventive measure. Sanitizer was reported by 54% of the respondents (Fig. 2). Around 85% of the respondents mentioned to use face mask regularly (Fig.3). Use of disposable mask was reported by 28% of the respondents. Twenty percent of the respondents reported to have washed and reused the disposable face masks. About 5% also mentioned that they interchange their face masks with other family member. Fifty one percent reported to maintain social distancing. About one-fourth expressed that pandemic has no impact on the employment status. Overall 47% reported viewing of television, followed by involving in music, dance, and other cultural activities (44%) during lockdown period to cope up with the stress. To cope up with the economic crisis they mainly used their personal savings (62%), borrowing loan from relatives (11%); friends (10%); neighbours (8%) and availing government economic development scheme (18%). Overall, all most all the respondents (95%) were aware of existence of COVID-19 vaccine. Stigma and discrimination related to COVID-19 do exist in these tribal areas. Further there existed misconception related to ideology of transmission of the infection in the tribal areas.

Conclusion: It is evident that awareness on symptoms of COVID-19 infection was not uniform in all the tribal regions considered in the study and there is a need to strengthen the need based localized IEC activities to improve the situation and promote the preventive practices and also equipped the health facilities in the tribal areas.

Fig.1: Area wise awareness to different COVID-19 symptoms

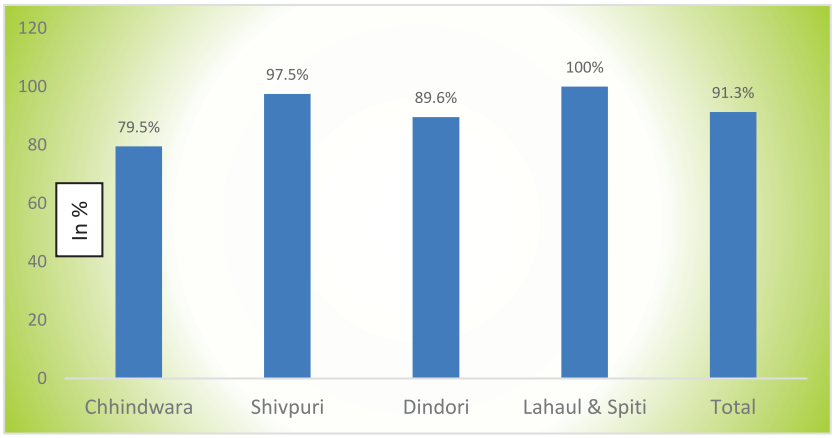


Fig.2: Awareness on preventive aspects of COVID-19

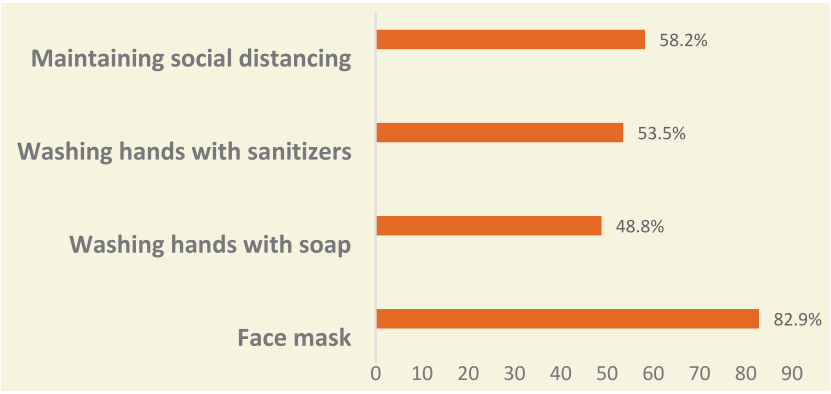
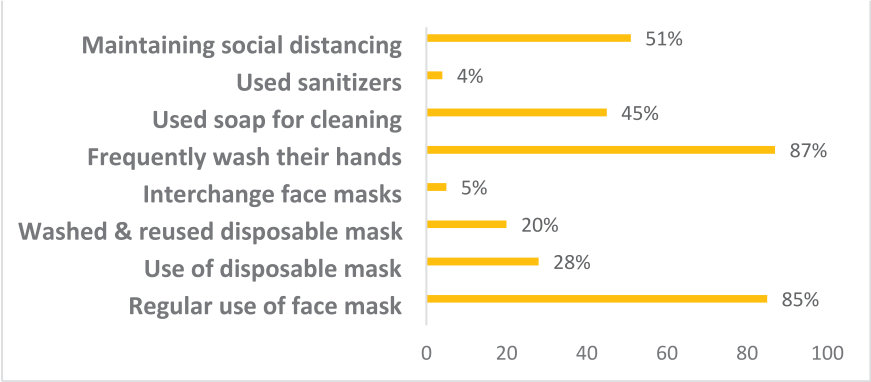
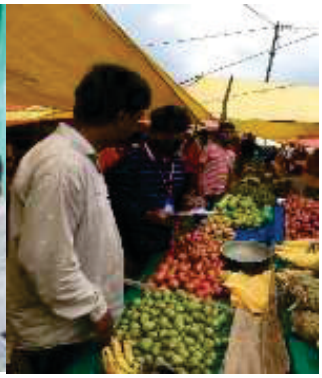


Fig.3: Preventive practices followed





Title: Lifestyle intervention program on health seeking behavior, malnutrition and malaria prevention in Ashram school children of Dindori district in Madhya Pradesh (Extramural study)

PI : Dr. Dinesh Kumar, Scientist E

Status : Completed

Date of initiation : February 2019

Date of Completion : March 2022

Funding Sources : National Academy of Sciences India (NASI), Allahabad

Background with objective : The benefits of healthy lifestyle are well known. A healthy diet and physical activity are the key elements for achieving optimal health. The oldest child of tribal families are studying in Ashram school which provide free fooding and lodging in school setting. The children lodging/residing in the school campus depend on available foods and minerals, etc., for growing and achieving the good health condition. The responsibility of welfare of children rests with the society and the authority. Hence, empowering the school children will help not only in improving health but also for taking decision making in right way. The study aimed to implement school-based lifestyle intervention activities for benefits to tribal children with following objectives.

Short term objective:

1. To organize a school-based multi-component healthy lifestyle program focusing on diet, physical exercise, and necessary training/ workshops.
2. To establish an enabling school environment with integrated (well-defined) canteen guidelines.
3. To create awareness on WASH (water, sanitation and hygiene) among children, teachers and support staff for a healthier practice.
4. To evaluate the net impact and utility of the lifestyle intervention program.

Long term objective:

1. To sensitize, encourage and promote adoption of a healthy lifestyle and healthy eating (diet) among ashram school students.
2. To encourage informed and rational decision-making right and bright future.

Methodology: The study was carried out in 8 Ashram schools (4 Boys & 4 Girls school) children of Sahapura block in Dindori district. The study plans is to be completed in three phases; baseline survey, IEC implementation and impact evaluation survey with pre and post-intervention study design.

Students selected who were studying in class 6th to 12th class within the age group 11-18 years. A total sample of 300 students were covered comprising 147 girls and 153 boys in baseline survey(phase-I). Kinds of the IEC education materials are such as one banner and nine posters containing different messages about the waterborne disease, personal hygiene, menstrual hygiene, nutrition, malnutrition, physical activities, school environmental program lifestyle activities, malaria and vector-borne diseases (dengue, chikungunya, H1N1) for enhancing the knowledge among the students. Three round lifestyle IEC education activities were implemented with several lectures, group and interpersonal communication(phase-II). For impact evaluation survey (phase-III) a total of 303; 152 girls and 151 boys were surveyed by using same questionnaires tool which was used in phase-I.

