



Full Length Research Article

CONCERNING MALARIA ELIMINATION – WHAT CAN NIGERIA LEARN FROM SRI LANKA AND BOTSWANA?

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ABSTRACT

This article provides a perspective to the issue of malaria elimination in countries like Nigeria that remain burdened by the infection. As there is an increasing emphasis on global eradication of the disease, several strategies should be highlighted and explored as possible means of strengthening the elimination efforts in high-burden countries in addition to protecting lower-burden countries from the spread of the disease. Countries like Sri Lanka have succeeded in eliminating the disease, while countries like Botswana are showing increased progress towards elimination. This paper serves to highlight strategies that have proven useful in successful elimination campaign efforts and point at the need for their uptake to strengthen control and elimination efforts in countries like Nigeria.

INTRODUCTION

Malaria is a tropical infection and major public health concern, accounting for about 250 million cases worldwide and about 1 million deaths every year (95% of which occur in Africa alone), with most cases occurring in pregnant women and children below five years of age (Ojurongbe *et al.* 2016). It is therefore responsible for significant morbidity, mortality, socio-economic burdens, health inequities, and drain on human resources and productivity (Ojurongbe *et al.* 2016). Nigeria and the Democratic republic of Congo (DRC) alone account for 40% of the global deaths from malaria (Baleta 2013).

To Control or To Eliminate?

Several authors in analysing malaria elimination strategies employed by Sri Lanka, have stated that for success to be achieved and sustained, malaria elimination would require the close collaboration of neighbouring countries in the implementation of elimination strategies (Larson E, Gosling R 2016). The authors emphasized that by drawing on regional epidemiological data aimed at high burden areas that 'export' the infection to low-burden and even malaria-free areas, elimination efforts can be further strengthened (Larson E, Gosling R 2016).

There is a consensus that elimination is the only sustainable way of curbing the malaria scourge, because even if current malaria intervention levels are maintained, due to a lowered immunity to malaria, populations will end up being even more vulnerable to the infection (González-Silva *et al.* 2014). Certain specific strategies have been described as 'pillars' of successful malaria elimination, and they include the interruption of transmission and the clearance of parasites from asymptomatic carriers; which is a total departure from the classic approach to malaria control (González-Silva *et al.* 2014); and reliable surveillance systems provided against a backdrop of strong, positive political will and sustained funding is another such recognised pillar, especially during the 'last mile' of elimination when infections are more difficult to identify and increasingly more expensive to treat (Mendis *et al.* 2009). A third and greatly crucial pillar is the established system of surveillance, as routine passive surveillance in health facilities will miss out on numerous asymptomatic and unreported cases in the communities (González-Silva *et al.* 2014). An active system of surveillance to detect infected individuals and close contacts for testing and treatment is therefore necessary in a bid to eliminate malaria from high-burden areas (González-Silva *et al.* 2014). Until global eradication is achieved, a critical issue remains, which is the re-introduction of malaria due to on-going transmission in neighbouring areas into places which had previously succeeded in eliminating the infection (González-Silva *et al.* 2014), emphasizing the need for cross-border collaborations.

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Cross-Border Control and Culture

In 2012, the Malaria Situation Room was set up, but only formally launched in 2013, as a joint initiative of the World Health Organization (WHO), Roll Back Malaria Partnership Secretariat, the African Leaders Malaria Alliance, the Office of the UN Secretary-General's Special Envoy for Financing the Health MDGs and for Malaria, International Red Cross and the Red Crescent Societies (World Health Organization 2015). The aim of this initiative was to provide strategic support to the 10 countries with the highest burden of malaria in Africa, and include Nigeria, the Democratic Republic of the Congo, the United Republic of Tanzania, Uganda, Mozambique, Côte d'Ivoire, Ghana, Burkina Faso, Cameroon and Niger (World Health Organization 2015). In Nigeria, malaria control is greatly threatened by refugees, returnees and internally displaced persons (Aribodor *et al.* 2016) fleeing their homes and communities as a consequence of terrorism, conflict and natural disasters such as flooding, which strain health systems that are already weakened by years of conflict (Aribodor *et al.* 2016) and corruption. In 'Eliminating malaria: following Sri Lanka's lead', the authors iterate that the success of regional data platforms depends on the readiness of countries to share sensitive data for regional intelligence and decision-making and accelerated progress towards achieving elimination targets (Larson E, Gosling R 2016). The Economic Community of West African States (ECOWAS) Malaria Elimination Campaign launched in 2009, and which aims at advancing malaria elimination through an approach geared at integrated vector control (González-Silva *et al.* 2014) could serve as a platform for data-sharing. This platform links member countries such as Nigeria, Niger, Benin, Côte d'Ivoire, Togo, Ghana, Guinea, Guinea Bissau, Gambia, Liberia, Mali, Senegal, Sierra Leone, Burkina Faso, and Cape Verde (González-Silva *et al.* 2014).

