

2008-2009 Influenza Season
Week 4 ending January 31, 2009

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

Synopsis: During week 4 (January 25-31, 2009), influenza activity continued to increase in the United States.

- Seven hundred ninety-two (16.2%) 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.
- One influenza-associated pediatric death was reported.
- The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. ILI increased in eight of the nine regions compared to week 3, and the East North Central, East South Central, New England, and West South Central regions reported ILI at or above their region-specific baselines.
- Five states reported widespread influenza activity, 21 states reported regional activity; the District of Columbia and 13 states reported local influenza activity; and Puerto Rico and 11 states 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
Nation	Normal	16.2%	26 of 51	1,135	170	2,336	695	3
New England	Elevated	15.0%	5 of 6	69	15	139	31	0
Mid-Atlantic	Normal	8.8%	3 of 3	84	13	169	36	1
East North Central	Elevated	24.1%	2 of 5	139	32	33	37	0
West North Central	Normal	7.1%	1 of 7	77	7	117	19	0
South Atlantic	Normal	11.5%	7 of 9	163	25	337	175	0
East South Central	Elevated	7.8%	2 of 4	13	3	0	10	0
West South Central	Elevated	22.6%	1 of 4	183	9	1,199	335	1
Mountain	Normal	13.6%	4 of 8	98	48	204	23	1
Pacific	Normal	5.0%	1 of 5	309	18	138	29	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

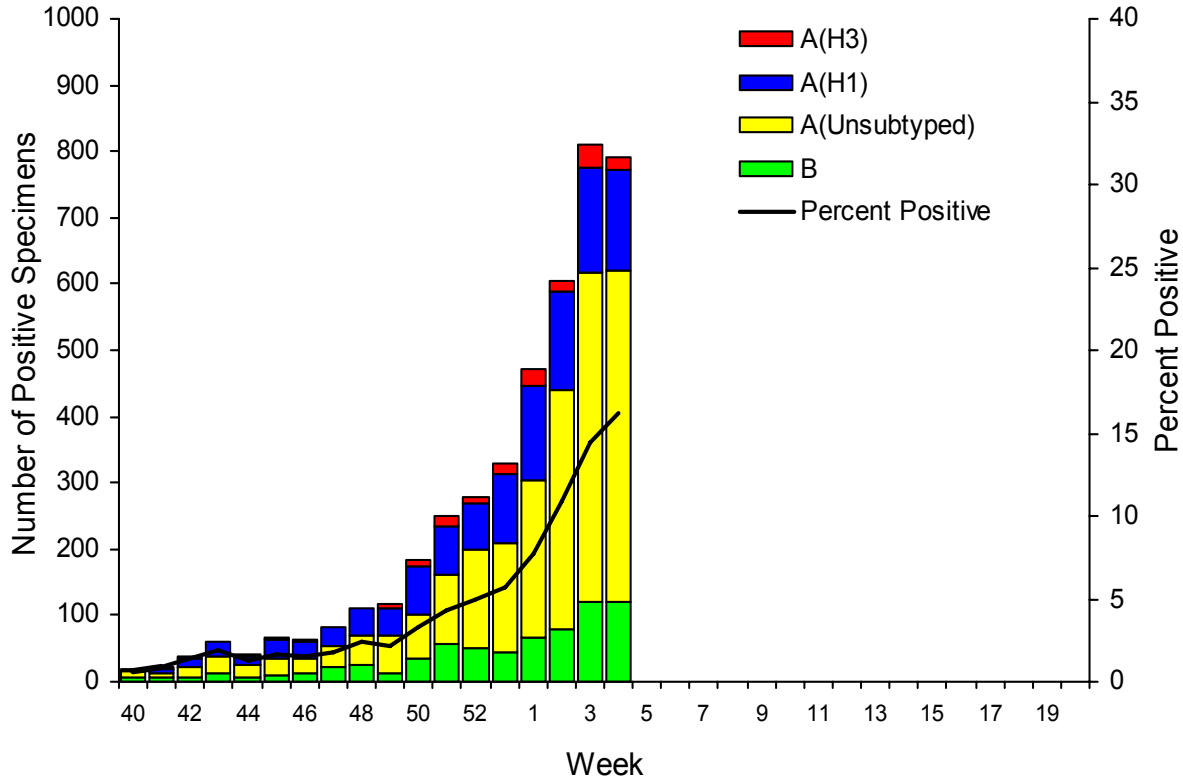
‡ Includes all 50 states and the District of Columbia

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. The results of tests performed during the current week and cumulative totals for the season are summarized in the table below.

