

2008-2009 Influenza Season
Week 50 ending December 13, 2008

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

Synopsis: During week 50 (December 7-13, 2008), a low level of influenza activity was reported in the United States.

- o One hundred three (3.5%) 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.
- o The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold.
- o One pediatric influenza-associated death was reported.
- o The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. The Mountain region reported ILI above their region-specific baseline.
- o Three states reported local influenza activity; the District of Columbia, Puerto Rico and 36 states reported sporadic influenza activity; and 11 states reported no 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
Nation	Normal	3.5%	0 of 51	196	21	289	132	1
New England	Normal	0.7%	0 of 6	0	1	8	1	0
Mid-Atlantic	Normal	1.1%	0 of 3	11	0	4	3	0
East North Central	Normal	6.5%	0 of 5	12	2	4	6	0
West North Central	Normal	0.4%	0 of 7	4	0	7	5	0
South Atlantic	Normal	2.2%	0 of 9	9	0	75	47	1
East South Central	Normal	0.4%	0 of 4	0	0	0	1	0
West South Central	Normal	4.9%	0 of 4	32	0	107	52	0
Mountain	Elevated	3.3%	0 of 8	6	12	22	6	0
Pacific	Normal	3.8%	0 of 5	122	6	62	11	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

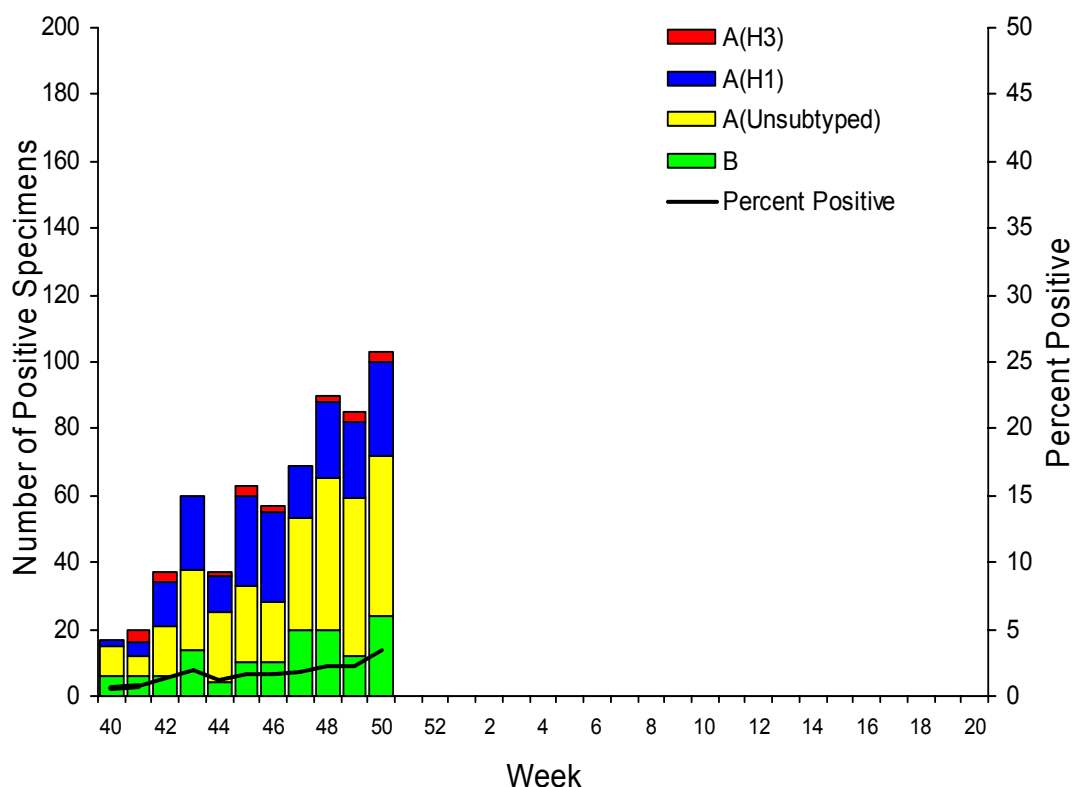
‡ Includes all 50 states and the District of Columbia

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.

