

**2008-2009 Influenza Season
Week 5 ending February 7, 2009**

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

Synopsis: During week 5 (February 1-7, 2009), influenza activity continued to increase in the United States.

- One thousand one hundred fifty-four (20.6%) 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 above the national baseline. ILI increased in eight of the nine regions compared to the previous week, and the East North Central, East South Central, Mountain, New England, Pacific, South Atlantic, and West South Central regions reported ILI above their region-specific baselines.
- Sixteen states reported widespread influenza activity, 16 states reported regional activity; the District of Columbia and 14 states reported local influenza activity; and Puerto Rico and four 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	Elevated	20.6%	32 of 51	1,402	196	3,260	1,023	4
New England	Elevated	17.6%	5 of 6	70	15	241	51	0
Mid-Atlantic	Normal	14.2%	3 of 3	155	16	239	82	1
East North Central	Elevated	30.3%	3 of 5	206	36	36	53	0
West North Central	Normal	9.7%	3 of 7	81	7	197	28	0
South Atlantic	Elevated	14.4%	7 of 9	210	31	436	212	0
East South Central	Elevated	12.7%	3 of 4	40	5	6	18	1
West South Central	Elevated	28.5%	1 of 4	234	14	1,667	517	1
Mountain	Elevated	11.6%	5 of 8	75	49	280	25	1
Pacific	Elevated	5.8%	2 of 5	331	23	158	37	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

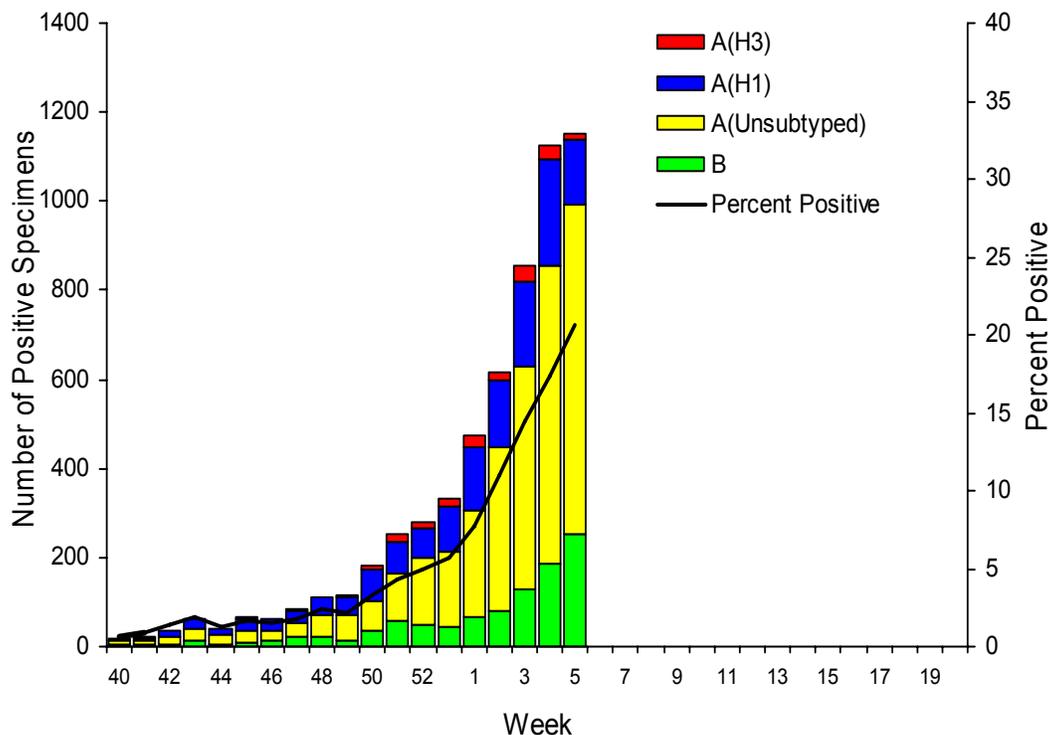
‡ Includes all 50 states and the District of Columbia

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 5	Cumulative for the Season
No. of specimens tested	5,596	89,576
No. of positive specimens (%)	1,154 (20.6%)	5,881 (6.6%)
Positive specimens by type/subtype		
Influenza A	901 (78.1%)	4,858 (82.6%)
 A (H1)	146 (16.2%)	1,402 (28.9%)
 A (H3)	14 (1.6%)	196 (4.0%)
 A (unsubtyped)	741 (82.2%)	3,260 (67.1%)
Influenza B	253 (21.9%)	1,023 (17.4%)

Since week 1 (the week ending January 10, 2009), when influenza activity began to increase nationally, influenza A (H1) viruses have predominated circulation nationally each week and for the season overall in all regions. Since week 1, 88% of subtyped influenza A viruses reported to CDC were influenza A (H1).