	Week 4	Cumulative for the Season
No. of specimens tested	4,895	81,842
No. of positive specimens (%)	792 (16.2%)	4,336 (5.3%)
Positive specimens by type/subtype		
Influenza A	673 (85.0%)	3,641 (84.0%)
A (H1)	151 (22.4%)	1,135 (31.2%)
A (H3)	20 (3.0%)	170 (4.7%)
A (unsubtyped)	502 (74.6%)	2,336 (64.2%)
Influenza B	119 (15.0%)	695 (16.0%)

The District of Columbia and 46 states from all nine surveillance regions have reported laboratory-confirmed influenza this season.

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



Antigenic Characterization: CDC has antigenically characterized 255 influenza viruses [142 influenza A (H1), 35 influenza A (H3) and 78 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All 142 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 35 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. Twenty-three influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 55 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, 190 influenza A (H1N1), 41 influenza A (H3N2), and 77 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). One hundred ninety influenza A (H1N1) and 41 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
Influenza A (H1N1)	190	185 (97.4%)	0 (0)	190	2 (1.1%)
Influenza A (H3N2)	41	0 (0)	0 (0)	41	41 (100%)
Influenza B	77	0 (0)	0 (0)	N/A*	N/A*

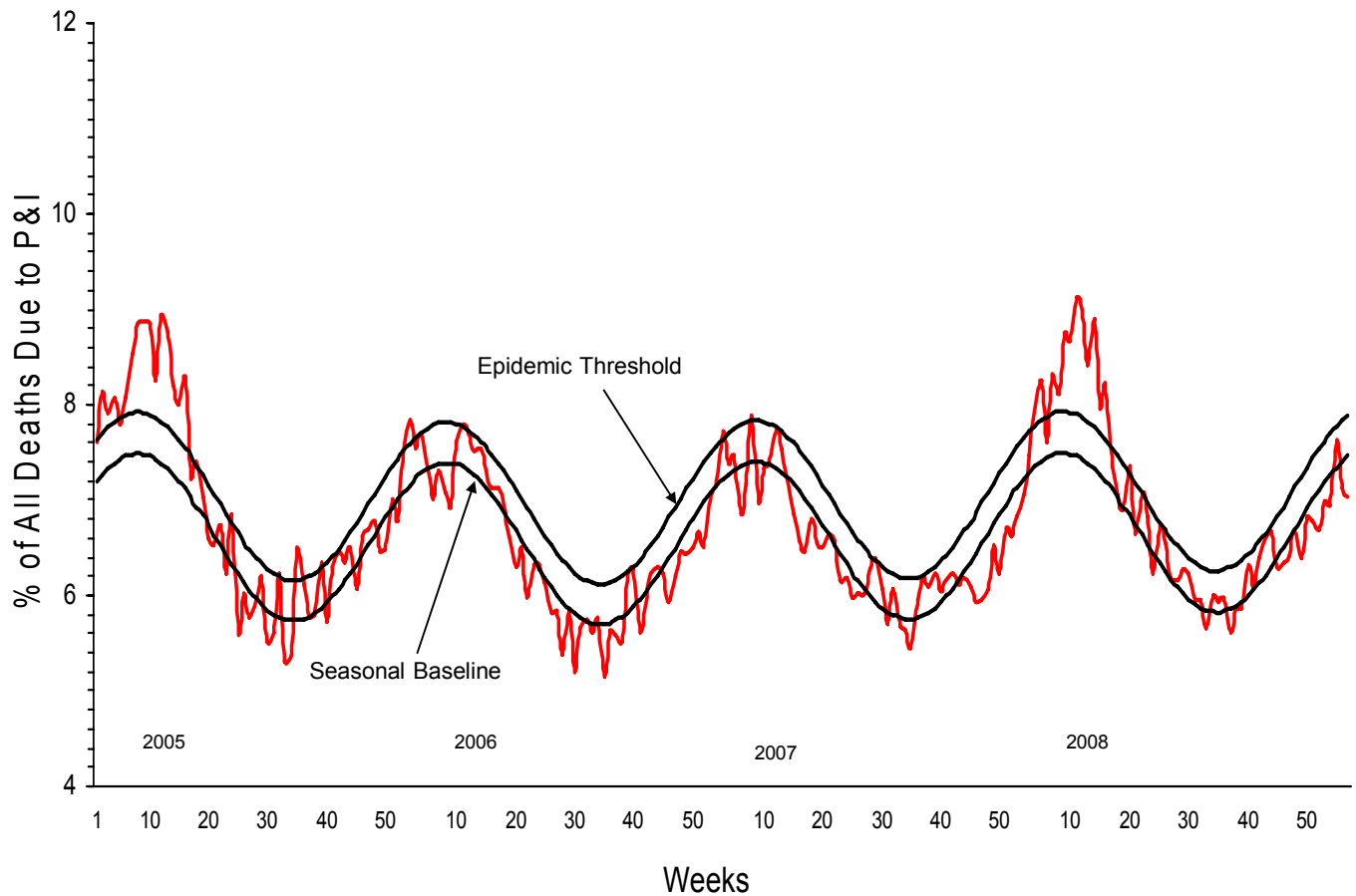
*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