Brief results: Improvement of health care behavior and personal habits as immediately inform to school administrator for health care were found increased by 5.1% among boys while it was 7.1% among girls. Use of tobacco product (Gutkha/Pan-Masala) was found reduced by 5.6% among boys while it was found 8.4% among girls. Physical activities found significantly improved (20.2%) among boys than lower (2.8%) among girls. The WASH (water, sanitation and hygiene); the cleaning toilets of school were found improved daily/routinely by 6.9% and within 1-2 days by 4.1% in boy's ashram school and in girl's ashram school it was improved by 7.8% and 14.1% respectively. For mental health and fitness of the body, physical activities/sports were found 12.2% improved daily one hours' time spending among girls and 14.2% among boys. Among adolescent girls, it was found remarkable improvement the use of absorbent sanitary pad (14.0%) and new cloth 12.5% during menstruation period. Awareness of quality of food was found improved as good food 19.0% among boys and 14.1% among girls. The boys and girl's awareness on malaria disease diagnosed through blood sample was found improved 20.9% and 21.9% respectively. It was also found increasing trend of the use of mosquito net for the prevention of malaria in the ashram schools.

Conclusion: The study explored the effect of IEC education intervention among children in Ashram school. The improvement was found among boys and girls on health seeking behavior, nutrition and malaria prevention.

Fig.-1; IEC activities in **Govt. High School Amhera** Ashram School

Fig.-2; IEC activities in **Govt. High School Kohani Devari** Ashram School

Title: Improving the Health Care Access for Achieving Universal Health Coverage (UHC) among Scheduled Tribes: An Implementation Research in Saharia's of Sheopur and Shivpuri districts of M.P

PI : Dr. Dinesh Kumar, Scientist E

Status : Ongoing

Date of initiation : February 2020

Date of Completion :

Funding Sources : ICMR, New Delhi

Background with objective: The utilization of health care services is not adequate in tribal-rural areas in the country. Assess the people's health care access in the vulnerability segment of population in context of poverty & livelihood insecurity is prime issues.

Objective: To develop implementation strategies towards achieving universal health coverage by identifying and addressing the implementation barriers to improve access to health care service of assured quality without causing financial hardship to the people as well as public health services through the existing health care systems.

Objectives:

1. Assessing health needs and healthcare decision making processes to understand the healthcare-seeking and to assess the capacity of the existing PRI systems and community groups/committees to negotiate for better services.
2. To understand the facilitators and barriers in the healthcare service delivery, from both people's and providers' perspective.
3. To develop, implement and test an implementation strategy with some innovative approaches to improve the access to quality and affordable healthcare, including (a) improving leadership and governance, etc., (b) improving the health human resources, (c) improving financing, drugs, equipment & supplies and (d) promoting community involvement for improved access and utilization.

Methodology: The study has three phases; Phase-I; Formative Research, Phase-II; Developing IEC- Model and Implementation and Phase-III; Impact Evaluation & scaling-up of strategies. A cross-sectional survey was carried out among Saharia tribe in Sheopur district of M.P. The data were collected by trained investigators during August 2020 to February 2021 for phase-I. Under Quantitative Household Survey total of 2040 household was surveyed through selected 40 villages under 4-PHC/CHC. In Qualitative survey, 91 outpatients and 48 in-patients were covered under Exit Interview Survey and for Health Facility Survey 21 (4-PHC/CHC,4-SHC and 13 HWC) health centers was covered along with 78-IDIs & 12- FGDs was conducted. The data was analyzed and identified 3 potential gaps- increasing institutional delivery, optimizing the services of Health & Wellness Centers and reducing the TB cases. The study is in phase-II, we had developed IEC materials/tools based on identified gaps under heading MCH, TB and HWCs. Training given to staff at institute and also explored field training at study site for proper implementing the implementation research (IR) model and to conduct meetings with partners health care providers,

stakeholders, NGOs as well as local community leader and village head. We also support in sensitizing the concerned PHC/CHC and intervention villages through posters/banners/pamphlets and distributing the other related IEC materials.

Results : About 42.5% houses were found of mud house with thatched roof. Average annual income was found Rs 76980+-37636 and Median income Rs 72000. Out of 636 women, 87.6% reported that they had taken at least one ANC check-up. About 81% had taken first ANC check-up in first trimester and 7.4% in second trimester. More than 90% women reported pregnancy related complications during the most recent pregnancy. Most (81%) of the child birth was found normal whereas, home delivery (53%) was found higher than hospital delivery (46%). Overall, 18.7% at least one episodic/chronic/hospitalization were found among the studied population (9,210). Higher proportion of fever (51%) members were seen as episodic illness. About 46% TB as chronic illness were observed among them, 14.3% taking treatment as home remedies, etc. Out of 91 outpatients the disease and illness were seen was cough (37.5%), joint pain 29%, 21% diabetes and fever, snake/animal bite 12.5%, etc. Reason for patients to get admitted was body pain, weakness, dizziness (27%), Anemia 19%, delivery services 19% and for ANC services 42%, etc. Most of the health facilities were found to be with shortage of manpower, equipment and essential medicine while MCH services found were insufficient in few health centres. Conducted IDIs and FGDs concluded that low awareness of health care services, cultural believe as faith on god/goddess, deity, traditional healer, poor road condition and public transport, etc., are the barriers. Based on the outcomes of formative phase and several discussions with national experts, they guided and identified only 3 gaps; increasing institutional delivery, optimizing the services of Health & Wellness Centers and reducing the TB cases by screening, diagnosis, treating and management.

In Phase-II, 2 PHC/CHC area considered intervention arm and other 2 as control arm. We had conducted sensitization on identified issues at both community level in intervention villages and health facility level. Mass level awareness program with 5 IEC tools Banners, Posters, Slogans, Pamphlets and Booklet of training modules distributed and pasted at 5 different prime places intervention villages, concern CHC and PHC, Sub Health centers, HWCs and district administrative department (WCD, ITDA, CMHO office, Collectorate office and T.B division) has been launched. Over all 4338 IEC tools/materials displayed and distributed to increasing the health awareness and sensitization to fill the gaps. A total of 38 health education camps were conducted in intervention village on average 2 camp in each village in 2 rounds. So, for 691 participants/individuals were participated in 1st round on average 35 people per village and it was lower (448 participants) in 2nd round due to migration in search of the livelihood and occupation. A total 18 advocacy meetings conducted with health care providers/ stakeholders/NGOs. Our IEC activities and implementation strategies were covered 3-times by local media and national media like Patrika, Hari Bhoomi, Pratham Prahari Times (PPT), Nai Duniya and in Gwalior-Sheopur addition news. The study is under progress.

Relevant figure/ graph

Figure-1: Advocacy meeting with various Stakeholder to discuss on various issue of HWCs such as human resource, infrastructure, essential medicine and health services.

Figure-2: Awareness program organized on Ayushman Bharat (PMJAY and HWCs) in Bhojka Village

निर्णय • जनजाति बाहुल्य क्षेत्र में मातृ एवं शिशु स्वास्थ्य, टीबी, हेल्थ एंड वैलनेस सेंटर आधारित समग्र दृष्टिकोण से काम पर फोकस

बड़ौदा व कराहल में सार्वजनिक स्वास्थ्य कवरेज के लिए हेल्थ एंड वैलनेस सेंटर में बढ़ेगी सुविधा

कलेक्टर ने स्वास्थ्य कवरेज पर अन्वेषक टीम के अफसरों के साथ बैठक की

श्योपुर

राष्ट्रीय जनजाति स्वास्थ्य अनुसंधान संस्थान के अधिकारियों के साथ बैठक करते कलेक्टर।

स्वास्थ्य सेवा के तीन बिंदुओं पर काम करेगी यूएचसी टीम

बैठक में वह रहे मौजूद

ग्राम स्तरीय समिति में मैदानी पदाधिकारी करेंगे समुदाय के लोगों को प्रेरित

Figure-3: Dainik Bhaskar published the findings of meeting held on October 21, 2021 to improve health facilities at Health and wellness center of both Baroda and Karhal blocks.

