

**2008-2009 Influenza Season**  
**Week 51 ending December 20, 2008**

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

**Synopsis:** During week 51 (December 14-20, 2008), a low level of influenza activity was reported in the United States.

- One hundred three (3.4%) 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.
- The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels.
- Two states reported regional activity; six states reported local influenza activity; Puerto Rico and 36 states reported sporadic influenza activity; five states reported no influenza activity; and the District of Columbia and one state did not report.

**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>	Normal	3.4%	2 of 51	278	25	377	166	0
<b>New England</b>	Normal	0.3%	1 of 6	0	1	9	1	0
<b>Mid-Atlantic</b>	Normal	1.7%	1 of 3	15	3	11	5	0
<b>East North Central</b>	Normal	5.7%	0 of 5	12	2	5	6	0
<b>West North Central</b>	Normal	0.6%	0 of 7	6	0	13	7	0
<b>South Atlantic</b>	Normal	3.0%	0 of 9	16	0	91	62	0
<b>East South Central</b>	Normal	1.0%	0 of 4	1	0	0	2	0
<b>West South Central</b>	Normal	5.8%	0 of 4	49	0	145	61	0
<b>Mountain</b>	Normal	3.0%	0 of 8	8	13	27	6	0
<b>Pacific</b>	Normal	4.6%	0 of 5	171	6	76	16	0

\* 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

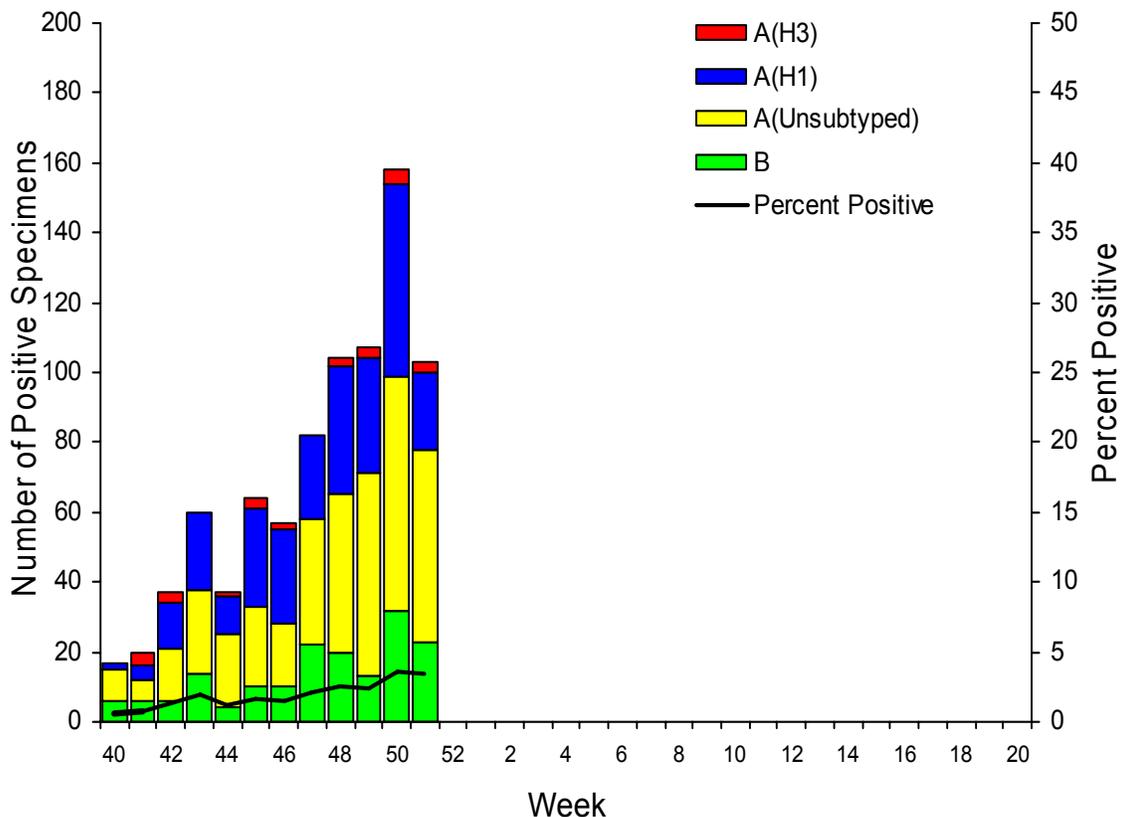
‡ Includes all 50 states and the District of Columbia

**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. Results of these tests performed during the current week and cumulative totals for the season are summarized in the table below.

