

# STATE OF COLORADO

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Colorado Department  
of Public Health  
and Environment

## **Influenza Surveillance Summary Colorado, 2005-2006**

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## **Summary**

Influenza activity in Colorado during the 2005-2006 season was relatively mild. Surveillance was based on reports of influenza-associated hospitalizations, influenza-like illness (ILI) reported by sentinel providers, circulating strain surveillance, reports of influenza outbreaks in long-term care facilities (LTCF) and pediatric deaths due to influenza

Influenza type B played an important role at the end of the season, resulting in a second ‘wave’ of infections. Type B influenza affected mainly children, as 55% of hospitalizations due to influenza type B occurred among children under age 10.

Influenza virus isolates submitted by laboratories throughout the country and antigenically characterized by CDC indicated that there was a good match between the circulating type A viruses and the influenza A component of the 2005-2006 vaccine: almost 80% of the isolates characterized by CDC belonged to the same lineage as the viruses included in the vaccine. However, 78% of the influenza B viruses characterized by CDC belonged to a different lineage than the one included in the vaccine. This mismatch may explain the second ‘wave’ of infections due to influenza B observed during the latter part of the season.

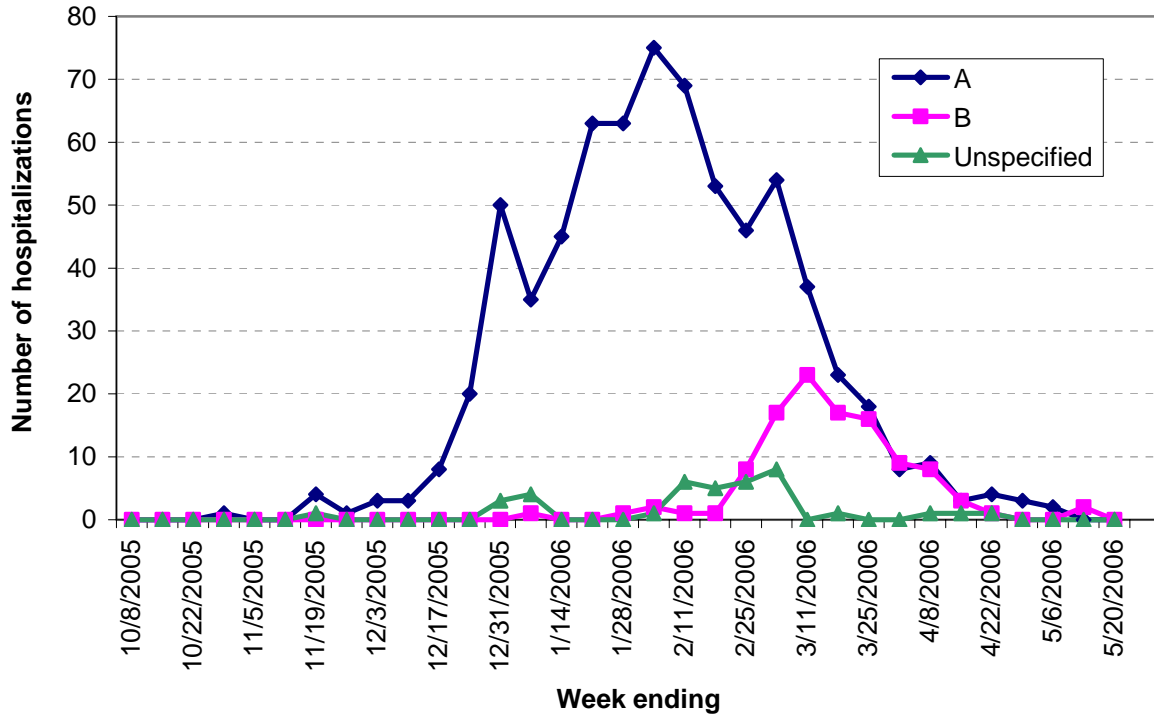
## **Reports of influenza-associated hospitalizations**

After a “late” start, the 2005-2006 influenza season began steadily increasing in mid-December. As previously mentioned, the season was divided in two waves with peaks separated by more than a month. Type A-associated hospitalizations peaked during the week ending on February 4<sup>th</sup>, whereas, type B-associated hospitalizations peaked during the week ending March 11<sup>th</sup>. There were a total of 848 reported influenza-associated hospitalizations from 10/01/05 through 5/20/06 in Colorado (compared to 980 reported hospitalizations during the 2004-2005 season). Among reported cases with specified influenza virus type (96% of reported cases), 86% were type A and 14% were type B.

