Status of Malaria in Washim District of Maharashtra, India

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Abstract

For the present study, 6 months data on report of Malaria from rural and urban area was collected and interpreted to find out the status of Malaria in Washim district. The present study reported 09 cases of Malaria but no death was reported due to presence of Malarial parasite. The maximum cases of Malaria were reported from rural area from the blood sample collected from fever cases with infection of *Plasmodium falciparum* and *Plasmodium vivax* species.

Keywords: *Malaria, Washim, Maharashtra, Plasmodium*

Introduction

mMalaria has remained the world's most pervasive infection, affecting at least 91 different countries and some 300 million people. Ancient accounts of malaria date back to Vedic writings of 1600 B.C.E. in India and to the fifth century B.C.E. in Greece, when the great Greek physician Hippocrates described the characteristics of the disease and related them to seasons and location.

In India, malaria is a major public health problem in the states like Maharashtra causing an enormous hazard to health and economy. Many researchers conducted a study to investigate risk factors of malaria, however, very few have examined household and socio-economic factors affecting malaria incidence particularly in India that includes Dasture(2012), Gupta *et al*.,(2016), Hoffman(1992), Lal, Sonal and Phukan(1999), Sharma *et al*.(2015),Worrall, Basu and Hanson (2005). Therefore, the present study was undertaken to assess the incidence of malaria in Washim

district to ascertain the incidence of malaria, and to assess the relative risk in relation to distance from vector breeding habitat and health care facilities.

Materials and Methods

3.1. Study Area

Washim is a district in Maharashtra, India. The area of the district is 5,150 km². Washim District population constituted 1.07 percent of total Maharashtra population. In 2001 census, this figure for Washim District was at 1.05 percent of Maharashtra population. Out of the total Washim population for 2011 census, 17.66 percent lives in urban regions of district. As per 2011 census, 82.34 % population of Washim districts lives in rural areas of villages. The total Washim district population living in rural areas is 985,747. This district is divided into 3 sub-divisions, namely, Washim , Mangrulpir and Karanja. These are further divided into 6 talukas (tehsils). The talukas are Malegaon, Mangrulpir, Karanja, Manora, Washim and Risod shown in Fig.2.

Fig. 1 Map of Maharashtra showing Washim District   **Fig. 2 Map of Washim District showing 6 Talukas**

For the present study, 6 months data on report of Malaria from rural and urban area was collected from district Malaria office in Washim and was interpreted to find out the status of Malaria in Washim district. The results obtained by district Malaria office were based on methods of laboratory diagnosis of Malaria by Government of India.

Results and Discussion

Table 1.1.: INDICATOR WISE PERORMANCE UNDER N-A-M-P-FOR THE MONTH OF JULY 2017

Sr. No	Name of the Indicator	During the Month			Progressive from April 2017		
		Non tribe	Urban	**Total**	Non tribe	Urabn	**Total**
1	No-of B-S-Collected Through Act Sur	12871	222	**13093**	42827	681	**43508**
2	No of B-S-Collected from fever cases through passive seveurv	7076	3156	**10232**	20117	9931	**30048**
3	A) Total no-of B-S- Collected under Act+pass⁻	19947	3378	**23325**	62944	10612	**73556**
	B) No-of B-S-Coll under Act+Pass+CMN	19955	3378	**23333**	62978	10612	**73590**
4	A) Total no-of B-S- Examinaation	19955	3378	**23333**	62978	10612	**73590**
	B) Total no-of B-S- Exam-within 15 days from collection	19955	3378	**23333**	62978	10612	**73590**
5	A) No of Malaria cases detected	2	0	**2**	5	0	**5**
	B) No of positive cases available for R-T-	2	0	**2**	5	0	**5**
6	No-of P-F- & Mix cases detected out of total malaria cases	0	0	**0**	0	0	**0**
7	A) Total no of Malaria cases R-T- irrespective of imelag	2	0	**2**	5	0	**5**
	B) No of malaria cases R-T- within 21 days from the	2	0	**2**	5	0	**5**
8	No of death due to malaria	0	0	**0**	0	0	**0**

