

Dynamics of epidemics with time-delayed response to awareness

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Spread of infectious diseases is known to be affected by the disease awareness, which can cause individuals to take measures for reducing their risk of infection. In this talk I will discuss a model for the concurrent spread of infectious disease and disease awareness [1]. Awareness in the model arises due to contacts with other aware individuals, as well as due to global awareness based on reported cases of infection and central awareness campaigns. Time delay represents the time it takes for individuals to modify their behaviour in response to available information. Feasibility and stability of the disease-free and endemic equilibria are investigated in terms of system parameters and the time delay, and numerical simulations are performed to illustrate the behaviour in different dynamical regimes. I will also discuss the effects of vaccination as an additional tool for controlling the spread of an epidemic [2].

- [1] Agaba G. O., Kyrychko Y. N., Blyuss K. B., Time-delayed SIS epidemic model with population awareness, *Ecological Complexity* **31**:50–56, 2017.
- [2] Agaba G. O., Kyrychko Y. N., Blyuss K. B., Dynamics of vaccination in a time-delayed epidemic model with awareness, *Mathematical Biosciences* **294**:92–99, 2017.