INNOVATIVE ENDEAVORS AND CHALLENGES FOR MALARIA ELIMINATION IN CHHATTISGARH: AN ANALYSIS

Abstract:

BastarDivision comprising seven districts located in southern part of Chhattisgarh State, is highly endemic for malaria. The division is dominated by tribal population.The Annual Parasite Incidence (API) of Bastar, Bijapur, Dantewada, Kanker, Kondagaon, Narayanpur, Sukma were 12.83, 66.59, 60.61, 16.12, 14.67, 31.06, 62.11 in the year 2015 which were reduced to 3.99, 24.53, 19.05, 1.62, 2.81, 13.98, 9.76 in the year 2021 respectively. The significant reduction is attributed to combination of control measures implemented and its intensification during a campaign "Malaria Mukth Chhattisgarh Abhiyan" ("Malaria Free Bastar") an initiative of State Chief Minister. Despite marked reduction in malaria incidence, there are many challenges out of which the crucial ones are community response to testing and treatment as local traditional healers and self-medication are preferred. Remoteness and inaccessibility of tribal villages and hamlets are another challenge in informing villagers prior to spray and achieving desired coverage with Indoor residual spray (IRS). The fixed spray schedule with no flexibility in dates is another challenge in completing the spray if its start is delayed. Proper and regular use of LLIN within its expiry is a bigger challenge because old nets are continued to be used and new nets are kept safe due to mindset. Over and above, entomological surveillance and field activities are the issues being flagged at many platforms but instead of data generation by skilled persons, its analysis and providing feedback to state, the priority is towards visibility. The gaps need to be assessed, evidenced and resolved to ensure implementation of programme guidelines and achieve expected outputs.

Keywords: Malaria, Chhattisgarh, Malaria Mukth Chhattisgarh Abhiyan, IRS, LLIN

INTRODUCTION

Malaria is a major public health problem in India, accounting for sizable morbidity, mortality and economic loss.As per World Malaria Report 2021[1], there were an estimated 241 million malaria cases in 2020 in 85 malaria endemic countries, increasing from 227 million in 2019, with most of this increase coming from countries in the WHO African Region. The WHO South-East Asia

Region accounted for about 2% of the burden of malaria cases globally. Malaria cases reduced by 78%, from 23 million in 2000 to about 5 million in 2020. Malaria case incidence in this region reduced by 83%, from about 18 cases per 1000 population at risk in 2000 to about 3 cases in 2020. In the WHO South-East Asia Region, estimated malaria deaths reduced by 75%, from about 35 000 in 2000 to 9000 in 2020. India contributed 1.7% of malaria cases and 1.2% deaths globally in the year 2020, however, it accounted for 83% of estimated cases and about 82% of all malaria deaths in the WHO South-East Asia Region. The case load, though steady around 2 million cases annually in the late nineties, has shown a declining trend since 2002 with 86.2% decline of malaria cases and 76.6% decline in deaths in 2021 compared to 2015. Globally, 40 countries and territories have been granted a malaria-free certification from WHO including, most recently, China (2021), El Salvador (2021), Algeria (2019), Argentina (2019), Paraguay (2018) and Uzbekistan (2018). From SEAR, Maldives and Sri Lanka have been certified by WHO to have eliminated malaria in 2015 and 2016 respectively. It may be mentioned that there are approximately 62 countries where malaria never existed or disappeared without specific measures.

India as a signatory to the decisions of WHA resolution WHA 68.2[2] agreed with the targets of GTS[3]. In November 2014, Asia Pacific Heads of Government ('Leaders') from 18 countries, including Hon'ble Prime Minister of India agreed to the goal of a region free of malaria by 2030.A National Framework for Malaria Elimination (NFME)[4] 2016-2030, was launched in February 2016 with a vision to eliminate malaria from the country by 2030 along with Manual of Integrated Vector Management[5]. This was followed by National Strategic Plan for Malaria Elimination[6] (2017 to 2022) and operation manual for malaria elimination[7].The next 5-year strategic plan is under formulation.

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OBSERVATIONS AND DISCUSSIONS

