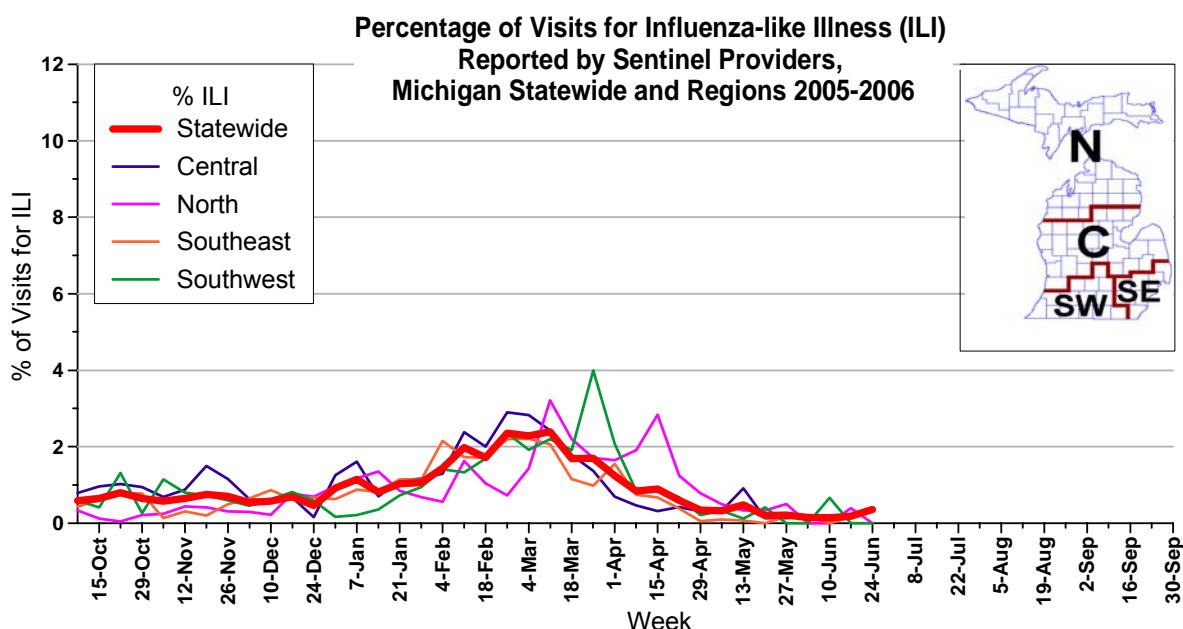


Michigan Influenza Surveillance Summary 2005-2006 Influenza Season Michigan Department of Community Health

Seasonal Influenza

Data from Michigan's Influenza Sentinel Physician Surveillance sites indicate that increases in the proportion of visits due to influenza-like illness (fever $\geq 100^{\circ}$ F with a cough, sore throat, or both) began in early February, peaked in early to mid-March at 2.3% of office visits, and returned to low levels by late April. In comparison, activity during the 2004-2005 season occurred earlier, peaking in mid-February.



