



Effect of Meteorological Conditions and Geographical Factors in the Onset of Enterovirus 71

Yu-An Chen and Hwa-Lung Yu

National Taiwan University, Taipei, Taiwan (hlyu@ntu.edu.tw)

Since it was first recognized in California in 1969, enterovirus 71 (EV71) infection has been a significant cause of neurological disorder and death in children worldwide. In 1998 a historic epidemic of EV71 infection caused hand-foot-and-mouth disease and herpangina in thousands of people in Taiwan. The impact of EV71 infection is greatest during the summer months in Asia, and epidemics recur with a seasonal pattern. It was reported that seasonal patterns of EV71 differed by geographical localities. Previous studies have also showed significant relationships between meteorological variables, in particular, temperature and relative humidity, and the seasonal epidemic patterns of EV71. However, important issues that remain unclear include the spatiotemporal pattern of the EV71 outbreaks in Taiwan, and what role of favorable meteorological conditions in the transmission of the disease in the space-time domain. Thus, this study used a semiparametric generalized additive model (GAM) to understand the association between EV71 and meteorological factors across space and time. This study utilized a population-based database containing space-time data for clinic and hospital visits (i.e. hospital location and appointment times) of EV71 occurring in children less than 18 years old in Taipei from 1998 to 2008. Meteorological data (i.e. temperature, rainfall, and relative humidity) for the study period were provided by the Taiwan Central Weather Bureau. This study expect to find out an important meteorological factor and threshold.