मातृ एवं शिशु स्वास्थ्य और टीबी पर किया गहन मंथन

बैठक में मौजूद अधिकारी व कर्मचारी।

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श्योपुर. आईसीएमआर-राष्ट्रीय जनजाति स्वास्थय अनुसंधान संस्थान जबलपुर के यूनिवर्सल हेल्थ कवरेज (यूएचसी टीम) की एक कार्यशाला बुधवार को सीएमएचओ कार्यालय के सभाकक्ष में हुई। जिसमें कलेक्टर शिवम वर्मा और यूएचसी टीम के प्रधान अन्वेषक डॉ. दिनेश कुमार की मौजूदगी में हुई इस कार्यशाला में मात एवं शिश स्वास्थ्य, टीबी और हेल्थ एंड वेलनेस सेंटर पर गहन चर्चा एवं विचार-विमर्श किया गया।

साथ ही विभिन्न मुद्दों पर अपना ध्यान आकर्षित करते हुए समुदाय में जागरूकता कार्यक्र म के दौरान हुई विभिन्न समस्याओं पर कलेक्टर के अवगत कराया। कार्यशाला में सीएमएचओ डॉ.बीएल यादव, डीपीओ ओपी पांडेय, सहायक आयुक्त आजाक एमपी पिपरैया सहित अन्य लोग मौजद रहे।

Figure-4: Media coverage done by Patrika of findings of meeting held on November 30th, 2022 on optimizing the services at the health and wellness center

Title : Understanding tribal culture, lifestyle, animal husbandry activities and cause of death in five tribes of India through establishment of tribal habitats in ICMR- NIRTH, Jabalpur. (Extramural study)

PI : Dr. Dinesh Kumar, Scientist E

Status : Ongoing

Date of initiation : January 2019

Date of Completion :

Funding Sources : Ministry of Tribal Affairs (MoTA), New Delhi

Background with objective: Tribal culture and lifestyle are different and it varies by geographical regions. The lifestyle of culture is indirectly correlated the Health. On details health affairs among human being in the community is an outcome of several factors, to which ecology and environment contribute to major proportion. Disproportional interactions (shifting away of balance between environmental factor and lifestyle of communities) bring disease collision. Therefore, constitution of traditional tribal huts inside a tribal health research institute will help to propelling further research not only of health issues and other areas of Indian tribes.

The study is following four specific objectives;

1. To study the living pattern particularly socio-cultural aspects, food habits, animal husbandry, and health issues of the 5 identified tribal communities by interaction and collaboration with them.

2. To invite traditional artisans along with their colleagues of 5 different tribes to NIRTH campus and build their representative huts exactly simulating a traditional hut of their own community.

3. To understand daily (day to day) life style, washing, cleaning, cooking, defecating, eating and sleeping habits of typical tribal family from each of the tribal community.

4. To use the five tribal habitats as models for dissemination of knowledge generated with other community members, researchers, institutes related with tribal studies.

Methodology: The study is being carried out among five tribes; 3 primitive tribes (Baiga, Bharia and Saharia) from M.P, 1 primitive tribe (Hill Korwa) from Chhattisgarh and 1 tribe (Bhil) from Rajasthan) in 3 different States of the country. Accordingly, the 5 ideal Hut Model of primitive tribes Baiga, Saharia and Bharia residing in M.P, Hill Korwa of Chhattisgarh and Bhil of Rajasthan has been established (figure1-5). The survey work (data collection) has been completed of these five tribes. A total of 512 households (Baiga-101, Bharia-102, Saharia-105, Bhil-103 and Hill Korwa-101) surveyed throughout the 31 villages. Total individuals 2829 have been covered of 5 tribes; of them,541 of Baiga,631 of Bharia,563 of Saharia,533 of Bhil and 561 of Hill Korwa population were covered. A total 510 blood sample; 326 of animals of concerned tribe and 184 of human (tribal people) was collected.

Brief results: The summary of work done describe accordingly, the 5 ideal Hut Model of the tribes Baiga, Bharia, Saharia of Madhya Pradesh, Hill Korwa of Chhattisgarh and Bhil of Rajasthan has been established in the Institute by interacting and calling their artisans. The study focused to describe their lifestyle, cultural, causes of poor health and its associations of living pattern and vulnerability. A total tribal population 2829 (male-1392 and female-1437) was covered wherein 49.2% male and 50.8% female. Gender ratio was estimated 1032 female per thousand males in tribes and average size of household was 5.5 individuals per household/family. About 47% population was illiterate ranges 33.1% in Bharia to 63.3% in Saharia tribe. About one-fourth (24.7%) tribes educated up to primary level and very few (1.8%) educated up to college/university level. About fifty percent (48.3%) tribes were occupied in agricultural works/former ranges 16.8% of Saharia to 80.3% of Baiga tribe. About 41% tribes occupied in labor works and very few (1.8%) in service. The socio-demographic outlines of these different five tribal group were found about to be similar situation. Majority of family living in nuclear family houses in the tribes (Baiga, Saharia, Bhil and Hill Korwa) except Bharia. Majority of Kachcha houses are found among Baiga (72%) and among Bharia (83%) while more than fifty percent of Bhil tribe are living in Pakka houses. Availability of Drainage/Sanitation facility was found very few (22.7%) in tribal areas ranges lower 3.9% in Bharia and highest 45.5% in Hill Korwa tribe. The data analysis and writing the final project report is under progress.

Fig.-1; Baiga Hut Model

Fig.-2; Bharia Hut Model

Fig.-3; Saharia Hut Model

Fig.-4; Bhil Hut Model

Fig.-5; Hill Korwa Hut Model

REGULAR ACTIVITIES

MODEL RURAL HEALTH RESEARCH UNIT, JEET (CG)

A meeting Local Research Advisory Committee (L-RAC) of Model Rural Health Research Unit (MRHRU), Jheet, Patan Durg was held on 28 October 2021. A total of five projects to be initiated were discussed in the meeting. Chairman LRAC approved the five projects to be initiated.

PUBLICATIONS

1. Ahmad A, Soni P, Kumar L, Singh MP, Verma AK, Sharma A, Das A, Bharti PK. Comparison of polymerase chain reaction, microscopy, and rapid diagnostic test in malaria detection in a high burden state (Odisha) of India. Pathog Glob Health. 2021 Jun;115(4):267-272. **IF:3.73**
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3. Bhat J, Rao R, Kumar R, Yadav R, Singh P, Rao VG, Das A. TB free India: Reaching the unreached tribal population under National Tuberculosis Elimination Programme. Indian J Tuberc. 2022;69(1):4-7. **IF:1.0**
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MEETING ATTENDED

Dr. Tapas Chakm, Scientist G

1. Attended Webinar on "Sickle Cell Disease: Global Perspective and Indian Scenario" on 19/6/21 organised by WHO
2. Delivered a talk in a webinar "title Covid 19 Diagnosis: Role of ICMR on 12/7/21 organised by Nanaji Deshmukh Veterinary Science University, Jabalpur.
3. Delivered a talk in a training programme in Water Quality management Course on "Role of Nutrition in Fluorosis mitigation" on 10/9/21 organised by INREM foundation , TATA Trust, Gujarat
4. Delivered a talk in a webinar "Covid 19 Preparedness. of the Orientation Programme for PG students" on 25/9/21 organised by Xavier Institute of Development Action and Studies, Jabalpur.
5. Organised as nodal person for Visit of His Excellency Hon'ble Governor of Madhya Pradesh Shri Mangubhai Chhaganbhai Patel to review "Sickle Cell status among Tribals in MP" on 8/12/21.
6. Participated in National Dialogue "Samvad" on Tribal Health and Evaluation of Health Systems in the Scheduled Areas on 15/3/22 to 16/3/22.

Dr. A. K. Mishra, Scientist E

1. Attended ICMR-MERA-India virtual symposium on 26th April 2021 held at ICMR-NIMR Delhi in which different themes of the project was discussed.
2. Attended virtually a meeting with CVO ICMR on 27th May 2021 regarding vigilance guidelines issued by central vigilance commission.
3. Attended virtual ICMR-NIRTH interim SAC meeting on 22nd June 2021 and discussed about new and ongoing projects.
4. Attended virtual training workshop on Advance course on Procurement policy and procedures on 23rd and 24th June 2021 at ICMR-NIRTH conducted by National Productivity Council.
5. Attended virtual training workshop on Preventive vigilance and procurement on 6th and 7th July 2021 at ICMR-NIRTH Jabalpur conducted by National Productivity Council.
6. Attended training workshop on ICMR-MERA India project from 14th to 16th September 2021 held at ICMR-NIMR Delhi. We participated in all training lectures and field visits.
7. Organized Vigilance Awareness Week at ICMR-NIRTH, Jabalpur from 26th October to 1st November 2021 in which different activities were conducted as per guidelines of ICMR and Central Vigilance Commission.