	Week 50	Cumulative for the Season
No. of specimens tested	2,949	36,361
No. of positive specimens (%)	103 (3.5%)	638 (1.8%)
<i>Positive specimens by type/subtype</i>		
Influenza A	79 (76.7%)	506 (79.3%)
A (H1)	28 (35.4%)	196 (38.7%)
A (H3)	3 (3.8%)	21 (4.2%)
A (unsubtyped)	48 (60.8%)	289 (57.1%)
Influenza B	24 (23.3%)	132 (20.7%)

Thirty-five states from all nine surveillance regions have reported laboratory-confirmed influenza this season with three states accounting for 483 (75.7%) of the 638 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 69 influenza viruses [49 influenza A (H1), seven influenza A (H3) and 13 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All influenza A (H1) viruses were characterized as A/Brisbane/59/2007-like, the influenza A (H1N1) component included in the 2008-09 influenza vaccine, and five of the seven influenza A (H3) viruses were characterized as A/Brisbane/10/2007-like, the influenza A (H3N2) components included in the 2008-09 influenza vaccine.

Influenza B viruses currently circulating can be divided into two antigenically distinct lineages represented by the B/Yamagata/16/88 and B/Victoria/02/87 viruses. Four influenza B viruses were characterized as B/Florida/04/2006-like, belonging to the B/Yamagata lineage, the influenza B component of the 2008-09 influenza vaccine. The remaining nine viruses belong to the B/Victoria lineage. Eight of the nine viruses belonging to the B/Victoria lineage were from one state.

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 which are most similar to the vaccine strains, but can also provide at least partial protection against strains that are related, but antigenically distinct from vaccine strains. 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, 50 influenza A (H1N1), eight influenza A (H3N2), and 20 influenza B viruses from 15 states have been tested for resistance to the two groups of influenza antiviral drugs: neuraminidase inhibitors (oseltamivir and zanamivir) and the adamantanes (amantadine and rimantadine); however, 55% 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.

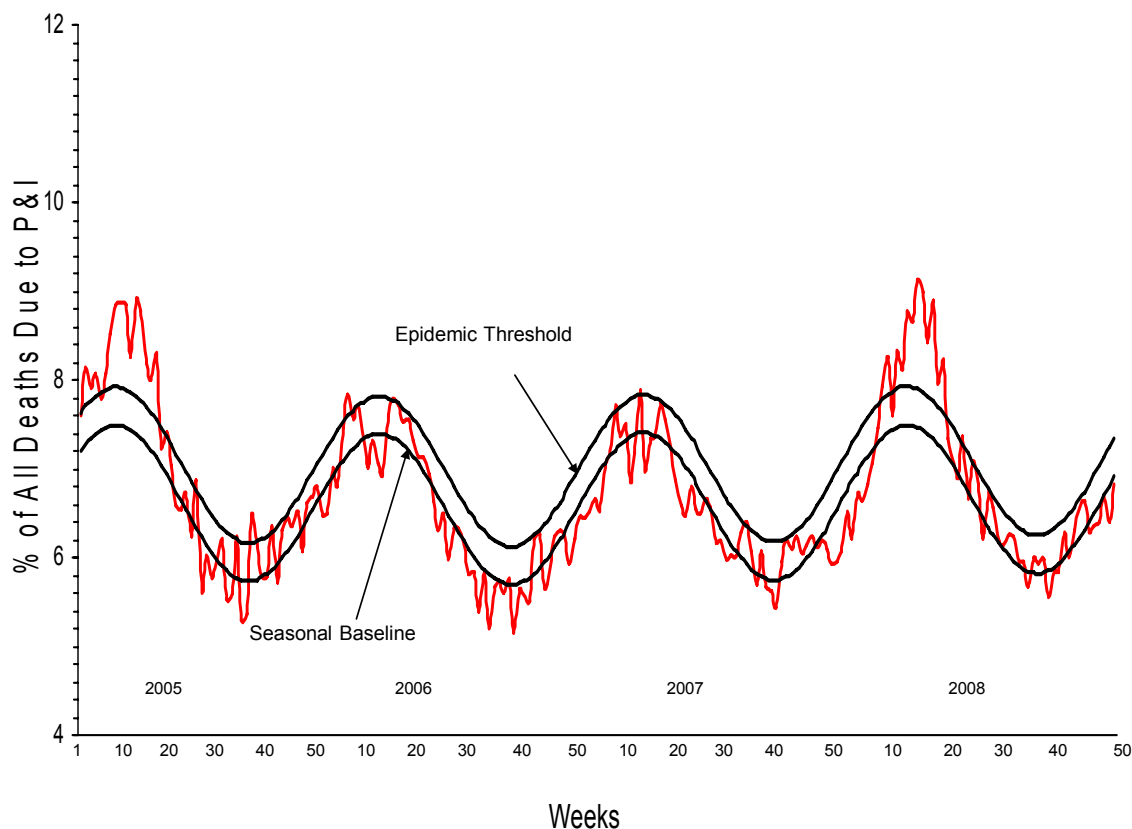
	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		Adamantanes
Influenza A (H1N1)	50	49 (98%)	0 (0)	50	0 (0%)
Influenza A (H3N2)	8	0 (0)	0 (0)	8	8 (100%)
Influenza B	20	0 (0)	0 (0)	N/A*	N/A*

