

**2008-2009 Influenza Season**  
**Week 11 ending March 21, 2009**

*(All data are preliminary and may change as more reports are received.)*

**Synopsis:** During week 11 (March 15-21, 2009), influenza activity continued to decrease in the United States.

- One thousand one hundred four (21.4%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza.
- The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold.
- Three influenza-associated pediatric deaths were reported.
- The proportion of outpatient visits for influenza-like illness (ILI) was above the national baseline. Six of nine surveillance regions reported ILI at or above their region-specific baselines.
- Twenty-four states reported widespread influenza activity, 19 states reported regional activity; six states reported local influenza activity; and the District of Columbia and one state reported sporadic influenza activity.

**National and Regional Summary of Select Surveillance Components**

	Data for current week			Data cumulative for the season				
	Out-patient ILI*	% positive for flu†	Number of jurisdictions reporting regional or widespread activity‡	A (H1)	A (H3)	A Unsub-typed	B	Pediatric Deaths
<b>Nation</b>	Elevated	21.4%	43 of 51	5,533	586	9,333	6,932	35
<b>New England</b>	Elevated	17.5%	6 of 6	429	64	1,003	621	1
<b>Mid-Atlantic</b>	Elevated	28.1%	3 of 3	690	83	890	769	8
<b>East North Central</b>	Normal	54.6%	3 of 5	884	61	243	641	2
<b>West North Central</b>	Elevated	23.5%	6 of 7	827	31	800	545	0
<b>South Atlantic</b>	Normal	23.8%	6 of 9	914	53	1,650	1,411	4
<b>East South Central</b>	Elevated	14.2%	4 of 4	176	6	38	87	2
<b>West South Central</b>	Normal	17.8%	3 of 4	565	39	3,566	2,162	9
<b>Mountain</b>	Elevated	15.1%	7 of 8	479	147	762	275	7
<b>Pacific</b>	Elevated	17.3%	5 of 5	569	102	381	421	2

\* Elevated means the % of visits for ILI is at or above the national or region-specific baseline

† National data are for current week; regional data are for the most recent three weeks

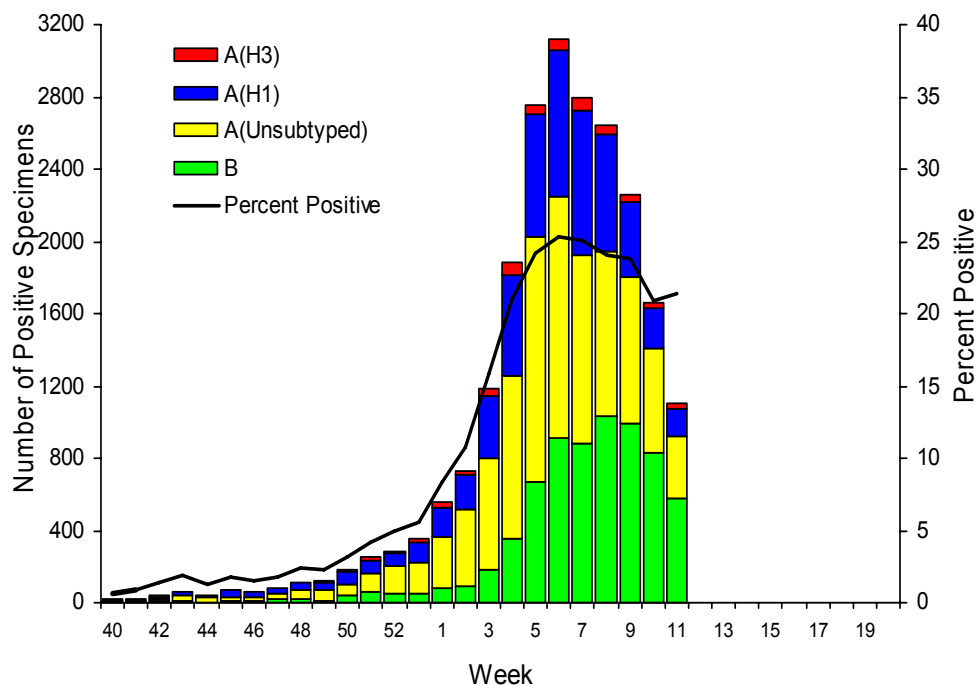
‡ Includes all 50 states and the District of Columbia

**U.S. Virologic Surveillance:** WHO and NREVSS collaborating laboratories located in all 50 states and Washington D.C. report to CDC the number of respiratory specimens tested for influenza each week. The results of tests performed during the current week and cumulative totals for the season are summarized in the table below.