Influenza A (H1N1) viruses from 30 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. Influenza activity in the United States, although increasing, remains relatively low with influenza A (H1N1) viruses predominating overall. However, the level of activity and the relative proportion of circulating virus type or subtype has varied by region and may vary over the course of the season. This presents challenges for the selection of antiviral medications for the treatment and chemoprophylaxis of influenza and highlights the importance of testing patients for influenza and consulting local surveillance data when evaluating patients with acute respiratory infections during

the 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>.

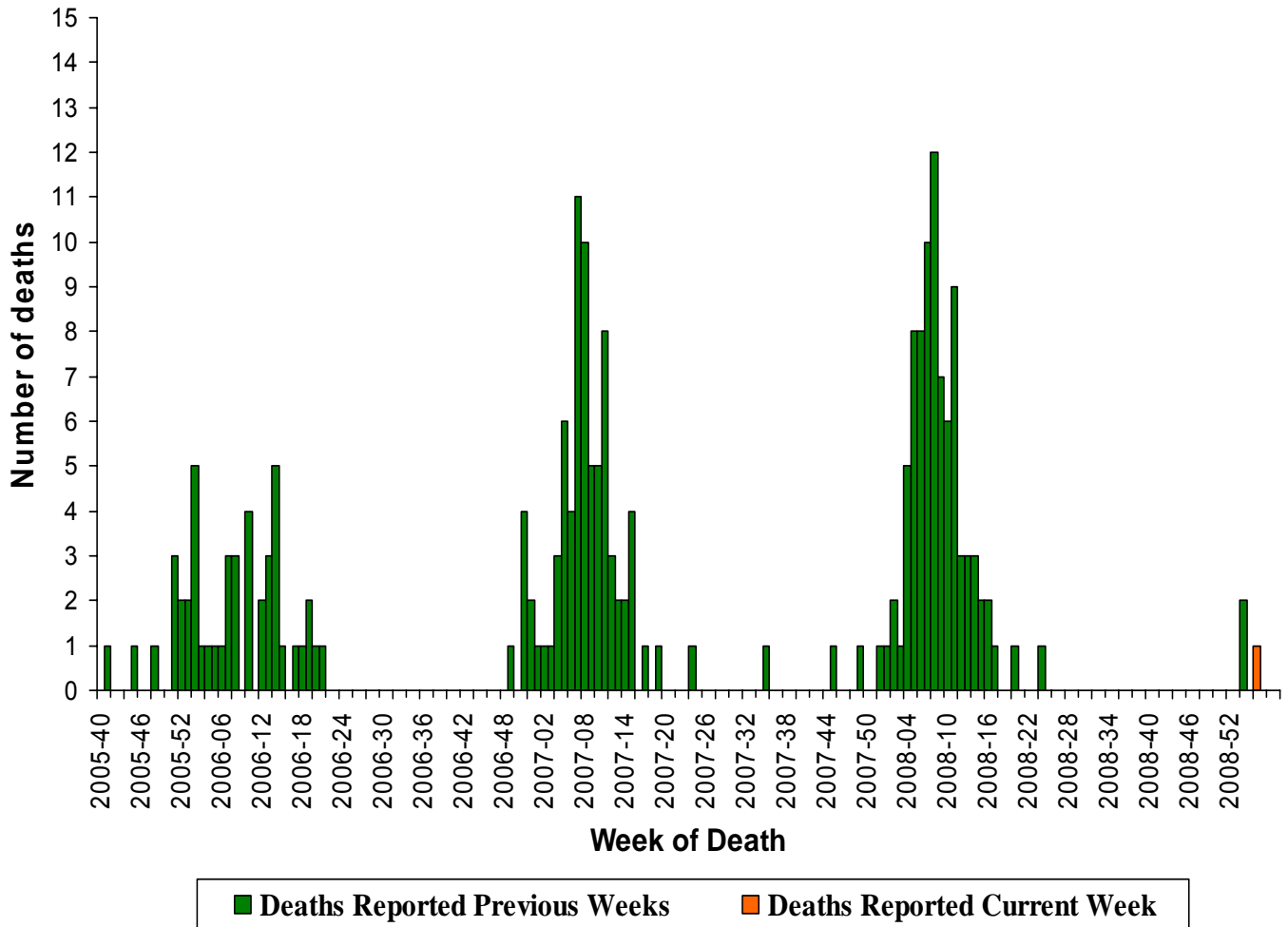
Pneumonia and Influenza (P&I) Mortality Surveillance: During week 4, 7.0% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage is below the epidemic threshold of 7.9% for week 4.

Pneumonia and Influenza Mortality for 122 U.S. Cities Week ending 01/31/2009



Influenza-Associated Pediatric Mortality: One influenza-associated pediatric death was reported to CDC during week 4 (New York City). This death occurred during week 3 (the week ending January 24, 2009). Since September 28, 2008, CDC has received three reports of influenza-associated pediatric deaths that occurred during the current season.

