

Folashade B. Augusto

Melissa Wickers

Department of Mathematics and Statistics, Austin Peay State University. Clarksville TN, USA.

Malaria Drug Resistance: The impact of Human Movement and Spatial Heterogeneity

Human habitat connectivity, movement rates and spatial heterogeneity have tremendous impact on the effectiveness of malaria control and eradication. In this paper, a deterministic system of differential equations for malaria transmission in a two patch system that incorporates human movements and the development of drug resistance malaria is presented. The impact of movement between the patches is determined by qualitative analysis of the model basic reproduction number. Sensitivity analysis is performed on the key parameters that drive the disease dynamics of the model in order to determine their relative importance to disease transmission and control within and between patch.