*The adamantanes 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 data on 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 or the adamantanes (amantadine and rimantadine) 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.

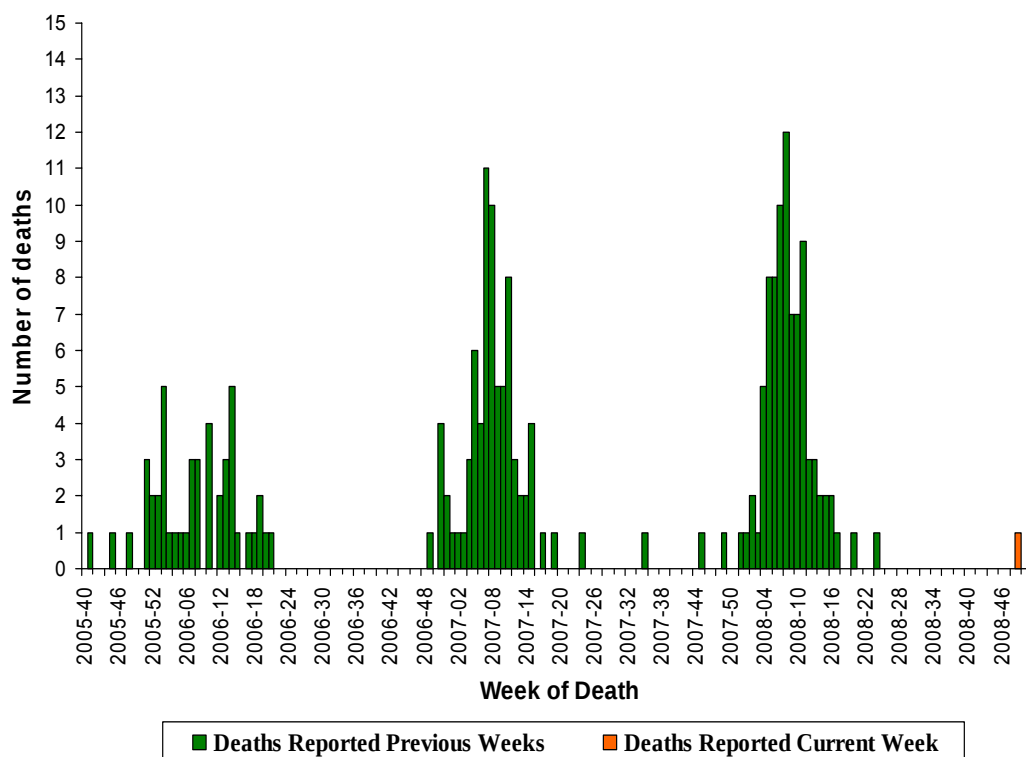
Pneumonia and Influenza (P&I) Mortality Surveillance: During week 50, 6.8% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage is below the epidemic threshold of 7.3% for week 50.

Pneumonia and Influenza Mortality for 122 U.S. Cities Week ending 12/13/2008



Influenza-Associated Pediatric Mortality: One influenza-associated pediatric death was reported to CDC from Florida during week 50. This death occurred during week 49 (the week ending December 6, 2008). This was the first reported influenza-associated pediatric death that occurred during the current season.