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



Antigenic Characterization: CDC has antigenically characterized 309 influenza viruses [194 influenza A (H1), 37 influenza A (H3) and 78 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All 194 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 37 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, 240 influenza A (H1N1), 49 influenza A (H3N2), and 105 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Two hundred forty influenza A (H1N1) and 49 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)	240	236 (98.3%)	0 (0)	240	2 (0.8%)
Influenza A (H3N2)	49	0 (0)	0 (0)	49	49 (100%)
Influenza B	105	0 (0)	0 (0)	N/A*	N/A*

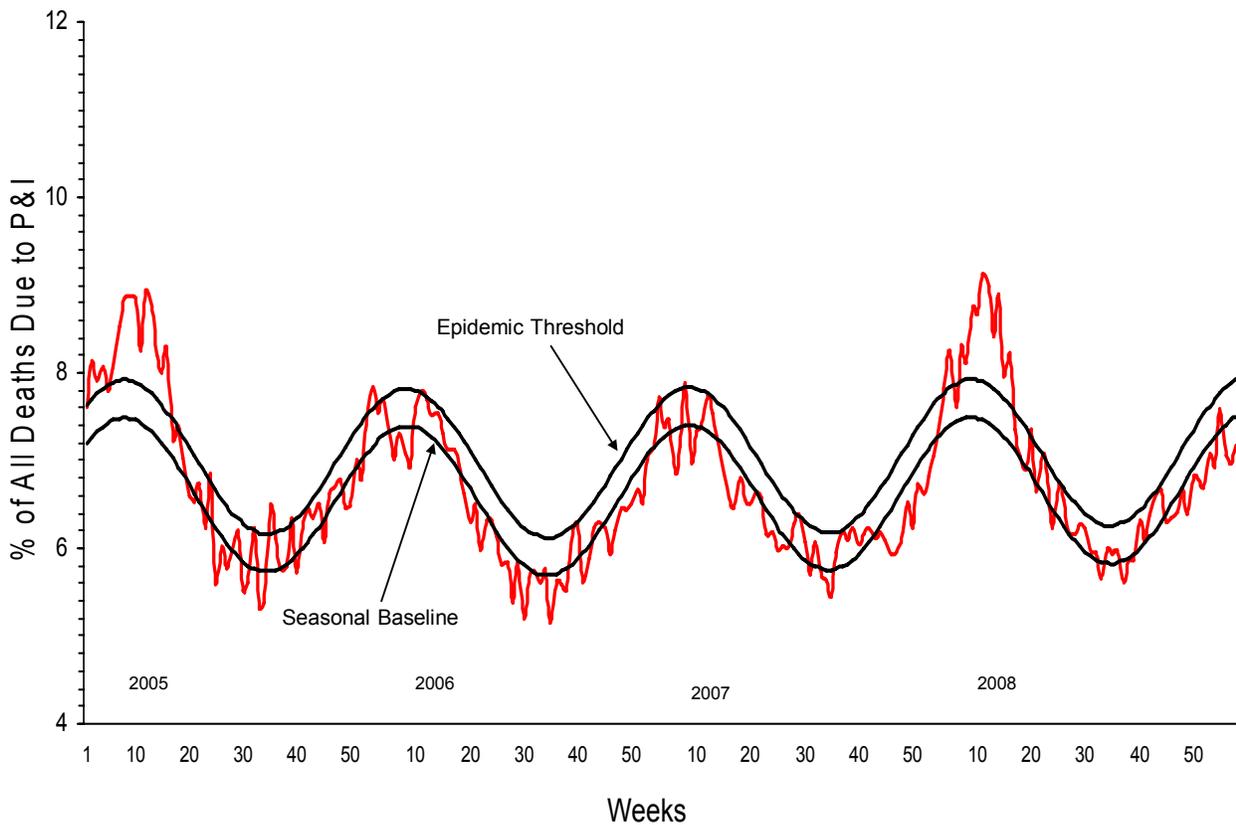
*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

Influenza A (H1N1) viruses from 33 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 increased this week with influenza A (H1N1) viruses predominating overall. However, the level of activity and the relative proportion of circulating virus types or subtypes have 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>.

