Usman Sanusi
Department of Mathematics and Statistics, Nigeria

Title: Managing infectious diseases under quiescence

Abstract:

In this work, quiescence is added to the Susceptible-Infectious-Recovered (SIR) model with demography. In order to investigate consequences of quiescence in the infection process in more depth, we use stochastic simulations on the stochastic version of model that we built. This method provides a more accurate picture of the dynamics of infectious diseases by taking into consideration the inherent randomness in the disease processes. We examine the effects of quiescence on the number of infected people using simulations. The results, presented in histograms depicting the distribution of infected individuals, reveal a notable trend: the mean number of infected individuals is higher when quiescence is incorporated into the dynamics. These finding emphasizes the dynamic influence of quiescence on infectious disease spread. The higher mean number of infections during periods of quiescence highlights the need for public health strategies that are flexible enough to focused interventions during these times to reduce the possibility of an increase in infections.

Biography

Usman Sanusi is a Senior Lecturer in the Department of Mathematics and Statistics, Umaru Musa Yar'adua University Katsina, Nigeria. His solid background in Applied Mathematics has given him the mathematical and analytical tools he needs to build intricate models and conduct thorough data analysis to investigates how pathogen quiescence affects spread of infectious diseases.