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

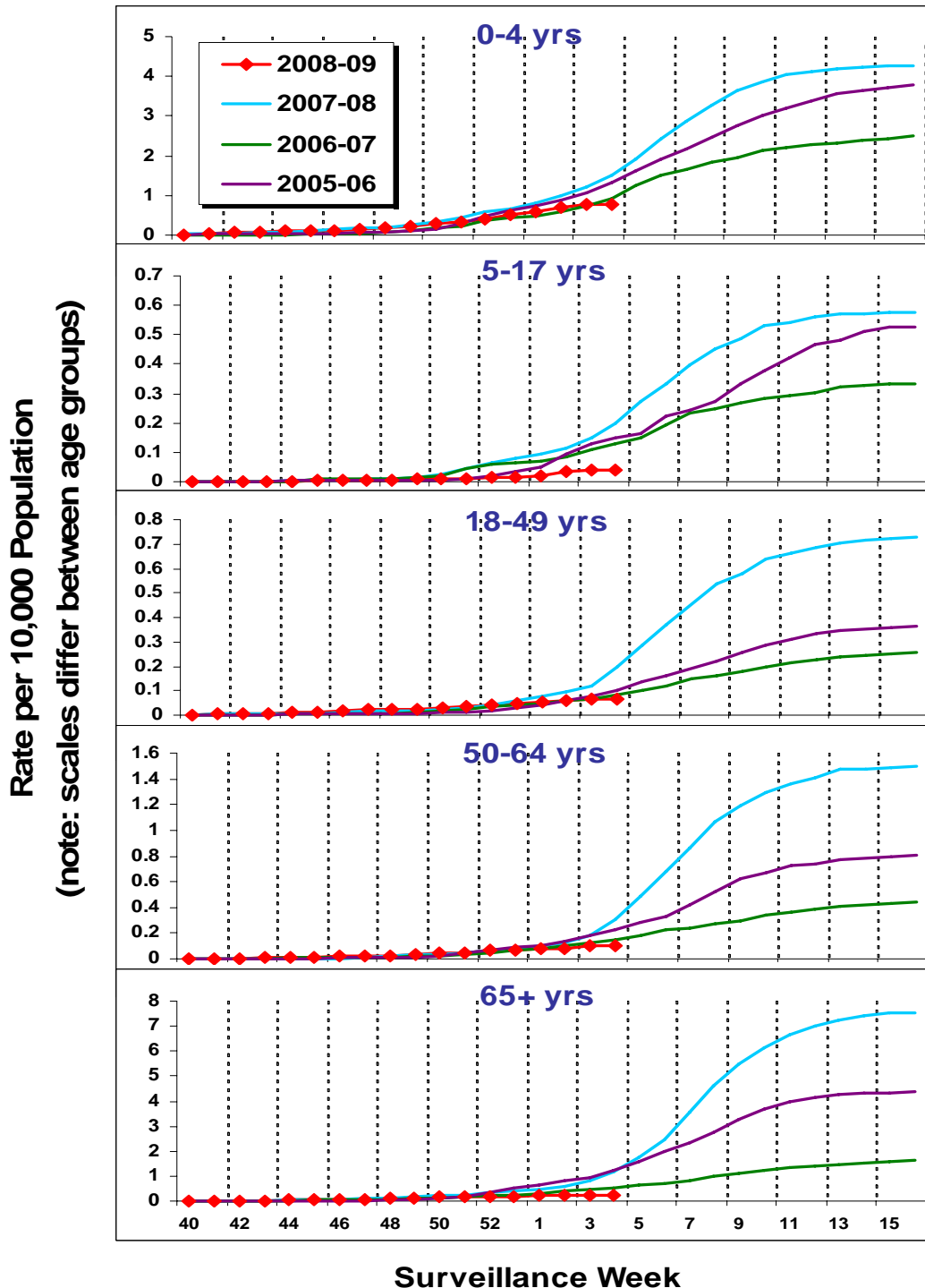


Influenza-Associated Hospitalizations: Laboratory-confirmed influenza-associated hospitalizations are monitored in two population-based surveillance networks: the Emerging Infections Program (EIP) and the New Vaccine Surveillance Network (NVSN).

