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Original Research Article

Assessment of surveillance activity for malaria control under national anti malaria programme in Yadgir district, Karnataka

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ABSTRACT

Background: This paper reports the findings of evaluation of National Anti-malaria programme (NAMP) conducted independently for Government of India in Yadgir district of Karnataka state in February 2011, by the Department of Community Medicine, Sri Devaraj Urs Medical College, Kolar.
Methods: A community based cross-sectional study was conducted in Yadgir district. Multistage sampling was employed to select the study population. The head of the household and other members present in the household were interviewed and the data was recorded in a predesigned semi-structured questionnaire. The obtained data was entered in the MS excel sheet and analyzed for proportions.
Results: Data was collected from 1026 eligible persons. Eight (0.77%) fever cases were distributed among study population. Among fever cases only two (25%) had taken chloroquine. Only one (12.5%) blood smear were taken from fever cases by health worker. Indoor residual spray was not done in any of households.
Conclusions: Considering the poor blood smear collection, low intake of chloroquine among fever cases, there is a need to ensure the delivery of these services by health workers. Also steps should be taken to increase the awareness among health workers regarding second line treatment of malaria and insecticide impregnated bed nets.

Keywords: Fever, Blood smear, Bed nets, Malaria

INTRODUCTION

Malaria is a major public health problem in India. In 2016, there were an estimated 4,45,000 deaths from malaria globally, compared to 4,46,000 estimated deaths in 2015. Fifteen countries accounted for 80% of global malaria deaths in 2016, all of these countries are in sub-Saharan Africa, except for India.[1]

About 11,26,661 malaria cases were reported in India in 2015. Karnataka reported about 12,335 malaria cases in 2015.[2] One of the most important pillar in malaria elimination is effective surveillance system for malaria. It is also noted that Countries with weak malaria surveillance systems include India and Nigeria, two major contributors to the global burden of malaria, with 8% and 16% of cases, respectively, detected by the surveillance system.[1]

Annually the government of India (GOI) evaluates the activities under National Anti-Malaria Programme (NAMP). At the district level the malaria surveillance activity carried out by health workers under Primary Health Centres (PHC) is assessed as part of the evaluation. The investigators of this study assessed the fever surveillance activity for fortnightly detection of malaria as per the guidelines of national malaria control programme. The active fortnightly fever survey in the community will be done by the multipurpose workers(MPW) mainly to catch the secondary cases of malaria in the community.[3] There is a need to assess the active participation of MPW in fever survey as it impacts the

national antimalarial programme performance. There is a need to evaluate the knowledge regarding malaria detection, management and prevention among the health workers mainly to know the programme implementation.

As per the current status of NAMP Anti-malarial drugs and funds for training are provided by the GOI and other measures like involvement of supply of rapid diagnostic kits in remote and inaccessible areas and as per the drug policy chloroquine is still the first line of treatment for malaria. As per integrated vector management indoor residual spraying in selected pockets at high risk areas and insecticide treated bed nets are supplied free of cost. On an average about 100 million fever cases are examined every year.[4] This paper reports the findings for assessment of malaria conducted independently for Government of India in Yadgir district in 2011 by the authors.

The objectives of this study were to assess the fever surveillance activity under taken by health workers as per NAMP strategy in Yadgir district and the knowledge among these health workers regarding malaria detection, its management and prevention as per NAMP guidelines.

METHODS

Yadgir is newly created district from the erstwhile Gulbarga district in north Karnataka. The population of 11,74,271 is distributed in the three Talukas of Shahapur, Surpur and Yadgir.[5] Multistage sampling was employed to select the study population. In the first stage three primary health center (PHC) areas were selected randomly. In the second stage one subcentre from each PHC was randomly selected and in the third stage one village from each subcentre was randomly selected for the study. Fifty households (H.H) were randomly selected in each of these selected villages. The three villages were selected as per the instructions given by the Regional office, Ministry of health and family welfare, Government of India.

