

STATE OF COLORADO

John W. Hickenlooper, Governor
Christopher E. Urbina, MD, MPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

<http://www.cdphe.state.co.us>



Colorado Department
of Public Health
and Environment

Influenza Surveillance Summary Colorado, 2010-2011

Janell Bezdek
Ken Gershman, MD, MPH

Communicable Disease and Epidemiology Program

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For a copy of the document please visit our website:
<http://www.cdphe.state.co.us/dc/Influenza/index.html>

Summary

Influenza activity in the community during the 2010-2011 season was moderate, with the highest number of hospitalizations (1027) reported since hospitalized influenza became a reportable condition (2004-2005), excluding the pandemic year of 2009-2010. Based on influenza surveillance data, the 2010-2011 influenza season peaked in mid to late February. Of those specimens subtyped by the State lab, influenza A(H3) appeared to be the predominant circulating strain.

Components of Colorado's Influenza Surveillance

Surveillance activities during the 2010-2011 influenza season included: reporting of influenza-associated hospitalizations, reporting of pediatric deaths due to influenza, reporting of influenza-like illness (ILI) visits by selected sites, reporting of influenza testing activity by sentinel hospital labs, and monitoring circulating influenza viruses through molecular typing at the state public health laboratory.

Reports of Influenza-Associated Hospitalizations

Influenza activity remained low until 12/11/10, gradually increasing until the peak during weeks ending 2/19/2011 and 2/26/11. There were a total of 1027 influenza-associated hospitalizations reported from 10/3/10 through 5/21/11 in Colorado. Among these reported cases, 825 (80%) were type A and 202 (20%) were type B. Of the type A cases, 159 (19%) were subtype A (H3), 84 (10%) were subtype 2009 H1N1, and the remaining 582 (71%) were not subtyped.

The highest age group specific rates of reported hospitalizations were in infants <6 months of age (Table 2), followed by children 6-23 months of age. Adults 65+ years old and children 2-4 years of age had the third and fourth highest rates.

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

Table 1.

**Numbers of Reported Influenza-Associated Hospitalizations
Colorado, 2004/05 – 2010/11**

Flu Season	Hospitalizations
2004-05	980
2005-06	848
2006-07	364
2007-08	1004
2008-09	547
2009-10	2041*
2010-11	1027

*2009 H1N1 Pandemic

Figure 1.

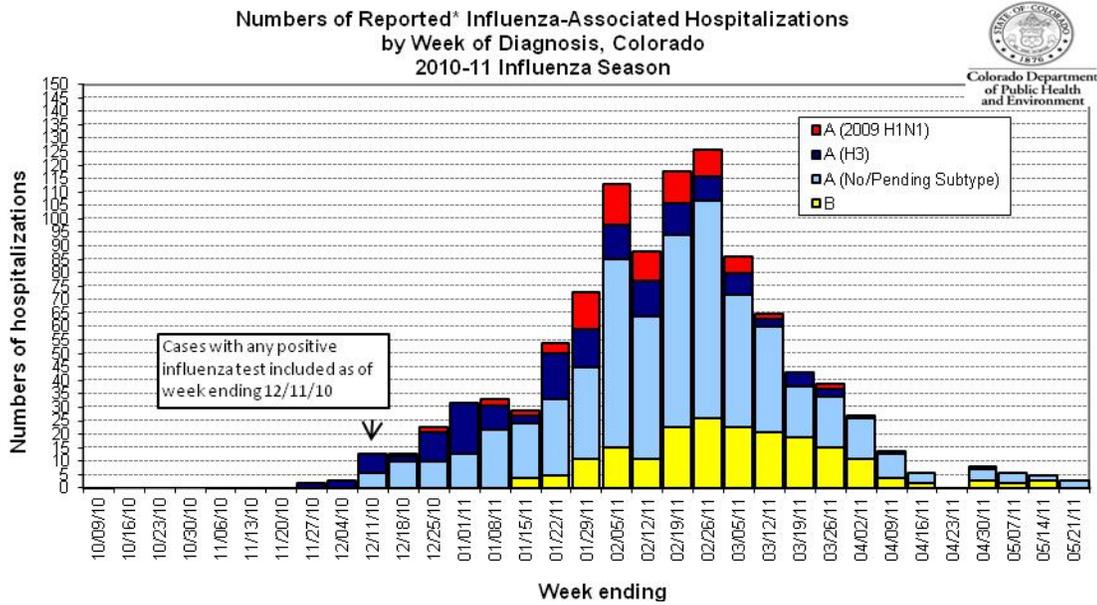
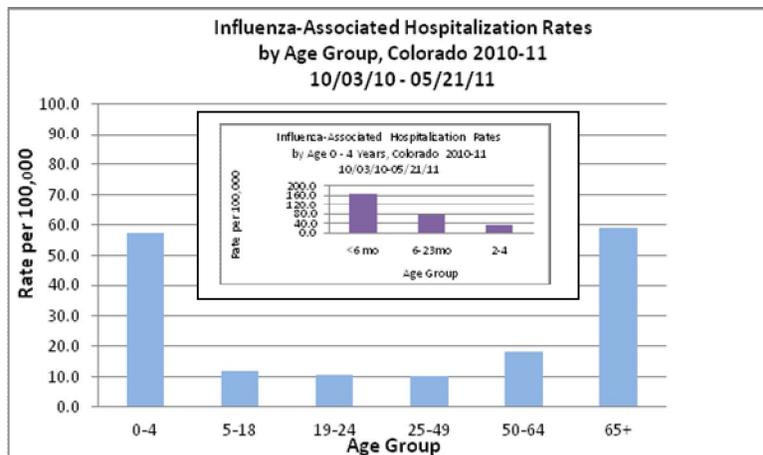


