Synopsis

During week 49 (December 4 – 10, 2016), influenza activity remained similar to last week.

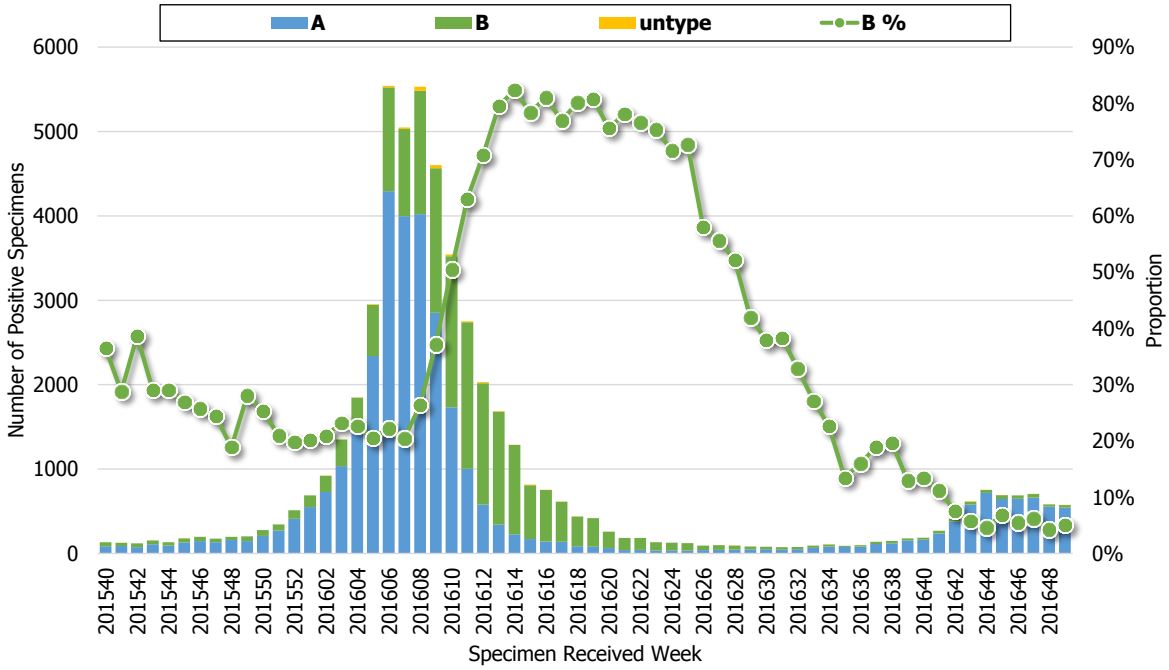
- The proportions of outpatient and ER visits for influenza-like illness (ILI) in the recent weeks remain similar.
- The majority of the circulating influenza virus type was H3N2, 98% of H3N2 matched to the 2016-17 influenza vaccine strain. No antiviral-resistance viruses were found in the circulating influenza viruses.
- Both numbers of reported cases with severe complicated influenza and influenza-associated hospitalization cases decreased compared to the previous week. There were 21 new confirmed severe complicated influenza cases and 5 deaths due to severe complicated influenza. During July 1 to December 10, 2016, 205 severe complicated influenza cases were reported; 24 of them reported death. Influenza A (H3N2) remained the dominant virus circulating (84%).
- During week 48 (ending on December 3, 2016), the number of deaths attributed to pneumonia and influenza (P&I) was low.
- According to the next week weather forecast, the first continental cold air mass of this winter moves south, it will reduce the temperature across Taiwan. It is possible that influenza activity will increase slightly.

Viral Surveillance

Types and Trend

According to LARS[1], the number of the influenza positive specimens during week 48 were similar to week 47, and the major influenza type among positive specimens was influenza A.

