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AN SIS INFECTION MODEL INCORPORATING MEDIA COVERAGE

JING-AN CUI, XIN TAO AND HUAIPING ZHU

ABSTRACT. We develop a model to explore the impact of media coverage on the control of spreading of emerging or reemerging infectious diseases in a given population. The model can have up to two equilibria: a disease free equilibrium and a unique endemic equilibrium. Stability analysis of the model shows that the disease free equilibrium is globally asymptotically stable if the reproduction number $\mathbf{R}_0$ is less than unity, and the endemic equilibrium is globally asymptotically stable when it exists. Though the media coverage itself is not a determined fact to eradicate the infection of the diseases, the analysis of model indicates that, to a certain extent, the more media coverage in a given population, the less number of individuals will be infected. Therefore, media coverage is critical for educating people in understanding the possibility of being infected by the disease.

1. Introduction. When an infectious disease appears and spreads in a region, the departments for disease control and prevention will do everything possible to prevent the disease from spreading. One of the immediate measures to take is to educate people about preventative knowledge of the disease through media coverage. It is common sense that the more preventative knowledge the population has, the better the possibility of preventing the spread of the disease. According to a recent statistical analysis on acquired immunodeficiency syndrome (AIDS), see [**11**], media and education play a tremendous role in mounting AIDS awareness among the residents. Another study showed that public awareness can play a dominating role in preventing the AIDS epidemic [**7**]. According to [**11**], the odds of awareness among higher educated women and men were 4.67 and 77.73 times that of

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