Second Year of the Surveillance on Over-the-Counter Medication Sales Data in Japan

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Background and Objective: To evaluate the potential of using the sales of Over the Counter (OTC) medicines for early detection of infections of public health concern, retrospective analysis of the sales of OTC common cold medications used for influenza-like illness (ILI) has been carried out in Japan since 2003. This presentation assess correlations and predictability of OTC sales to ILI for 2004-05 influenza season and compares with the results from 2003-04 season to discuss on robustness and versatility of OTC sales surveillance.

Materials and Methods: Data collected from pharmacies throughout Japan during December 2004–April 2005 were analyzed. Sales data from the last season were employed to determine seasonal sales trend. Comparative analysis of OTC sales data with two daily data and one weekly data of influenza incidence was carried out to assess lead time of OTC sales. Daily-base influenza activity of influenza was obtained from two sources, the National Survey of Daily Influenza Outpatients and Mailing List based Influenza Epidemic Database. Weekly report of the national sentinel surveillance for influenza from 5,000 sentinel points was also used for the analysis. Influenza activity was regressed on OTC sales at lagging date and then lead days of OTC sales was determined as when an adjusted R-square was the highest.

Results and Discussion: Influenza season of 2004-05 in Japan started late in December (2004) and long lasted toward June (2005) in comparison with the last season. Type B influenza virus dominated during this season. However, in the end of the season, several regional clusters by type A virus occurred which further elongated the season. OTC sales was correlated with contemporary influenza activity, and was able to determine its activity 15-20 days in advance. Although irregularity of the epidemic trend in the 2004-05 season affected the power of prediction in comparison with the last season, lead time of OTC sales still provided time for response.

Conclusions: Aim to employ OTC sales data as new routine early detection surveillance encountered problems of huge seasonal sales promotion effect in the first year. In this second year, data cleaning method was improved with better insight of the nature of the data to encounter this problem. From the analysis of recent two years sales data, we conclude OTC sales is a good candidate to use for real-time outbreak detection system of influenza at national level in Japan as well as the potentiality for influenza epidemic prediction.