Dr. Pushpendra Singh, Scientist E

1. Participated in the Biannial IAL Conference held in Hybrid mode at Hyderabad Nov 2021.
2. Participated in the Anti-Leprosy Day Symposium as a Panelist on 30 Jan 2022
3. Meetings/ conference/symposium organized a Webinar Series on "Genomics2Combat AMR" for Postgraduate and graduate students
4. Publications during the period with impact factor Dwivedi, P*., Sharma, M*., Patel, P., and Singh, P. Simultaneous detection and differentiation between Mycobacterium leprae and Mycobacterium lepromatosis using novel polymerase chain reaction primers. The Journal of Dermatology. (DOI: 10.1111/1346-8138.16165) (*Equal Contribution)
5. Participated in the Biannial IAL Conference held in Hybrid mode at Hyderabad Nov 2021.
6. sequences enhance the specific detection via LAMP and conventional PCR. (in preparation).
7. Participated in the Anti-Leprosy Day Symposium as a Panelist on 30 Jan 2022.
8. Participated in the Biannial IAL Conference held in Hybrid mode at Hyderabad Nov 2021.
9. Meetings/ conference/symposium organized a Webinar Series on "Genomics4health" for Postgraduate and graduate students.
10. Subasa Bishwal and Team Virology, COVID-19 Diagnosis and Research activity during the COVID-19 Pandemic at ICMR-NIRTH Jabalpur, Madhya Pradesh, Poster Presented during visit of His Excellency Shri Mangubhai C. Patel Hon'ble Governor of Madhya Pradesh on Dec 2021.
11. Ashok Kumar and Team, Virology Paying the way forward-Virology Research and Diagnosis in Central India, Grade II VRDL at ICMR-NIRTH Jabalpur, Poster Presented during visit of His Excellency Shri Mangubhai C. Patel Hon'ble Governor of Madhya Pradesh on Dec 2021.
12. Afzal Ansari1, #, Purna Dwivedi1,2, #, Mukul Sharma1, #, Subasa Chandra Bishwal1, #, Anuj Mavlankar1, Lalit Sahare1, Mahendra Ukey1, Purushottam Patel1, Pradip V. Barde1*, Aparup Das1, Pushpendra Singh1, * Genomic Characterization and Phylogenetic Analysis of SARS-CoV-2 Strains in Madhya Pradesh, Poster Presented during visit of His Excellency Shri Mangubhai C. Patel Hon'ble Governor of Madhya Pradesh on Dec 2021.

Dr. Suyesh Shrivastava, Scientist C

1 Meeting with District Collector, Dindori M.P.
2 Meeting with Chief Medical & Health Officer (CMHO), Dindori M.P.
3 Meeting with Block Medical Officer (BMO), Bajag block, Dindori M.P.
4 Meeting with District collector, Chhindwara M.P.
5 Meeting with Chief Medical & Health Officer (CMHO), Chhindwara M.P.
6 Meeting with Block Medical Officer (BMO), Tamia block, Chhindwara M.P.

7 Meeting with District collector, Gwalior M.P.
8 Meeting with Chief Medical & Health Officer (CMHO), Gwalior M.P.
9 Meeting with Block Medical Officer (BMO), Dabra block, Gwalior M.P.
10 Meeting with District Collector, GPM, C.G.
11 Meeting with Chief Medical & Health Officer (CMHO), GPM, C.G.
12 Meeting with Block Medical Officer (BMO), Gourella, GPM, C.G.

Dr Ravindra Kumar, Scientist C

1. Invited as a chairperson in Webinar on Reimagining SCD in India: Expert Conclave - Friday 18th June 2021 organized by National Cancer Society & Manage Health Foundation
2. Completed 8-week online certification on "Health Research Fundamentals" organized by ICMR-NIE. Jan-Mar 2021
3. Participated in Hands on workshop on "Next Generation Sequencing data analysis for clinical diagnostics" organized by CDFD, Hyderabad. 1-5 March 2021

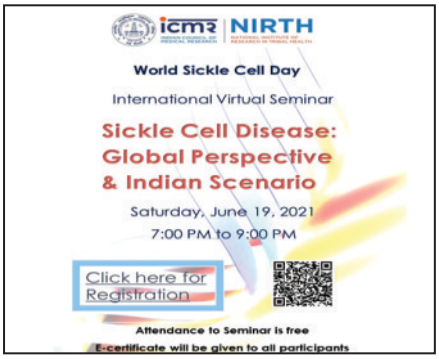
Dr. Anil Verma, Scientist B

1. Attended Frugal Science: Reimaging the role of technology in global health, science education and disease monitoring by Dr. Manu Prakash on 23/8/2021(Virtual).
2. Attended Elsevier webinar (Virtual) on Essential tips for publishing in high impact journals by Cell Press on 8/09/2021
3. Attended workshop on "Vector Bionomics and Control" organized by MERA India on 14-9/21 to 16/9/21 at ICMR-NIMR, New Delhi.
4. Attended virtual seminar on "Multidrug-resistant falciparum malaria and how to treat it" organised on 20/9/21 by NIMR and MERA-India.
5. Attended virtual seminar on "Antimalarial drug resistance in Africa and other regions: are ACTs in danger?" organised on 12/10/21 by NIMR and MERA-India.

EVENTS

World No Tobacco Day was observed on 31st May, 2021 at ICMR-National Institute of Research in Tribal Health (ICMR-NIRTH), Jabalpur (MP) with zeal and enthusiasm through Video Conferencing. This year, the theme of World No Tobacco Day 2021 is "Commit to Quit tobacco".

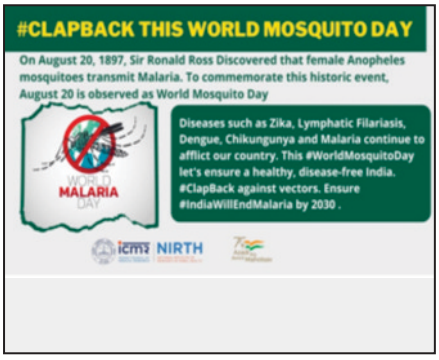
Observed World Sickle Cell Day on 19 June 2021, on this occation International Webinar was organised at ICMR-NIRTH, Jabalpur.



A Two-day National Workshop (online) on "Methods and Approaches for Health Research in Social Sciences" on 26-27 June, 2021. was organised at ICMR-NIRTH, Jabalpur

WORLD MOSQUITO DAY

World Mosquito Day was observed on 20 August 2021 at ICMR-NIRTH, Jabalpur.



Vigilance Awareness Week, 2021 (26th October 2021 to 1st November 2021)

Honourable Governor's Visit

Honourable Governor of Madhya Pradesh ShriMangubhai C. Patel graced ICMR-National Institute of Research in Tribal Health, Jabalpur with his kind presence on 7th and 8th of December 2021.

The Honourable Governor Inaugurated traditional tribal hut models at ICMR-National Institute of Research in Tribal Health, Jabalpur on 8th December 2021

National Science Day

National Science Day and Foundation day ICMR-NIRTH, Jabalpur celebrates its 39th foundation day and National Science day on 28th February 2022. Prof. Kapil Deo Mishra, Hon'ble Vice-Chancellor, R. D. V. V. Jabalpur, was the chief guest.

International Women's Day International Women's Day 2022 was celebrated with fervor on 8th March 2022 at ICMR-National Institute of Research in Tribal Health (ICMR-NIRTH), Jabalpur	
World TB Days World TB Days 24 March, 2022 was observed at ICMR-NIRTH, Jabalpur	
Senior Deputy Director General Shri. R Ramakrishnan IAS visited ICMR-NIRTH during 29 May 2022 to 30 May 2022	
ICMR-NIRTH in collaboration with NSCB Medical College Jabalpur, had organized the World Blood Donor Day at ICMR-NIRTH on 14 June 2022.	