Table 1.2.INDICATOR WISE PERORMANCE UNDER N-A-M-P-FOR THE MONTH OF AUGUST 2017

Sr. No	Name of The Indicator	During the Month			Progressive from April 2017		
		Non tribe	Urban	**Total**	Non tribe	Urabn	**Total**
1	No-of B-S-Collected Through Act Sur	10356	191	**10547**	53183	872	**54055**
2	No of B-S-Collected from fever cases through passive seveurv	6764	2792	**9556**	26881	12723	**39604**
3	A) Total no-of B-S- Collected under Act+pass⁻	17120	2983	**20103**	80064	13595	**93659**
	B) No-of B-S-Coll under Act+Pass+CMN	17124	2983	**20107**	80102	13595	**93697**
4	A) Total no-of B-S- Examinaation	17124	2983	**20107**	80102	13595	**93697**
	B) Total no-of B-S- Exam-within 15 days from collection	17124	2983	**20107**	80102	13595	**93697**
5	A) No of Malaria cases detected	1	0	**1**	6	0	**6**
	B) No of positive cases available for R-T-	1	0	**1**	6	0	**6**
6	No-of P-F- & Mix cases detected out of total malaria cases	0	0	**0**	0	0	**0**
7	A) Total no of Malaria cases R-T- irrespective of imelag	1	0	**1**	6	0	**6**
	B) No of malaria cases R-T- within 21 days from the	1	0	**1**	6	0	**6**
8	No of death due to malaria	0	0	**0**	0	0	**0**

Table 1.3.INDICATOR WISE PERFORMANCE UNDER N-A-M-P-FOR THE MONTH OF SEPTEMBER 2017

Sr. No	Name of The Indicator	During the Month			Progressive from April 2017		
		Non tribe	Urban	**Total**	Non tribe	Urabn	**Total**
1	No-of B-S-Collected Through Act Sur	11034	145	**11179**	64217	1017	**65234**
2	No of B-S-Collected from fever cases through passive seveurv	7064	2781	**9845**	33945	15504	**49449**
3	A) Total no-of B-S- Collected under Act+pass⁻	18098	2926	**21024**	98162	16521	**114683**
	B) No-of B-S-Coll under Act+Pass+CMN	18100	2926	**21026**	98202	16521	**114723**
4	A) Total no-of B-S- Examinaation	18100	2926	**21026**	98202	16521	**114723**
	B) Total no-of B-S- Exam-within 15 days from collection	18100	2926	**21026**	98202	16521	**114723**
5	A) No of Malaria cases detected	0	0	**0**	6	0	**6**
	B) No of positive cases available for R-T-	0	0	**0**	6	0	**6**
6	No-of P-F- & Mix cases detected out of total malaria cases	0	0	**0**	0	0	**0**
7	A) Total no of Malaria cases R-T- irrespective of imelag	0	0	**0**	6	0	**6**
	B) No of malaria cases R-T- within 21 days from the	0	0	**0**	6	0	**6**
8	No of death due to malaria	0	0	**0**	0	0	**0**

Table1.4. INDICATOR WISE PERORMANCE UNDER N-A-M-P-FOR THE MONTH OF OCTOBER 2017

Sr. No	Name of The Indicator	During the Month			Progressive from April 2017		
		Non tribe	Urban	**Total**	Non trib	Urabn	**Total**
1	No-of B-S-Collected Through Act Sur	11727	130	**11857**	75944	1147	**77091**
2	No of B-S-Collected from fever cases through passive seveurv	6680	2885	**9565**	40635	18379	**59014**
3	A) Total no-of B-S- Collected under Act+pass⁻	18407	3015	**21422**	116569	19536	**136105**
	B) No-of B-S-Coll under Act+Pass+CMN	18411	3015	**21426**	116613	19536	**136149**
4	A) Total no-of B-S- Examinaation	18411	3015	**21426**	116613	19536	**136149**
	B) Total no-of B-S- Exam-within 15 days from collection	18411	3015	**21426**	116613	19536	**136149**
5	A) No of Malaria cases detected	0	0	**0**	6	0	**6**
	B) No of positive cases available for R-T-	0	0	**0**	6	0	**6**
6	No-of P-F- & Mix cases detected out of total malaria cases	0	0	**0**	0	0	**0**
7	A) Total no of Malaria cases R-T- irrespective of imelag	0	0	**0**	6	0	**6**
	B) No of malaria cases R-T- within 21 days from the	0	0	**0**	6	0	**6**
8	No of death due to malaria	0	0	**0**	0	0	**0**

