

## **Mathematical model of global warming effect on Malaria transmission**

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In the recent times malaria is one of the top leading, most predominant and significant communicable diseases in Kampala, Uganda. The endemic health hazard is approximately 95 percent in the country. This paper presents a mathematical model of malaria transmission with the effect of climate change due to increase in temperature on the increase of conveyor dependent infectious diseases and probably alter the region transmission potential of malaria. A deterministic compartmental model is proposed and analyzed. This study presents both qualitative and quantitative approaches of the model. The numerical simulation is employed using Excel micro software to and support the qualitative results. The next generation matrix is employed to determine the common fundamental reproduction number. The basic reproduction number implies that the force of malaria transmission in Kampala is high. From the analysis of the result, the optimal temperature for the transmission of the infectious malaria is The result also shows that increase in temperature due to climate change give rise to development of parasite which consequently leads to an increase in the wide spread of malaria transmission in Kampala. It is also seen from the results that increase in temperature leads to an increase in the number of infectious human host and mosquitoes. However as temperatures approaches exposed human and mosquito populations decline asymptotically to low levels.

**Keywords:** Deterministic compartmental model; global warming; disease-free equilibrium.