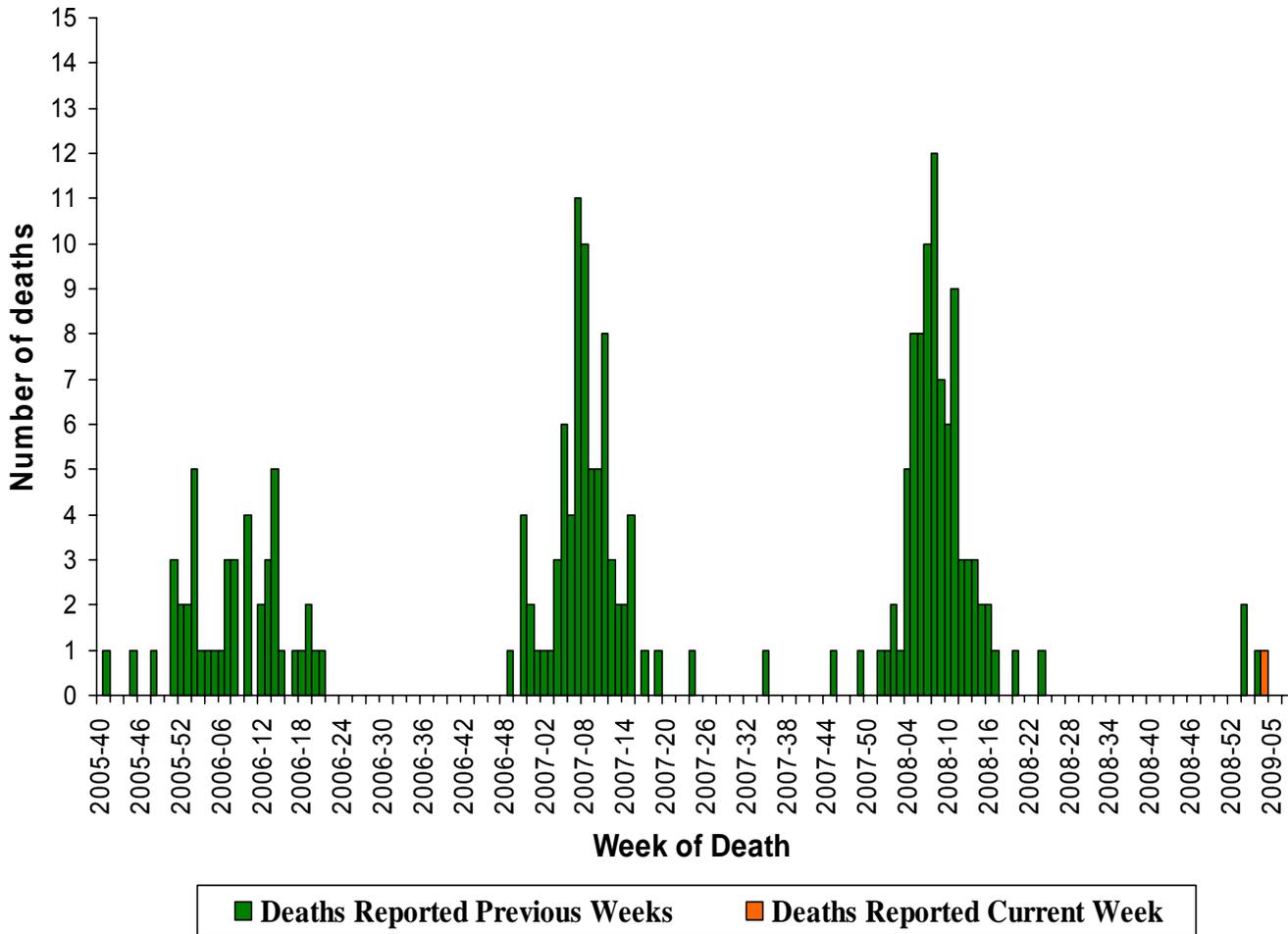
Pneumonia and Influenza (P&I) Mortality Surveillance: During week 5, 7.2% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage is below the epidemic threshold of 7.9% for week 5.