On the occasion of World Sickle cell day, 19 June 2022, ICMR-NIRTH, Jabalpur organised a workshop on "Holistic Management of Sickle Cell Disease (SCD)" in collaboration with the National Health Mission, Bhopal.	
ICMR-National Institute of Research in Tribal Health (ICMR-NIRTH), Jabalpur celebrated 76th Independence Day of India with great pride, zeal and enthusiasm. Dr.Aparup Das, Scientist 'G' & Director, ICMR-NIRTH unfurled the National flag in ICMR-NIRTH campus followed by recitation of the National Anthem.	
A Round Table meeting was held to develop a framework for Disease Outbreak Communication and a Talk on Experience from from COVID-19 and Pandemic preparedness as well as a Panel Discussion on Vector Borne Diseases: Challenges and Opportunities on way to disease elimination on the occasion of 4th Foundation Day of ICMR-RMRC, Gorakhpur, where the Director, ICMR-NIRTH, Jabalpur was also a part. Dr Rajni Kant, Director, ICMR-RMRC Gorakhpur has organised this meeting.	
भारत सरकार, गृह मंत्रालय, राजभाषा विभाग एवं भारतीय आयुर्विज्ञान अनुसंधान परिषद मुख्यालय, नई दिल्ली के निर्देशानुसार, राजभाषा हिंदी के प्रचार–प्रसार और सरकारी कामकाज में हिंदी के प्रयोग को बढ़ावा देने के उद्देश्य से प्रति वर्ष की भांति इस वर्ष भी आईसीएमआर – राष्ट्रीय जनजाति स्वास्थ्य अनुसंधान संस्थान, जबलपुर में 1 से 15 सितंबर, 2022 के दौरान "**हिंदी–पखवाड़ा**" मनाया गया।	

APPENDICES

COMMITTEES

INSTITUTIONAL ETHICS COMMITTEE (IEC)

Name of Existing Member and Affiliation	Designation	Discipline
Dr. Shashi Khare Retd. Prof Gynecology and Ex-Dean, NSCB Medical College, Jabalpur	Chairperson	Medical (Gynecology)
Dr. Sharad Jain Prof. of Pathology, NSCB Medical College, Jabalpur	Member	Medical (Pathology)
Dr. Rajesh Sharma Prof. and Head, Dept. of Pharmacology and Toxicology College of Veterinary Science and Animal Husbandry, NDVSU, Jabalpur	Member	Pharmacology
Dr. Uma C. Saha Prof. General Management and Development, XIDAS, Jabalpur	Member	Social Science
Mr. Jamal Akhtar Baig Director, ENFORCE (NGO) Area Colony, Bhopal (M.P.)	Member	NGO Representative
Mr. Sankalp Sanghi Advocate, High Court of Madhya Pradesh, Jabalpur	Member	Law
Shri Komal Prasad Vishwakarma Vill.-Mukunwara, Post- Ghatpipaliya Dist: Jabalpur	Member	Community Leader
Dr. Avyakt Agarwal Asst. Prof (Pediatrics), NSCB Medical College Jabalpur	Member	Medical (Pediatrics)
Dr. Riti Seth Asst. Prof (Microbiology), NSCB Medical College Jabalpur	Member	Microbiology (Basic Science)

Dr. Rajiv Yadav Scientist 'D', ICMR-NIRTH, Jabalpur	Member	Medical (Pharmacology)
Dr. Tapas Chakma Scientist 'G' ICMR-NIRTH, Jabalpur	Member Secretary	Medical (Epidemiology)

CPCSEA - INSTITUTIONAL ANIMAL ETHICS COMMITTEE

Name of Existing Member & Affiliation	Designation	Discipline
Dr. Aparup Das, Scientist- G and Director, ICMR, NIRTH, Jabalpur	Chairperson	
Dr. Jyothi Bhat, Scientist – E, ICMR-NIRTH, Jabalpur	Member	Scientist from different discipline
Dr. S. Rajasubramaniam, Scientist – E, ICMR-NIRTH, Jabalpur	Member	Biological Scientist
Dr. S. Sambath, Scientist-C, Zoological Survey of India, Jabalpur	Member	Scientist from different discipline
Dr. Prateek Kumar Jain, Adina Institute of Pharmaceutical Sciences, Sagar, MP	Member	CPCSEA Main Nominee
Dr. Surendra Jain, Sagar Institute of Research and Technology – Pharmacy, Bhopal, MP	Member	Scientist from outside the institute (Nominated by CPCSEA)
Shri. Rakesh Kumar Gawaly, RKDF College of Pharmacy, Bhopal, MP.	Member	Socially Aware Member (Nominated by CPCSEA)

INSTITUTIONAL BIOSAFETY COMMITTEE

Name of Existing Member and Affiliation	Designation
Dr. Aparup Das Scientist- G and Director ICMR- NIRTH, Jabalpur	Chairman
Dr. YK Bansal Plant Tissue Culture Lab. Dept. of Biosciences, RDVV, Jabalpur	DBT Nominee
Dr. Riti Jain Seth Associate Professor Dept. of Microbiology NSCB Medical College, Jabalpur	External Expert
Dr. Tapas Chakma Scientist- G ICMR- NIRTH, Jabalpur	Biosafety Officer
Dr. S. Rajasubramaniam Scientist – E ICMR-NIRTH, Jabalpur	Internal Member
Dr. Pradip V. Barde Scientist-D, ICMR- NIRTH, Jabalpur	Internal Member
Dr. Praveen Kumar Bharti Scientist-D ICMR- NIRTH, Jabalpur	Internal Member

Institute Local Building Monitoring Committee-(Capital Works)

Sh. S.S. Mehta	Executive Engineer (Retd.), PWD	**Chairman & External Expert**
Sh. Mahtab Alam	Executive Engineer (Retd.),	External Expert
Sh. Gyan Chand Jain	Administrative Officer, ICMR-NIRTH	Member
Sh. Pramod Kumar	Account Officer, ICMR-NIRTH	Member
Sh. RK Thakur	Section Officer (Stores), ICMR-NIRTH	Member Secretary

Dissemination of Information Committee

Dr. Jyothi Bhat	Scientist-E,	ICMR- NIRTH	Chairperson
Dr. Ravendra K.Sharma	Scientist-E,	ICMR-NIRTH	Member
Dr. Pradip Barde	Scientist-E,	ICMR-NIRTH	Member
Dr. Arvind Verma	Pr.Tech.Offic er	ICMR-NIRTH	Member
Sh. Avinash Dubey	Technician-A,	ICMR-NIRTH	Member

Rapid Response Team

Dr. Tapas Chakma	Scientist-G,	ICMR-NIRTH	Chairman
Dr. Jyothi Bhat	Scientist-E,	ICMR- NIRTH	Member
Dr. Pradip Barde	Scientist-E,	ICMR-NIRTH	Member
Seven supporting Staff (Technical /Others)			

Library Committee

Dr. K.B. Saha	Scientist-F,	ICMR - NIRTH	Chairman
Dr. S. Rajasubramaniam	Scientist-E,	ICMR- NIRTH	Member
Dr. Ravendra K. Sharma	Scientist-E,	ICMR-NIRTH	Member
Sh. Gyan Chand Jain	Admn. Officer,	ICMR-NIRTH	Member
Sh. Pramod Kumar	Accounts Officer,	ICMR-NIRTH	Member
Sh. S.N. Singh	Pr.Technical Officer,	ICMR -NIRTH	Member Secretary

Anti –sexual Harassment Committee

Dr. Jyothi Bhat	Scientist-E,	ICMR-NIRTH	Chairperson
Dr. Alpana Abbad	Pr.Tech.Officer,	ICMR-NIRTH	Member
Dr. Uma Saha	Professor	XIDAS Jabalpur	Outside Expert
Sh. L.S. Kaushal	Sr. Tech. Officer-C,	ICMR-NIRTH	Member