Given the data available on population mobility and its influence on transmission of the infection, cross-border collaboration as a key strategy for malaria elimination is unarguably valid (Sorichetta *et al.* 2016; Ruktanonchai *et al.* 2016; Larson E, Gosling R 2016). Relative population flows and census data can be used to identify community structures at the sub national level, which could prove useful for planning future interventions or coordinating current interventions and elimination efforts thereby reducing the risk of importation of the infection to lower-burden areas (Ruktanonchai *et al.* 2016). In Nigeria, for example, it is important to understand the socio-cultural context of malaria-endemic communities, as this informs the values of the community members, which then determine their attitudes and practices with regards to malaria control and elimination (Aribodor *et al.* 2016). These beliefs, often more than any other factor determine a community's responsiveness to elimination and control interventions (Aribodor *et al.* 2016). It has also been noted that recent efforts by the WHO and other partner stakeholders to foster data sharing and surveillance strategies between countries as proposed in the Global Technical Strategy for Malaria 2016 – 2030 are showing enormous potential for success (World Health Organization 2016). However, multiple challenges are recognised as posed by cross-border intelligence-sharing, and the following have been identified - conflicting priorities for programming, resource allocation between and betwixt nations as some of such challenges (Larson E, Gosling R 2016), in addition to funding challenges and constraints. The Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) has

in recent years prioritized higher burden, low income countries, leading to gaps in the funding streams to many eliminating countries (Zelman *et al.* 2016). Gaps between funds committed and funds disbursed for various intervention programmes by the Global Fund have amounted to the tune of about \$2.8 billion (Global fund 2016). These funding gaps will therefore limit the amount of financial resources made available for elimination efforts in countries such as Nigeria.

Valuable Lessons and Prospects

Botswana, which commenced her elimination strategies in 2012; has made significant progress such as reductions in its malaria burden between 2000 and 2012, dropping incidence from 0.99% to 0.01% and seeing malaria deaths decline from 12 cases per year to just 3 cases per year (Chihanga *et al.* 2016). It was observed that programme quality control, timely follow up of surveillance cases, sustained funding and adequate human resources were vital to the success of their elimination strategies (Chihanga *et al.* 2016). Recent studies in Nigeria, highlight gaps in data availability and quality, emphasizing the need for more data sources and improvements in the quality of data available for decision-making towards malaria elimination (Ohiri *et al.* 2016). These inadequacies in quality data availability must be addressed for Nigeria to harness the potentials inherent in cross-border data and information sharing. Opportunities also exist to align malaria elimination programmes with other areas of development such as housing, water, sanitation and hygiene (Whittaker *et al.* 2014). Not only are these areas inextricably linked to the transmission of malaria, but they can generate valuable synergies for programme funding, and ensure that malaria control contributes in a no small measure to tangible improvements in the health and social outcomes in communities (Whittaker *et al.* 2014). The growing risk of artemisinin-resistant *Plasmodium falciparum* (Hanboonkunupakarn *et al.* 2016; Ashley *et al.* 2014) is another burgeoning challenge to elimination efforts and should not be discountenanced in expediting these efforts.

Conclusion

It is increasingly clear that successful malaria elimination cannot occur in a silo. The evidence from countries that have successfully eliminated the disease or are showing marked progress towards elimination point at the fact that the usefulness of cross-border and multi-sectoral partnerships in the strengthening of malaria elimination efforts cannot be undermined. We can no longer afford the luxury of regarding malaria as just 'one' disease entity; but must accept the reality that it is one disease which by virtue of its ubiquitous nature in Africa and the tropics, has very far-reaching implications on not only the health of a people, but for their social and economic life.

