Analysis of an SEIR epidemic model with the effects of awareness programs

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October 26, 2020

Abstract

In this paper, a new SEIR model incorporating the effects of awareness programs on the epidemic spreading is analyzed. Two types of equilibria and the basic reproduction number of the model are given, and an algebraic approach is used to prove the global stability of the equilibria. Then the sensitivity analysis of the basic reproduction number and endemic equilibrium is performed. Moreover, the effects of awareness and media parameters on system dynamics are analyzed. Finally, we conduct numerical simulation to verify the analytical results.

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