

Short Article

# A Study of Malaria in India

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## A B S T R A C T

The Annual Parasite Incidence (API) of malaria for India during 2018 was 0.32 which came down to 0.14 during 2020. If interventions like the treatment of asymptomatic carriers take place, it is expected that the API will come down further, not only in the states and union territories, but at the national level as well.

**Keywords:** Malaria, India, API

The objective of the study was to understand the position where India currently stands about the API of malaria, its state- and U.T.-wise-distribution and possible ways in which it may be brought down to successfully meet elimination-level targets.

The study design included analysis of the annual report of the Malaria Division of the National Vector Borne Disease Control Programme (NVBDCP) pertaining to the year 2018 as well as the malaria trend till 2020 from the website of the NVBDCP. Data for the period 2021 onwards was not available.

According to the most recent dataset available on the NVBDCP website for state-wise API distribution in the country (data for the year 2018), it is seen that the malaria problem was not equally distributed throughout India; it was focal as can be seen from the following information.

So, from Table 1 it is seen that out of the thirty-six states and union territories, the API of Malaria was highest in Mizoram during 2018. From the map given in Figure 1, this state shares its borders with Bangladesh and Myanmar in addition to other north-eastern Indian states.

It may be further useful to study the trend of APIs in India over the years. For this, the website of the NVBDCP was

referred to and the following findings were observed.

The data in Table 2 shows that the API has gradually come down from 2.12 in 2001 to 0.14 in 2020.

### Discussion

It is observed that there is a decline in API over the years, but the problem of malaria is still persisting in the country.

The Government of India, in 2016, adopted a framework for Malaria Elimination in India covering the period 2016-2030.<sup>4</sup> This was based on the World Health Organization's (WHO) Global Technical Strategy for Malaria, covering the same period, adopted in 2015 and updated in 2021.<sup>5</sup>

The aim is to reach zero malaria cases by 2027 and then wait for three years before WHO can grant malaria-free status certification. It is already the end of 2021 and India is about to reach the halfway mark of this period from 2016 to 2027. So, it is imperative that the API come down further and faster within the next five years.

A method by which the API can be brought down rapidly is through campaigns that detect the malarial antigen in both febrile persons as well as asymptomatic carriers. Such campaigns were conducted in the Bastar region of Chhattisgarh and the most recent round was held from June 15, 2021, till July 31, 2021.