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

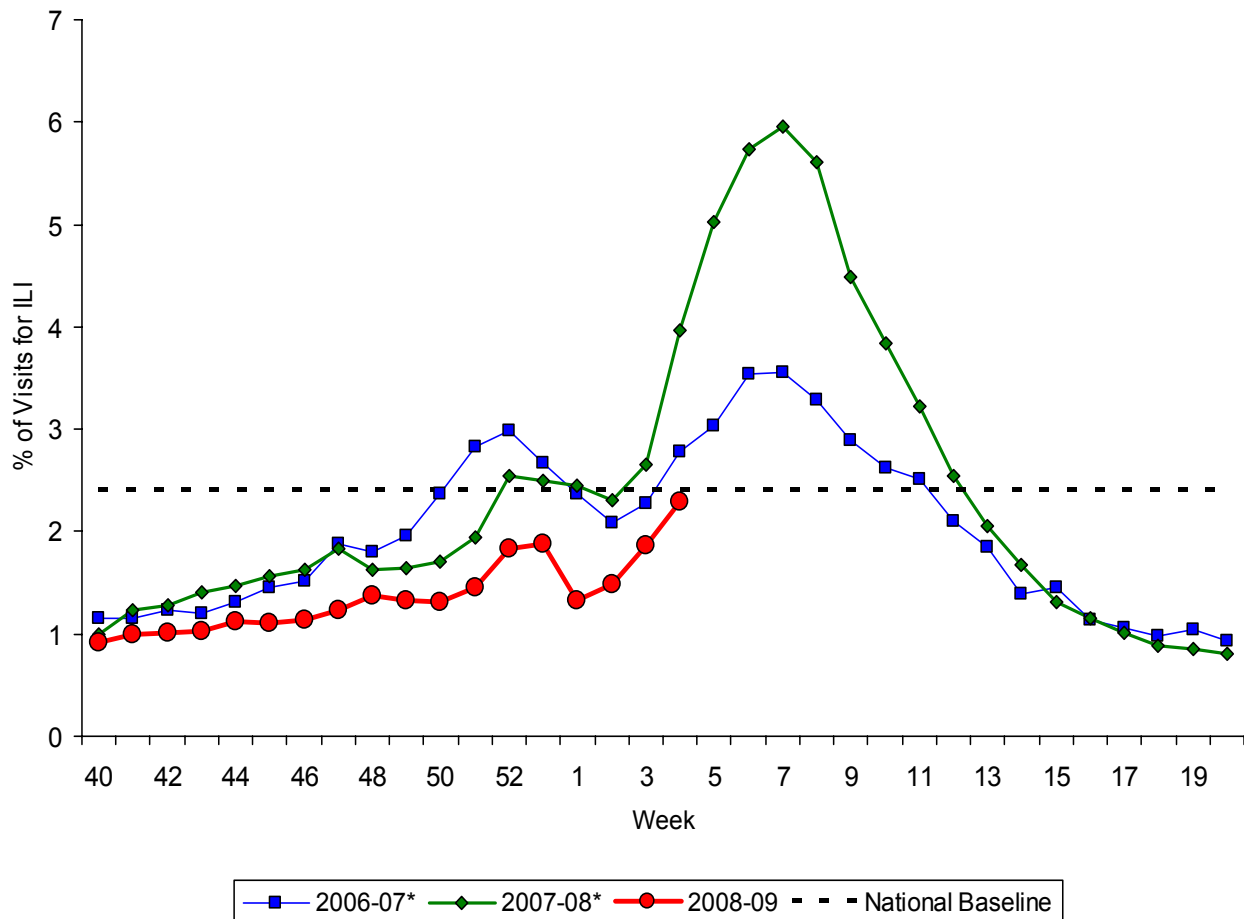
During October 1, 2008 – January 31, 2009, preliminary laboratory-confirmed influenza-associated hospitalization rates reported by the EIP for children aged 0-4 years and 5-17 years were 0.8 per 10,000 and 0.04 per 10,000, respectively. For adults aged 18-49 years, 50-64 years, and ≥ 65 years, the rates were 0.07 per 10,000, 0.1 per 10,000, and 0.3 per 10,000, respectively.

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



Outpatient Illness Surveillance: During week 4, 2.3% 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 increased in eight of the nine regions compared to last week and ranged from 1.4% to 5.7%. The East North Central, East South Central, New England, and West South Central regions reported ILI at or above their region-specific baselines.

