

**2008-2009 Influenza Season**  
**Week 3 ending January 24, 2009**

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

**Synopsis:** During week 3 (January 18-24, 2009), influenza activity continued to slowly increase in the United States.

- Five hundred eighty-eight (15.8%) 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 the national baseline. The New England region reported ILI above its' region-specific baseline.
- Two states reported widespread influenza activity, 14 states reported regional activity; 12 states reported local influenza activity; and the District of Columbia, Puerto Rico and 22 states reported sporadic influenza activity.
- One human infection with a novel influenza A virus was reported.

**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	15.8%	16 of 51	801	126	1,753	508	2
<b>New England</b>	Elevated	7.8%	5 of 6	24	6	84	14	0
<b>Mid-Atlantic</b>	Normal	7.0%	3 of 3	84	13	129	31	0
<b>East North Central</b>	Normal	17.6%	1 of 5	85	25	22	24	0
<b>West North Central</b>	Normal	5.8%	0 of 7	55	7	70	17	0
<b>South Atlantic</b>	Normal	7.9%	2 of 9	86	13	254	132	0
<b>East South Central</b>	Normal	5.7%	1 of 4	9	3	0	8	0
<b>West South Central</b>	Normal	16.9%	1 of 4	101	2	894	237	1
<b>Mountain</b>	Normal	16.5%	3 of 8	57	43	187	16	1
<b>Pacific</b>	Normal	6.1%	0 of 5	300	14	113	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

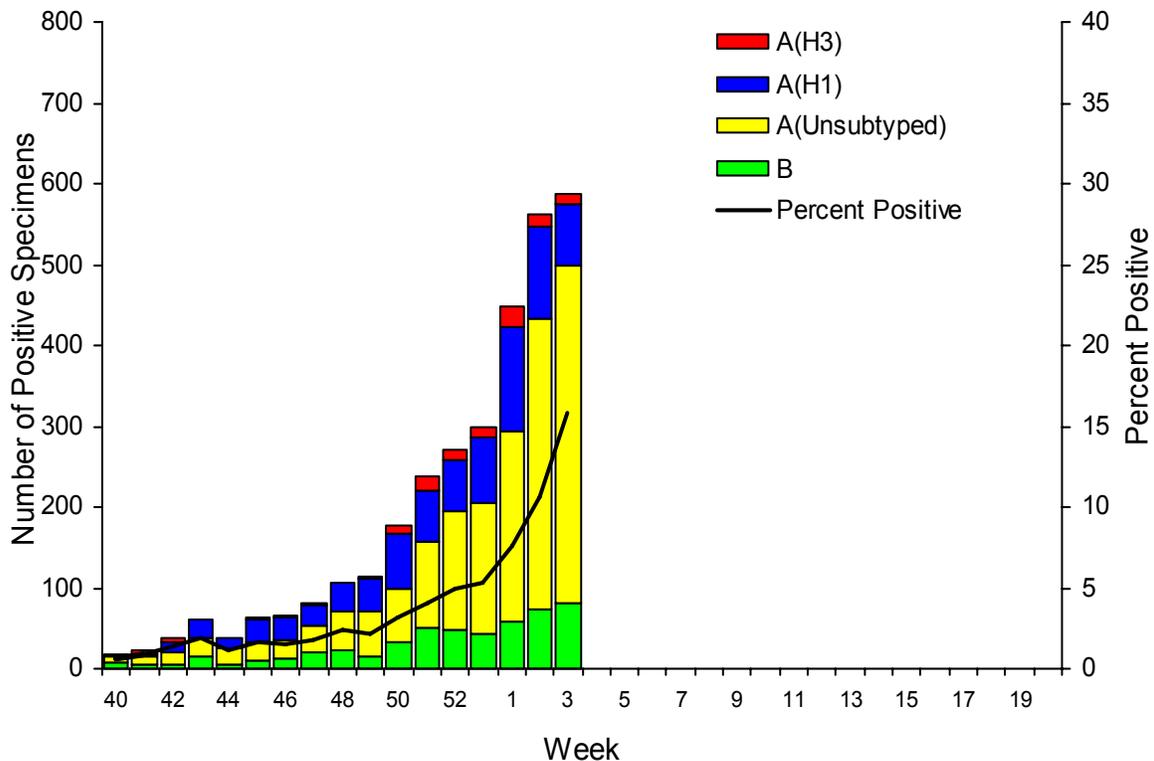
‡ Includes all 50 states and the District of Columbia