Annual Report Committee

Dr. Jyothi T.Bhat	Scientist-E,	ICMR- NIRTH	Member
Dr. K.B. Saha	Scientist-F,	ICMR- NIRTH	Member
Dr. P.V. Barde	Scientist-E,	ICMR-NIRTH	Member
Dr. Ravendra K. Sharma	Scientist-E,	ICMR- NIRTH	Member
Dr. Vidhan Jain	Scientist-C,	ICMR-NIRTH	Member
Dr. Nishant Saxena	Scientist-B,	ICMR-NIRTH	Member
Dr. Manjunathachar H V	Scientist-B,	ICMR-NIRTH	Member
Dr. Anil Verma	Scientist-B,	ICMR-NIRTH	Member
Dr. Arvind Verma	Pr.Tech. Officer,	ICMR -NIRTH	Member
Dr. Smt.Alpana Abbad	Pr.Tech. Officer,	ICMR -NIRTH	Member
Sh. Arvind Kavishwer	Pr.Tech. Officer,	ICMR -NIRTH	Member
Mrs. Nazia Anwar Ali	Tech. Officer – 1,	ICMR-NIRTH	Member

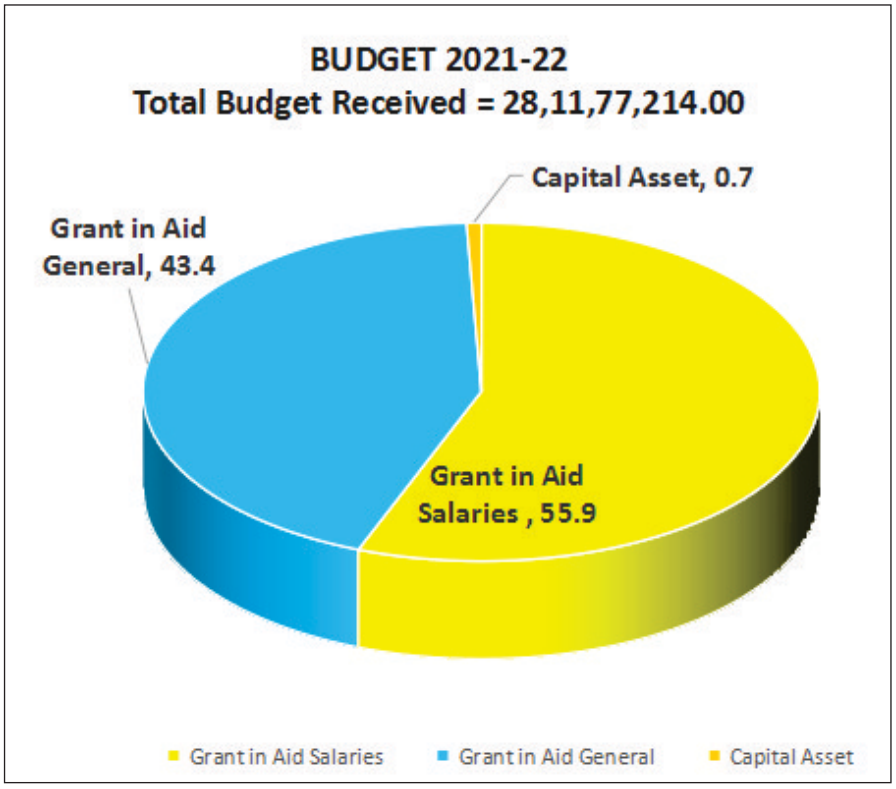
Publication Screening Committee

Dr. Aparup Das	Scientist-G & Director,	ICMR- NIRTH	Chairperson
Dr. Tapas Chakma	Scientist-G	ICMR- NIRTH	Member
Dr. K. B. Saha	Scientist-F	ICMR-NIRTH	Member
Dr. S. Rajasubramaniam	Scientist-E	ICMR-NIRTH	Member
Dr. R. K. Sharma	Scientist-E	ICMR-NIRTH	Member
Dr. P. V. Barde	Scientist-E	ICMR-NIRTH	Member
Dr. V. G. Rao	Scientist-G	ICMR-NIRTH	Member
Dr. Nishant Saxena	Scientist-B	ICMR-NIRTH	Member Secretary

BUDGET 2021-22

Total Budget Received = 28,11,77,214.00

S.No.	Head	Grant Received	Percentage		
1	Grant in Aid Salaries	15,70,79,898	55.9	Grant in Aid Salaries	55.9
2	Grant in Aid General	12,21,50,246	43.4	Grant in Aid General	43.4
3	Capital Asset	19,47,070	0.7	Capital Asset	0.7
		28,11,77,214			



राजभाषा नीति के कार्यान्वयन एवं अनुपालन से संबंधित प्रगति रिपोर्ट

आईसीएमआर–राष्ट्रीय जनजाति स्वास्थ्य अनुसंधान संस्थान, जबलपुर में भारत सरकार, गृह मंत्रालय, राजभाषा विभाग की राजभाषा नीति के समुचित कार्यान्वयन एवं अनुपालन के लिए सतत प्रयास किए जा रहे हैं। प्रतिवेदन अवधि के दौरान इस संस्थान में हिंदी के प्रगामी प्रयोग एवं सरकारी कामकाज में हिंदी के प्रयोग को बढ़ावा देने हेतु किए गए प्रयासों का संक्षिप्त विवरण इस प्रकार है:–

1. राजभाषा कार्यान्वयन समिति

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

1. डॉ. अपरूप दास, निदेशक – अध्यक्ष
2. डॉ. कल्याण ब्रत साहा, वैज्ञानिक 'एफ' – सदस्य
3. श्री राजेन्द्र कुमार ठाकुर, वरिष्ठ प्रशासनिक अधिकारी – सदस्य
4. श्री द्वारका प्रसाद लोधी, लेखा अधिकारी – सदस्य
6. श्रीमती फिलोमिना लकड़ा, अनुभाग अधिकारी (भंडार) – सदस्य
7. श्री हाकिम सिंह ठाकुर, कनिष्ठ हिंदी अनुवादक – सदस्य

प्रत्येक तीन माह में इस समिति की बैठक होती है, जिसमें इस अनुसंधान संस्थान में राजभाषा कार्यान्वयन एवं अनुपालन की स्थिति की समीक्षा की जाती है तथा सरकार द्वारा निर्धारित लक्ष्यों को प्राप्त करने हेतु आवश्यक उपायों की संस्तुति की जाती है। प्रतिवेदन अवधि तक इस समिति की कुल 94 तिमाही बैठकें आयोजित की जा चुकी हैं।

2. हिंदी पत्राचार एवं टिप्पणी–लेखन

प्रतिवेदन अवधि के दौरान इस केन्द्र द्वारा 'क' क्षेत्र को मूलत: हिंदी में लगभग 50 प्रतिशत और उससे अधिक पत्राचार किया गया। साथ ही सरकार द्वारा निर्धारित लक्ष्य के अनुरूप हिंदी पत्राचार को 'क' क्षेत्र के अलावा 'ख' एवं 'ग' क्षेत्रों के साथ भी मूल हिंदी पत्राचार को बढ़ाने के लिए प्रयास किए जा रहे हैं। अधिकांश फाइलों पर भी हिंदी में टिप्पणियां लिखी जाती हैं। पिछली बैठकों में संस्थान द्वारा मूल हिंदी पत्राचार एवं मूल रूप से हिंदी टिप्पणी–लेखन का प्रतिशत और बढ़ाए जाने तथा संस्थान में प्रतिवर्ष हिंदी की नई पुस्तकों की खरीद पर कार्यान्वयन के कदम उठाए गए हैं।

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

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

4. प्रशिक्षण

इस संस्थान के अधिकांश अधिकारियों एवं कर्मचारियों को हिंदी का कार्यसाधक ज्ञान/प्रवीणता प्राप्त है और प्रशासनिक अनुभागों – स्थापना, लेखा एवं भंडार अनुभागों में तैनात कर्मचारियों द्वारा अधिक से अधिक मूलत: हिंदी में सरकारी कामकाज निष्पादित करने का प्रयास किया जाता है।