Competing interests

The author declares no competing interests.

REFERENCES

- Aribodor, D., Ugwuanyi, I. and Aribodor, O., 2016. Challenges to Achieving Malaria Elimination in Nigeria. *American Journal of Public Health Research*, Vol. 4, 2016, Pages 38-41, 4(1), pp.38-41.

- Ashley, E.A. *et al.*, 2014. Spread of Artemisinin Resistance in *Plasmodium falciparum* Malaria. <http://dx.doi.org/10.1056/NEJMoa1314981>.
- Baleta, A., 2013. MIM conference focuses on malaria elimination. *Lancet* (London, England), 382(9901), pp.1319–20. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/24147280> [Accessed December 1, 2016].
- Chihanga, S. *et al.*, 2016. Malaria elimination in Botswana, 2012–2014: achievements and challenges. *Parasites & Vectors*, 9(1), p.99. Available at: <http://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-016-1382-z> [Accessed December 1, 2016].
- Global fund, 2016. Global Fund Grant Portfolio. Available at: <http://www.theglobalfund.org/en/portfolio/> [Accessed October 23, 2016].
- González-Silva, M. *et al.*, 2014. Getting ready for malaria elimination: a check list of critical issues to consider. *Memórias do Instituto Oswaldo Cruz*, 109(5), pp.517–521. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0074-02762014000500517&lng=en&nrm=iso&tlng=en [Accessed December 1, 2016].
- Hanboonkunupakarn, B. *et al.*, 2016. The threat of antimalarial drug resistance. *Tropical Diseases, Travel Medicine and Vaccines*, 2(1), p.10. Available at: <http://tdtmvjournal.biomedcentral.com/articles/10.1186/s40794-016-0027-8> [Accessed December 1, 2016].
- Larson E, Gosling R, A.R., 2016. Eliminating Malaria: following Sri Lanka's lead. *The BMJ*, 355(i5517). Available at: <http://www.bmj.com/content/bmj/355/bmj.i5517.full.pdf> [Accessed November 23, 2016].
- Mendis, K. *et al.*, 2009. From malaria control to eradication: The WHO perspective. *Tropical Medicine & International Health*, 14(7), pp.802–809. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/19497083> [Accessed December 8, 2016].
- Ohiri, K. *et al.*, 2016. An Assessment of Data Availability, Quality, and Use in Malaria Program Decision Making in Nigeria. *Health Systems & Reform*, 2(4), pp.319–330. Available at: <https://www.tandfonline.com/doi/full/10.1080/23288604.2016.1234864> [Accessed December 1, 2016].
- Ojurongbe, O. *et al.*, 2016. Malaria: Control, Elimination, and Eradication. *Human Parasitic Disease*, (8).
- Ruktanonchai, N.W. *et al.*, 2016. Census-derived migration data as a tool for informing malaria elimination policy. *Malaria Journal*, 15(1), p.273. Available at: <http://malariajournal.biomedcentral.com/articles/10.1186/s12936-016-1315-5> [Accessed November 23, 2016].
- Sorichetta, A. *et al.*, 2016. Mapping internal connectivity through human migration in malaria endemic countries. *Scientific Data*, 3, p.160066. Available at: <http://www.nature.com/articles/sdata201666> [Accessed December 8, 2016].
- Whittaker, M.A. *et al.*, 2014. Advocating for malaria elimination - learning from the successes of other infectious disease elimination programmes. *Malaria Journal*, 13(1), p.221. Available at: <http://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-13-221> [Accessed December 1, 2016].
- World Health Organization, 2015. WHO | Malaria Situation Room. WHO. Available at: http://www.who.int/malaria/areas/malaria_situation_room/en/ [Accessed December 8, 2016].
- World Health Organization, 2016. WHO | Global Technical Strategy for Malaria 2016–2030, Geneva: World Health Organization. Available at: http://www.who.int/malaria/areas/global_technical_strategy/en/ [Accessed December 8, 2016].
- Zelman, B. *et al.*, 2016. Global fund financing to the 34 malaria-eliminating countries under the new funding model 2014–2017: an analysis of national allocations and regional grants. *Malaria Journal*, 15(1), p.118. Available at: <http://www.malariajournal.com/content/15/1/118> [Accessed December 1, 2016].
