Commentary

Is malaria elimination a distant dream? Reconsidering malaria elimination strategies in Zimbabwe

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A B S T R A C T

Malaria remains a public health problem decimating vulnerable populace especially in resource-constrained areas in Zimbabwe. Significant progress towards malaria elimination has been made in the previous decades through intensified and improved malaria control measures such as indoor residual spraying (IRS), distribution of long-lasting insecticidal nets (LLIN), artemisinin-based combination therapy and administration of intermittent preventive treatment in pregnancy. However, the outbreak of pandemics like coronavirus disease (COVID-19), cyclones and tropical storms, lack of funding, porous political environment, dearth of resources for vector control, changes in vector behaviour, vector resistance to insecticides, community behavioural change and lack of feasible and sustainable digital technologies for managing malaria control interventions retards progress made towards malaria elimination. Also, arbitrary political environment and unstable economic situation often interfere with health programmes which subsequently lead to malaria outbreaks. Most recently, the country recorded a sharp increase in malaria incidences in malaria-endemic areas especially during the pandemic due to some factors such as movement restrictions, temporary cancellation of IRS activities, delayed delivery of IRS chemicals and recursive lockdown. Therefore, we propose ways to mitigate future malaria outbreaks and advocate for reconsidering malaria elimination strategies to addresses emerging challenges in eradicating malaria in Zimbabwe.

1. Introduction

Globally, malaria remains a public health problem despite the progress made during the millennium development goals. There has been substantial progress in malaria control globally due to intensified cross-border malaria initiatives, regional and international malaria prevention and elimination strategies and policies. World Health Organisation (WHO) rollout strategies and policies such as End Malaria, Roll Back Malaria Partnership’s Action, sustainable development goals (SDGs), Global Technical Strategy for Malaria and the Investment to Defeat Malaria, to end malaria by 2030 [1]. The achievement of these milestones is increasingly becoming bleak due to several factors including the outbreak of pandemics such as COVID-19 which threatens the realisation of these milestones, especially in sub-Saharan countries [2]. Zimbabwe as one of the sub-Saharan countries, experiences a wide spectrum of malaria transmission intensity, with seasonal and geographic variations that correspond closely with the country’s environmental factors such as topography and rainfall patterns. Malaria transmission is perennial in malarious areas, seasonal increases occur annually, with most of the transmission occurring during or just after the November to April rainy season. The number of reported malaria cases fluctuates between approximately 300,000 and 500,000 cases per year, with a notable sustained downward trend in recent years. Such achievement led to the reorientation of focus from malaria control to elimination in Matabeleland North, Midlands and Mashonaland West province and promoted the implementation of malaria pre-elimination operations in some districts. Is pre-elimination sustainable in the light of resources allocated towards malaria prevention and elimination as well as the status of the Zimbabwean economy, and priorities? Also, there is limited evidence that the malaria burden has decreased significantly. For instance, in 2019, approximately 310,000 malaria cases were reported countrywide, equivalent to an incidence rate of 22 cases per 1000 population.
per 1000 population [3]. This represented a 19 % increase in the number of cases reported in 2018 (approximately 260,000), and the number of malaria deaths also rose from 236 in 2018 to 266 in 2019. Also, the country recorded a significant spike of malaria incidences, with 135,585 confirmed cases and 131 deaths as of April 2020, mostly from Manicaland, Masvingo, Matabeleland South and Mashonaland East province [4].

2. Emerging challenges affecting malaria elimination

The previous progress made in combating malaria was successful through case management, vector control strategies, epidemic preparedness and response, intermittent preventive therapy, research, monitoring and evaluation, information education and advocacy for malaria treatment and prevention. However, these measures face emerging impediments leading to malaria resurgence. Firstly, operational challenges such as shortage of resources, low or non-response to field challenges including high refusal of indoor residual spraying, competing programmes and activities such as farming and food distributions demanding same resources (i.e human and time), lack of political will [5], inconsistent social and behaviour change messaging threatening the success of the programme and poor programme promotion and awareness strategies [6]. Vector control strategies involve indoor residual spraying, case management and insecticidal treated nets. These are major components of integrated vector management (IVM) that encounter challenges including shortage of spraying commodities and supplies including personal protective equipment and pump spares, inadequate transport, outdated malaria stratification map [7], insufficient funding and partner support. Also, case management is predominantly used for malaria diagnosis and treatment. However, case management of late has been experiencing operational challenges such as poor compliance, inadequate modern laboratory support for correct diagnosis, lack of awareness on the importance of IPT services and high staff attrition orchestrated by economic challenges. Secondly, the ever-changing vector behaviour which subsequently leads to resistance to insecticides and anti-malarial medicines, invasion of new areas by vectors and changes in vector proportions continue threatening the achievement of milestones set to end malaria by 2030. Thirdly, outbreak infectious diseases such as COVID-19 other non-communicable diseases such as cholera, HIV and TB retards malaria elimination progress [6].

