EDITORIAL
UON SORT IT- March 2024 Supplement
MALARIA ELIMINATION IN KENYA: LEVERAGING ROUTINE DATA AMIDST CLIMATE CHANGE
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Malaria is a life-threatening communicable disease that is both preventable and treatable. The 21st Century offers the potential for malaria elimination, driven by advancements in diagnostics, enhanced identification of cases, successful anti-malarial therapies, and a range of approaches that address disease-transmitting vectors. These interventions include Intermittent Preventive Treatment in Pregnancy, Insecticide-Treated Bed Nets, indoor insecticide applications, larvicide utilization, malaria vaccination programs, and the establishment of all-encompassing surveillance and rapid response mechanisms. The success of malaria elimination hinges on safeguarding essential supplies, enhancing skills and knowledge, providing oversight, offering mentorship, securing sufficient funds, demonstrating proficient leadership and governance, community awareness and mobilization, and effectively utilizing data (1-5).

The global malaria strategy for 2016–2030 aims to achieve a 90% reduction in both the incidence of malaria cases and malaria-related deaths. It also targets malaria elimination in 35 countries and the prevention of disease resurgence (6). In 2021, approximately 247 million malaria cases occurred globally and resulted in 619,000 deaths. The African continent disproportionately carries the highest malaria burden, where 95% of all malaria cases and 96% of malaria-related deaths occur (7). Kenya is stratified into five malaria epidemiological zones: the Highland epidemic, Lake endemic, Coast endemic, seasonal, and low risk. Annually, an estimated 3.5 million new clinical cases of malaria and 10,700 deaths are reported in the lake zones of Western Kenya. Among those

most vulnerable are pregnant women and children (7).

Climate change resulting in elevated temperatures has facilitated the proliferation of malaria-carrying mosquitoes and the subsequent spread of the disease. Shifts in air temperature affect the development cycle of the malaria parasite, while changes in vegetation and moisture impact the breeding habitats of the Anopheles mosquitoes, which transmit the disease. At temperatures of 18 degrees Celsius, it takes approximately 51 days for the malaria vector to reach maturity. Female Anopheles mosquitoes, responsible for transmitting the disease, typically live for about three weeks. In cooler temperatures, the parasite lacks sufficient time to become infective. Recent findings emphasize that the resurgence of malaria in highland regions can be attributed to some extent to changes in climate and the environment. Additionally, in areas of water puddles, there are higher densities of larvae predisposing to risk for higher malaria transmission.

The comprehensive approach of the test-treat-and-track policy encompasses several components. These include conducting diagnostic tests for malarial parasites, ensuring case management within the community and healthcare facilities, and monitoring individuals while preventing reinfection. Additionally, the policy aims to facilitate socio-behavioural change to support these efforts. The integration of gender considerations, the adoption of inter-sectoral strategies, the incorporation of One Health principles, the utilization of modern technologies and molecular science, and the profiling of drug resistance are essential components of the test-treat-and-track policy. Moreover, raising public awareness and engagement should be prioritized alongside promoting social justice.

The Kenya National Malaria Control Program collects aggregate monthly routine malaria data into the Kenya Health Information System and carries out routine cross-sectional surveys. The consistent availability of this data presented an opportunity to carry out operational research for policy and practice changes. Within this supplement, we illustrate the value of routine malaria data in i) tracking the effectiveness of larvicides in vector management and insecticide resistance patterns across geographic regions, ii) adherence to malaria treatment guidelines on test and treatment at the health facility and community, and iii) health system readiness towards malaria elimination in four target counties.

The research featured in this supplement was supported by the WHO Special Programme for Research and Training in Tropical Diseases (WHO/TDR) through the Structured Operational Research and Training Initiative (SORT IT). This initiative involved one-on-one mentorship in protocol development, data collection, data analysis, and manuscript writing on the Malaria Control Program routinely collected program data. There is a need to empower healthcare providers with skills to effectively communicate program data findings through the publication for policy change, evidence-based best practices, and advocacy.

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