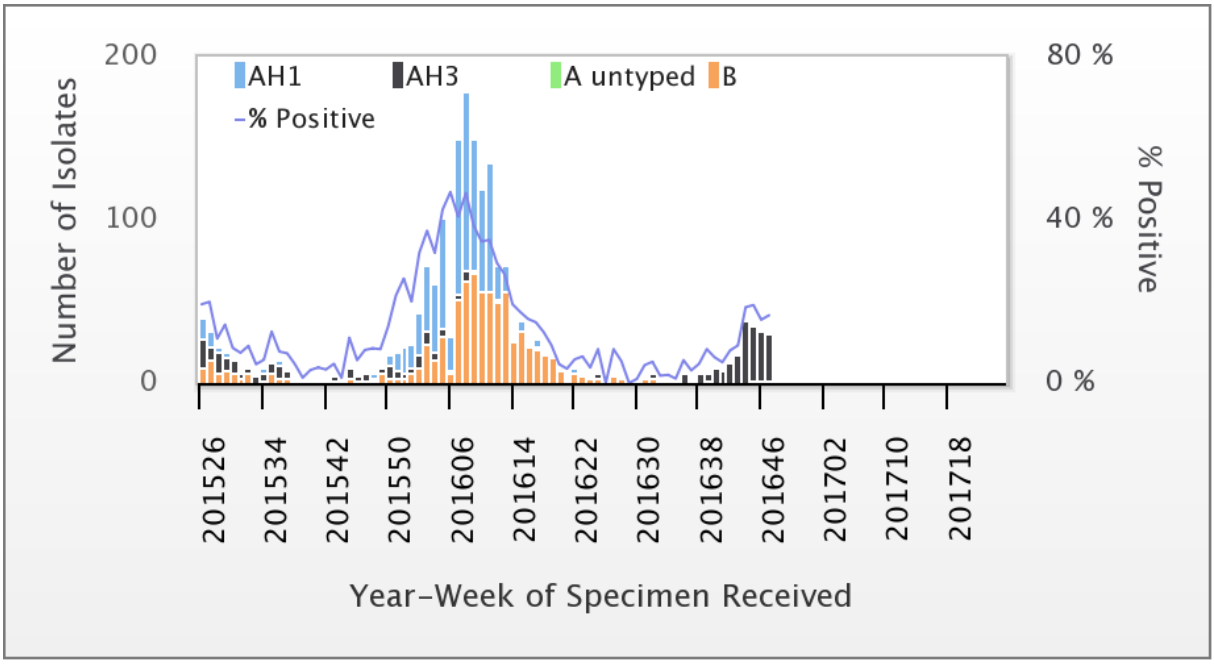
Trend of Influenza Positive Specimens according to LARS



[1] In order to present the trend of influenza virus in real-time, the automated laboratory reporting system (LARS) has been established by Taiwan CDC since 2014. There are 29 hospitals, including 17 medical centers, have been participating in LARS. All data from positive specimens are uploading onto LARS automatically on a daily basis.

According to the Taiwan CDC Contracted Diagnostic Virology Laboratories[2], the proportion of specimens testing positive for influenza virus was 16.6% and 94% of positive tests were H3N2 during week 47. Weekly virus data are available on website: http://nidss.cdc.gov.tw/ .

Influenza Positive Tests according to Contracted Diagnostic Virology Laboratories
July 1, 2015 to present



Antigenicity

During 2016-17 flu season, among those influenza positive specimens that were antigenically characterized, all (100%) of the influenza A (H1N1) virus isolates match with the A (H1N1) component of the 2016-17 influenza vaccine (A/California/7/2009), and 98% of the H3N2 virus isolates match with the A (H3N2) component of the 2016-17 influenza vaccine (A/Hong Kong/4801/2014). In addition, all influenza B virus isolates match with the B component of the 2016-17 influenza vaccine (B/Brisbane/60/2008).