**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.

	<b>Week 3</b>	<b>Cumulative for the Season</b>
<b>No. of specimens tested</b>	3,711	74,208
<b>No. of positive specimens (%)</b>	588 (15.8%)	3,188 (4.3%)
<b>Positive specimens by type/subtype</b>		
<b>Influenza A</b>	508 (86.4%)	2,680 (84.1%)
<b>    A (H1)</b>	74 (14.6%)	801 (29.9%)
<b>    A (H3)</b>	14 (2.8%)	126 (4.7%)
<b>    A (unsubtyped)</b>	420 (82.7%)	1,753 (65.4%)
<b>Influenza B</b>	80 (13.6%)	508 (15.9%)

The District of Columbia and 45 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



**Novel Influenza A Viruses:** One case of human infection with a novel influenza A virus was reported by the South Dakota Department of Health during week 3. The person was infected with a swine influenza A (H1N1) virus, and an investigation is currently underway to determine the source of illness. Although human infection with swine influenza is uncommon, sporadic cases have occurred in many years, usually among people in direct contact with ill pigs or who have been in places where pigs may have been present (e.g. agricultural fairs or farms). The sporadic cases of human infections with swine influenza viruses identified in recent years have not resulted in sustained human-to-human transmission or community outbreaks. Nonetheless, when cases are identified, CDC recommends thorough investigations to evaluate the extent of the outbreak and possible human to human transmission, as transmission patterns may change with changes in swine influenza viruses.

**Antigenic Characterization:** CDC has antigenically characterized 229 influenza viruses [142 influenza A (H1), 35 influenza A (H3) and 52 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. Seventeen influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 35 viruses belong to the B/Victoria lineage and are not related to the vaccine strain. Thirty of the 35 viruses belonging to the B/Victoria lineage were from two states.

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, 165 influenza A (H1N1), 37 influenza A (H3N2), and 67 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). One hundred sixty-five influenza A (H1N1) and 37 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.

