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SHORT ARTICLE

A study of Malaria in the Union Territory (U.T.) of Dadra and Nagar Haveli and Daman and Diu (DNHDD)

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ABSTRACT

One of the districts in the newly reconstituted U. T. of DNHDD had a high Annual Parasite Incidence (API) of Malaria during 2014 which decreased in 2017 and 2018. However, if interventions like the treatment of asymptomatic carriers take place, it is expected that the API will come down sooner there.

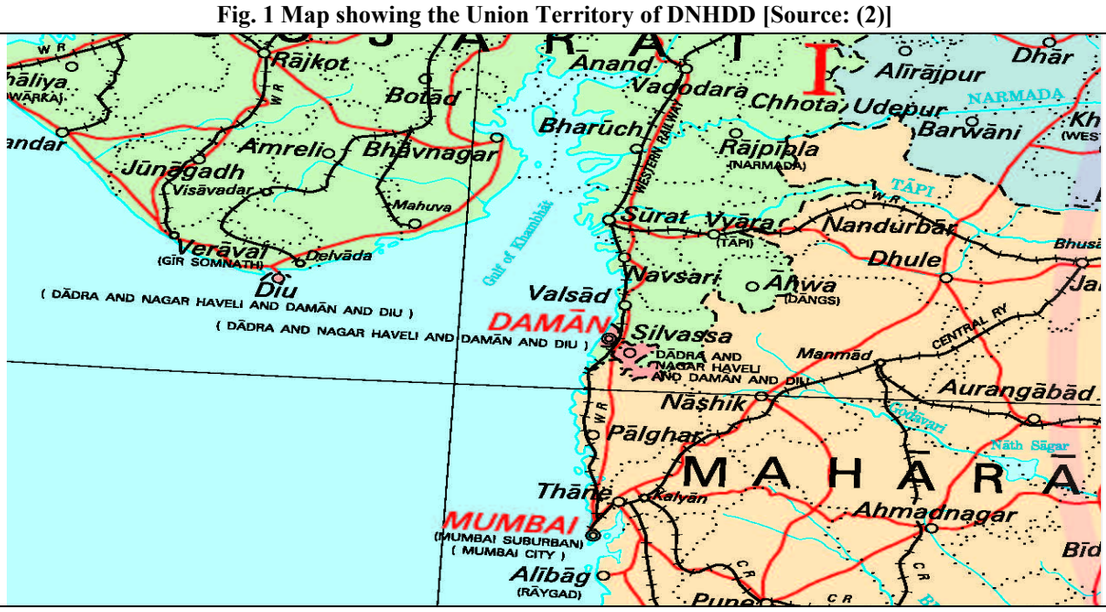
Keywords: Malaria, Dadra, Nagar Haveli, Daman, Diu, API

Introduction

The newly reconstituted U.T. of DNHDD came into being on 26th January 2020. It was formed by the amalgamation of two U.T.s: the erstwhile U.T. of DNH and the erstwhile U.T. of Daman and Diu (DD).[1]

A map showing the location of the U.T. of DNHDD is given below:

Fig. 1 Map showing the Union Territory of DNHDD [Source: (2)]



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The new U.T. of DNHDD consists of three districts:

1. Dadra and Nagar Haveli District:

This district consists of two talukas: ***Firstly*** Dadra, which is surrounded by Gujarat, and

Secondly Nagar Haveli, which encloses a village of Gujarat. The district headquarters is at Silvassa.

Daman District: This district is located on the coast of Gujarat. The district headquarters is at Daman Town.

Diu District: This district consists of Diu Island and two parts (Ghoghla and Simbor) on the Indian mainland. The district headquarters is at Diu Town.

Fig. 2 Map of Dadra & Nagar Haveli District [Source: (3)]

Dadra and Nagar Haveli map in grey depicting the Gujarati enclave village of Maghval in cream

Methods

The study design included an analysis of the annual reports of the National Centre for Vector-Borne Diseases Control (NCVBDC) pertaining to the years 2017 and 2018 and a study of the document titled "National Framework for Malaria Elimination in India 2016-2030" published by the NCVBDC.

Results

Annual Parasite Incidence (API) of Malaria is given by:

$$API = \frac{\text{Confirmed cases of Malaria for one year}}{\text{Population under surveillance}} \; x\,1000$$

According to the most recent data available on the NCVBDC website (data for the year 2018), the API for the erstwhile U.T. of DNH was 0.46, and that for the erstwhile U.T. of DD was 0.07[4]. However, by going through the data for the erstwhile U.T. of DD, it is seen that the Malaria problem was not equally distributed between its two districts; it was unequally distributed as can be seen from the following information[4]:

Table- 1: API of the Districts of the Erstwhile U.T. of Daman & Diu, 2018

S. No.	District	API
1	Daman	0.08
2	Diu	0.04
U.T.	Daman & Diu	0.07

[Source: (4)]