Malaria in Chhattisgarh

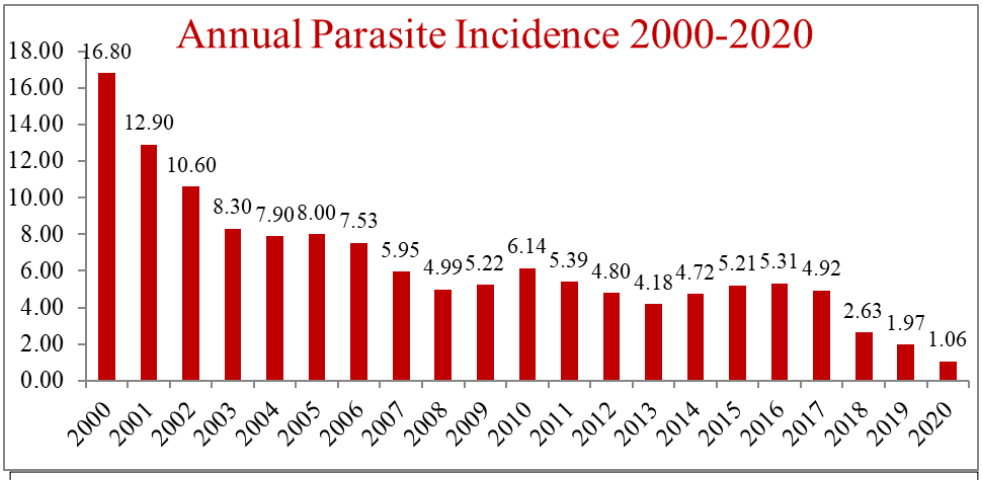

Figure-1 Malaria Incidence in Chhattisgarh, India
Source https://nhm.gov.in/New_Updates_2018/Innovation_summit/7th/DCP/DCP-%20PPTs%20%287%29/CG-Best%20Practices%20MMB1.pptx

India comprises of 28 States and 8 Union Territories with a population of 1.3 billion of which 95 % resides in malaria endemic areas and 80% of malaria cases reported in the country is confined to areas consisting of 20% population residing in tribal, hilly, difficult and inaccessible areas.Chhattisgarhis a heavily forested state in central India, known for its temples and waterfalls. The northern and southern parts of the state are hilly whereas the central part is a fertile plain. India has a target of eliminating malaria by 2030[4].Malaria control and elimination in rural tribal areas are one of the roadblocks in India's malaria elimination drive[8-10].

The problems in the health sector in tribal areas are compounded by difficult-to-reach areas and poor access to health facilities. Several tools utilized for malaria control in India are Long-Lasting Insecticidal Nets (LLINs) and Rapid Diagnostic Tests (RDTs). Although these tools and techniques are of immense importance for malaria elimination, the correct implementation of

those tools is the key. Due to the huge shortfall of physicians and nurses in the rural and tribal areas, the community health workers (CHW) become the key players for implementing any program.

The malaria elimination program is dependent on LLINs, medicines, and RDTs. These are very good tools for achieving short-term goals. But the pace of malaria elimination will depend highly on the skills and knowledge of Community health volunteers[11]. The concept of CHW locally called as Mitaninmeans friendwas launched in Chhattisgarh in 2002, with the broad objective of providing immediate relief from common health problems and improving health awareness in the rural areas of Chhattisgarh. Mitanins are trained for malaria control and treatment. They act as drug depots to provide the medicines to the patients, carry out the Rapid diagnostic test, and collect blood slides for malaria diagnosis[12].

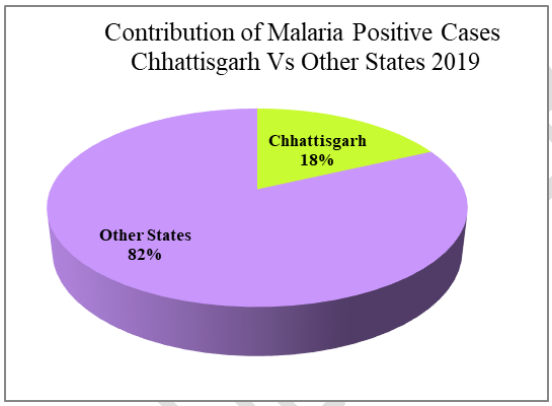

Figure-2 : Malaria contribution by Chhattisgarh
Source:https://nhm.gov.in/New_Updates_2018/Innovation_summit/7th/DCP/DCP-%20PPTs%20%287%29/CG-Best%20Practices%20MMB1.pptx

Chhattisgarh is one of the malaria-endemic states in India. It is inhabited by 2.3% of India's population, but it contributed significantly to malaria morbidity and mortality in India in 2019, 17.8 and 40.3%, respectively[13]. More than 30% of the Chhattisgarh population is tribal and lives in forested areas[14]. The tribalsare the most difficult to test and treat and the tribal areas are also not supported withadequate health infrastructurewhich emphasizes the importance of active

surveillance by local *Mitanins* who can play an effective role in active fever surveillance for malaria besides performing other health related tasks at sub-village level after focused education on malaria related activities and proper supervision[15]. The high burden of malaria in these tribal districts pose many challenges in implementing the strategy for eliminating malaria viz., accessibility to remote and challenging geographic areas, lifestyle, belief in traditional medicine, inadequate confidence in health service providers and communications in their dialects.