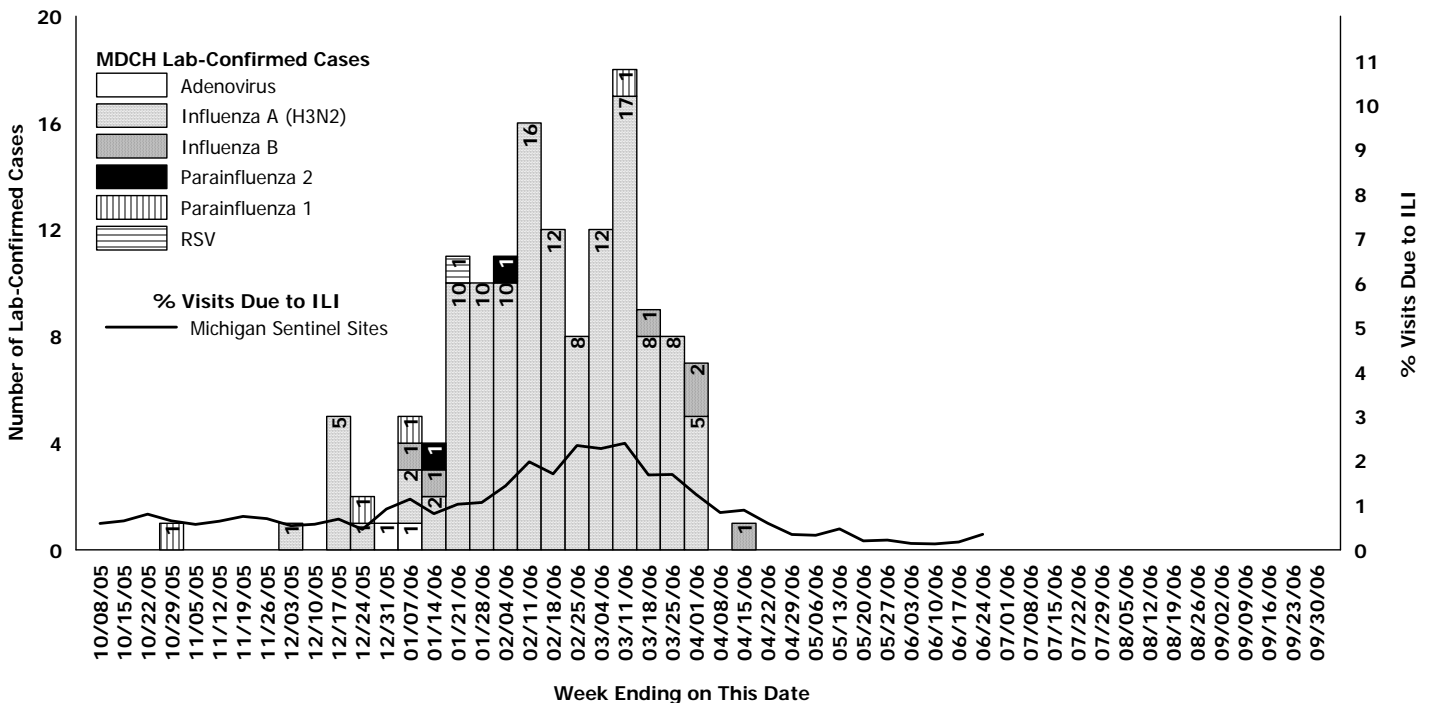
There was one pediatric influenza-related mortality for the 2005-2006 season, with one possible investigation pending. Two congregate setting outbreaks were reported this season; one in Southwest Michigan in late February and one in Southeast Michigan in late March. Both outbreaks were MDCH laboratory confirmed as due to influenza A (H3N2).

During the 2005-2006 influenza season, peak activity for flu-like illness in MDSS was seen between the week ending February 4 and the week ending April 1. The top three weeks for the season were the weeks ending April 1 (18,139 reports), February 18 (17,607 reports), and February 4 (16,214 reports). During the 2004-2005 influenza season, peak flu-like illness activity was seen between the week ending January 29 and the week ending March 12. The top three weeks of flu-like illness activity were the weeks ending February 12 (36,127 reports), February 19 (32,780 reports), and February 5 (26,963). Based on MDSS information, the current influenza season appears to have been slightly longer, temporally similar, and much less severe than the previous.

Emergency department visits due to constitutional complaints peaked in late February at roughly 10% of all visits. Visits due to respiratory complaints peaked twice – in late October at less than 14% of all visits and again in late February at over 14% of all visits. During the 2004-2005 season, constitutional and respiratory visits peaked in mid- to late February at roughly 15% and 16% of all visits, respectively. Compared to the previous year, emergency department visits due to constitutional and respiratory complaints indicated flu activity peaked slightly later, was slightly longer in length, and was lower during the current season. Over-the-counter product sales were more variable over the course of the year, but were consistent with the other indicators in suggesting peak activity in flu-like illness activity in February 2006 that was significantly lower than that seen from the previous year.

