1023-34-489 **Lin Wang*** (lwang@math.ubc.ca), Department of Mathematics, University of British Columbia, Vancouver, V6T 1Z2, Canada. *Impact of Travel Between Patches for Spatial Spread of Disease.*

A multi-patch model is proposed to study the impact of travel on the spatial spread of disease between patches with different level of disease prevalence. The basic reproduction number for the ith patch in isolation is obtained along with the basic reproduction number of the system of patches, $\mathcal{R}_0$. Inequalities describing the relationship between these numbers are also given. For a two-patch model with one high prevalence patch and one low prevalence patch, results pertaining to the dependence of $\mathcal{R}_0$ on the travel rates between the two patches are obtained. For parameter values relevant for influenza, these results show that, while banning travel of infectives from the low to the high prevalence patch always contributes to disease control, banning travel of symptomatic travelers only from the high to the low prevalence patch could adversely affect the containment of the outbreak under certain ranges of parameter values. Under the set of parameter values used, our results demonstrate that if border control is properly implemented, then it could contribute to stopping the spatial spread of disease between patches. This is joint work with Drs. Y.-H. Hsieh and P. van den Driessche (Received September 14, 2006)