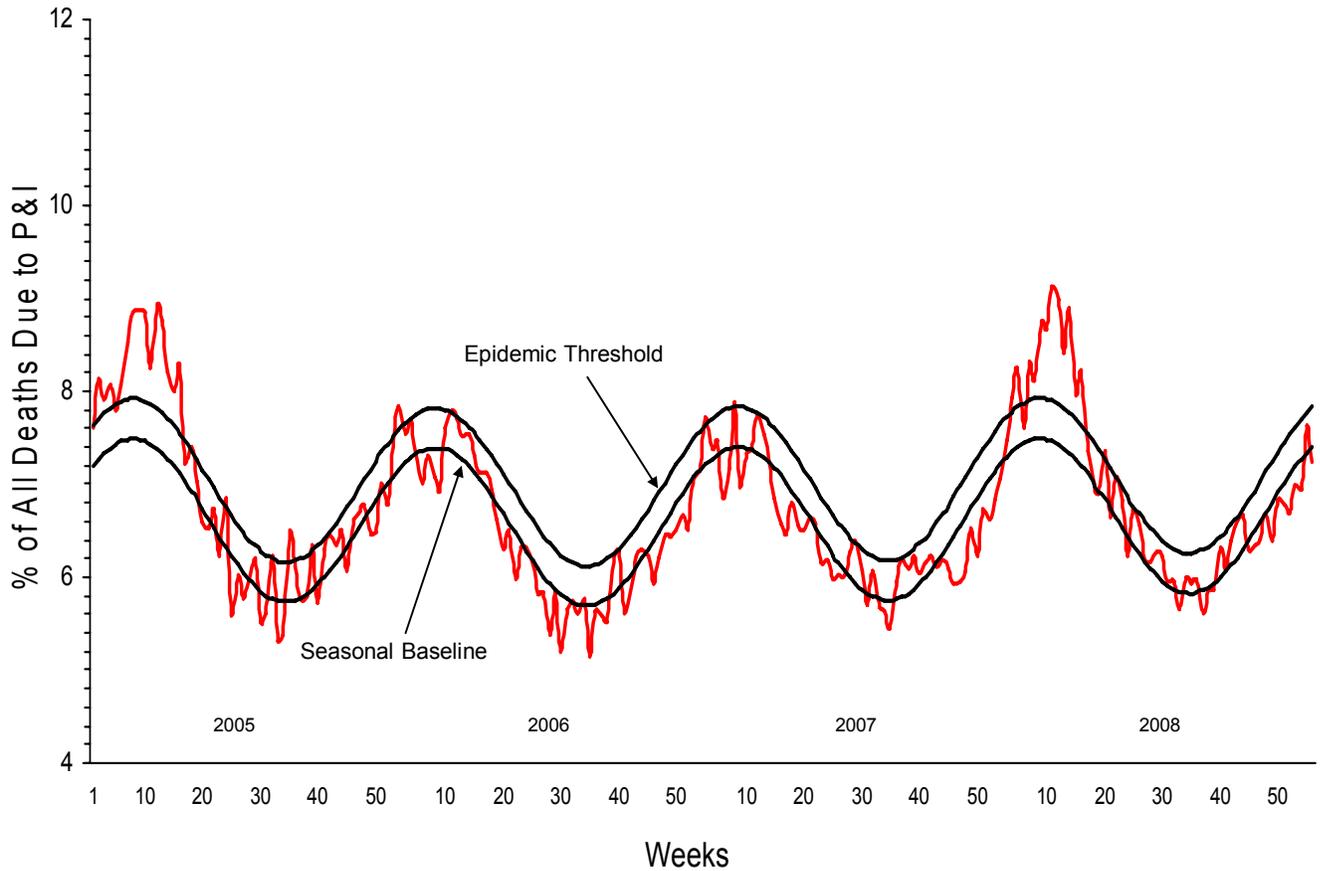
	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		
<b>Influenza A (H1N1)</b>	165	162 (98.2%)	0 (0)	165	2 (1.2%)
<b>Influenza A (H3N2)</b>	37	0 (0)	0 (0)	37	37 (100%)
<b>Influenza B</b>	67	0 (0)	0 (0)	N/A*	N/A*

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

Influenza A (H1N1) viruses from 26 states have been tested for antiviral resistance to oseltamivir so far this season. In all 26 states, at least one oseltamivir-resistant influenza A (H1N1) virus has been identified. To date, all influenza A (H3N2) viruses tested are resistant 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>.