Table 1.5.INDICATOR WISE PERORMANCE UNDER N-A-M-P-FOR THE MONTH OF NOVEMBER 2017

Sr. No	Name of The Indicator	During the Month			Progressive from April 2017		
		Non tribal	Urban	**Total**	Non tribal	Urban	**Total**
1	No-of B-S-Collected Through Act Sur	10834	146	**10980**	86778	1293	**88071**
2	No of B-S-Collected from fever cases through passive seveurv	6758	3032	**9790**	47393	21411	**68804**
3	A) Total no-of B-S- Collected under Act+pass⁻	17592	3178	**20770**	134161	22714	**156875**
	B) No-of B-S-Coll under Act+Pass+CMN	17622	3178	**20800**	134235	22714	**156949**
4	A) Total no-of B-S- Examinaation	17622	3178	**20800**	134235	22714	**156949**
	B) Total no-of B-S- Exam-within 15 days from collection	17622	3178	**20800**	134235	22714	**156949**
5	A) No of Malaria cases detected	3	0	**3**	9	0	**9**
	B) No of positive cases available for R-T-	3	0	**3**	9	0	**9**
6	No-of P-F- & Mix cases detected out of total malaria cases	0	0	**0**	0	0	**0**
7	A) Total no of Malaria cases R-T- irrespective of imelag	3	0	**3**	9	0	**9**
	B) No of malaria cases R-T- within 21 days from the	3	0	**3**	9	0	**9**
8	No of death due to malaria	0	0	**0**	0	0	**0**

Table 1.6.INDICATOR WISE PERORMANCE UNDER N-A-M-P-FOR THE MONTH OF December 2017

Sr. No	Name of The Indicator	During the Month			Progressive from April 2017		
		Non tribal	Urban	**Total**	Non tribal	Urban	**Total**
1	No-of B-S-Collected Through Act Sur	10850	148	**10998**	86776	1288	**88071**
2	No of B-S-Collected from fever cases through passive seveurv	6762	3036	**9798**	47380	21407	**68787**
3	A) Total no-of B-S- Collected under Act+pass⁻	17584	3165	**20749**	134158	22712	**156870**
	B) No-of B-S-Coll under Act+Pass+CMN	17634	3162	**20796**	134236	22710	**156946**
4	A) Total no-of B-S- Examinaation	17630	3182	20812	134228	22711	**156939**
	B) Total no-of B-S- Exam-within 15 days from collection	17640	3176	**20816**	134250	22708	**156958**
5	A) No of Malaria cases detected	4	0	**4**	9	0	**9**
	B) No of positive cases available for R-T-	4	0	**4**	9	0	**9**
6	No-of P-F- & Mix cases detected out of total malaria cases	0	0	**0**	0	0	**0**
7	A) Total no of Malaria cases R-T- irrespective of imelag	4	0	**4**	9	0	**9**
	B) No of malaria cases R-T- within 21 days from the	4	0	**4**	9	0	**9**
8	No of death due to malaria	0	0	**0**	0	0	**0**

The present study was conducted for the period of 6 months that is from July 2017 to December 2017. The data was collected from 25 primary health centres from rural area and 6 primary health centres from urban area in district malaria office in Washim district of Maharashtra. The primary health centres from rural area includes Warla, Kata, Tondgaon, Pardi Takmor, Kinhiraja, Medshi, Shirpur, Jaulka, Mop, Kavtha, Mangul Zanak, Kenwad, Kasola, Wanoja, Moheri, Asegaon, Shelu Bazar, Kupta, Poharadevi, Shedurjana, Manabha, Umabarda bazaar, Poha, Dhanaj Bu and Dhamini. 6 primary health centres from urban area includes G.H. Washim, R.H. Karanja, R.H. Mangrulpir, R.H. Risod, R.H.Manora and R.H. Kamargaon.

The indicator wise performance under NAMP from July 2017 to December 2017 was collected from Non tribal and urban area that includes No. of Blood sample collected through active source, No. of blood samples collected from fever cases through passive source, Total number of Blood samples collected through active, passive and CMN, Total no. of blood samples examined, Number of Malaria cases detected together with number of death due to malaria depicted in Table 1.1., 1.3., 1.5., 1.7. and 1.9.