Table- 2: API of the Districts of the Erstwhile U.T. of Dadra & Nagar Haveli, 2018		
S. No.	**District**	**API**
1	Dadra & Nagar Haveli	0.46
U.T.	Dadra & Nagar Haveli	0.46
		[Source: (4)]

It may be further useful to study what was the trend of the APIs in the two U.T.s over the years. For this, the three documents of the NCVBDC were referred to and the following findings were observed:

Table- 3: API of Districts constituting the current U.T. of DDNH - 2014, 2017 and 2018			
District	**Year**		
	2014	**2017**	**2018**
Dadra & Nagar Haveli	1.64	0.60	0.46
Daman	0.20 (for the erstwhile U.T. of DD)	0.13	0.08
Diu		0.08	0.04
			[Source: (4), (5) and (6)]

Discussion

It is observed that there is a decline in API over the years, but the problem is still large. The percentage of Malaria cases in Dadra & Nagar Haveli District which were due to *Plasmodium falciparum* was 4.07% in 2018 while it was 5.86% in 2017 showing that *Plasmodium vivax* was predominant there. Similarly, the percentage of cases in Daman District which were due to *P. falciparum* was 4.55% in 2018 while it was 11.76% in 2017, showing that *P. vivax* was predominant there also.[4,5]

However, in Chhattisgarh, during 2020 and 2021, four rounds of "Malaria-Mukt Bastar" took place wherein every person living in each of the villages in the Bastar region had their finger pricked and a drop of blood drawn which was examined for the *Plasmodium* antigen using Rapid Diagnostic Kits. These campaigns detected the Malarial antigen in both febrile persons and asymptomatic carriers and the most recent round was held from June 15, 2021, till July 31, 2021. If the diagnosis was *P. vivax*, Chloroquine and Primaquine were given to the patient. If it was *P. falciparum*, provision of Artemisinin-based Combination Therapy (ACT) and Primaquine was made. ACT and Primaquine were used to treat mixed infections[7,8]. As a result, though in the one year preceding till November 2019 there were 5272 cases of Malaria in the Bastar region, during the following year till November 2020 there were only 2696 cases i.e., there was a drop of about 49% in the number of cases[9]. That means there was some useful effect of these campaigns in that the reservoirs of the Malarial parasite i.e., the humans were effectively treated thereby reducing the number of those persons who could be sources of infection to the female Anopheline mosquitoes.

Conclusions

During 2016, the Indian Government formulated the Malaria Elimination in India framework which spanned 2016 – 2030.[6] It was founded on the WHO Global Technical Strategy for Malaria, spanning the same period, which was formulated during 2015 and updated in 2021.[10] The goal is to reach no Malaria cases in the country by the year 2027 and then after waiting for a period of three years, the WHO can then grant Malaria-free status certification to the country in 2030.

If an approach of universal diagnosis and radical treatment like that which was used in the "Malaria-Mukt Bastar" campaigns in Chhattisgarh is adopted in the U.T. of DNHDD, it is possible that the API may come down further and more quickly there especially if it must reach the target of zero cases of Malaria by 2027. This would enable the country to receive the certification of Malaria elimination in 2030.

References

1. https://en.wikipedia.org/wiki/Dadra_and_Nagar_Haveli_and_Daman_and_Diu Accessed on 25 February 2022.
2. Government of India. Survey of India. Political Map of India, English 10th Edition 2020, Available at https://surveyofindia.gov.in/documents/polmap-eng-11012021.jpg ,Accessed on 25 February 2022.
3. https://en.wikipedia.org/wiki/Maghval, Accessed on 25 February 2022.
4. Government of India. Annual Report of National Vector-Borne Disease Control Programme 2018. Available at https://nvbdcp.gov.in/Doc/Annual-Report-2018.pdf. Accessed on 25 August 2021.
5. Government of India. Annual Report of National Vector-Borne Disease Control Programme 2017. Available at https://nvbdcp.gov.in/Doc/Annual-Report-2017.pdf. Accessed on 31 August 2021.
6. Government of India. National Framework for Malaria Elimination in India 2016 – 2030. Available at https://nvbdcp.gov.in/WriteReadData/l892s/National-framework-for-malaria-elimination-in-India-2016%E2%80%932030.pdf. Accessed on 17 September 2021.
7. https://theprint.in/health/while-covid-raged-chhattisgarh-covered-over-6000-villages-under-malaria-mukt-bastar-project/537481/Accessed on 16 September 2021.
8. https://www.patrika.com/raipur-news/fourth-phase-of-bastar-free-malaria-campaign-against-malaria-anemia-6905880/ Accessed on 16 September 2021.
9. https://nhm.gov.in/New_Updates_2018/Innovation_summit/7th/DCP/DCP-%20PPTs%20%287%29/CG-Best%20Practices%20MMB1.pptx. Accessed on 20 September 2021.
10. World Health Organization. Global Technical Strategy for Malaria 2016 – 2030. Available at https://www.who.int/publications/i/item/9789240031357. Accessed on 17 September 2021.

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