राजभाषा विभाग के निर्देशों के अनुसार, जिन कर्मचारियों को हिंदी टंकण एवं हिंदी आशुलिपि के सेवाकालीन प्रशिक्षण की आवश्यकता थी, उन सभी को हिंदी शिक्षण योजना, राजभाषा विभाग, जबलपुर कार्यालय से हिंदी टंकण/हिंदी आशुलिपि का प्रशिक्षण दिलाया गया है। वर्तमान में केवल एक आशुलिपिक हिंदी आशुलिपि प्रशिक्षण के लिए शेष हैं, उन्हें शीघ्र ही हिंदी शिक्षण योजना के माध्यम से हिंदी आशुलिपि का प्रशिक्षण दिलाया जाएगा।

5. विभागीय परीक्षाओं में द्विभाषी प्रश्न-पत्र उपलब्ध कराना:

सरकार द्वारा जारी निर्देशों के अनुसार इस केंद्र में अधीनस्थ सेवाओं की भर्ती परीक्षा एवं विभागीय परीक्षाओं में द्विभाषी प्रश्न–पत्र उपलबध कराए जा रहे हैं।

6. प्रशिक्षण कार्यक्रमों एवं वैज्ञानिक विषयों पर व्याख्यानों में हिंदी को प्रमुखता:

इस संस्थान में अनुसंधान कार्य से संबंधित प्रशिक्षण कार्यक्रमों और वैज्ञानिक व्याख्यानों आदि में हिंदी को प्रमुखता प्रदान की जाती है, जिससे अधिक से अधिक लोगों तक इसका लाभ पहुँच सके।

7. हिंदी-दिवस/हिंदी-पखवाड़ा

राजभाषा विभाग के निर्देशों के अनुसार हिंदी के प्रचार–प्रसार एवं मूलत: हिंदी में सरकारी कार्य करने को बढ़ावा देने के उद्देश्य से संस्थान में प्रति वर्ष हिंदी–दिवस एवं हिंदी–पखवाड़ा मनाया जाता है। इस दौरान निदेशक महोदय द्वारा सभी अधिकारियों एवं कर्मचारियों से सरकारी कामकाज अधिकाधिक हिंदी में करने की अपील की जाती है एवं अधिकारियों व कर्मचारियों के लिए हिंदी की विभिन्न प्रतियोगिताएँ आयोजित की जाती हैं।

इस वर्ष 07.09.2021 से 21.09.2021 तक 'हिंदी–पखवाड़ा' मनाया गया। 'कोबिड–19' वैश्विक महामारी की असामान्य परिस्थिति को ध्यान में रखते हुए राजभाषा विभाग द्वारा 'हिंदी–पखवाड़ा' एवं उसके अंतर्गत हिंदी प्रतियोगिताओं के आयोजन के संबंध में भारत सरकार एवं राजभाषा विभाग द्वारा जारी निर्देशों का अनुपालन करते हुए संस्थान में इस वर्ष केवल दो हिंदी प्रतियोगिताओं – हिंदी वाद–विवाद और हिंदी कविता–पाठ का आयोजन रखा गया था परंतु केवल कविता–पाठ में पर्याप्त संख्या में प्रतिभागी प्राप्त होने पर उसे सम्पन्न कराया गया। कोबिड–19 के विषय में सामाजिक दूरी बनाए रखने सहित सभी मानक उपायों का पालन करते हुए केवल प्रतिभागी वैज्ञानिकों/अधिकारियों एवं कर्मचारियों को बारी–बारी से प्रस्तुति हेतु बुलाया गया तथा वीडियो लिंक के माध्यम से समस्त स्टाफको उसे उनके कार्यस्थल पर प्रसारित कराया गया। दिनांक 22.09.2021 को 'हिंदी–पखवाड़ा' के समापन के अवसर पर संस्थान के निदेशक डॉ. अपरूप दास ने हिंदी प्रतियोगिताओं के विजेताओं को संबोधित कर उन्हें आगे और अच्छे प्रदर्शन के लिए प्रेरित किया तथा प्रमाण–पत्र एवं नकद पुरस्कारों से उनका उत्साहवर्धन किया।

दिनांक 20.09.2021 को संपन्न हिंदी कविता–पाठ प्रतियोगिता के विजेताओं तथा उन्हें प्रदान किए गए नकद पुरस्कारों की सूची इस प्रकार है:–

क्र.सं.	प्रतियोगिता	पुरस्कार प्राप्त करने वाले अधि./कर्म.	नकद पुरस्कार
1.	हिंदी कविता – पाठ प्रतियोगिता		
	प्रथम	डॉ. निशा ठाकुर, तकनीकी अधिकारी 'बी'	रु. 5000/–
	द्वितीय	श्रीमती नाजिया अली, तकनीकी अधिकारी 'बी'	रु. 3000/–
	तृतीय	श्री सुरेन्द्र सिंह मेहरा, तकनीशियन–1	रु. 2000/–
	सांत्वना (1)	श्री सुरेश कुमार परेहा, प्रयोगशाला सहायक	रु. 1000/–
	सांत्वना (2)	डॉ. निशांत सक्सेना, वैज्ञानिक–बी	रु. 1000/–
		योग–	रु. 12,000/– (कुल राशि – बारह हजार रुपए मात्र)

STAFF LIST

S.No.	NAME	DESIGNATION
1	Dr. Aparup Das	DIRECTOR
2	Dr. Tapas Chakma	SCIENTIST `G'
3	Dr. K.b.saha	SCIENTIST `F'
4	Dr. Jyothi T. Bhat	SCIENTIST `F'
5	Dr. Ashok Kumar Mishra	SCIENTIST `E'
6	Dr. S. Rajasubramaniam	SCIENTIST `F'
7	Dr. Pushpendra Singh	SCIENTIST `E'
8	Dr. Rajiv Yadav	SCIENTIST `E'
9	Dr. Dinesh Kumar	SCIENTIST `E'
10	Dr. Surendra Kumar	SCIENTIST `D'
11	Dr. Vidhan Jain	SCIENTIST `D'
12	Dr. Nishant Saxena	SCIENTIST `B'
13	Dr. Ravindra Kumar	SCIENTIST `C'
14	Dr. Suyesh Shrivastava	SCIENTIST `C'
15	Dr. Anil Kumar Verma	SCIENTIST `C'
16	Sh. Sandeep Kumar	SCIENTIST `B'
17	Sh. Harshwardhan V Shende	SCIENTIST `B'
18	Sh. Dwarka Prasad Lodhi	ACCOUNTS OFFICER
19	Sh. Rajendra Kumar Thakur	ADMINISTRATIVE OFFICER
20	Sh. Ankit Kumar Mishra	SECTION OFFICER
21	Sh. Milind Dixit	PRIVATE SECRETARY
22	Sh. Subash Ch. Muduli	PERSONAL ASSISTANT
23	Sh. Hakim Singh Thakur	JR. HINDI TRANSLATOR
24	Sh. Arvind Kavishwar	P.T.O.
25	Dr. Bal Krishna Tiwari	P.T.O.
26	Dr. Arvind Verma	P.T.O.
27	Sh. Ajay Kumar Goel	P.T.O.
28	Sh. Sachchidanand Singh	P.T.O.
29	Mrs.reena Shome	TECHNICAL OFFICER-C
30	Sh. Arun Ramchandra Sable	STO-2
31	Sh. Ashok Kumar Gupta	TECHNICAL OFFICER-B
32	Mrs.canina Luke	TECHNICAL OFFICER-B
33	Sh. Lalit K. Sahare	TECHNICAL OFFICER-B
34	Sh. Mahendra Jaidev Ukey	TECHNICAL OFFICER-B
35	Mrs.nazia Anwar Ali	TECHNICAL OFFICER-B
36	Dr. Nisha Thakur	TECHNICAL OFFICER-B
37	Sh. Subhash S. Kumbhare	SENIOR TECHNICIAN (3)
38	Sh. Purushottam Patel	SENIOR TECHNICIAN (3)
39	Sh. Shri Ram Mishra	SENIOR TECHNICIAN (3)
40	Sh. Ashok Kumar Saini	SENIOR TECHNICIAN (3)