	<b>Week 51</b>	<b>Cumulative for the Season</b>
<b>No. of specimens tested</b>	3,035	41,794
<b>No. of positive specimens (%)</b>	103 (3.4%)	846 (2.0%)
<b>Positive specimens by type/subtype</b>		
<b>Influenza A</b>	80 (77.7%)	680 (80.4%)
<b>    A (H1)</b>	22 (27.5%)	278 (40.9%)
<b>    A (H3)</b>	3 (3.8%)	25 (3.7%)
<b>    A (unsubtyped)</b>	55 (68.8%)	377 (55.4%)
<b>Influenza B</b>	23 (22.3%)	166 (19.6%)

Thirty-nine states from all nine surveillance regions have reported laboratory-confirmed influenza this season with three states accounting for 635 (75.1%) of the 846 reported influenza viruses.

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



**Antigenic Characterization:** CDC has antigenically characterized 85 influenza viruses [49 influenza A (H1), seven influenza A (H3) and 29 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All 49 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All seven influenza A (H3) viruses are related to the influenza 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. Nine influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 20 viruses belong to the B/Victoria lineage and are not related to the vaccine strain. Seventeen of the 20 viruses belonging to the B/Victoria lineage were from two states.

Data on antigenic characterization should be interpreted with caution given that:

1. Few U.S. isolates are available for testing because of limited influenza activity thus far.
2. The majority of viruses antigenically characterized to date come from only two states and may not be nationally representative.
3. 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, 65 influenza A (H1N1), 10 influenza A (H3N2), and 29 influenza B viruses from 18 states have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir); however, 62% of the viruses tested were from only two states. Fifty influenza A (H1N1) and eight influenza A (H3N2) viruses from 14 states have been tested for resistance to the adamantanes (amantadine and rimantadine); however, 60% of the viruses tested were from only two states. 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		
<b>Influenza A (H1N1)</b>	65	64 (99%)	0 (0)	50	0 (0%)
<b>Influenza A (H3N2)</b>	10	0 (0)	0 (0)	8	8 (100%)
<b>Influenza B</b>	29	0 (0)	0 (0)	N/A*	N/A*

