Abstract

Contact between susceptible and infected individuals is one of the major reasons for the spread of contagious viral disease, for example, the severe acute respiratory syndrome, SARS, and is a major public health problem in the world. The present study aims to assess via a mathematical model, the role of contact rate in the control of the spread of contagious disease like SARS. In this article, we have induced an effective contact rate in the mathematical model as a periodic function of time due to the seasonal occurrence of SARS which was considered as a parameter earlier. The spread of the disease also depends on the time taken to initiate preventive measures by the authorities which have been described and explained by a new term, action time, in the present study. Numerical simulations have been performed with the
help of fourth-order Runge-Kutta method to illustrate our results. With the help of simulation, the control of the spread of diseases has been explained with varying periodic effective contact rate and action time.

References

- World Health Organization.

Index Terms

Computer Science

Applied Mathematics
Keywords  
Sars; Seir Model; Effective Contact Rate Function; Simulation; Action Time; Control Of The Disease.