Antiviral Resistance

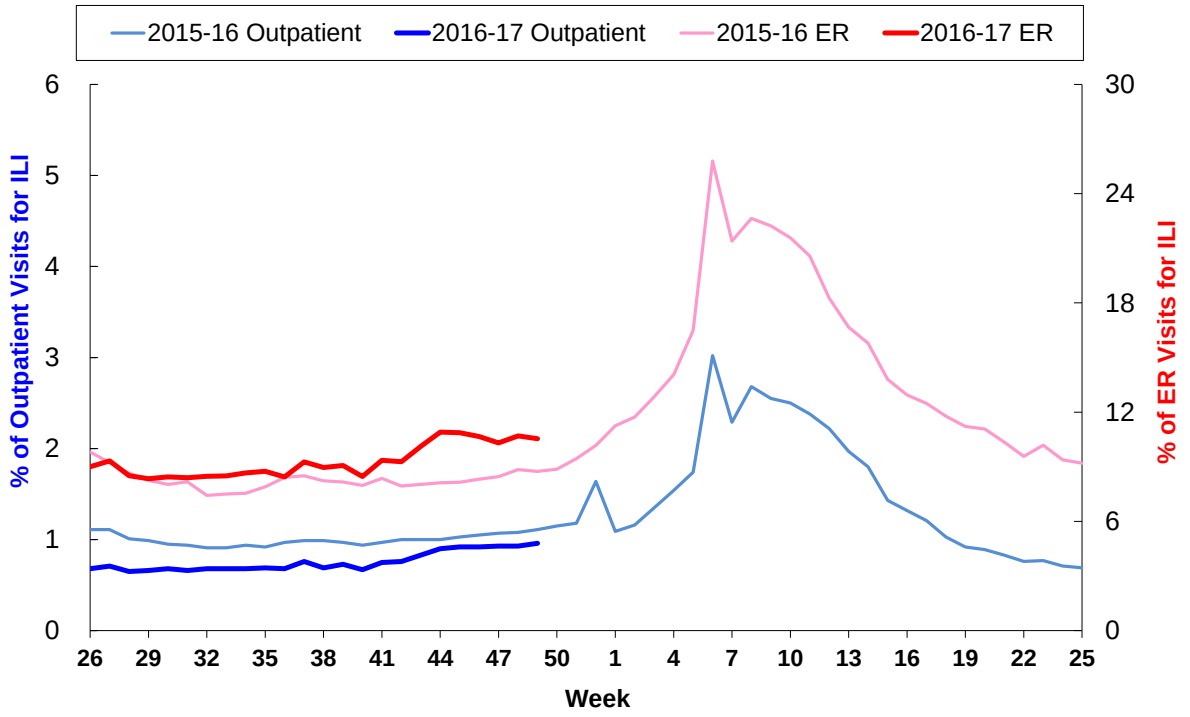
The table below summarized the results of antiviral resistance to neuraminidase inhibitor (Oseltamivir) from October 1 to December 9, 2016. All of recent circulating influenza viruses were susceptible to Oseltamivir.

	Isolates tested (n)	Resistance Viruses, n (%)
		Oseltamivir
Influenza A (H1N1)	0	0
Influenza A (H3N2)	46	0
Influenza B	1	0

[2] The Contracted Diagnostic Virology Laboratories, including 8 laboratories of medical centers, have been established by Taiwan CDC since March, 1999 to observe the subtype, antigenicity and drug resistance of the influenza viruses circulating in the community,

Influenza-like Illness (ILI) Surveillance

The proportion of outpatient visits for ILI was 0.96%, which was similar to week 48, and the number of outpatient visit was around 48,800. The proportion of ER visits for ILI was 10.54%, which was similar to week 48, and the number of ER visit was around 12,100.



Proportions of outpatient department and ER visits for ILI
July 1, 2015 to present

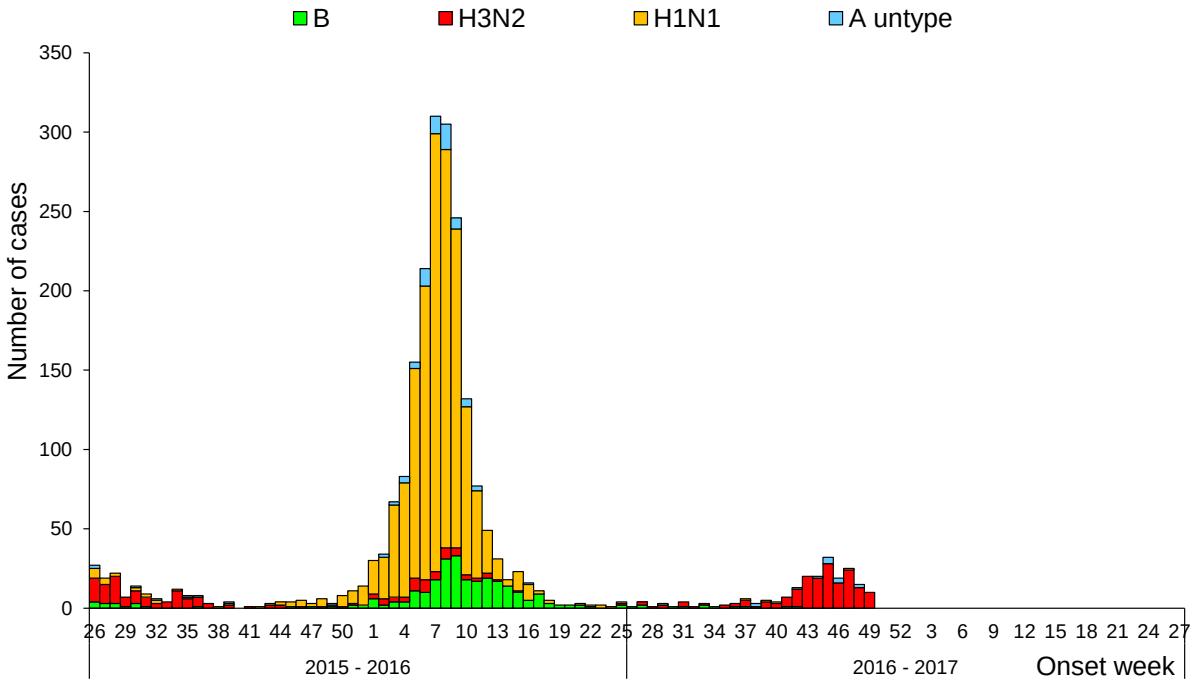
* Since 2016, the analysis of the ILI data from National Health Insurance Database is based on the ICD-10 diagnosis codes.