First the centre of village was identified with the help of a local resident and one random direction was chosen from the centre all the successive H.H in the selected direction were visited randomly until fifty H.H were covered. The data was collected on a pretested semi-structured proforma by interviewing the adult responsible respondent aged between 18-60 years after explaining the purpose of the survey. The information on socio-demography, fever in the past 15 days in any H.H members, visit by the health worker and use of mosquito preventive measures was collected. The health workers of the selected PHC's who were responsible to provide primary health care services in the selected villages were interviewed on current knowledge on NAMP regarding malaria detection, management and prevention was assessed. The health workers are an integrated part of the existing health care infrastructure in Yadgir district. They are appointed by the health and family welfare of Government of Karnataka. The health workers are trained in health promotion. In recent years some have received additional training in demographic and health surveillance. However, health workers do not receive any formal training in identification of any person with malaria clinical signs and symptoms. They should also be aware of malaria fever surveillance. The investigators of this study assessed the fever surveillance activity and the knowledge regarding malaria detection, management and prevention among the health workers as per NAMP guidelines in Yadgir district of Karnataka in February 2011. Hence this study was taken with the objective to assess the fever surveillance activity under taken by health workers as per NAMP strategy in Yadgir district and the knowledge among these health workers regarding malaria detection, its management and prevention as per NAMP guidelines.

Statistical analysis

The obtained data was entered in the MS excel sheet and transferred to SPSS version 22 for analysis. The proportions of the various quantitative and qualitative variables were found.

Ethical clearance

The study received approval by the research review board and the ethical review board of Sri Devaraj Urs Medical College, Kolar. Verbal informed consent was obtained from the participants or their guardians before proceeding with the survey activities. Anonymity of the respondents at all stages of data analysis was maintained.

RESULTS

The information of 1026 persons were compiled and summarized. Among the sampled population the proportion of males and females were almost same, majority of them were more than 18 years old i.e., 663 (64.6) (Table 1).

Table 1: Demographic profile of sampled population in the H.H survey at Yadgir district.

Variable		N (%)
Gender	Male	503 (49.03)
	Female	523 (50.97)
Age (years)	Less than 5	38 (3.7)
	5-10	130 (12.6)
	11-18	195 (19)
	More than 18	663 (64.6)

Among the households interviewed only 8 (0.77) fever cases were distributed among the sampled population of 1026 in the past 15 days of fever surveillance done by the health workers. The health workers provided treatment for only 1 case among the 8 cases who had fever in the past 15 days. The blood smear for malaria parasites was

also taken from only I case out of 8 cases who had fever in the past 15 days. The health workers had visited to only 3 households as active fever surveillance activity within 72 hours (Table 2).

Table 2: Profile of information on fever survey on health workers provided by respondents at H.H level in Yadgir district.

Variable		N (%)
No. who had fever in the last 15 days	Yes	8 (0.77)
	No	1018 (99.22)
Treated with chloroquine within 72 hrs?	Yes	1 (12.5)
	No	7 (87.5)
Health worker/ ANM visited within 72 hours	Yes	3 (37.5)
	No	5 (62.5)
No. fever cases where blood smear collection done by health worker	Yes	1 (12.5)
	No	7 (87.5)

Only in Motanahalli village, the health workers were aware of danger signs due to malaria. The health workers of the Hasnapur primary health center were aware of rapid diagnostic kits used for malaria testing and the health workers of Motanahalli and Siraval primary health center were not aware of rapid diagnostic kits. The management and preventive aspects of malaria like aware of second line treatment and aware of insecticide impregnated bed nets were very poor among health workers in all the primary health center areas (Table 3).

The health workers at the health centres had knowledge on radical treatment at Hasnapur, Motanahalli and Siraval areas but none knowledge on presumptive treatment in all the areas. Health worker had visited the fever treatment depots (Table 4).

Indoor residual spray was not done in any of the households.

Table 3: Current knowledge of health workers regarding detection, management and prevention of malaria.

Name of Taluk	Name of PHC/Locality	Aware of danger signs	Aware of rapid diagnosis kit	Aware of second line treatment	Aware of insecticide impregnated bed nets
Yadgir	Hasnapur	No	Yes	No	No
	Motanahalli	Yes	No	No	No
	Siraval	No	No	No	No

Table 4: Awareness and visits of health workers on malaria treatment at fever treatment depot.