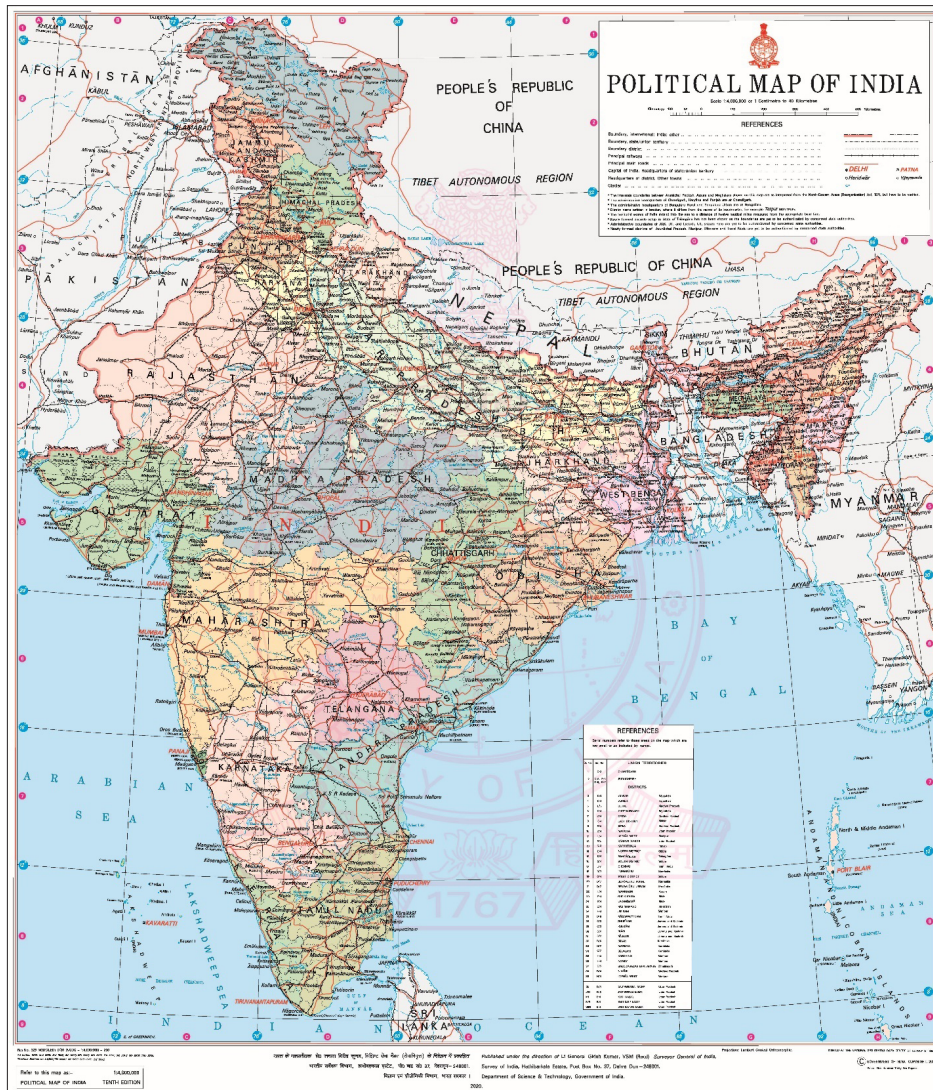


Figure I. Map of India<sup>1</sup>

Table I. API of States and U.T., 2018 (Arranged in Decreasing Order)<sup>2</sup>

S. No.	State/ UT/ Country	Name	API
1.	State/ UT	Mizoram	3.58
2.		Tripura	3.23
3.		Chhattisgarh	2.63
4.		Meghalaya	1.83
5.		Jharkhand	1.48
6.		Odisha	1.48
7.		A & N Islands	0.56
8.		Dadra & Nagar Haveli	0.46
9.		Arunachal Pradesh	0.39
10.		Uttar Pradesh	0.38
11.		Gujarat	0.33
12.		Madhya Pradesh	0.27
13.		West Bengal	0.27

14.	State/ UT	Goa	0.24	
15.		Andhra Pradesh	0.12	
16.		Assam	0.11	
17.		Haryana	0.11	
18.		Maharashtra	0.09	
19.		Karnataka	0.08	
20.		Lakshadweep Islands	0.08	
21.		Rajasthan	0.07	
22.		Daman & Diu	0.07	
23.		Nagaland	0.06	
24.		Tamil Nadu	0.05	
25.		Telangana	0.05	
26.		Uttarakhand	0.04	
27.		Chandigarh	0.04	
28.		Puducherry	0.04	
29.		Jammu & Kashmir	0.03	
30.		Kerala	0.03	
31.		Sikkim	0.03	
32.		Himachal Pradesh	0.02	
33.		Punjab	0.02	
34.		Delhi	0.02	
35.		Bihar	0.01	
36.		Manipur	0.00	
37.		Country	India	0.32

**Table 2.API of India, 2001-2020<sup>3</sup>**

S. No.	Year	API
1.	2001	2.12
2.	2002	1.82
3.	2003	1.82
4.	2004	1.84
5.	2005	1.68
6.	2006	1.66
7.	2007	1.39
8.	2008	1.36
9.	2009	1.36
10.	2010	1.37
11.	2011	1.10
12.	2012	0.88
13.	2013	0.72
14.	2014	0.89
15.	2015	0.92

16.	2016	0.85
17.	2017	0.64
18.	2018	0.32
19.	2019	0.25
20.	2020	0.14

A patient was given chloroquine and primaquine if his/her diagnosis was *Plasmodium vivax*. Artemisinin-based Combination Therapy (ACT) and primaquine was given if the diagnosis was *Plasmodium falciparum*.<sup>6,7</sup> There had been 5272 cases of malaria in the Bastar region from November 2018 to November 2019. However, from November 2019 till November 2020, there were just 2696 cases of malaria, which implied a decrease of around 49% in the number of cases.<sup>8</sup>

A beneficial effect of these campaigns is that humans who are reservoirs of the malarial parasite are effectively treated. This, in turn, reduces the number of humans who could be a source of infection to the female Anopheline mosquito.

### Conclusion

If the approach of universal diagnosis and radical treatment like that which was used in the “Malaria-Mukt Bastar” campaigns of Chhattisgarh described above is adopted in other states and union territories of India, it is highly likely that the API would come down more quickly in the country, especially if it must reach the target of zero cases of malaria by the year 2027. This would enable it to receive the certification of malaria elimination from the WHO in 2030.

**Conflict of Interest:** None

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