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EDITORIAL

Doing Mathematics with Aftermath of Pandemic Influenza 2009

The influenza A/H1N1 pandemic in 2009–2010 brought a hug impact to both scientists and public health authorities in public health sector in Korea. The Korean scientists traced the pathogenesis and chronological localization of influenza A/H1N1 [1], and also checked antiviral resistance in Korea [2]. Surveillance data on influenza-like illness (ILI) utilized to model to estimate the influenza patents in Korea [3]. Mathematical modelers evaluated the parameters of the existing preparedness plan in Korea [4]. Many pharmaceutical and non-pharmaceutical measures are implemented during an epidemic to delay the peak and reduce the casualties [5]. Some study has demonstrated the effectiveness of non-pharmaceutical measures under certain situation [6], but the timely intervention with pharmaceutical measures with vaccines and antiviral treatment is known to effectively contain or mitigate the impact of an outbreak [7–9]. Public health experts have paid remarkable attention on the preventive strategies implemented for recurrent or future epidemics. Recently, many more realistic, tailored mathematical transmission models have been evolved to answer specific public health questions on an epidemic and tested for the empirical validity [8,9].

In the current issue of *Osong Public Health and Research Perspective*, the authors investigated how the onset time and the levels of control measures were associated with the effectiveness of intensive vaccination and antiviral treatment [10]. In this study, results from models with full control measures and models with partial control measures were compared, highlighting the significant differences in model outcomes. The intensive vaccination was the single most critical factor to prevent the severe outbreak. The authors estimated the half vaccination resulted in the total infected proportion six times larger or more. This study has shown a unique approach to evaluate the effectiveness of mass vaccination in Korea. This evaluation would provide a valuable insight for public health officials and scientists to prepare for the next possible pandemic in Korea.

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