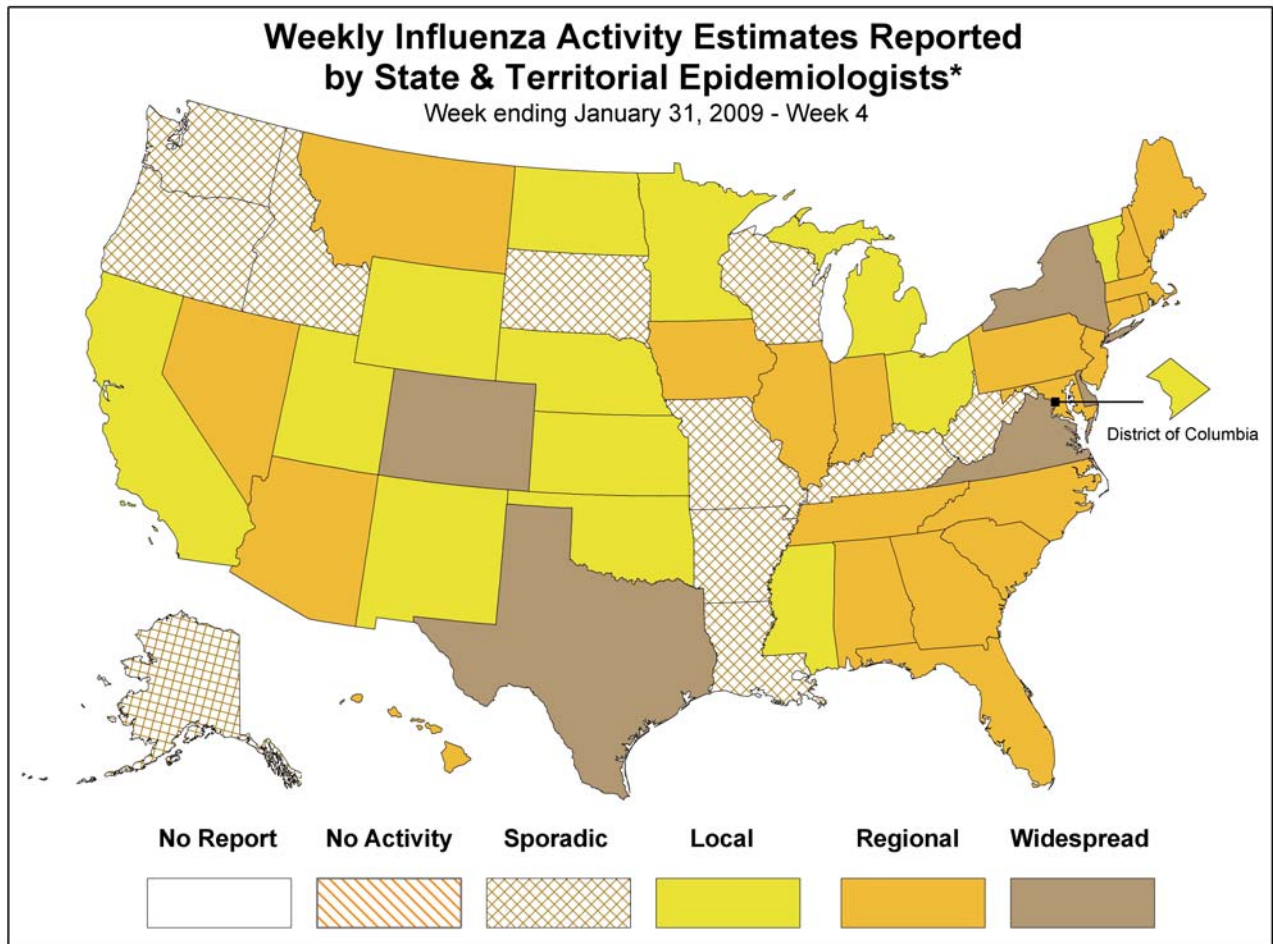
Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary, 2008-09 and Previous Two Seasons



*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 4, the following influenza activity was reported:

- Widespread influenza activity was reported by five states (Colorado, Delaware, New York, Texas, and Virginia).
- Regional influenza activity was reported by 21 states (Alabama, Arizona, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, North Carolina, Pennsylvania, Rhode Island, South Carolina, and Tennessee).
- Local influenza activity was reported by the District of Columbia 13 states (California, Kansas, Michigan, Minnesota, Mississippi, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, Utah, Vermont, and Wyoming).
- Sporadic activity was reported by Puerto Rico, and 11 states (Alaska, Arkansas, Idaho, Kentucky, Louisiana, Missouri, Oregon, South Dakota, Washington, West Virginia, and Wisconsin).



* 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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