	<b>Week 11</b>	<b>Cumulative for the Season</b>
<b>No. of specimens tested</b>	5,161	159,406
<b>No. of positive specimens (%)</b>	1,104 (21.4%)	22,384 (14.0%)
<b>Positive specimens by type/subtype</b>		
<b>Influenza A</b>	524 (47.5%)	15,452 (69.0%)
<b>A (H1)</b>	158 (30.2%)	5,533 (35.8%)
<b>A (H3)</b>	27 (5.2%)	586 (3.8%)
<b>A (unsubtyped)</b>	339 (64.7%)	9,333 (60.4%)
<b>Influenza B</b>	580 (52.5%)	6,932 (31.0%)

Since week 2 (the week ending January 17, 2009), when influenza activity increased nationally, influenza A (H1) viruses have predominated during the season overall. However, the relative proportion of influenza B viruses is increasing nationally and regionally. While influenza activity continued to decrease nationally, several surveillance regions reported an increase in influenza virus circulation, and seven regions (East North Central, Mid-Atlantic, New England, Pacific, South Atlantic, West North Central, and West South Central) reported a higher proportion of influenza B viruses compared to influenza A viruses this week.

### Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09



**Composition of the 2009-10 Influenza Vaccine:** WHO has recommended vaccine strains for the 2009-10 Northern Hemisphere trivalent influenza vaccine, and the Food and Drug Administration (FDA) has made the same recommendations for the U.S. influenza vaccine. Both agencies are recommending that the vaccine contain A/Brisbane/59/2007-like (H1N1), A/Brisbane/10/2007-like (H3N2), and B/Brisbane/60/2008-like (B/Victoria lineage) viruses. Only the influenza B component has been changed from the 2008-09 vaccine formulation. This recommendation was based on surveillance data related to epidemiology and antigenic characteristics, serological responses to 2008-09 vaccines, and the availability of candidate strains and reagents.

**Antigenic Characterization:** CDC has antigenically characterized 807 influenza viruses [510 influenza A (H1), 86 influenza A (H3) and 211 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All 510 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 86 influenza A (H3N2) viruses are related to the A (H3N2) vaccine component (A/Brisbane/10/2007).

Influenza B viruses currently circulating can be divided into two distinct lineages represented by the B/Yamagata/16/88 and B/Victoria/02/87 viruses. Forty-four (20.9%) influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 167 (79.1%) viruses belong to the B/Victoria lineage and are not related to the vaccine strain.

Data on antigenic characterization should be interpreted with caution given that antigenic characterization data is based on hemagglutination inhibition (HI) testing using a panel of reference ferret antisera and results may not correlate with clinical protection against circulating viruses provided by influenza vaccination.

Annual influenza vaccination is expected to provide the best protection against those virus strains that are related to the vaccine strains, but limited to no protection may be expected when the vaccine and circulating virus strains are so different as to be from different lineages, as is seen with the two lineages of influenza B viruses.

**Antiviral Resistance:** Since October 1, 2008, 554 influenza A (H1N1), 86 influenza A (H3N2), and 258 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Five hundred fifty-four influenza A (H1N1) and 86 influenza A (H3N2) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). The results of antiviral resistance testing performed on these viruses are summarized in the table below.