Table 2.

Influenza-Associated Hospitalization Rates by Age Group, Colorado 2010-11

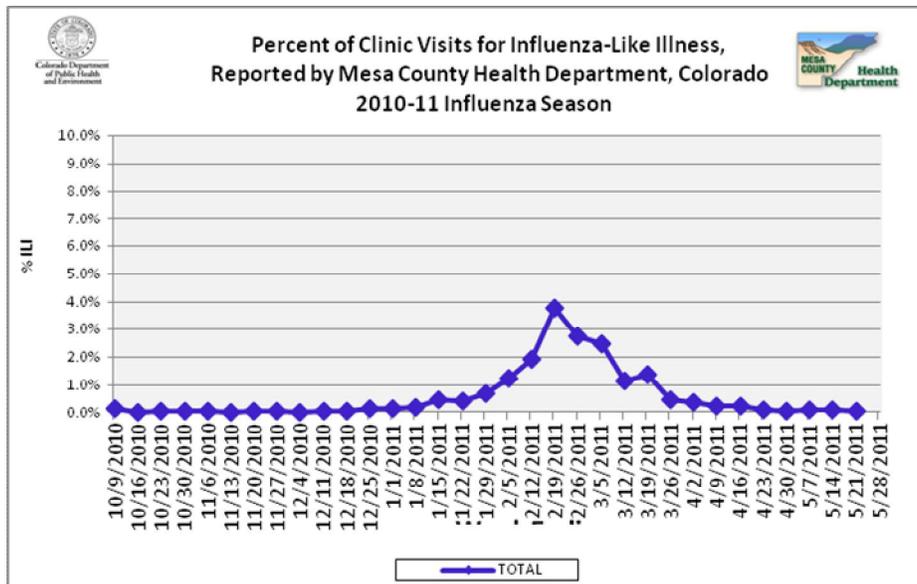
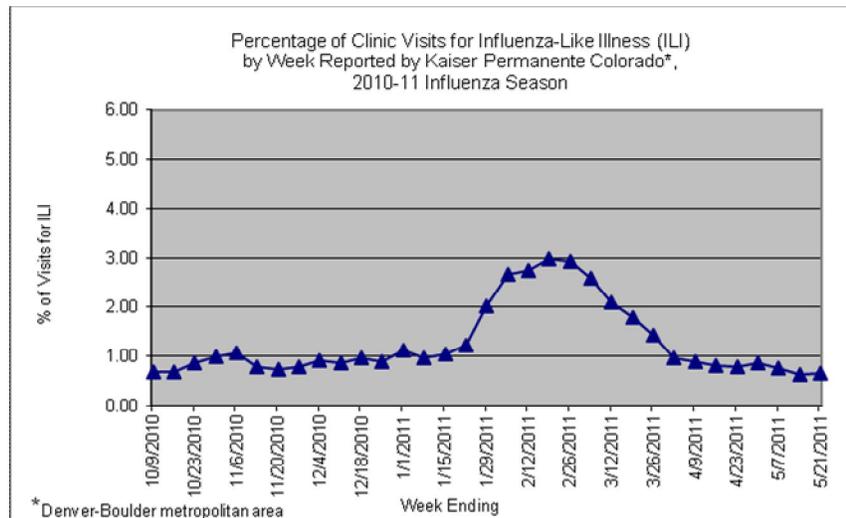
Age	No.*	%	CO pop dist	Rate per 100,000
<6 mo	59	5.7	35353	166.9
6-23mo	78	7.6	107121	72.8
2-4	69	6.7	215966	31.9
5-18	113	11.0	961480	11.8
19-24	49	4.8	469664	10.4
25-49	180	17.5	1802370	10.0
50-64	174	16.9	966564	18.0
65+	305	29.7	516403	59.1
Total	1027	100.0	5074921	20.2



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

Sentinel providers report the total number of patient visits each week and the number of patient visits for ILI by age group. Kaiser Permanente for the Denver-Boulder metropolitan area and Primary Care Partners, P.C. of Mesa County reported influenza-like illness based on ICD-9 diagnostic codes from their electronic medical records database. Peak levels of outpatient ILI were 3-4% during 2010-2011 season, compared to pre-pandemic seasons when the peak percentage of visits for ILI ranged from 1.5% to 4.7%. There was a distinct peak in the percent of visits for ILI during the week ending February 19th and 26th.