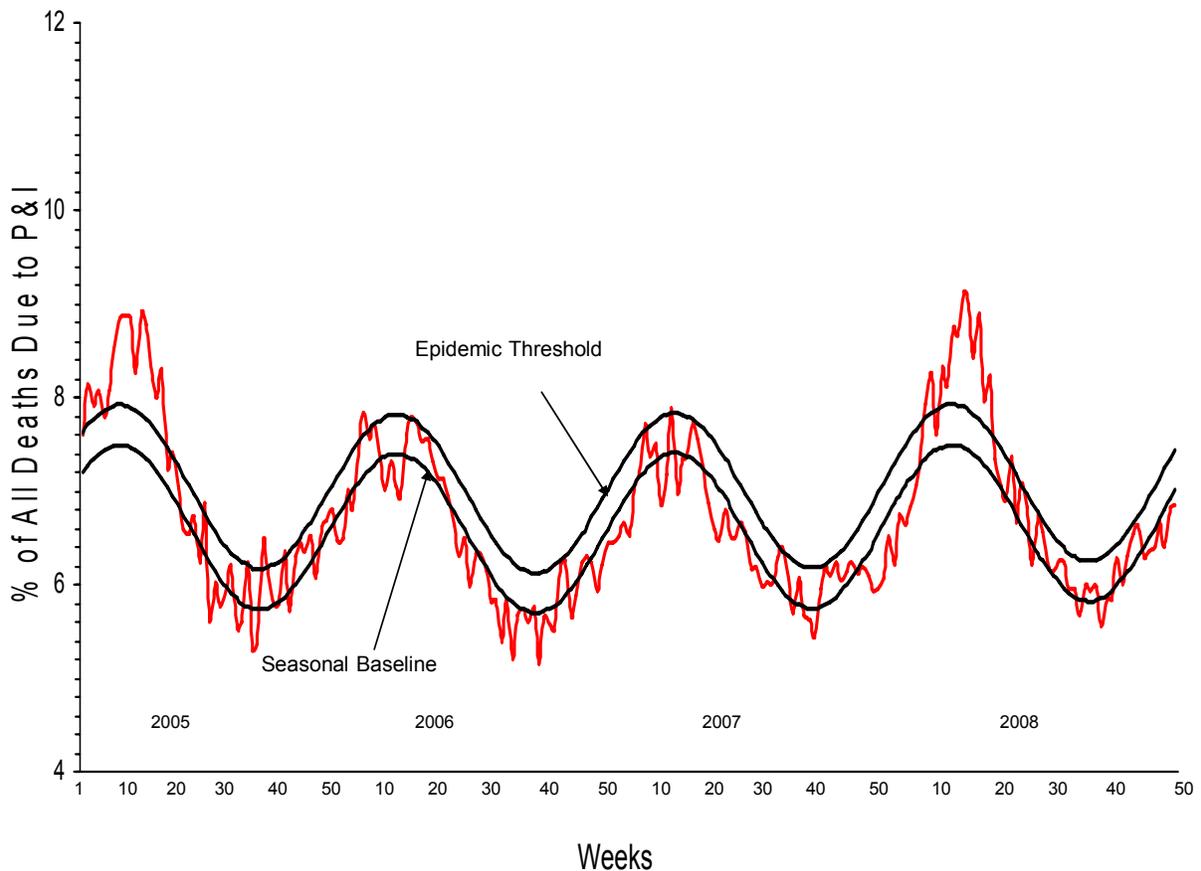
\*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

With low levels of influenza activity thus far in the 2008-09 season in the United States, overall numbers of virus specimens and the number of states that have submitted specimens for testing is limited. The limited number and geographic diversity of specimens tested for antiviral resistance,

as well as the uncertainty regarding which influenza virus types or subtypes will predominate during the season, make it too early to make an accurate determination of the prevalence of influenza viruses resistant to oseltamivir nationally or regionally at this time. CDC has solicited a representative sample of viruses from WHO collaborating laboratories in the United States, and more specimens are expected as influenza activity increases.