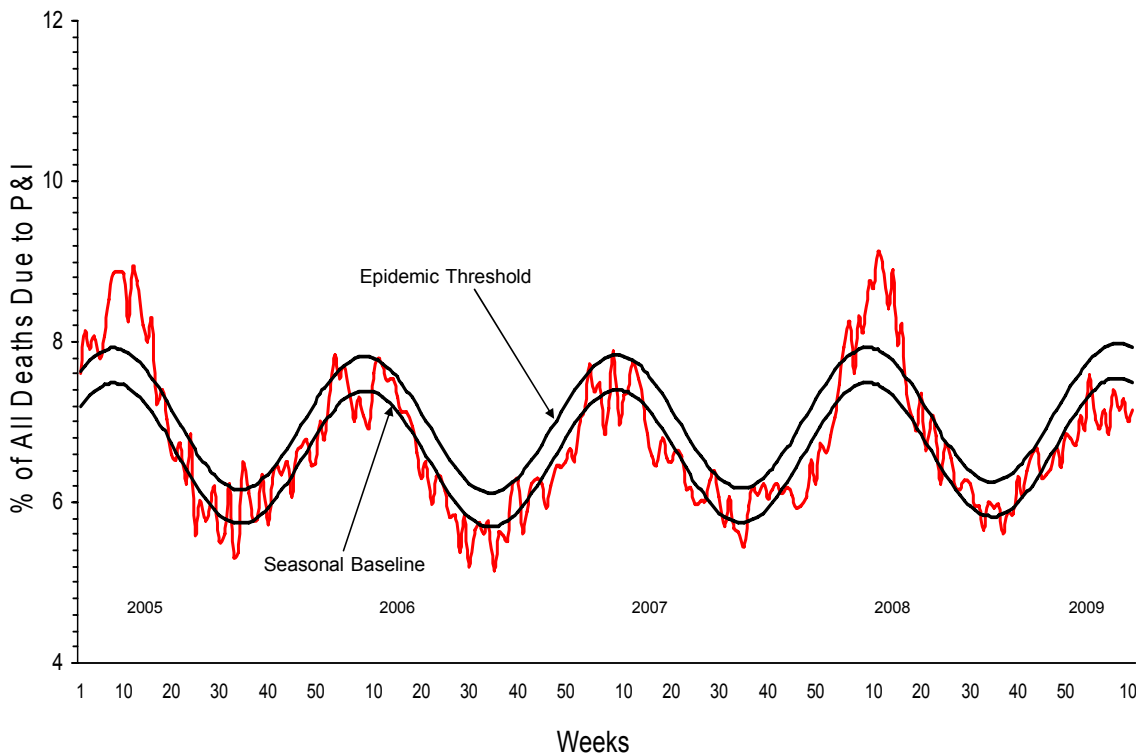
	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		Adamantanes
<b>Influenza A (H1N1)</b>	554	549 (99.1%)	0 (0)	554	3 (0.5%)
<b>Influenza A (H3N2)</b>	86	0 (0)	0 (0)	86	86 (100%)
<b>Influenza B</b>	258	0 (0)	0 (0)	N/A*	N/A*

\*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

Influenza A (H1N1) viruses from 42 states have been tested for antiviral resistance to oseltamivir so far this season. To date, all influenza A (H3N2) viruses tested are resistant to the adamantanes and all oseltamivir-resistant influenza A (H1N1) viruses tested are sensitive to the adamantanes. Nationally, influenza A (H1N1) viruses have predominated during the season overall. While influenza activity continued to decrease nationally, the relative proportion of influenza B viruses is increasing. During week 11, influenza B viruses accounted for 53% of the influenza viruses identified nationally, and more than 50% of the influenza viruses identified in seven of the nine surveillance regions. This presents challenges for the selection of antiviral medications for the treatment and chemoprophylaxis of influenza. Health care providers should be aware of the possibility of increased influenza B circulation in their area, and continue to test patients for influenza and consult local surveillance data when evaluating patients with acute respiratory infections during influenza season. CDC issued interim recommendations for the use of influenza antiviral medications in the setting of oseltamivir resistance among circulating influenza A (H1N1) viruses on December 19, 2008. These interim recommendations are available at <http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00279>.

**Pneumonia and Influenza (P&I) Mortality Surveillance:** During week 11, 7.2% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage is below the epidemic threshold of 7.9% for week 11.