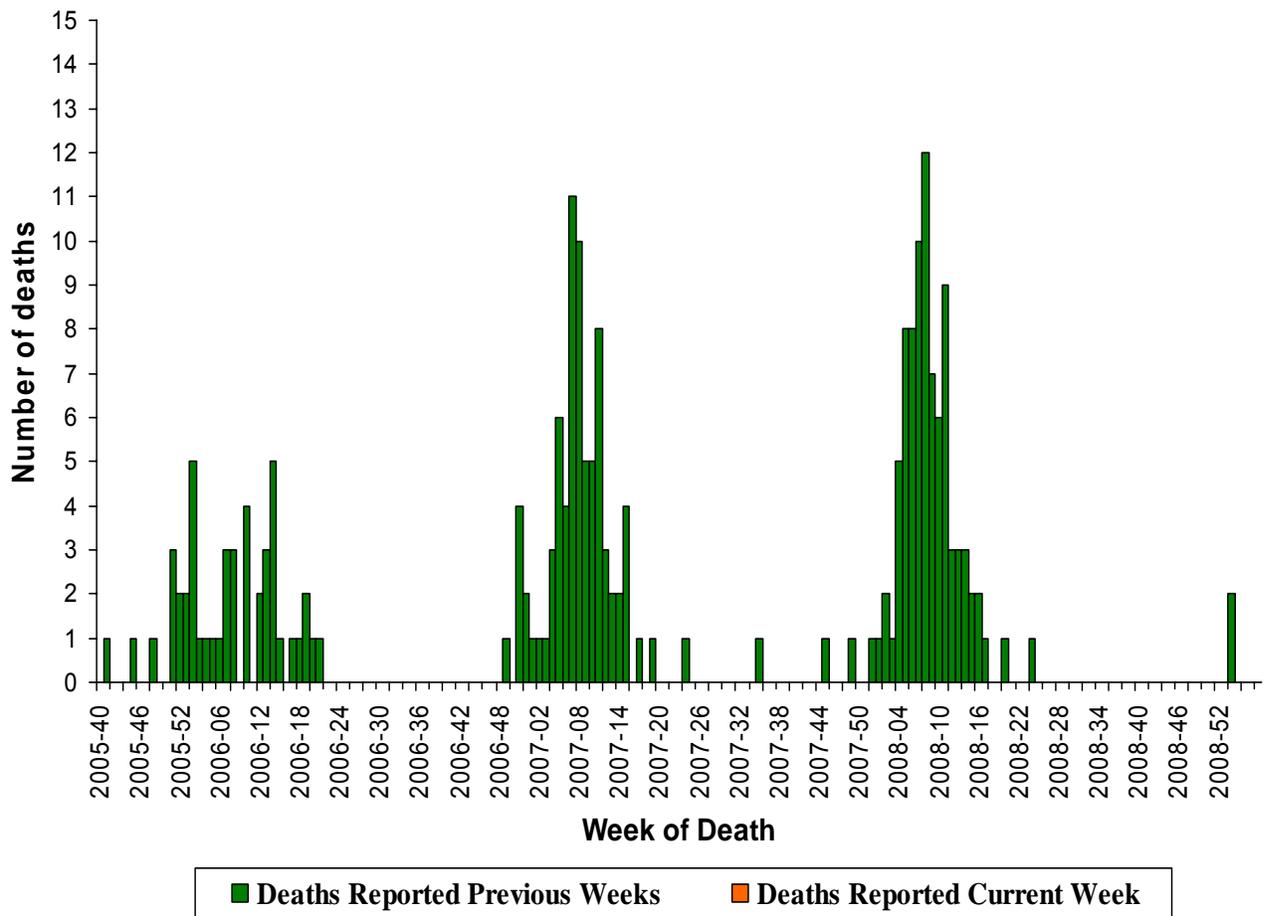
**Pneumonia and Influenza (P&I) Mortality Surveillance:** During week 3, 7.3% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage is below the epidemic threshold of 7.8% for week 3.

### Pneumonia and Influenza Mortality for 122 U.S. Cities Week ending 01/24/2009



**Influenza-Associated Pediatric Mortality:** No influenza-associated pediatric deaths were reported during week 3. Since September 28, 2008, CDC has received a total of two 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

