CLINICAL RESEARCH

Malaria Spatio-temporal Patterns in Busia and Tororo Districts, Eastern Uganda

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ABSTRACT

Malaria burden remains one of the major public health challenges in sub-Saharan Africa, Uganda inclusive. Uganda has the 3rd highest global disease cases estimated to be 225 million and the 8th highest level of deaths equivalent to 781,000 per year. Malaria remains a leading cause of morbidity and mortality in Uganda, accounting for 30%-50% of outpatient visits at health facilities, 15%-20% of all hospital admissions, and up to 20% of all hospital deaths with at least 27.2% of inpatient deaths among children under five years of age. Widely recommended *Plasmodium* vector control approaches include utilization of long-lasting insecticidal nets and indoor residual sprays which are insecticide-based. This study assessed a nine-years period malaria cases data (2012-2020) obtained from the health management database to depict malaria spatial and temporal patterns in Busia and Tororo districts pre- and post-vector control interventions. The routine malaria surveillance data reported passively through public and high-volume private health facilities were entered and manipulated into MS Excel. This was done separately for each of the 9 years. Considering the malaria cases registered on annual basis, Mann- Kendal test revealed a drastic decline of malaria cases over the nine-year period (2012 -2020) in Tororo district with Sen's slope of -22, while for Busia district it revealed an increase of malaria cases (Sen's slope +28). Equally, these trends reveal varied spatial patterns over the two districts. Both Busia and Tororo revealed a high prevalence of malaria between May-November in respect to bimodal rainfall pattern, matching with the perennial transmission setting of Uganda. This study has shown that, for further epidemiological characterization, vector behavior, biology and physiology need consistent monitoring and surveillance while implementing new vector control interventions targeting outdoor biting *Plasmodium* vectors.

KEYWORDS