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

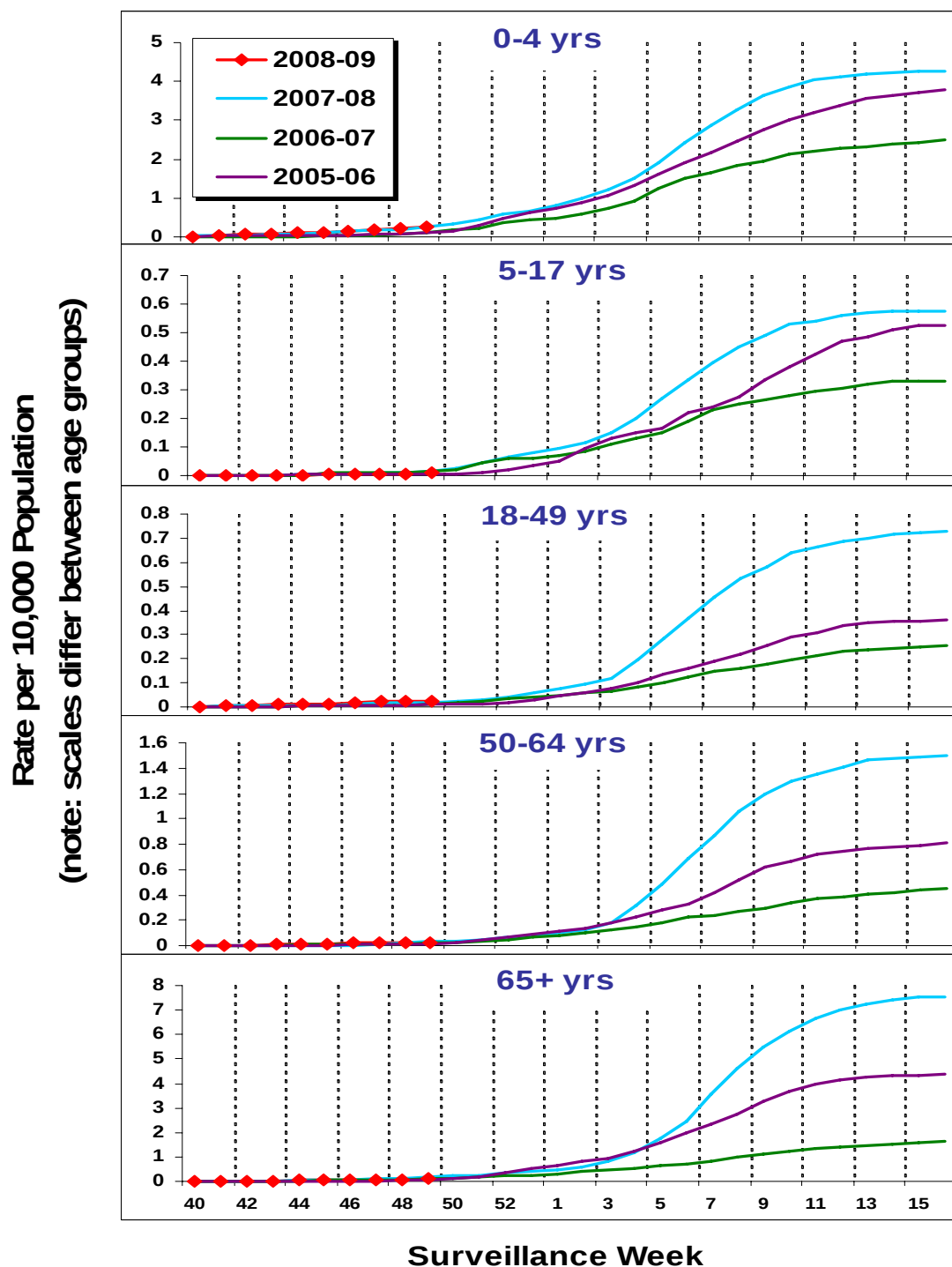


Influenza-Associated Hospitalizations: Laboratory-confirmed influenza-associated hospitalizations are monitored in two population-based surveillance networks: the Emerging Infections Program (EIP) and the New Vaccine Surveillance Network (NVSN).