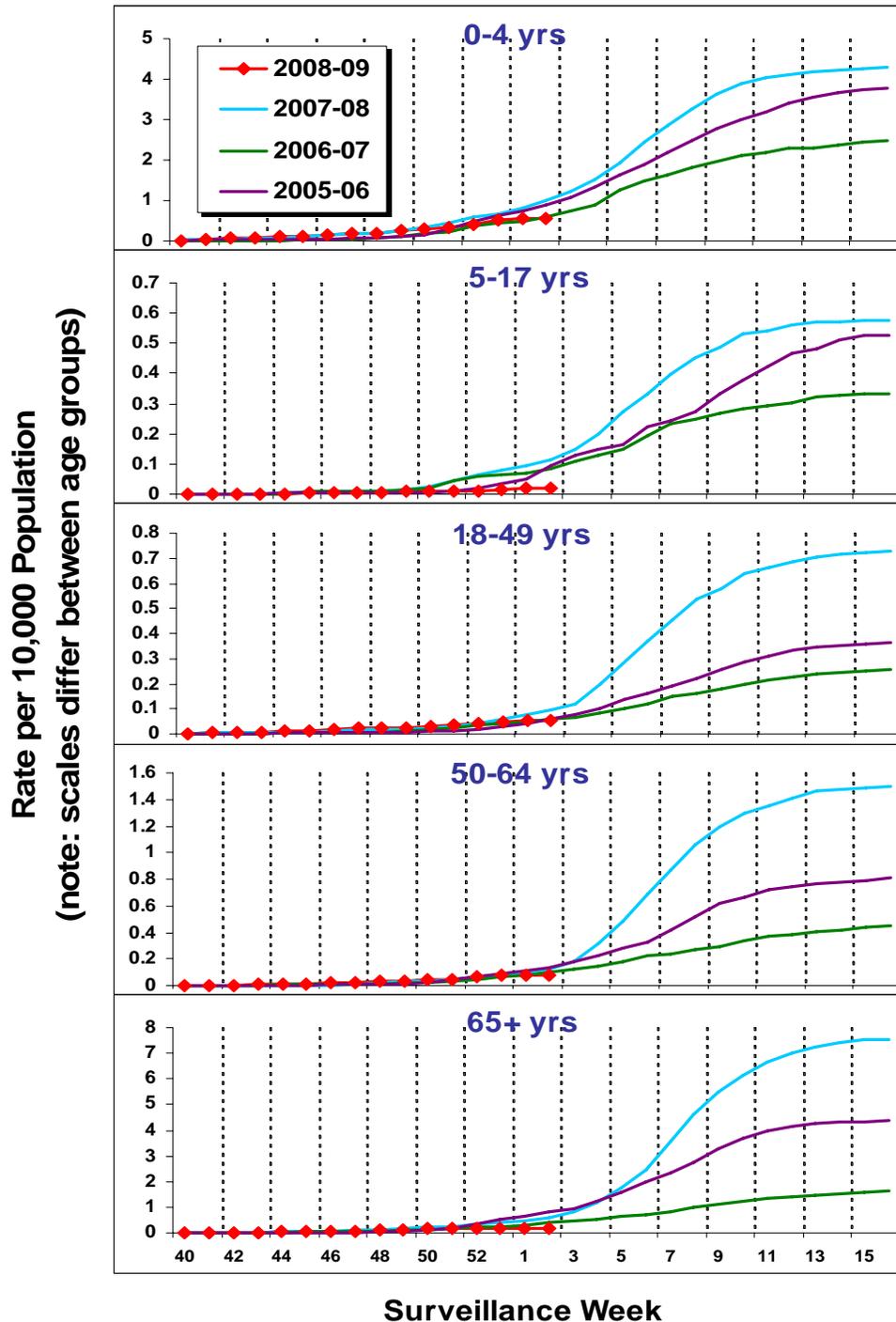


**Influenza-Associated Hospitalizations:** Laboratory-confirmed influenza-associated hospitalizations are monitored in two population-based surveillance networks: the Emerging Infections Program (EIP) and the New Vaccine Surveillance Network (NVSN).