Sentinel physicians and sentinel laboratories provide virologic data by submitting clinical specimens and / or isolates for respiratory virus culture at the Michigan Department of Community Health (MDCH) laboratory. During the 2005-2006 season, MDCH laboratory-confirmed 138 influenza cases. Of these, 132 (96%) were due to Influenza A (H3N2) and 6 (4%) to Influenza B. 11 influenza A/ (H3N2) isolates were sent to the Centers for Disease Control and Prevention (CDC) for strain typing. Of these isolates, one was closely related to the vaccine strain, A/New York/55/2004 (used for the A/California/7/2004 H3N2 strain), two were A/California/7/2004-like, and eight were related to A/Wisconsin/67/2005, an antigenic variant of A/California. The influenza B viruses isolated at the MDCH laboratory belonged to two antigenically distinct lineages; two were B/Shanghai/361/2002-like, belonging to the B/Yamagata lineage. Four belonged to the B/Victoria lineage; of these, three were B/Hong Kong/330/2001-like, and one sample sent to the CDC was determined to be B/Ohio/01/2005-like. The B component of the 2005-2006 influenza vaccine was B/Shanghai. These results suggest that a variety of influenza viruses were circulating in Michigan during the 2005-2006 season, with varying vaccine relatedness.

**Influenza-Like Illness (ILI) Surveillance Data and Respiratory Virus Culture Results
Michigan Influenza Sentinel Providers, 2005-2006**



The 2006-2007 influenza vaccine will contain the A/Wisconsin strain as its H3 component and the A/New Caledonia/20/99-like strain for the H1N1 component. The influenza B portion will be updated to B/Ohio (used for B/Malaysia/2506/2004-like virus), representing a change to the B/Victoria lineage.

Data from the CDC indicate that the United States as a whole had similar experiences to Michigan in the 2005-2006 season. Visits due to influenza-like illness peaked twice nationally. The first peak of 3.3% occurred at the end of December and a later peak occurred in early to mid-March at 3.2%. Influenza A and B co-circulated with A types predominating (81%). Of the 503 influenza A (H3N2) isolates that were antigenically characterized by the CDC, 76% were characterized as A/California/07/2004-like, the H3N2 component recommended for the 2005-2006 influenza vaccine. Fourteen percent were A/Wisconsin-like, which will be in the 2006-2007 influenza vaccine. Nationally 35 pediatric deaths related to influenza were reported from 13 states. Virus type was known for 31 of these cases; 23 were influenza A infection and eight were influenza B. National pneumonia and influenza mortality data from the CDC indicate that this season was of mild severity.

Novel and Avian Influenza Strains

2005-2006 also saw a dramatic increase in the number of countries affected by the ongoing epizootic of highly pathogenic avian influenza (HPAI), subtype H5N1. In late 2005, the virus spread in wild birds and poultry from southeast Asia to Mongolia, Russia and eastern Europe. By mid-2006, the Middle East, Africa and western Europe were also affected. From 2003 to June 26, 2006, there have been 228 human cases, including 130 deaths, in 10 countries spanning Asia, the Middle East and Africa.

As of this writing, 34 of 84 (40%) cases and 28 of 54 (52%) deaths reported in 2006 have been from Indonesia, including a family cluster that was of interest. The eight cases from that cluster were all related family members, seven of which appear to have contracted the virus from close, prolonged contact with the index family member. The eighth case was a father who had no contact with the index case and was determined to have caught the virus from his son, who did have prolonged contact with the index case. This situation was the first documented case of a second generation human transmission. There was evidence of mutation in the virus recovered from the son, but this mutation did not appear to convey increased transmissibility and died out with the father. Characterization of the mutation showed no resistance to the antiviral drug oseltamavir, and other family members and healthcare workers with extensive contact have not contracted the disease. Thus, there is no current evidence of the H5N1 virus having efficient human-to-human transmission, but concern still exists for the potential of a pandemic influenza virus.

To access information from MDCH about influenza, go to the MDCH influenza homepage at <http://www.michigan.gov/influenza>. Between October and May, the most current U.S. influenza data is available from the CDC at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.