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Epidemics of Influenza from Winter to Summer in the 2005/06 Season in Sapporo, Japan

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Influenza in the 2005/06 season (September 2005 - August 2006) in Sapporo, Japan, was characterized by mixed epidemics of the type AH3, AH1 and B viruses, and the predominant virus varied throughout the season. Epidemics of influenza due to type B virus occurred late in the season, from May to June, which had not occurred before in Sapporo. In this report, we describe the epidemics of influenza in the 2005/06 season in Sapporo.

In the Epidemiological Surveillance of Infectious Diseases in Sapporo, clinically diagnosed influenza cases per sentinel clinic per week exceeded 1.0 during week 52 of 2005, and increased thereafter. The number of cases per sentinel peaked at 23.9 in week 5 of 2006, and then decreased steadily until week 9. During weeks 10-11 and 20-21, the number of cases increased again and then decreased gradually. The height of the peak was the fourth highest of the most recent six seasons, but the total number of cases was the second largest, following only that of the 2004/05 season (Fig. 1).

Influenza AH3 viruses were initially isolated from two cases in week 48 of 2005 and the number of cases increased sharply after week 52. The numbers of isolated viruses peaked

in week 4 of 2006, and then decreased until week 12. Influenza AH1 viruses were isolated in week 3 of 2006 and increased after week 7, reaching a peak in week 11. Influenza B viruses were first isolated in week 16 of 2006 and were then continually isolated until week 28, with a peak in week 23 (Fig. 2). During the 2005/06 season, a total of 111 influenza AH1, 147 AH3 and 68 B viruses were isolated.

The age distribution of patients from whom the influenza virus was isolated is shown in Fig. 3. One hundred three of all influenza AH1 viruses were isolated from patients between 0 and 11 years of age; of these isolates, 75 were isolated from patients of 5-9 years old. Influenza AH3 viruses were isolated primarily from patients between 0 and 9 years of age (35%), followed by those 10-19 years old (28%) and those 20-29 years old (12%). Influenza B viruses were isolated primarily from patients aged 10-19 years (70%), and the isolates from patients of younger than 19 years old accounted for approximately 98% of all cases.

The antigenicity of influenza AH3 viruses was similar to that of strain A/New York/55/2004, which was the vaccine strain for the 2005/06 season. Among influenza AH1 isolates,

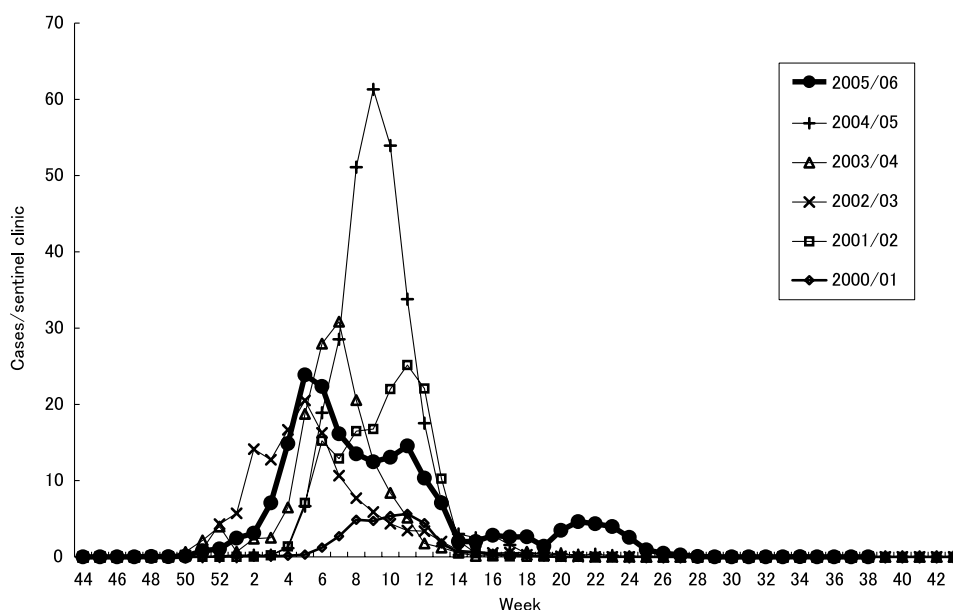


Fig. 1. Weekly reported cases with influenza from 2000/01 to 2005/06 season in Sapporo, Japan.