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

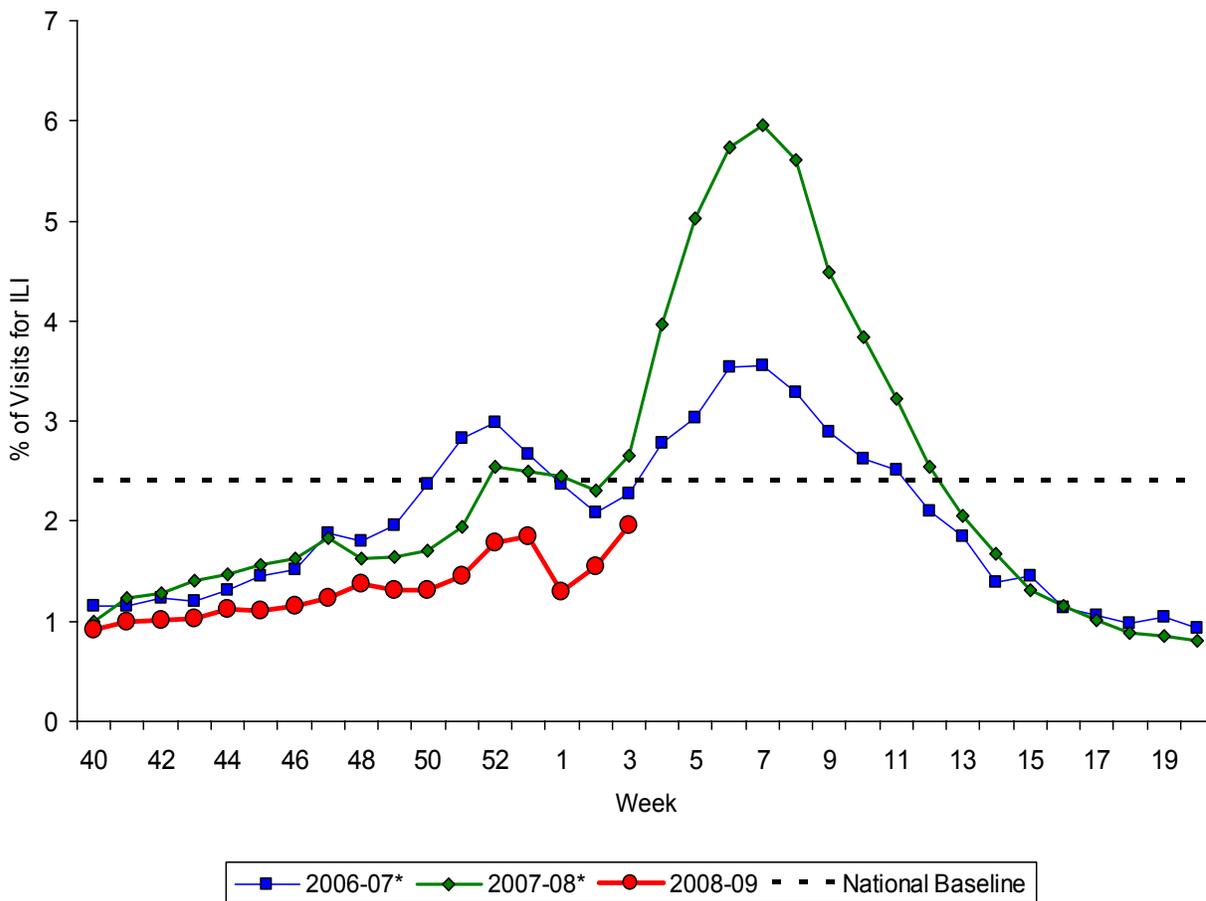
During October 1, 2008 – January 17, 2009, preliminary laboratory-confirmed influenza-associated hospitalization rates reported by the EIP for children aged 0-4 years and 5-17 years were 0.6 per 10,000 and 0.02 per 10,000, respectively. For adults aged 18-49 years, 50-64 years, and  $\geq 65$  years, the rates were 0.05 per 10,000, 0.08 per 10,000, and 0.2 per 10,000, respectively.

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



**Outpatient Illness Surveillance:** During week 3, 2.0% 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 1.1% to 3.8%. One region (New England) reported 1.9% of outpatient visits for ILI, which is above its' region-specific baseline of 1.5%, while the remaining eight regions reported percentages of visits for ILI below region-specific baseline levels.