 The blood samples were collected through active source, through passive source, under CMN and examined for the malarial parasite and a total number of Malarial cases were detected and noted. The present study reported 09 cases of Malaria and no death. The maximum cases of Malaria were reported from rural area from the blood sample collected from fever cases with infection of *Plasmodium falciparum* and *Plasmodium vivax* species.

In the month of July, 12871 blood samples were collected through active source from Non tribal region and 222 samples were collected through active source from urban region, 7076 blood samples collected from fever cases through passive source from non tribal region and 3156 samples were collected from fever cases through passive source from urban region. Out of 19955 blood samples examined only 2 malarial cases were detected from peoples of non tribal region i.e. Shelu Bazar and Dhanaj Bu., but no death was resulted from Malaria. There was not detected any malarial case from 3378 blood samples examined from urban region. Out of 23333 blood samples examined only 2 malarial cases were detected from non tribal region but no death was resulted from Malaria.

In the month of August, it was found that 10356 Blood sample were collected through active source from Non tribal region and 191 samples were collected through active source from urban region, 6764 blood samples collected from fever cases through passive source from non tribal region and 2792 samples were collected from fever cases through passive source from urban region. Out of 17124 blood samples examined only 1 malarial case was detected from non tribal region but no death was resulted from Malaria. There was not detected any malarial case from 2983 blood samples examined from urban region. Out of 2983 blood samples examined only 1 malarial case was detected from non tribal region but no death was resulted from Malaria.

In the month of September, it was found that 11034 Blood sample were collected through active source from Non tribal region and 145 samples were collected through active source from urban region, 7064 blood samples collected from fever cases through passive source from non tribal region and 2781 samples were collected from fever cases through passive source from urban region. There was not detected any malarial case from 2926 blood samples examined from urban region and Out of 18100 blood samples examined from non tribal region.

10356 Blood sample were collected in October through active source from Non tribal region and 191 samples were collected through active source from urban region, 6764 blood samples collected from fever cases through passive source from non tribal region and 2792 samples were collected from fever cases through passive source from urban region. Out of 17124 blood samples examined only 1 malarial case was detected from non tribal region but no death was resulted from Malaria. There was not detected any malarial case from 2983 blood samples examined from urban region. Out of 2983 blood samples examined only 1 malarial case was detected from non tribal region but no death was resulted from Malaria.

10834 Blood sample were collected in the month of November through active source from Non tribal region and 146 samples were collected through active source from urban region, 6758 blood samples collected from fever cases through passive source from non tribal region and 3032 samples were collected from fever cases through passive

source from urban region. Out of 17622 blood samples examined only 3 malarial cases were detected from non tribal region but no death was resulted from Malaria. There was no malarial case detected from 3178 blood samples examined from urban region. Out of 20800 blood samples examined only 1 malarial case was detected from non tribal region but no death was resulted from Malaria.

In the month of December, 10850 Blood sample were collected through active source from Non tribal region and 148 samples were collected through active source from urban region, 6762 blood samples collected from fever cases through passive source from non tribal region and 3036 samples were collected from fever cases through passive source from urban region. Out of 20816 blood samples examined only 4 malarial cases were detected from non tribal region but no death was resulted due to Malaria. There was no any malarial case observed from 3176 blood samples examined from urban region. Out of 20816 blood samples examined only 4 malarial cases were detected from non tribal region but no death resulted due to Malaria.

The results of the present study clearly shows that Malaria in Washim district is caused due to two species of Malarial parasites namely *Plasmodium vivax* and *Plasmodium falciparum* which are highly seasonal in their distribution, *P. vivax* during summer and monsoon and *P. falciparum* during post-monsoon and autumn. Peoples from all age groups are affected by both the parasites mostly peoples more than 14 years old were found to be more prone to Malaria. Many researchers worked on malaria transmission reporting the similar results **Dhiman (2005)** studied the persistence of malaria transmission in a tribal area in Maharashtra, India**. Sundararajan *et al.,*(2013)** worked on Barriers to Malaria control among marginalized Tribal Communities. **Choursia *et al.,*(2017)** worked on burden of asymptomatic malaria among a tribal population in a forested village of Central India.

The study concludes that in areas where people are living in poor hygienic conditions with no proper use of preventive measures, malaria is firmly established. We conclude that community based interventions which bring improvement in standard of living, access to healthcare facilities and health awareness will have a significant impact on malaria prevention in these areas.

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