1046-92-714 **Miranda Ijang Teboh-Ewungkem*** (tebohewm@lafayette.edu), 225A Pardee Hall, Department of Mathematics, Lafayette College, Easton, PA 18042. *Mathematical Model to Quantify the Impact of the Recovery Rate on the Dynamics and Transmission of Malaria in a Changing Population: Case of Cameroon.*

Despite efforts to combat malaria, the disease remains a serious public health risk in the African regions where it is endemic. A susceptible, exposed and Infectious (SEI) differential equation model is developed and used to explore the behavior of the disease with variable host (human) and vector (mosquito) populations based on data from Cameroon. With a base set of parameters, the basic reproductive number, R0 is computed and the model realistically reproduces endemic stable infectious steady states and realistically shows that R0 is high when the recovery rate is low. Moreover, with all other parameters held fixed, increasing the recovery rate reduces both the numerical values of the stable infectious steady states and R0. At a realistically high recovery rate value, a reduction in the contact rate between mosquitoes and humans leads to a greater impact of reducing the maximum infectious human populations and the time it takes for the disease free equilibrium to reach stability. Hence local communities can greatly impact the control and eradication of malaria by completing their treatment and seeking help as soon as they realize that they have malaria. Further, the use of bed nets needs reinforcement to help reduce contacts between mosquitoes and humans. (Received September 16, 2008)