Yadgir taluk among Hasnapur, Motanahalli & Siraval	Aware of dosage of presumptive treatment (PT)	Aware of need of radical treatment (RT)	Did MPW/ANM visited last month
	No	Yes	Yes

DISCUSSION

The role of health workers in primary health care is vital in delivering the health services. At the same time adequate knowledge of some of the communicable diseases is crucial for endemic diseases like malaria. The health workers knowledge on signs and symptoms of malaria is very important in management of malaria. The surveillance for malaria will be effective if the awareness of malaria with respect to clinical symptoms are well known. More over the malaria control programme expects the health workers to diagnose malaria in hilly and tribal areas.

The strength of the multipurpose workers has been coming down. The timely and regular surveillance these field level functionaries are crucial. The primary health care system in our country provides one MPW (male), for 3000 population in hilly and tribal areas and 5000 population in other areas. The manpower envisaged under the plan is adequate to cater to the needs of the active case detection for malaria control. In this study among the fever cases in the community only 1 (12.5%) case has been collected and sent for Blood smear examination for malaria. This indicates very poor functioning of the programme. The blood smear collection is necessary to have parasite confirmation, especially in view of the fact that large areas in the country have predominant infection with *P. falciparum*. There are some areas with poor therapeutic efficacy of the chloroquine or sulfadoxine-pyremethamine against *P. falciparum*. In these areas, treatment is done with alternative drug regimen for *P. falciparum* cases on microscopic confirmation of the diagnosis. Indiscriminate use of second line drugs like (Artesunate-Sulfadoxine combination therapy (ACT) under the presumptive treatment is always disastrous and precipitates the multidrug resistant strains of *P. falciparum*. Therefore active case detection is essential for all areas of the country and the same should be further supported by establishment of fever treatment depots (FTDs).[6]

In a study conducted by Cipwaza et al majority of the health workers were having a good knowledge on

symptoms of malaria and also RDT's usage and differentiating malaria from other causes for fever.[7] The knowledge of malaria detection based on clinical signs and symptoms is very much important, however, identification of cases based on rapid diagnostic kits (RDT's) is a crucial in cases of far and remote outreach areas like in Yadgir district. The identification emphasis the rapid diagnosis and management. In our study the health workers had poor awareness on malaria signs and symptoms and also on usage of RDT kits in malaria identification.

In a similar study conducted by Chourasia et al the knowledge about signs, symptoms, and treatment of malaria were significantly lower among a group of health workers which is resembling close to our study.[8]

As in a study by Mukhopadyay et al on evaluation of vector control programme like indoor residual spray and insecticide- treated bed nets in a malaria endemic area of East Godavari district of Andhra Pradesh where 40% are using regularly bed nets during night times which closely correlates with our study where 36% of the households are using bed nets during night times.[9]

Knowledge on second line treatment for malaria is crucial and in times lifesaving. Kalilani-Phiri et al conducted a study on using artisunate combination therapy (ACT) among health workers and found a significant good knowledge on ACT usage among the health workers.[10] But in our observation the health workers had poor knowledge on second line therapy (ACT usage).

In rural areas, blood smears are collected at fortnightly intervals by multi-purpose workers i.e. through active case detection (ACD) and also collected at the primary health centres (PHCs) i.e. passive case detection (PCD). In urban areas, PCD is carried out at the malaria clinics. The blood smears are examined in the laboratory for parasite identification and results are used for follow-up action. Cases found positive are given radical treatment, as per the policy of the NVBDCP.[11]

In a study conducted by Das et al about 14.5% of fever cases did not receive chloroquine treatment from drug distribution centre (DDCs) and about 86.5% have received chloroquine treatment.[12] Orissa is one of highest malaria burden carrying state in India, due to this reason the study was conducted with volunteers intervention by chloroquine to the study population. May be this is the reason for high chloroqune consumption in the drug distribution areas. The In our study only 12.5% of the individuals who had fever received chloroquine treatment given by the health workers.

