

1109-92-305

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Recent phylogeographical analyses of rabies virus clades indicate that the human rabies cases in different and geographically unconnected provinces in China are epidemiologically related. In order to investigate how the movement of dogs affects the geographically inter-provincial spread of rabies in Mainland China, we propose a multi-patch model for the transmission dynamics of rabies between dogs and humans, in which each province is regarded as a patch. In each patch the submodel consists of susceptible, exposed, infectious, and vaccinated subpopulations of both dogs and humans and describes the spread of rabies among dogs and from infectious dogs to humans. The two-patch model will be used to simulate the human rabies data to investigate the inter-provincial spread of rabies between Guizhou and Guangxi, Hebei and Fujian, and Sichuan and Shaanxi, respectively. It is found that the basic reproduction number of such a two patch model can be larger than 1 even the isolated basic reproduction numbers of these two patches are less than 1. In order to reduce and prevent geographical spread of rabies in China, our results suggest that the management of dog market and trade need to be regulated and transportation of dogs need to be better monitored and under constant surveillance. (Received February 03, 2015)