Severe Complicated Influenza Report

Both numbers of reported severe complicated influenza cases and influenza-associated hospitalization cases during week 49 decreased compared to week 48. There were 21 new confirmed severe complicated influenza cases (19 H3N2, 1 H1N1 and 1 influenza A (unknown subtype)). There were 5 new death reports due to severe complicated influenza (3 H3N2, 2 influenza A (unknown subtype)).

During this influenza season (July 1 to December 10, 2016), 205 severe complicated influenza cases has been confirmed, and 89% of the cases did not receive influenza vaccine. Among these 205 cases (84% H3N2, 2% H1N1, 7% influenza A (unknown subtype), 6% influenza B virus, and 1% co-infected with H3N2 and influenza B virus). The highest incidence and severe case numbers were among adults aged 65 years and above. The total number of 24 deaths due to severe complicated influenza were reported (16 H3N2, 1 H1N1, 3 influenza A (unkown subtype), 3 influenza B virus, and 1 co-infection with H3N2 and influenza B). Among these, 83% did not receive influenza vaccine.

Number of severe complicated influenza reports by week of onset
July 1, 2015 to present

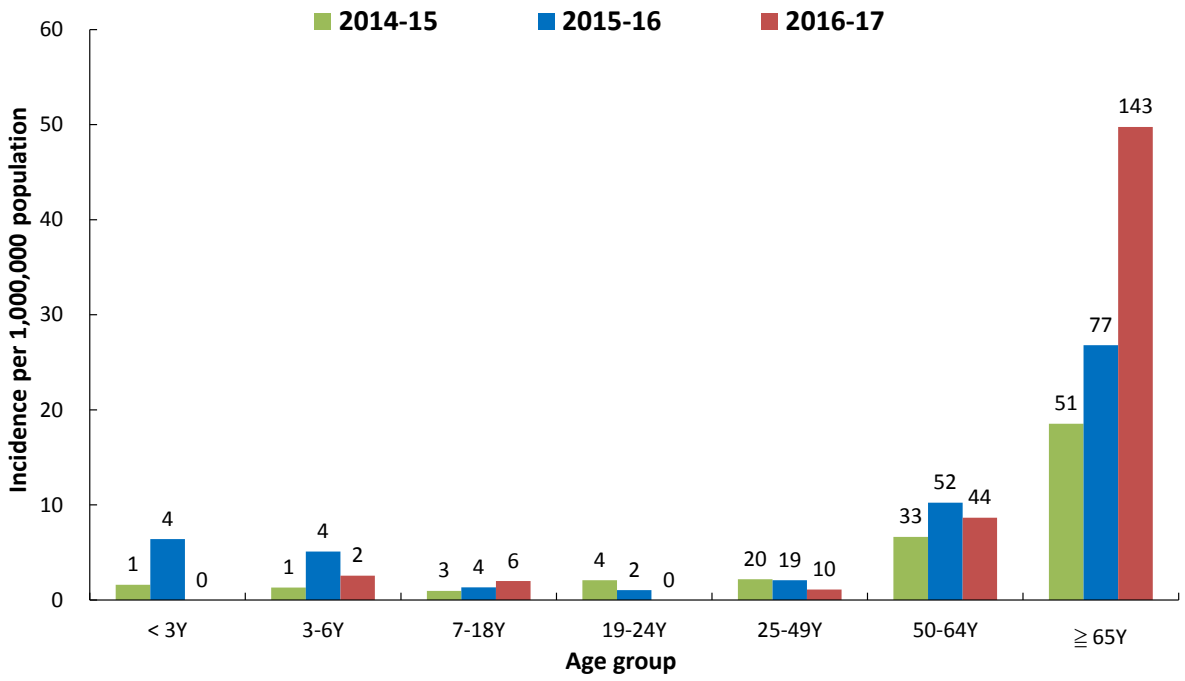


* A person who has ILI symptoms become severely ill (includes pulmonary complication, neurologic complication, myocarditis, invasive bacterial infection, or pericarditis) that requires intensive care or results in death within 14 days and with influenza virus infection confirmed by the laboratory is defined as a confirmed severe complicated influenza case.