As in a study conducted by Prasad et al on Evaluation of malaria control programme in three selected districts of Assam, India about 49% of the households were left unsprayed where as in our study the insecticide residual spray was very poor.[13]

In the same study by Prasad has highlighted that kits should be used in emergency in PHCs and district hospitals and in remote areas where laboratory facilities are not available and by a well-trained person otherwise it may produce maximum negative results that would lead to waste of kits and failure of Govt's efforts in adding additional tool in the malaria control programme. So in our study also the awareness regarding rapid diagnostic kits was poor. And also steps should be taken to increase the awareness among health workers regarding second line treatment of malaria and insecticide impregnated bed nets as it is poor among health workers.

CONCLUSION

Considering the less blood smear collection and poor knowledge regarding detection management and prevention, there is a need to ensure the delivery of these services by health workers. Also steps should be taken to increase the awareness among health workers regarding second line treatment of malaria and insecticide impregnated bed nets. Currently for the control of malaria the strategy adopted by WHO is elimination for malaria by 2030 for which surveillance activity for malaria is very important and it mainly depends on primary health workers involvement and good knowledge on malaria management.

Health is one of the thrust areas under the National Common Minimum Programme (NCMP). NRHM under NCMP has the mission of improving the availability and accessibility to quality health care services to people in the rural areas. The findings from this survey on knowledge and practices in malaria prevention have important implications for implementing the malaria prevention and control programme. The results of the study show that there is a felt need for providing credible information on malaria and its prevention under the anti malaria programme.

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REFERENCES

1. World Health Organization. World malaria report, 2017. Available at: http://www.who.int/malaria/world_malaria_report_2017/WMR2017_factsheet.pdf. Accessed on 5 June 2018.
2. Directorate of National Vector Borne Disease Control Programme [homepage on the internet]. Delhi: Government of India. Malaria situation in India; [about 2 screens]. Available at: http://nvbdcp.gov.in/. Accessed on 5 June 2018.
3. Kishore J. National Health Programs of India. 12th Edition. New Delhi: Century Publications; 2017: 386.

4. Park K. Health Programmes in India. Parks Text Book of Preventive and Social Medicine. 24st Edition. Jablpur: M/S Banarasidas; 2017: 436.
5. Yadgir District Population, Karnataka- Census India 2011. Available at: https://www.censusindia2011.com/Karnataka/Yadgir-population. Accessed on 10 June 2018.
6. Document malaria surveillance. Available at: www.nvbdcp.nvbdcp.gov.in/Doc/Director%20Desk/Malaria%20Surveillance%20-%203.doc. Accessed on 24 July 2018.
7. Chipwaza B, Mugasa JP, Mayumana I, Amuri M, Makungu C, Gwakisa PS, et al. Community Knowledge and Attitudes and Health Workers' Practices regarding Non-malaria Febrile Illnesses in Eastern Tanzania. PLOS Negl Trop Dis. 2014;8(5):2896.
8. Chaurasia MK, Raghavendra K, Bhatt RM, Swain DK, Dutta GDP, Klleinschmidt I. Involvement of Mitanins (female health volunteers) in active malaria surveillance, determinants and challenges in tribal populated malaria endemic villages of Chhattisgarh, India. BMC Public Health. 2018;18:9.
9. Mukhopadyaya AK. Evaluation of vector control programmes like indoor residual spray and insecticide-treated bed nets in a malaria endemic area of East Godavari district of Andhra Pradesh. J Parasitic Dis. 2007;2:128-33.
10. Kalilani-Phiri LL, Lungu D, Coghlan R. Knowledge and malaria treatment practices using artemisinin combination therapy (ACT) in Malawi: survey of health professionals. Malar J. 2011;10:279.
11. Park K. Health Programmes in India. Parks Text Book of Preventive and Social Medicine. 23rd Edition. Jablpur: M/S Banarasidas; 2016: 417.
12. Lalit K Das, Purushothaman Jambulingam and Candasamy Sadanandane. Impact of community-based presumptive chloroquine treatment of fever cases on malaria morbidity and mortality in a tribal area in Orissa State, India. Malar J. 2008;7:75.
13. Prasad H. Evaluation of malaria control programme in three districts of Assam, India. J vector Borne Dis. 2009;46:280-7.

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