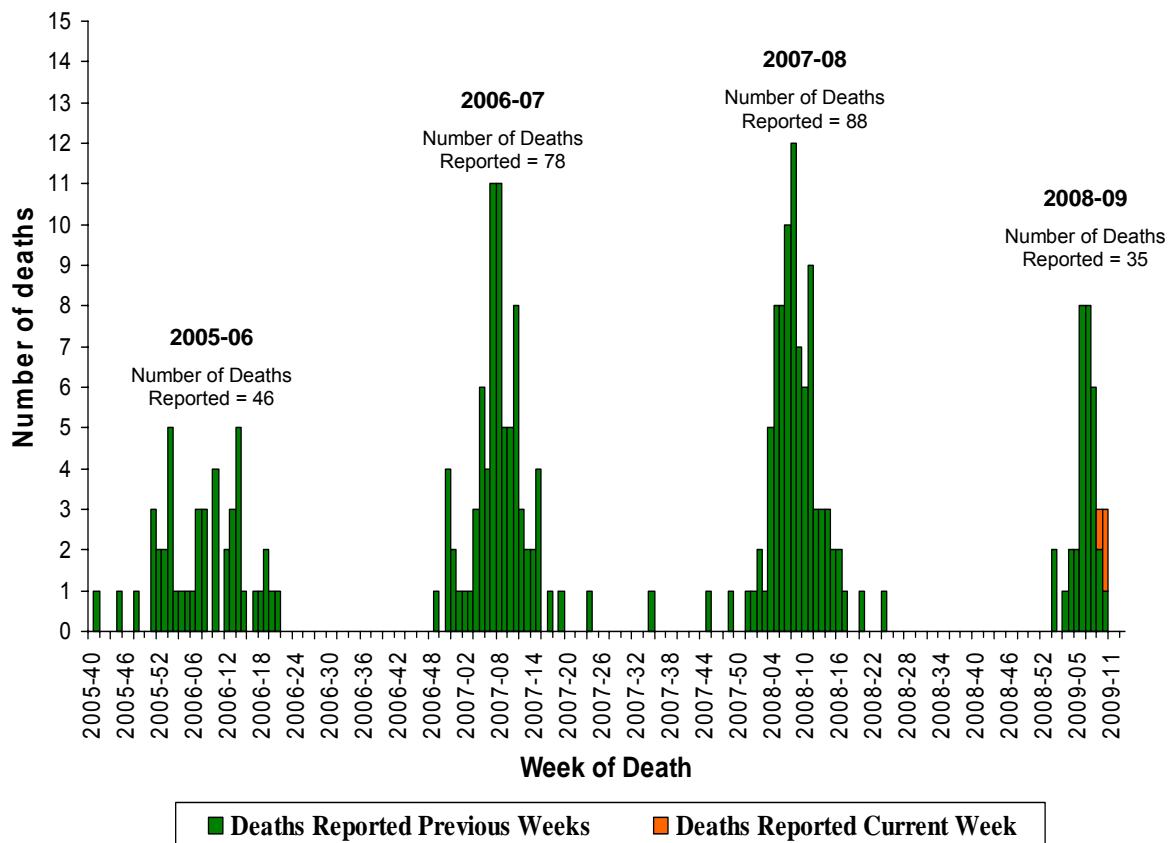
Pneumonia and Influenza Mortality for 122 U.S. Cities  
Week ending 3/21/2009



**Influenza-Associated Pediatric Mortality:** Three influenza-associated pediatric deaths were reported to CDC during week 11 (Kentucky, New York, and West Virginia). The deaths reported this week occurred between March 5 and March 10, 2009. Since September 28, 2008, CDC has received 35 reports of influenza-associated pediatric deaths that occurred during the current season.

Of the 21 children who had specimens collected for bacterial culture from normally sterile sites, eight (38.1%) were positive; *Staphylococcus aureus* was identified in five (62.5%) of the eight children. Two of the *S. aureus* isolates were sensitive to methicillin and three were methicillin resistant. All eight children with bacterial coinfections were five years of age or older and seven (87.5%) of the eight children were 12 years of age or older. An increase in the number of influenza-associated pediatric deaths with bacterial coinfections was first recognized during the 2006-07 influenza season. In January 2008, interim testing and reporting recommendations were released regarding influenza and bacterial coinfections in children and are available at (<http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00268>).