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

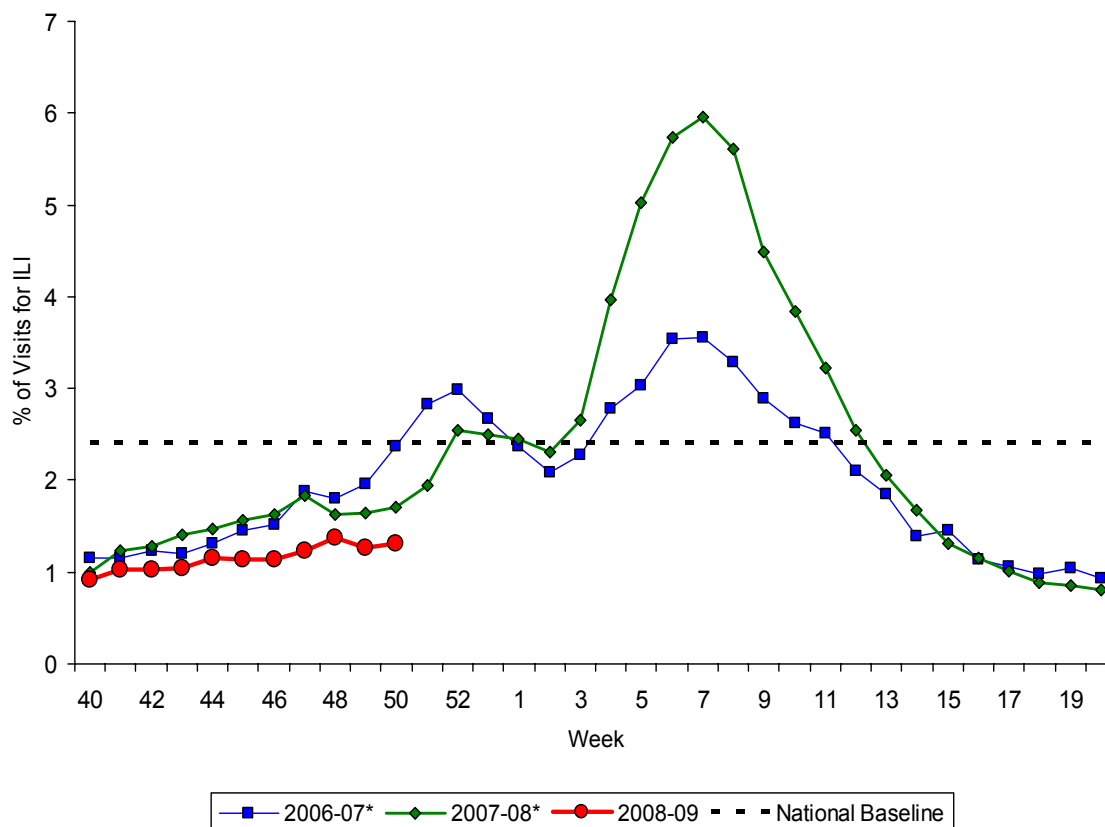
During October 1 – December 6, 2008, preliminary laboratory-confirmed influenza-associated hospitalization rates reported by the EIP for children aged 0-4 years and 5-17 years were 0.24 per 10,000 and 0.01 per 10,000, respectively. For adults aged 18-49 years, 50-64 years, and ≥ 65 years, the rates were 0.02 per 10,000, 0.03 per 10,000, and 0.09 per 10,000, respectively.

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



Outpatient Illness Surveillance: During week 50, 1.3% 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 0.4% to 2.2%. One region (Mountain) reported 1.6% of outpatient visits for ILI, which is above their region-specific baseline of 1.5%, while the remaining eight regions reported percentages of visits for ILI below region-specific baseline levels.