Pneumonia and Influenza Mortality for 122 U.S. Cities
Week ending 02/7/2009



Influenza-Associated Pediatric Mortality: One influenza-associated pediatric death was reported to CDC during week 5 (Tennessee). This death occurred during week 4 (the week ending January 31, 2009). Since September 28, 2008, CDC has received four 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

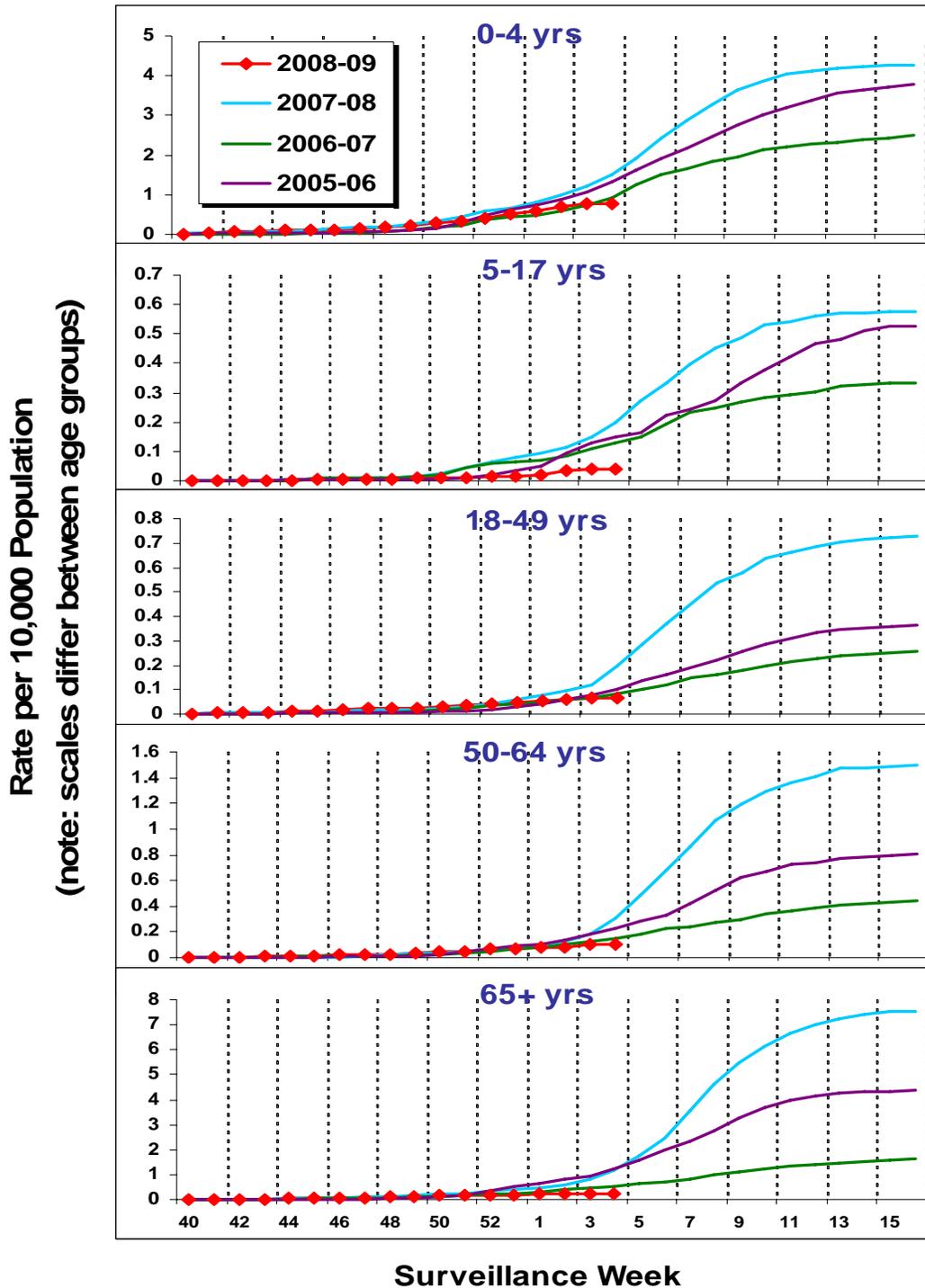


Influenza-Associated Hospitalizations: Laboratory-confirmed influenza-associated hospitalizations are monitored in two population-based surveillance networks: the Emerging Infections Program (EIP) and the New Vaccine Surveillance Network (NVSN).