Among the type B-associated hospitalizations, 55% were children 10 years of age or younger (compared to 31% of type A-associated hospitalizations in this age group). The highest age group specific rates of reported hospitalizations were in infants <6 months of age (Table 1), followed by persons 80 years of age or older. Children 6-23 months of age had the third highest rate.

Reported rates of influenza-associated hospitalizations are especially likely to under-represent true rates of hospitalizations among older persons. Such persons are probably less likely to be tested for influenza and rapid flu tests are thought to be less sensitive in adults than in children.

**Number of reported influenza-associated hospitalizations  
by week of diagnosis, Colorado  
2005-06 influenza season**



**Table 1: Numbers and Rates of Influenza-Associated Hospitalizations by Age Group, Colorado 2005-2006**

Age	No.	%	Rate per 100,000
<6 mo	82	9.7	238.1
6-23mo	103	12.1	100.4
2-4	59	7.0	30.5
5-10	41	4.8	10.9
11-17	31	3.7	6.8
18-39	61	7.2	4.1
40-49	24	2.8	3.2
50-59	57	6.7	10.1
60-69	82	9.7	27.2
70-79	133	15.7	66.1
80+	175	20.6	152.4
<b>Total</b>	<b>848</b>	<b>100</b>	<b>18.5</b>

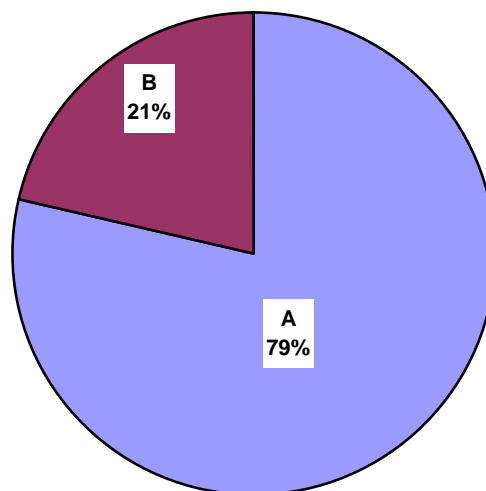
## Circulating strain surveillance

An important component of influenza surveillance consists of the typing and antigenic characterization of influenza virus isolates throughout the season to determine the circulating strain(s) of influenza virus. Sentinel providers submit clinical specimens to the state laboratory where virus isolation, typing and subtyping are performed. Some of these are then sent to CDC for further antigenic characterization. Several hospitals in Colorado have the capability to determine virus type by performing viral culture or direct fluorescent antibody (DFA) testing. The state laboratory can perform reverse transcription polymerase chain reaction (RT-PCR) in addition to viral culture.

During October and November, the state laboratory performed RT-PCR on 31 submitted specimens that had tested positive by rapid antigen tests. Only 3 (97%) of these were confirmed by RT-PCR as influenza. This highlights the low specificity of influenza rapid antigen tests when there is little influenza virus circulating (i.e. low prevalence) and the importance of using “confirmatory” testing at these times.

During the 2005-06 season, 192 specimens were typed by viral culture, RT-PCR or DFA; 151 were type A and 41 were type B. Sixty isolates of type A influenza were subtype H3; 10 of these were H3N2. CDC antigenically characterized 7 as H3N2/California-like and 1 as H1N1/Caledonia (both strains were covered by the 2005-2006 influenza vaccine). One isolate was characterized as H3N2/Winsconsin which is an antigenic variant that evolved from A/California and was recommended by WHO as the H3 component for the 2006-2007 Northern Hemisphere vaccine formulation. Of the 51 type B isolates, CDC characterized 5 as B/Malaysia-like viruses, the type B strain recommended for the 2006-2007 influenza vaccine but not included in the 2005-2006 vaccine.

