

Influenza Epidemic of 2015/16 Influenza Season in Taiwan

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Overview

Taiwan experienced a more severe and prolonged influenza epidemic in 2015–2016. In this study we used the nationwide surveillance data of Taiwan Centers for Disease Control (TCDC) to analyze the whole picture of this season.

The proportion of emergency room (ER) visits for influenza-like illness (ILI) increased from Week 3 in 2016, peaked at Week 6, and the level exceeded baseline for 10 consecutive weeks. As the epidemic duration prolonged, the case number increased dramatically. As of June 30, 2016, a total of 2,018 confirmed severe complicated influenza cases, including 163 deaths, were recorded. Ninety-five percent of them did not receive the 2015–16 flu vaccine, 70% with chronic diseases, and the majority of them were infected with the influenza A(H1N1)pdm09 virus. As a result, the incidences among all age groups were the highest among the last three seasons, especially a dramatic rise among those who aged 50–64 years. To decrease the susceptible population, we plan to expand the target groups for vaccination and improve the coverage rates to 25% of whole populations in 2016–2017.

Introduction

Severe levels of seasonal influenza activity circulated in Taiwan in 2015–16, with the influenza A(H1N1)pdm09 virus becoming dominant from January 2016. In addition, admissions to intensive care units and fatal cases were particularly observed in adults aged 50–64 years. Taiwan has a longstanding influenza vaccination program targeting for individuals at an increased risk of developing severe diseases following infection (aged 50–64 years adults are not included), and the coverage rate of whole populations was approximately 13%. This report aims to provide a descriptive analysis of 2015–2016 influenza epidemic by using data from a nationwide influenza surveillance network.

Methods

To analyze the epidemic trend and demographic characteristics, we used data of confirmed severe complicated influenza cases during July 1, 2015 to June 30, 2016 from the National Notifiable Disease Surveillance System (NNDSS), and the data for the proportion of ER visits for ILI during 2013 to 2015 from the Real-time Outbreak and Disease Surveillance System (RODS) which included the daily ER data submitted by about 80% of hospitals in Taiwan.

Results

The percentage of weekly ER visits for ILI exceeded the national baseline level 13% at Week 5 in 2016 and stayed above baseline for 10 consecutive weeks during 2015–2016 influenza season. By contrast, it was 4.5 weeks in the past two seasons (Figure 1). The percentage of ER visits for ILI has dramatically increased during Week 5 and 6, and peaked at Week 6 with the percentage reached 23. After reaching a peak at Week 6 in 2016, the proportion of ER visits for ILI has not continuously decreased. Instead, the proportion decreased at Week 7, then increased to 19.9%, and maintained like plateau form until Week 11.

Cumulative case number of confirmed severe complicated influenza cases was 2,018 during July 1, 2015–June 30, 2016, including 163 deaths, and 95% did not have the 2015–2016 influenza vaccination, 70% had at least one chronic disease. According to virus sub-typing, 76% of them were infected with the influenza A (H1N1) pdm09 virus, 13% with the influenza B and 8% with the influenza A (H3N2), which were different from the past two seasons, which were predominated with the influenza A (H3N2) virus.

During 2015–2016, the majority of severe complicated influenza cases and deaths were adults aged 50–64 years. The highest incidence was observed among adults aged above 65 years (251.6 per million population), followed by adults aged 50–64 years (154.3 per million population), and young children aged under 3 years (57.7 per million population).

The incidences among all age groups of severe complicated influenza cases were the highest among the last three seasons, especially a dramatic rise among adults aged 50–64 years (nearly 4-fold than past two seasons) (Figure 2).

Figure 1. Proportions of ER visits for ILI during 2013–2016 influenza season in Taiwan

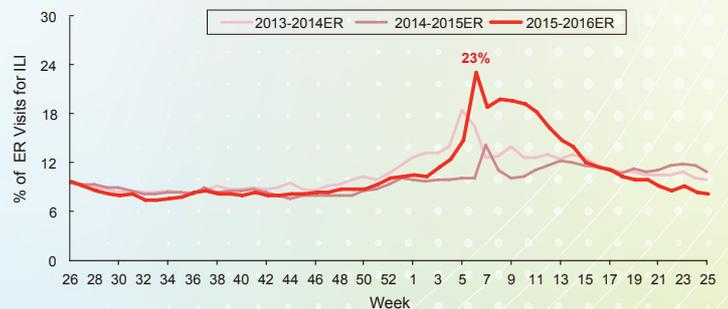
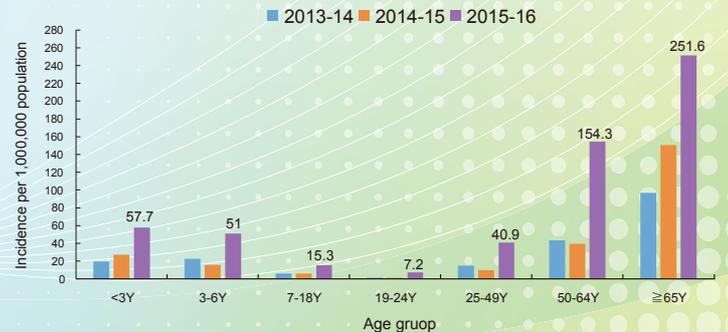


Figure 2. Incidence of severe complicated influenza cases by age groups during 2013–2016 influenza seasons



Conclusions

In 2015–2016 influenza season, the influenza A(H1N1)pdm09 virus predominated in Taiwan. This virus have been associated with severe illness in younger adults since 2009 pandemic. For this season, 95 % of severe complicated influenza cases have not receive the influenza vaccine and 70% of them had chronic disease. Particularly, the cumulative severe and fatal case number for adults aged 50–64 years were the highest. According to coverage rates of the government-funded influenza vaccination program in 2015–16 in Taiwan, most people aged 50–64 years have not received influenza vaccines. Although we have included adults aged above 50 years with chronic diseases for vaccination since 2014, the coverage rate was only 9.6% in 2015–2016.

Due to these reasons, this season accumulated more susceptible population contributed severe influenza epidemic in Taiwan. In 2016–2017, we plan to increase the purchase of influenza vaccines, to expand the target groups for vaccination, to improve the vaccination coverage rates to 25% of whole populations and subsequently lower influenza incidence among people with high risk.