Number and incidence of confirmed severe complicated influenza cases and deaths by age groups
July 1, 2016 to present

Age Group	Cases	Deaths	Cumulative incidence per million population	Cumulative mortality per million population
< 3 y	0	0	0.0	0.0
3-6 y	2	1	2.5	1.3
7-18 y	6	1	2.0	0.3
19-24 y	0	0	0.0	0.0
25-49 y	10	2	1.1	0.2
50-64 y	44	5	8.7	1.0
65 +	143	15	49.8	5.2
Total	205	24	8.7	1.0

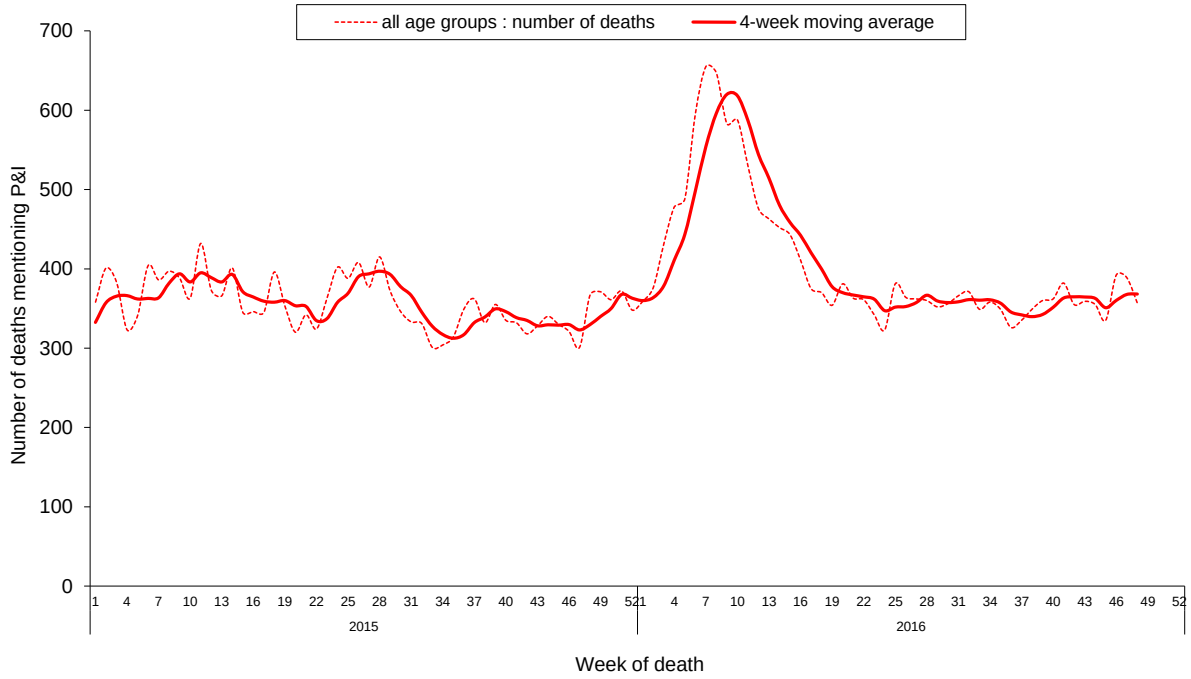
Number of confirmed severe complicated influenza reports by age groups
July 1, 2016 to present



*The number shows above each bar represents the number of confirmed sever complicated influenza cases.

Pneumonia and Influenza (P&I) Mortality Surveillance

Based on the Internet System for Death Reporting (ISDR) surveillance data, the number of deaths attributed to P&I was low. The proportion of deaths attributed to P&I for adults aged 65 years and above was the highest among the three age groups (0–49, 50–64, and 65+).



* Medical institutions are required to report any mortality case to the Ministry of Health and Welfare (MOHW) within 7 days after a death certificate is issued through the Internet System for Death Reporting (ISDR). Either the immediate cause of death or the underlying cause of death was used to identify P&I death cases. Only those with keyword texts containing ‘pneumonia’, ‘influenza’ or ‘common cold’ were counted as a P&I death.