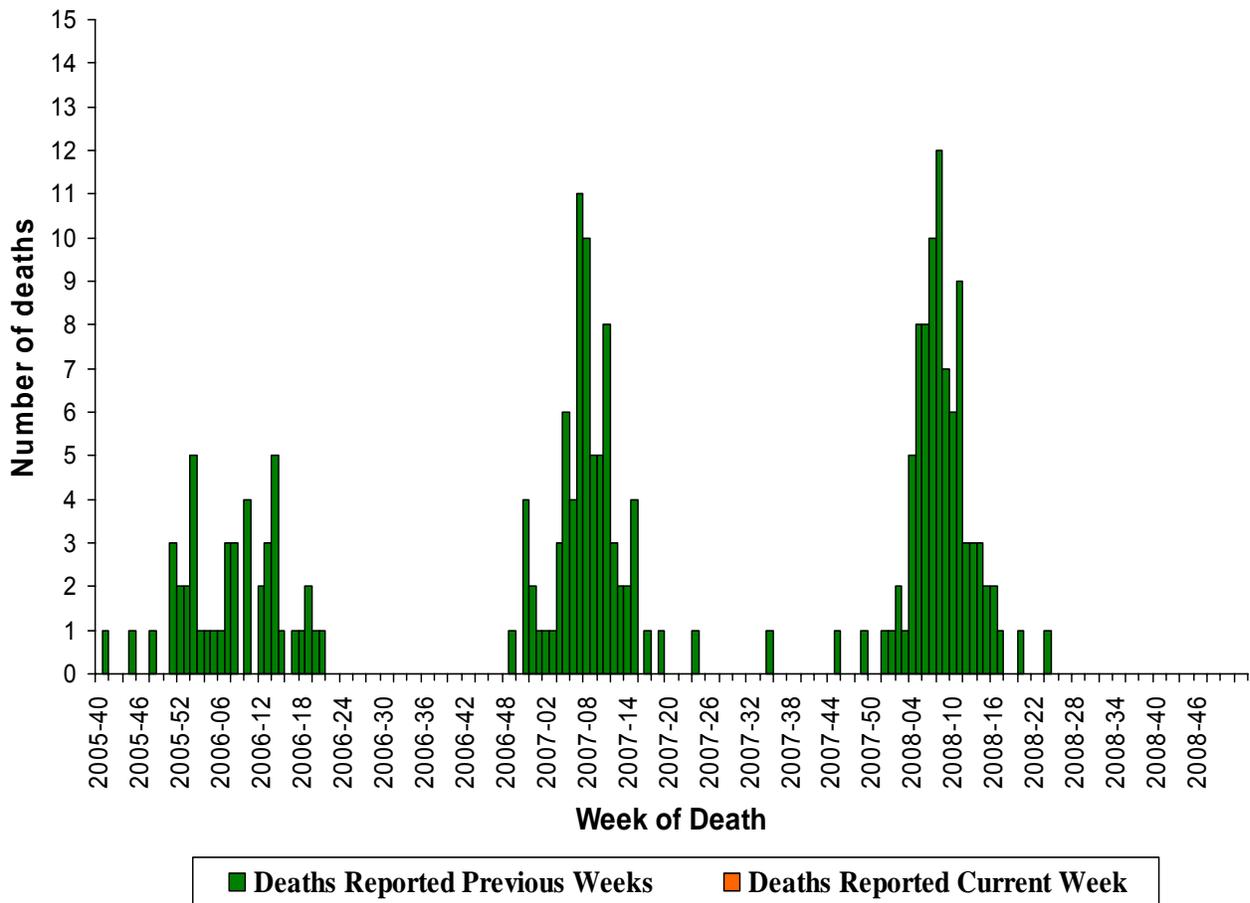
**Pneumonia and Influenza (P&I) Mortality Surveillance:** During week 51, 6.9% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage is below the epidemic threshold of 7.4% for week 51.

Pneumonia and Influenza Mortality for 122 U.S. Cities  
Week ending 12/20/2008



**Influenza-Associated Pediatric Mortality:** No influenza-associated pediatric deaths were reported during week 51. The pediatric death that was reported during week 50 was later reclassified by the state to not be due to influenza. No influenza-associated pediatric deaths have been reported during the 2008-09 season.