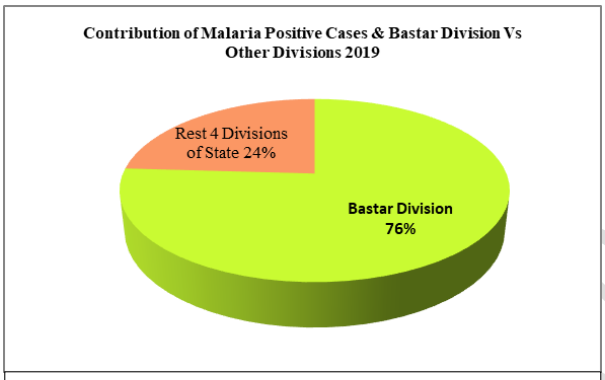

Figure-3: Malaria Contribution by Bastar Division

Source:
https://nhm.gov.in/New_Updates_2018/Innovation_summit/7th/DCP/DCP-%20PPTs%20%287%29/CG-Best%20Practices%20MMB1.pptx

The analysis of case distribution indicated concentration of about 93% malaria cases in the tribal areas of Bastar Division consisting of 7 districts namely Bastar, Kanker, Narayanpur, Kondagaon, Dantewada, Sukma and Bijapur. Chhattisgarh contributed 2.29% Population & 18% malaria Cases of the country**(Figure 2)** whereas Bastar division contributed 11.42% population& 76% malaria Cases of the State as per reports of 2019**(Figure 3).**

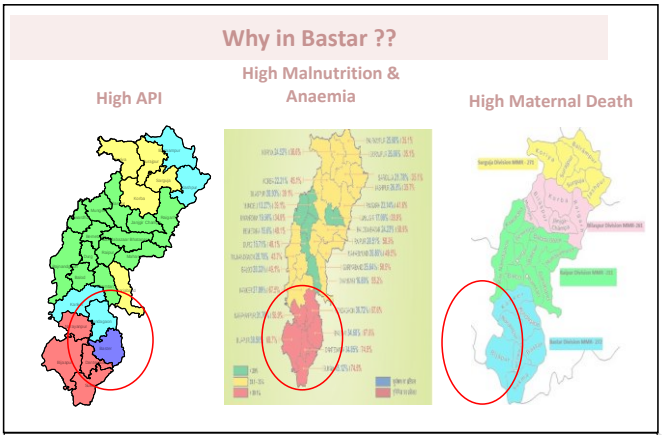

Fig-4: Justification of Intensified Malaria elimination activity in Bastar

Source:https://nhm.gov.in/New_Updates_2018/Innovation_summit/7th/DCP/DCP-%20PPTs%20%287%29/CG-Best%20Practices%20MMB1.pptx

In pursuit to achieve malaria elimination in identified 7 high burden tribal districts**(Figure 4**) aligning the goal of malaria elimination in India by the year 2030, an innovative campaign of " Malaria MukthBastar" (Malaria free Bastar) was launched in January 2020. The reason to select these high burden tribal districts was because asymptomatic carriers are not diagnosed by routine surveillance and suchafebrile carriers containmalaria gametocytes which act as transmission pool for the community. The malnourished children with asymptomatic malaria and malaria infection among pregnant mother may have grave repercussions.Malnutrition increases susceptibility to infection while episodes of infection precipitate nutritional deficiency **(Mal-Mal theory)[16].** The strategy adopted was active mass screening. This campaign with "test, treat, and track" resulted in detecting asymptomatic cases during mass screening and the treatment.

The involvement of local leaders and youth for support of social and behaviour change communication, distribution of long-lasting insecticidal nets (LLINs), Indoor residual spray and larval source management by releasing Gambusia in identified breeding sources following 'high burden to high impact' (HBHI) approach was intensified which was supported by district administration and health authorities in a mission mode committed by Hon'ble Chief Minister of

the state. Various departments were also involved with different roles assigned which are indicated below:

- Woman & Child Development Department: reporting during survey, nail marking for test done, wall stencil, health Education at Aanganwadi Centre, use of LLIN by pregnant woman and under 5 children.
- Education Department: Motivate children for use of LLIN, regular health checkup and cleanliness of surroundings and checking water containers for mosquito breeding, mass Screening at Ashram school.
- Public Health & Engineering Department (PHED): Proper drainage near tube-well, restoration of leaking taps, repair of leakages in supply pipes to prevent water pools, mosquito proofing water harvesting system.
- Panchayat & Rural Development: Cooperation in implementation of ongoing malaria programme activities like mass screening, LLIN use, source reduction, facilitating community participation in implementing programme activities.
- Forest Department: Source reduction, motivation of staffs for health checkupand motivation for use of LLIN
- Tribal Department: Sensitization of Ashram school children on prevention and control of malaria, community mobilization for acceptance of vector controlmeasure and case management services by health workers
- Fishery Department:Production, supply &implementation of larvivorous fish (Gambusia) and train community for its use

The intensified activities in a coordinated manner have continued and evidenced theimpact with about 94% reduction in annual parasite incidence (API) in 2021 as compared to that of the year 2000. The reduction is seen in all the districts of the division.

CONCLUSIONS

Though the intensification of elimination activities has shown significant impact in reducing malaria incidence, the target of achieving zero indigenous malaria case in the area still remains a challenge especially in remaining 5 years from 2023 to 2027. Therefore, the involvement of all local bodies, and departments viz., tribal, forest,education, forest, PHED, PRI and fisheries etc.,

along with other partners involved in infrastructure development, needs to be augmented so that a synchronized efforts are undertaken and the goal is realized. Such endeavor may requiremore financial resources and skilled human for epidemiological, entomological surveillance and implementation. Any delay or reduction in such resources would be the limiting factor inachieving targeted malaria elimination.

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