Figure 2



Circulating influenza virus surveillance

An important component of influenza surveillance consists of the typing and subtyping of influenza virus isolates throughout the season to determine the circulating strain(s) of influenza virus. Sentinel providers and hospital laboratories 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 (assessment of match to the vaccine strains).

Based on typing and subtyping at the state laboratory, influenza A (H3) viruses predominated. A total of 846 specimens (out of 1286 submitted) confirmed positive by PCR with 723 (85%) confirming as type A. Of those, 501 (69%) subtyped as H3, 220 (31%) as 2009 H1N1, and 2 (0%) were not subtyped. The remaining 123 (15%) PCR positives confirmed as type B.

Table 3

CDPHE Laboratory Influenza Type and Subtyping Results*

2010-2011 Influenza Season

 Colorado Department of Public Health and Environment	Current Week (Week Ending 05/21/11)	Cumulative (10/03/2010- 05/21/11)
Total Positive for A	0 (0%)	723 (85%)
2009 H1N1	0 (0%)	220 (31%)
H3	0 (0%)	501 (69%)
H1	0	0
Non-subtypeable	0	2 (0%)
Total Positive for B	0 (0%)	123 (15%)
Total Positive by PCR	0	846

*By week of diagnosis

One specimen from the cumulative column subtyped for both H3 and 2009 H1N1.

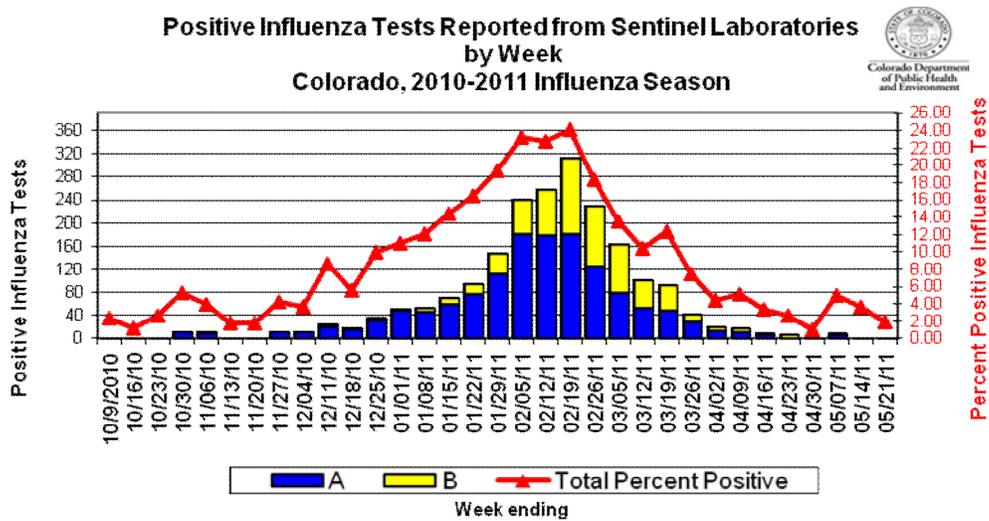
Two specimens from the cumulative column tested positive for H3 and Influenza B.

Sentinel laboratory reporting of influenza testing

The percentage of respiratory specimens that tested positive for influenza at 17 sentinel hospital labs peaked during week ending February 19th (red line in graph below).

Type B viruses comprised of 33% of the positive influenza tests reported by sentinel laboratories driving the peak.

Figure 3



Reports of pediatric deaths due to influenza

During the 2010-11 influenza season, there were three pediatric deaths reported, which compares to x deaths during 2006-07, x deaths during 2007-08, and x deaths during 2008-09 seasons. There were x pediatric deaths during the pandemic of 2009-10.

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 2010-11 influenza season (n=35) was considerably higher than the number reported during the 2009 H1N1 pandemic (n=3). This is likely due to a higher prevalence of cross-reactive antibodies to the 2009 pandemic H1N1 virus among individuals born before 1950 (N Engl J Med 2009;361:1945-52). The number of LTCF outbreaks reported during the 2010-11 influenza season peaked during weeks ending February 19th and 26th.