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

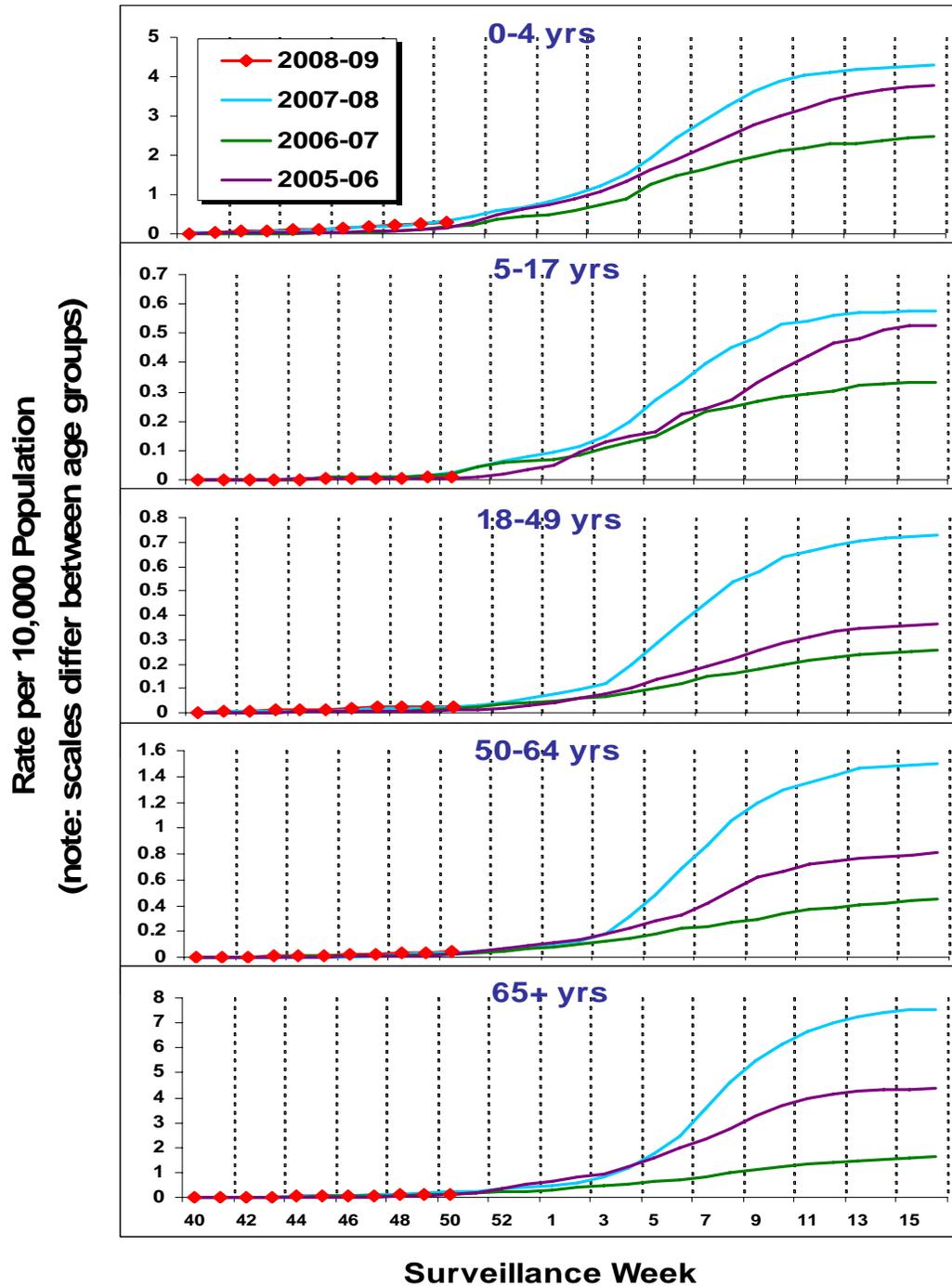


**Influenza-Associated Hospitalizations:** Laboratory-confirmed influenza-associated hospitalizations are monitored in two population-based surveillance networks: the Emerging Infections Program (EIP) and the New Vaccine Surveillance Network (NVSN).

No influenza-associated hospitalizations have been reported from the New Vaccine Surveillance Network this season.