Zimbabwe is among the countries that are highly burdened with HIV & TB in the world with approximately 1.3 million of its citizens living with HIV [8]. Also, the outbreak of natural disasters such as cyclones and tropical storms tremendously affect malaria prevention and elimination activities. For instance, cyclones and tropical storm Chalane caused fatalities, destruction of infrastructure in 2020 and vector breeding sites which subsequently led to malaria outbreaks in Manicaland province. Fourthly, the country continues to face economic challenges that affect the funding of IRS activities and ultimately lead to LLIN distribution deficits and massive deterioration of health delivery systems. Owing to outbreaks of infectious diseases, cyclones and tropical storms, the cost of conducting indoor residual spraying operations will be more expensive than usual as resources reserved to tackle malaria are channelled to other epidemic-prone diseases including cholera, diarrhoea, anthrax and plague [1]. These systems are specially utilised for disease surveillance, however, emerging digital technologies such as artificial intelligence, mobile technology, deep learning, Internet of Things, smart devices and applications present unprecedented opportunities to eradicate malaria, yet their adoption is still nascent in Zimbabwe [3]. For instance, deep learning techniques could be utilised to model vector behaviour, forecasting malaria incidences, early detection and warning systems, mapping malaria cases at the micro-level, understanding spatial distribution of malaria with environmental risk factors. As evident by the successful role played by digital technologies in tackling COVID-19 [9], mobile technology could be utilised for information, education and communication in order to create awareness and disseminate malaria information because of their pervasiveness and ubiquitous.

3. Reconsidering malaria elimination strategies in Zimbabwe

Moving forward, the country needs to reconsider malaria elimination strategies and leverage all possible emerging digital technologies and involvement stakeholders irrespective of cultural background and political affiliation to intensify malaria interventions. In this context, we, therefore, recommend adjustment of malaria elimination strategies in the following ways.

Firstly, there is a need for advanced pre-intervention planning and procurement of IRS equipment ahead of time to avoid unforeseen procurement delays. Also, instead of relying on donor funding, there is a need to allocate a budget for malaria prevention and elimination operations at the national level cascading down to districts to support operations, awareness and research activities. Secondly, IRS coverage as a major component of IVM should be stratified according to malaria risk based on its incidence in previous seasons. Thirdly, there is a need to intensify malaria awareness campaigns and community engagement programmes through information, education, and communication to strengthen field-based sensitization meetings to reduce high refusal of IRS and misuse of LLINs. This could be achieved by developing feasible and sustainable digital technologies to disseminate malaria information [10]. There is a need for an intersectoral approach that links the Ministry of Health and Child Care and the Ministry of ICT Postal & Courier Services might aid to develop robust m-health policy and framework that support integration and use of digital technologies as part of malaria elimination strategies and other epidemics.

4. Conclusion

Though there is significant progress made towards malaria elimi- nation in the past decades, there is a great need to re-consider malaria elimination strategies in Zimbabwe. The rapid increase of malaria cases during the pandemic is a wake-up call to improve malaria intervention strategies and incorporate feasible and sustainable emerging digital technologies to disseminate malaria information, improve vector mapping, surveillance, monitoring, real-time reporting and coordination of malaria research and activities remotely. In addition, instead of relying on donor funding, there is a need to include malaria in the national budget and also engage with all relevant stakeholders to intensify malaria interventions and control strategies. More so, to achieve malaria elimination in all provinces, Zimbabwe’s NMCP requires good leadership, mentoring, skill-building and use, community engagement and training, as well as operational research, and strong monitoring and evaluation system all year round until the cessation of local transmission in the country.

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