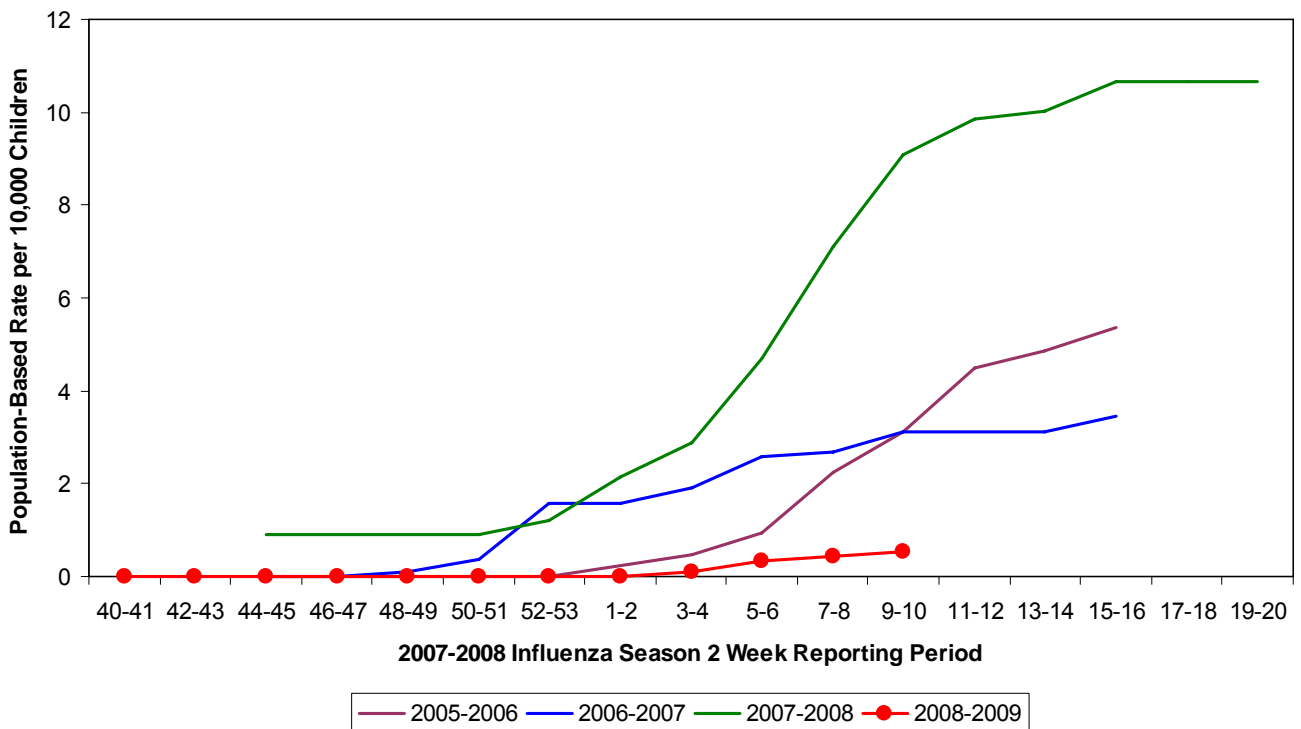
Number of Influenza-Associated Pediatric Deaths by Week of Death:  
2005-06 season to present



**Influenza-Associated Hospitalizations:** Laboratory-confirmed influenza-associated hospitalizations are monitored in two population-based surveillance networks: the Emerging Infections Program (EIP) and the New Vaccine Surveillance Network (NVSN). These two systems provide updates of surveillance data every two weeks.