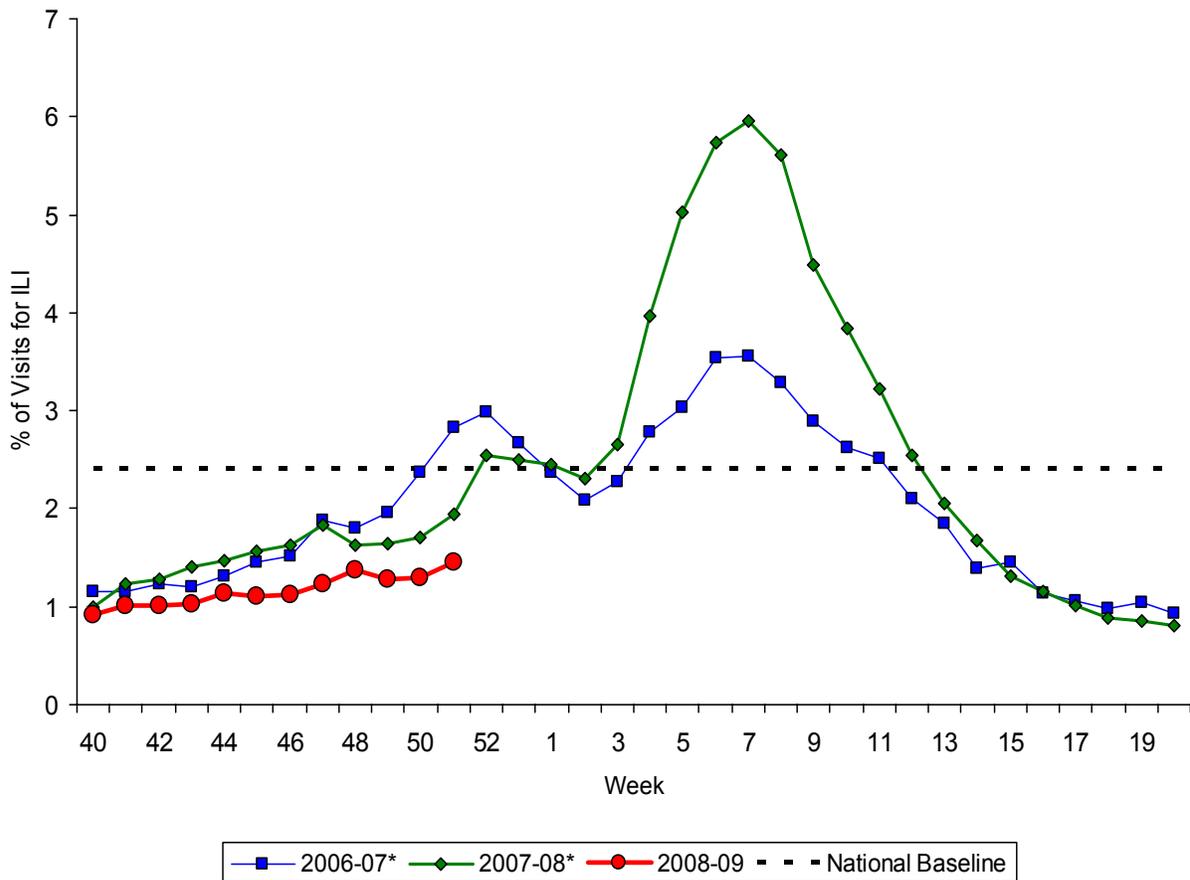
During October 1 – December 20, 2008, preliminary laboratory-confirmed influenza-associated hospitalization rates reported by the EIP for children aged 0-4 years and 5-17 years were 0.3 per 10,000 and 0.01 per 10,000, respectively. For adults aged 18-49 years, 50-64 years, and  $\geq 65$  years, the rates were 0.03 per 10,000, 0.04 per 10,000, and 0.1 per 10,000, respectively.

### EIP Influenza Laboratory-Confirmed Cumulative Hospitalization Rates, 2008-09 and Previous 3 Seasons



**Outpatient Illness Surveillance:** During week 51, 1.5% 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 less than the national baseline of 2.4%. On a regional level, the percentage of visits for ILI ranged from 0.6% to 2.5%. All nine surveillance regions reported percentages of visits for ILI below their respective region-specific baselines.