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

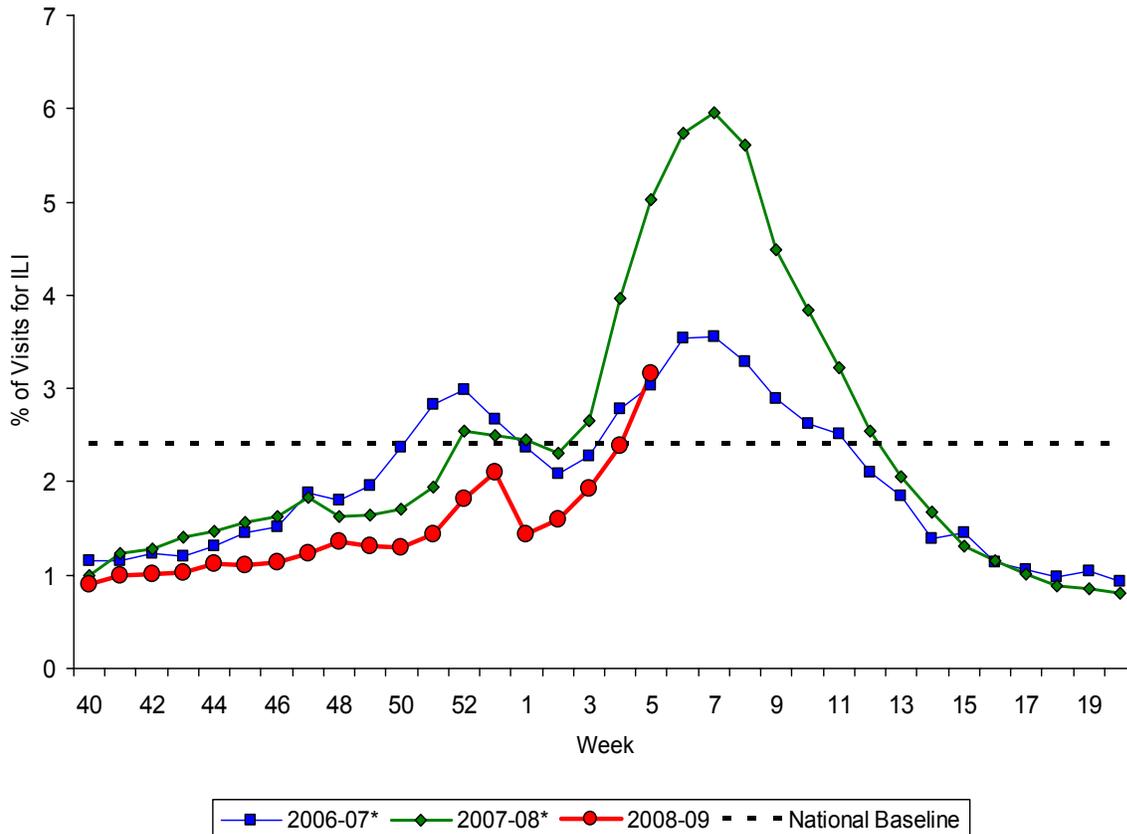
During October 1, 2008 – January 31, 2009, preliminary laboratory-confirmed influenza-associated hospitalization rates reported by the EIP for children aged 0-4 years and 5-17 years were 0.8 per 10,000 and 0.04 per 10,000, respectively. For adults aged 18-49 years, 50-64 years, and ≥ 65 years, the rates 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: Nationwide during week 5, 3.2% 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



