Abstract

Cholera, a water-borne disease characterized by intense watery diarrhea, affects people in theregions with poor hygiene and untreated drinking water. This disease remains a menace to publichealth globally and it indicates inequity and lack of community development. In this research,SIQR-B mathematical model based on a system of ordinary differential equations is formulatedto study the dynamics of cholera transmission with health education campaign and treatmentthrough quarantine as controls against epidemic in Kenya. The effective basic reproductionnumber is computed using the next generation matrix method. The equilibrium points of themodel are determined and their stability is analysed. Results of stability analysis show thatthe disease free equilibrium is both locally and globally asymptotically stable$R_0<1$ whilethe endemic equilibrium is both locally and globally asymptotically stable$R_0>1$. Numericalsimulation carried out using MATLAB software shows that when health education campaignis efficient, the number of cholera infected individuals decreases faster, implying that healtheducation campaign is vital in controlling the spread of cholera disease.