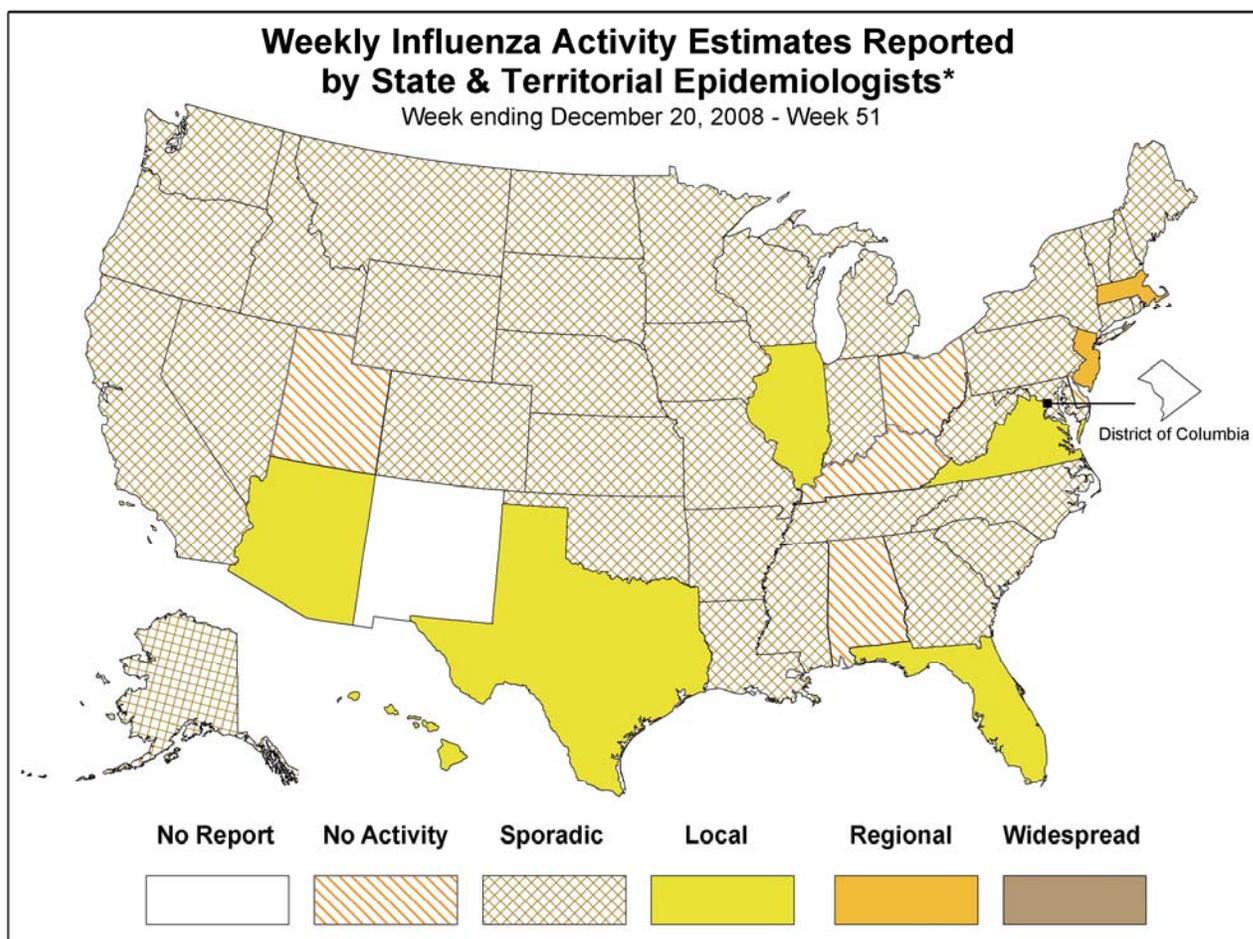
Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary, 2008-09 and Previous Two Seasons



\*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.

**Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists:** During week 51 the following influenza activity was reported:

- Regional influenza activity was reported by two states (New Jersey and Massachusetts).
- Local influenza activity was reported by six states (Arizona, Florida, Hawaii, Illinois, Texas, and Virginia).
- Sporadic activity was reported in the Puerto Rico and 36 states (Alaska, Arkansas, California, Colorado, Connecticut, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Washington, West Virginia, Wisconsin, and Wyoming).
- No influenza activity was reported in five states (Alabama, Delaware, Kentucky, Ohio, and Utah)
- The District of Columbia and one state (New Mexico) did not report.



\* 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: December 29, 2008.