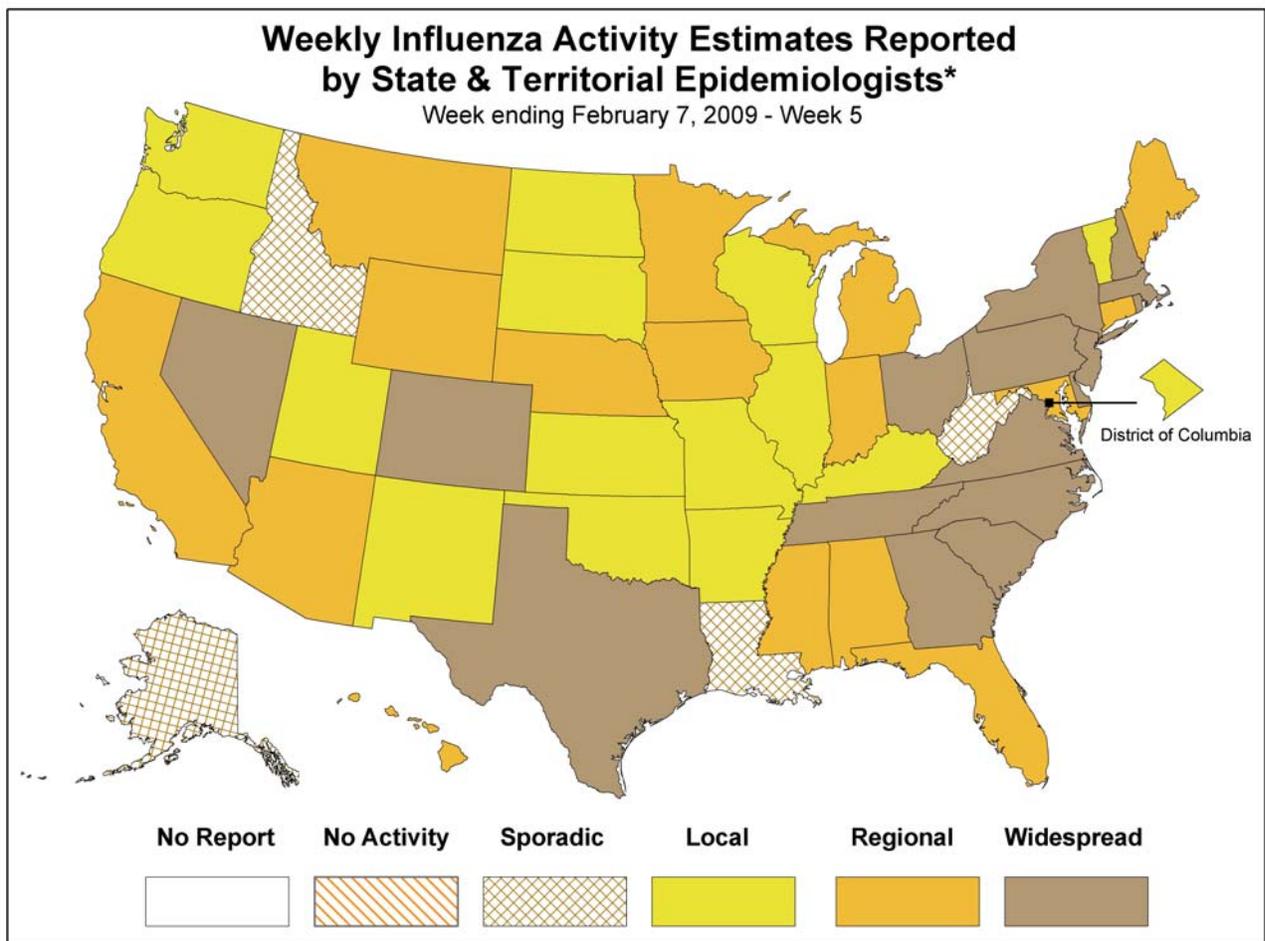
*There was no week 53 during the 2006-07 and 2007-08 seasons, therefore the week 53 data point for those seasons is an average of weeks 52 and 1.

On a regional level, the percentage of visits for ILI increased in eight of the nine regions compared to the previous week and ranged from 1.1% to 6.0%. Seven of nine surveillance regions reported ILI percentages 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 (%)	3.9	2.6	2.7	1.1	3.0	4.2	6.0	1.7	3.1
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 5, the following influenza activity was reported:

- Widespread influenza activity was reported by 16 states (Colorado, Delaware, Georgia, Massachusetts, Nevada, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, and Virginia).
- Regional influenza activity was reported by 16 states (Alabama, Arizona, California, Connecticut, Florida, Hawaii, Indiana, Iowa, Maine, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, and Wyoming).
- Local influenza activity was reported by the District of Columbia and 14 states (Arkansas, Illinois, Kansas, Kentucky, Missouri, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Vermont, Washington, and Wisconsin).
- Sporadic activity was reported by Puerto Rico and four states (Alaska, Idaho, Louisiana, and 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>

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