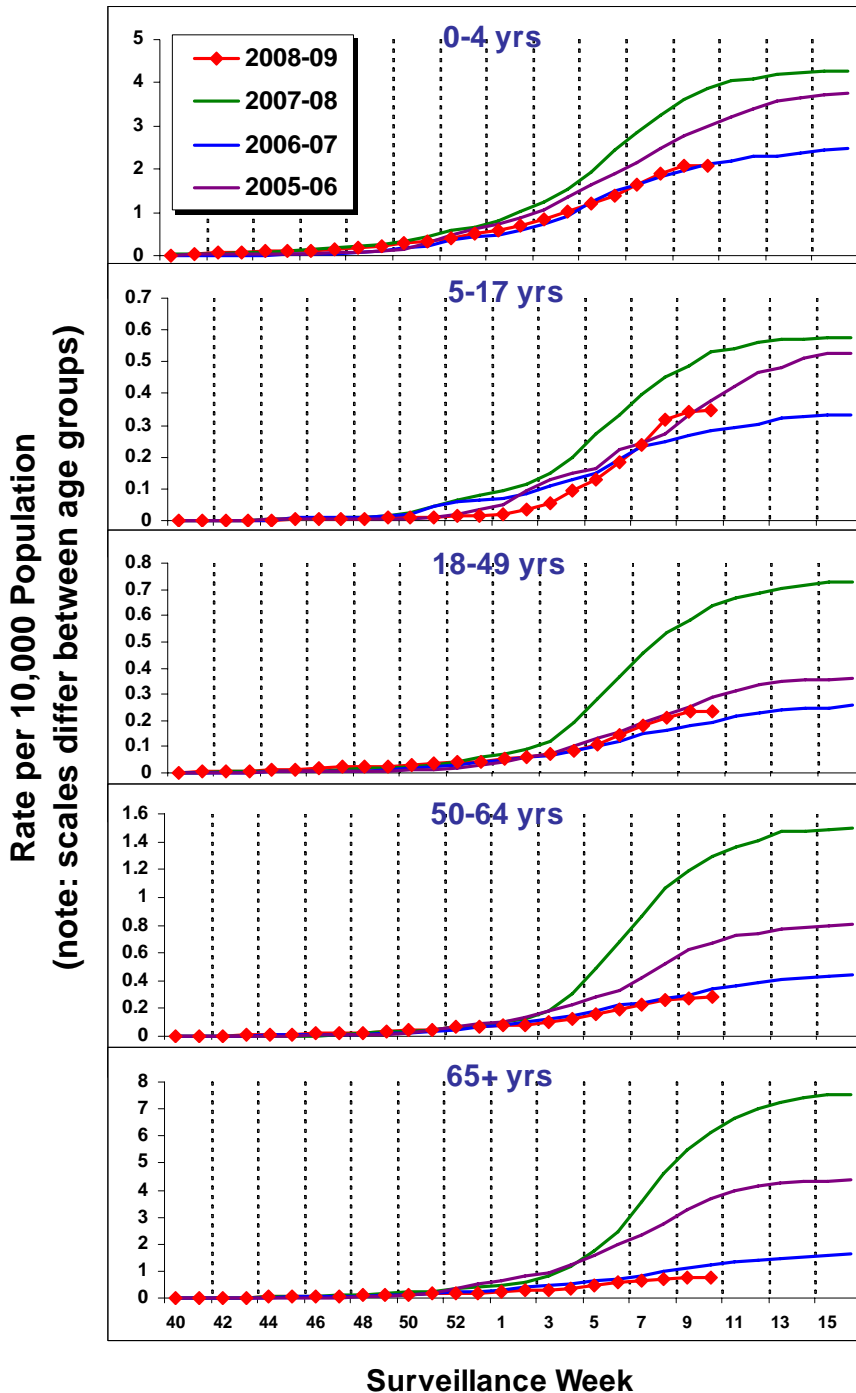
During October 12, 2008 to March 7, 2009, the preliminary laboratory-confirmed influenza-associated hospitalization rate for children 0-4 years old in the NVSN was 0.55 per 10,000. Due to case identification methods utilized in this study, a delay exists from the date of hospitalization to the date of report.

**NVSN Influenza Laboratory-Confirmed Cumulative Hospitalization Rates for Children 0 - 4 Years, 2008-09 and Previous Three Seasons**