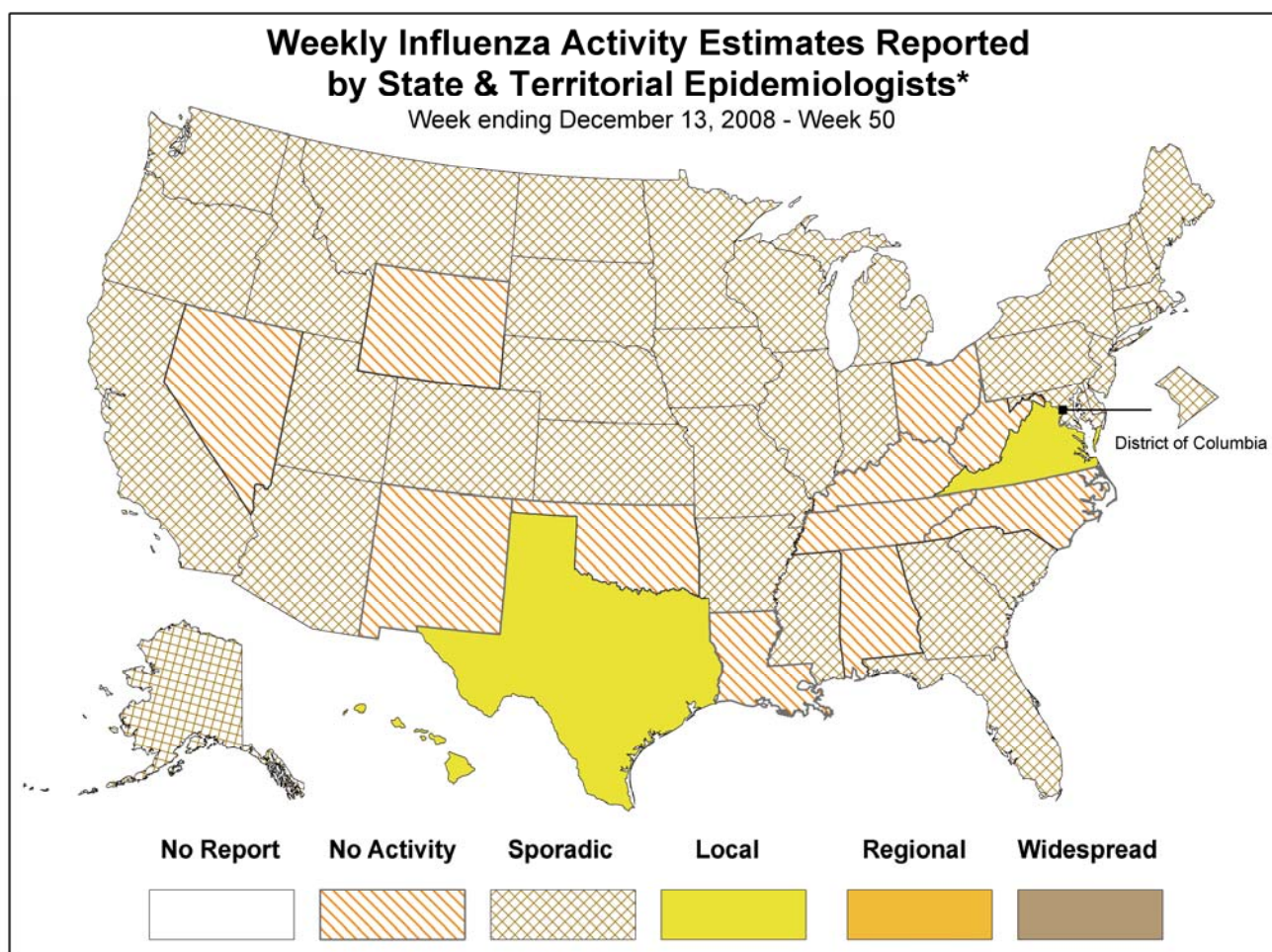
Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary, 2008-09 and Previous Two Seasons



*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 50 the following influenza activity was reported:

- Local influenza activity was reported by three states (Hawaii, Texas, and Virginia).
- Sporadic activity was reported in the District of Columbia, Puerto Rico, and 36 states (Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Washington, and Wisconsin).
- No influenza activity was reported in 11 states (Alabama, Kentucky, Louisiana, Nevada, New Mexico, North Carolina, Ohio, Oklahoma, Tennessee, West Virginia, and Wyoming).



* 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>

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