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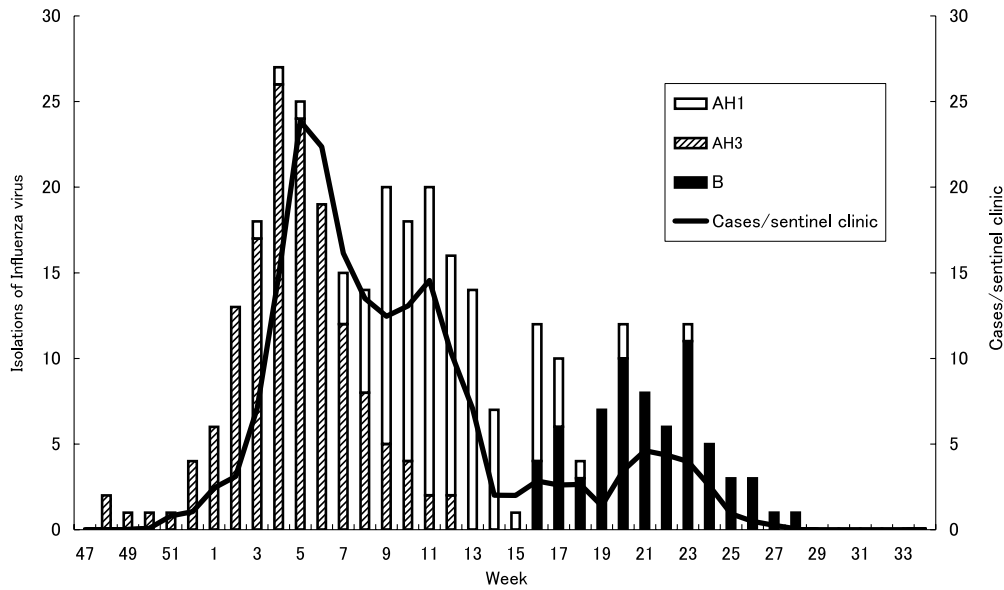


Fig. 2. Weekly reported cases with influenza and isolation of influenza viruses in the 2005/06 season in Sapporo, Japan.

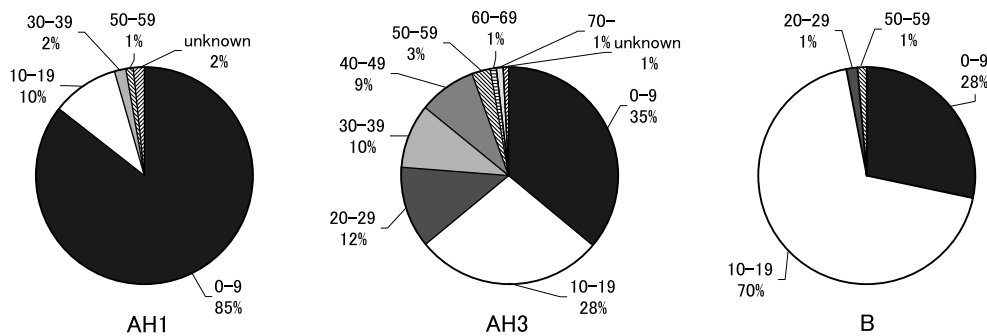


Fig. 3. Age distribution of influenza virus-isolated cases in the 2005/06 season in Sapporo, Japan.

A/New Caledonia/20/99-like strains were frequently isolated, but a minority of isolates exhibited 4-fold or more reduction in the HI titer from A/New Caledonia/20/99. All isolated influenza B virus strains belonged to the B/Victoria lineage and were antigenically similar to B/Brisbane/32/2002. No influenza B virus strains belonging to the B/Yamagata lineage were isolated.

Recently, the detection of influenza viruses during non-epidemic season in Japan and isolation from cases who developed influenza after traveling overseas have been reported (1-7). Currently, highly pathogenic avian H5N1 influenza A viruses are causing severe disease in poultry and in people in close contact with infected animals. These viruses have spread across eastern Asia and into other countries and may be capable of altering their genetic structure to gain the capacity of sustained human-to-human transmission. Therefore, a pandemic of a new influenza is a global threat and surveillance of such year-round influenzas is becoming increasingly important.

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