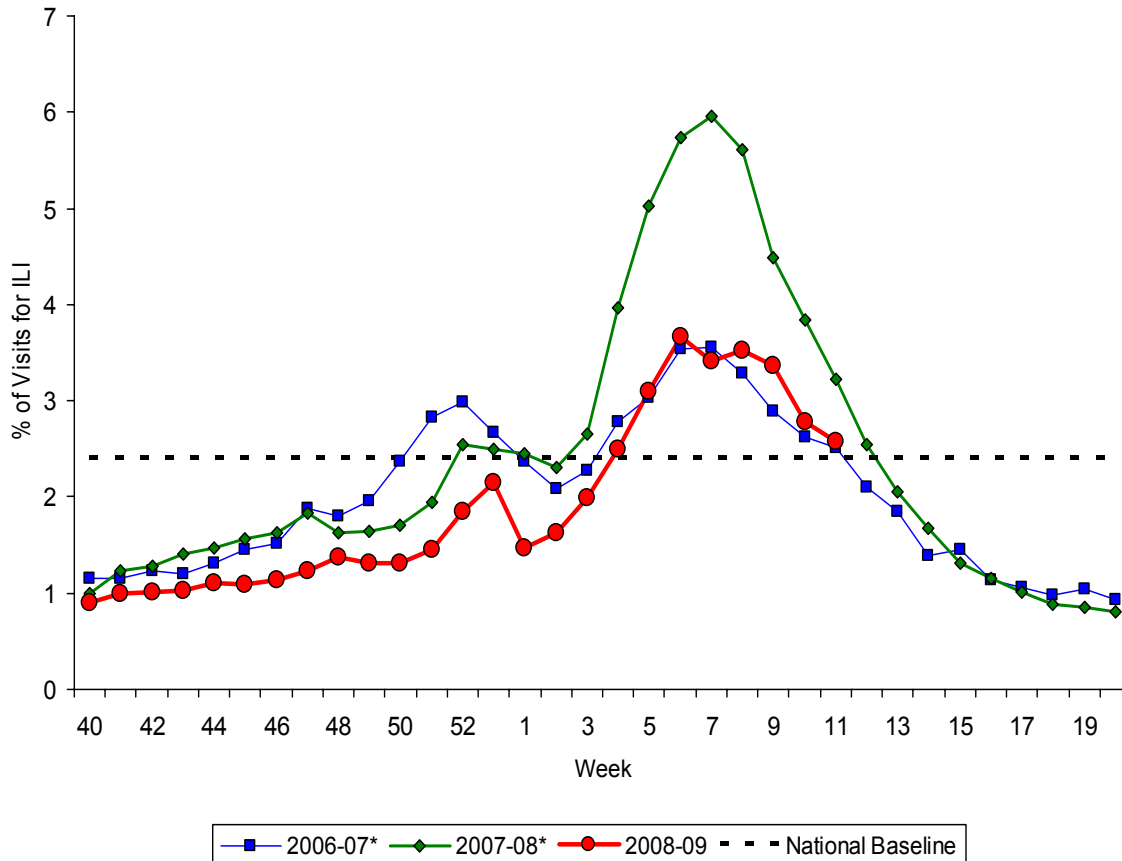
During October 1, 2008 – March 14, 2009, preliminary laboratory-confirmed influenza-associated hospitalization rates reported by the EIP for children aged 0-4 years and 5-17 years were 2.1 per 10,000 and 0.4 per 10,000, respectively. For adults aged 18-49 years, 50-64 years, and ≥ 65 years, the rates were 0.2 per 10,000, 0.3 per 10,000, and 0.8 per 10,000, respectively.

### EIP Influenza Laboratory-Confirmed Cumulative Hospitalization Rates, 2008-09 and Previous Three Seasons



**Outpatient Illness Surveillance:** Nationwide during week 11, 2.6% of patient visits reported through the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) were due to influenza-like illness (ILI). This percentage is above the national baseline of 2.4%.

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary, 2008-09 and Previous Two Seasons



\*There was no week 53 during the 2006-07 and 2007-08 seasons, therefore the week 53 data point for those seasons is an average of weeks 52 and 1.