S.No.	NAME	DESIGNATION
41	Sh. Ramesh Kumar Gond	SENIOR TECHNICIAN (3)
42	Sh. Ram Kumar Verma	SENIOR TECHNICIAN (3)
43	Sh. Ajesh Kumar Dubey	SENIOR TECHNICIAN (2)
44	Sh. Vijay Kumar Kachhi	SENIOR TECHNICIAN (2)
45	Sh. Baishakhu Lal	ASSISTANT
46	Sh. Pramod Kumar Choubey	UPPER DIVISION CLERK
47	Sh. Sri Krishna	TECHNICAL ASSISTANT
48	Sh. Nitish Singh Parihar	TECHNICAL ASSISTANT
49	Sh. Arvind Jaiswal	ASTT. RESEARCH SCIENTIST
50	Sh. Ajay Saxena	ASTT. RESEARCH SCIENTIST
51	Mohd.tabib	HEALTH EDUCATOR
52	Sh. Vishwanath S. Yadav	TECHNICIAN (2)
53	Sh. Sahas Ram Shukla	LAB. TECHNICIAN
54	Sh. Sudhir Kumar Sen	INSECT COLLECTOR
55	Sh. Ramesh Kumar Bhatia	INSECT COLLECTOR
56	Sh. Mohan Singh Patel	INSECT COLLECTOR
57	Sh. Manohar Lal Burman	FIELD WORKER
58	Sh. Jagdish Prasad Koshta	FIELD LAB.ATTENDANT
59	Sh. Prem Lal Dahiya	FIELD LAB.ATTENDANT
60	Sh. Tara Chand Rai	FIELD LAB.ATTENDANT
61	Sh. Ajay Mohan Kanojiya	FIELD LAB.ATTENDANT
62	Sh. Sanjeev Kumar Shukla	FIELD LAB.ATTENDANT
63	Sh. Lal Singh Gond	FIELD LAB.ATTENDANT
64	Sh. Kaushal Kumar Shukla	FIELD LAB.ATTENDANT
65	Sh. S.k. Dubey	DRIVER
66	Sh. S.k. Gautam	DRIVER
67	Sh. Raju Harijan	DRIVER
68	Sh. Om Prakash Dubey	DRIVER
69	Sh. Dharmender K. Lodhi	DRIVER
70	Sh. Lalju Singh	PEON
71	Sh. Hari Barman	TECHNICIAN (2)
72	Sh. Surendra K. Jhariya	TECHNICIAN (2)
73	Sh. Prakash Sangle	TECHNICIAN (1)
74	Sh. Surendra Singh Mehra	TECHNICIAN (1)
75	Sh. Ramswaroop Uikey	TECHNICIAN (1)
76	Ms. Mala Prajapati	TECHNICIAN (1)
77	Sh. Narendra K. Jhariya	UPPER DIVISION CLERK
78	Sh. Sarthak Soni	STENOGRAPHER
79	Sh. Sharad Kumar Kosta	UPPER DIVISION CLERK
80	Sh. Rahul Koshta	UPPER DIVISION CLERK

S.No.	NAME	DESIGNATION
81	Sh. Vikas Kumar Gupta	UPPER DIVISION CLERK
82	Ms. Anjali Rajput	UPPER DIVISION CLERK
83	Sh. Dayanand Vishwakarma	UPPER DIVISION CLERK
84	Sh. K. Venu Gopal Rao	LABORATORY ASSISTANT-1
85	Sh. Suresh Kumar Jaiswal	LABORATORY ASSISTANT-1
86	Sh. Umesh Prasad Gautam	LABORATORY ASSISTANT-1
87	Sh. Anil Vinodia	LABORATORY ASSISTANT-1
88	Sh. Ramesh Kumar Ahirwar	LABORATORY ASSISTANT-1
89	Sh. Malikhan Singh	LABORATORY ASSISTANT-1
90	Sh. Ajay Kumar Soni	LABORATORY ASSISTANT-1
91	Sh. Sukhlal Vishwakarma	LABORATORY ASSISTANT-1
92	Sh. Jagdish Prasad Thakur	LABORATORY ASSISTANT-1
93	Sh. Suresh Kumar Burman	LABORATORY ASSISTANT-1
94	Sh. Madan Singh Maravi	LABORATORY ASSISTANT-1
95	Sh. Prem Singh Gond	LABORATORY ASSISTANT-1
96	Sh. Sone Lal Dumar	LABORATORY ASSISTANT-1
97	Sh. Ganga Bahadur	LABORATORY ASSISTANT-1
98	Sh. Pritam Lal Gond	LABORATORY ASSISTANT-1
99	Sh. Pappu Lal Dumar	LABORATORY ASSISTANT-1
100	Sh. Kamta Prasad Jaiswal	LABORATORY ASSISTANT-1
101	Mrs.shashi Prabha Mishra	LABORATORY ATTENDANT-2
102	Sh. Shamshad Ali Ansari	LABORATORY ATTENDANT-2
103	Sh. Santosh Kumar Haldkar	LABORATORY ATTENDANT-2
104	Sh. Santosh Kumar Maravi	LABORATORY ATTENDANT-1

TRANSFERRED OUT FROM NIRTH 2021-22

1	Sh. Genda Lal Gond	SR. TECH-2	NIREH, Bhopal	05.04.2021
2	Sh. Mahendra Kr. Jain	SR. TECH-2	NIREH, Bhopal	05.04.2021
3	Sh. Pradeep Kr. Namdeo	SR. TECH-2	RMRIMS, Patna	05.04.2021
4	Sh. B.s. Patel	SR. TECH-3	NIREH, Bhopal	06.04.2021
5	Sh. D.s. Khatarkar	SR. TECH-3	NIREH, Bhopal	06.04.2021
6	Sh. Rajendra Pd. Gond	LAB. ASSTT.-1	RMRC, Dibrugarh	09.04.2021
7	Sh. Santosh Kr. Kol	LAB. ASSTT.-1	RMRC, Gorakhpur	09.04.2021
8	Sh. Arakh Chand Malik	LAB. ASSTT.-1	RMRIMS, Patna	09.04.2021
9	Dr. Praveen Kr. Bharti	SCIENTIST-E	NIMR, NEW DELHI	06.09.2021
10	Sh. Shashi Kant Tiwari	TECH.-2	RMRC, Gorakhpur	14.09.2021
11	Smt. Filomina Lakra	SO	RMRIMS, Patna	16.09.2021

RETIREMENT

1	Sh. Anil Gwal	TO-B	Retired	30.04.2021
2	Smt. Kiran Awasthi	LAB. TECH.	Retired/VR	08.05.2021
3	Sh. Hira Lal Choudhary	FW	Retired	31.05.2021
4	Sh. Gyan Chand Jain	Sr. AO	Retired	30.06.2021
5	Dr. M.k. Bhondely	STO	Retired	30.06.2021
6	Sh. Ramesh Kumar Pasi	PEON	Retired	30.06.2021
7	Sh. Ram Kumar Mehra	LAB. ASSTT.-1	Retired	31.07.2021
8	Sh. Summat Singh	LAB.ASSTT.-1	Retired	31.07.2021
9	Sh. Praval Shrivastava	STO	Retired	30.09.2021
10	Sh. Mithila Pd. Tiwari	SR. TECH-3	Retired	31.10.2021
11	Sh. Ghanshyam Ahirwar	Sr. TECH.-3	Retired	30.11.2021
12	Sh. Suresh Kumar	LAB. ASSTT.-1	Retired	31.12.2021
13	Sh. Subhash Godbole	PTO	Retired	28.02.2022

DEATH

1	Sh. Tulsi Das Kanoujia	FLA	Death	13.08.2021
2	Dr. Alpana Abbad	PTO	Death	15.09.2021

TRANSFERRED OUT FROM NIRTH 2021-22

1	Dr. M.P.S.S. Singh	STO	NARFBR, Hyderabad	03.12.2021
2	Dr. P. V. Barde	SCIENTIST-E	NIV, UNIT, JBP	31.01.2022
3	Dr. Nisha Thakur	TO-B	ICMR, NEW DELHI	17.03.2022

NEW APPOINTMENT

1.	Dr. Sandeep Kumar	SCIENTIST-B	14.03.2022
2.	Sh. Harshwardhan V. Shende	SCIENTIST-B	28.03.2022