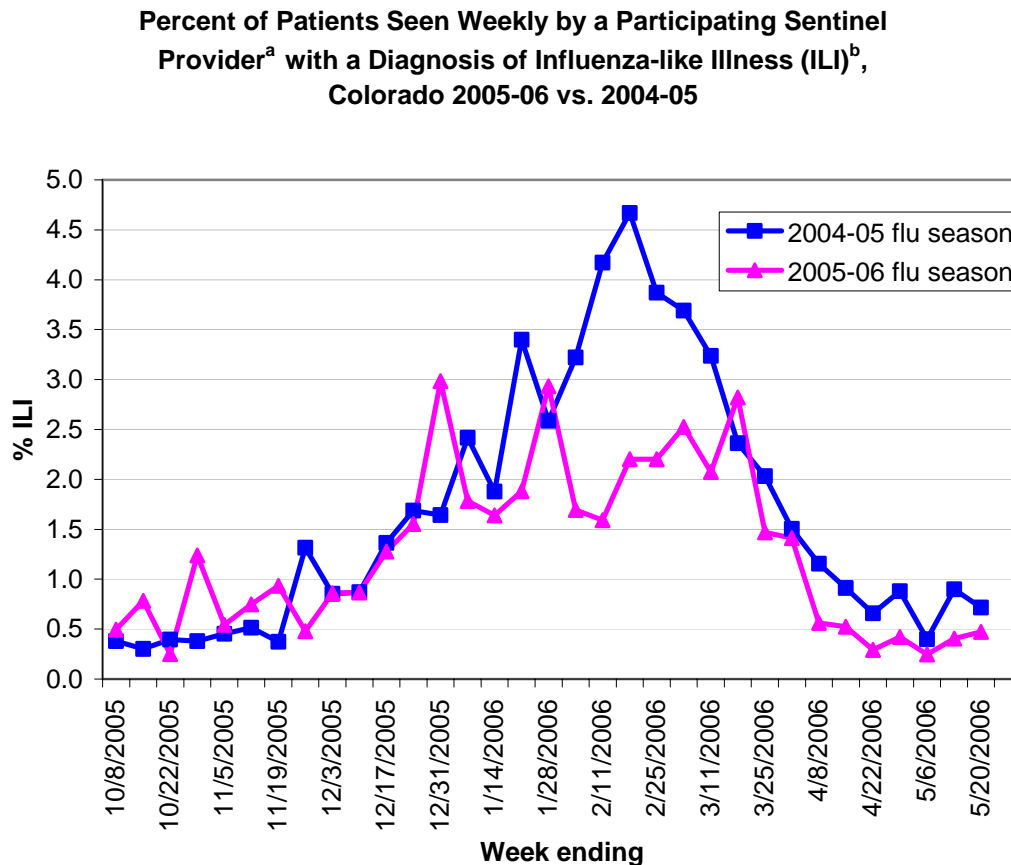
**Cumulative circulating influenza by type<sup>a</sup>**  
**Colorado, 10/1/05 - 05/20/06**  
**N=192**



a. Based on direct fluorescent antibody (DFA), RT-PCR and viral

## Reports of influenza-like illness (ILI) by sentinel providers

Sentinel providers report the total number of patient visits each week and number of patient visits for ILI by age group. These reports indicate that the 2005-2006 season was milder than the previous year and that the highest levels of ILI spanned from December through March without a distinct peak. After the week ending on March 18<sup>th</sup>, the percent ILI started to decline at a steady pace reaching background levels at the beginning of April.



## Reports of pediatric deaths due to influenza

During the 2005-06 influenza season, there were two pediatric deaths reported. Both deaths occurred during the month of February in infants with severe underlying conditions.

## Reports of influenza outbreaks in long-term care facilities (LTCF)

Long-term care facilities (LTCF) are requested to report outbreaks of influenza or ILI. The number of outbreaks reported during the 2005-2006 flu season ( $n = 34$ ) was considerably smaller than the number reported during the previous season ( $n = 48$ ). Of reported outbreaks in which type A vs. B testing was available, 100% tested positive for type A. The number of outbreaks reported peaked during the week ending on February 4<sup>th</sup>. This date coincides with the peak of reported influenza-associated hospitalizations due to influenza type A.