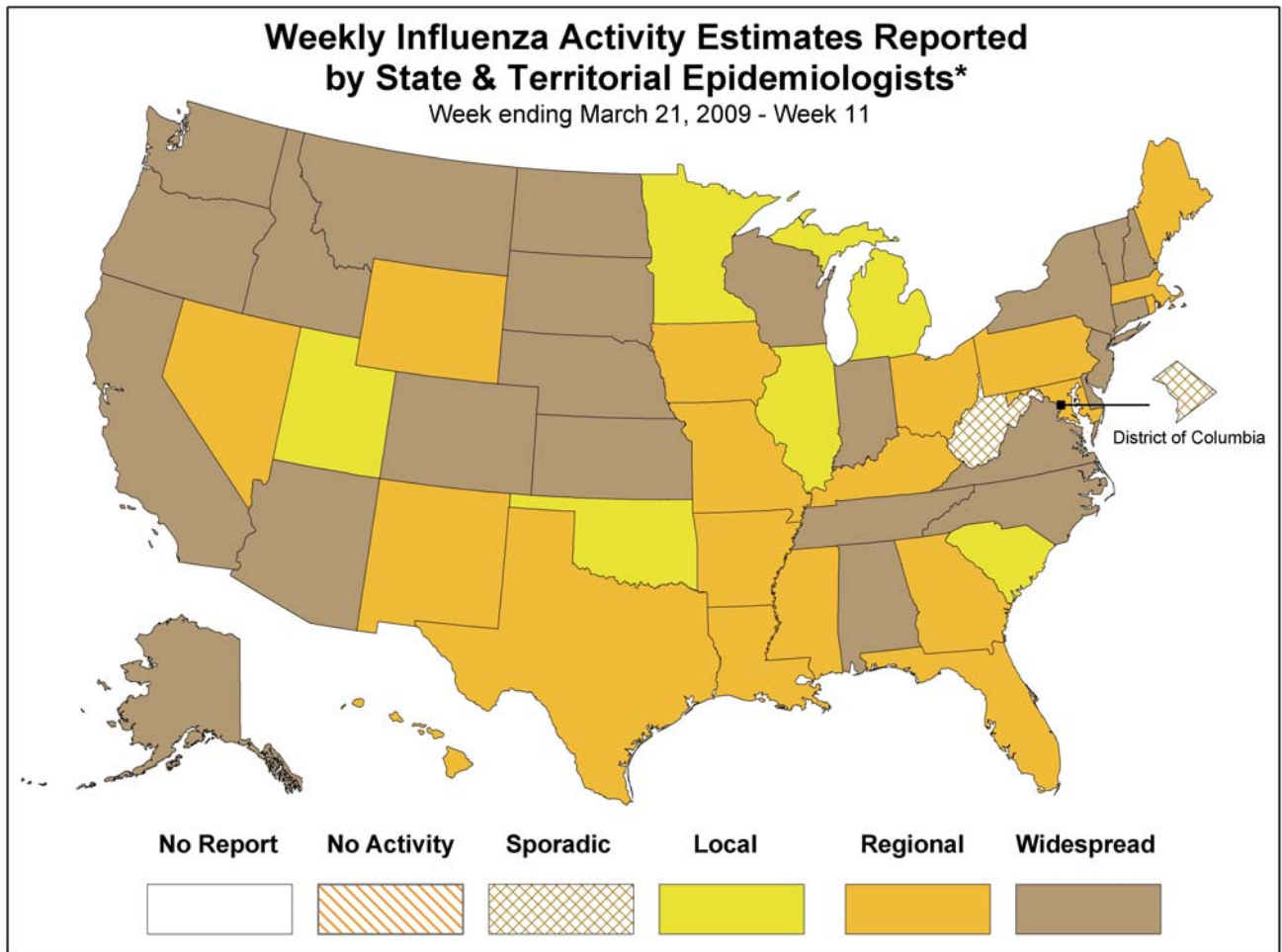
On a regional level, the percentage of visits for ILI ranged from 1.6% to 4.0%. Six of the nine surveillance regions reported ILI percentages at or above their region specific baselines.

Region	New England	Mid-Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
Reported ILI (%)	1.6	2.9	1.8	2.1	2.0	3.2	4.0	2.5	3.0
Region-Specific Baseline	1.5	2.9	1.9	1.7	2.2	2.5	4.8	1.5	3.0



**Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists:** During week 11, the following influenza activity was reported:

- Widespread influenza activity was reported by 24 states (Alabama, Alaska, Arizona, California, Colorado, Connecticut, Delaware, Idaho, Indiana, Kansas, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oregon, South Dakota, Tennessee, Vermont, Virginia, Washington, and Wisconsin).
- Regional influenza activity was reported by 19 states (Arkansas, Florida, Georgia, Hawaii, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, Nevada, New Mexico, Ohio, Pennsylvania, Rhode Island, Texas, and Wyoming).
- Local influenza activity was reported by six states (Illinois, Michigan, Minnesota, Oklahoma, South Carolina, and Utah).
- Sporadic activity was reported by the District of Columbia and one state (West Virginia).



\* This map indicates geographic spread & does not measure the severity of influenza activity

A description of surveillance methods is available at: <http://www.cdc.gov/flu/weekly/fluactivity.htm>

Report prepared: March 27, 2009.