A SPATIAL-TEMPORAL MODEL OF THE NOVEL INFLUENZA 2009 IN KOREA

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ABSTRACT

A novel influenza A (H1N1) is characterized by high transmissibility and low fatality. Population mobility is considered as a key factor in the spread of pandemic influenza. In this study, we propose a multipatch SLIAR model based on daily data of the confirmed A (H1N1) influenza cases collected by the Korea Center for Disease Control (KCDC) from April 27 to September 15, 2009. Population movements estimated from census collection dataset on 33 administrative regions in Seoul Capital Area (SCA) are used. The transmission rate on each region is estimated by a least squares fit to the KCDC data. We also analyze the correlation between the basic reproductive numbers and spatial factor for spread of influenza and visualize how the influenza spreads out in SCA by Geographic Information System (GIS). The effect of non-medical intervention such as quarantine and isolation during early spread of the influenza is performed and containment polices for outbreak is suggested.

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