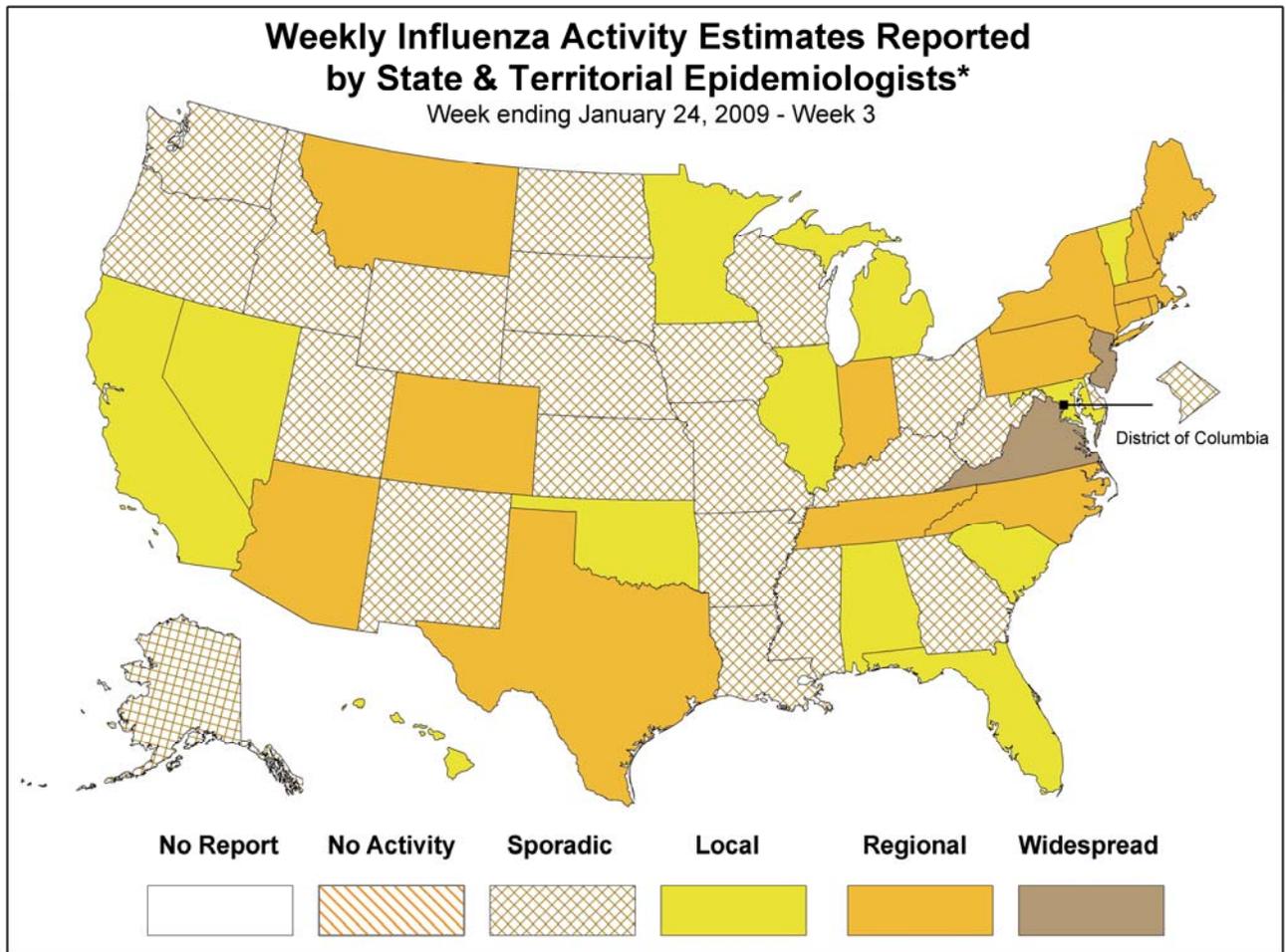
Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary, 2008-09 and Previous Two Seasons



\*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 3, the following influenza activity was reported:

- Widespread influenza activity was reported by two states (New Jersey and Virginia).
- Regional influenza activity was reported by 14 states (Arizona, Colorado, Connecticut, Indiana, Maine, Massachusetts, Montana, New Hampshire, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, and Texas).
- Local influenza activity was reported by 12 states (Alabama, California, Florida, Hawaii, Illinois, Maryland, Michigan, Minnesota, Nevada, Oklahoma, South Carolina, and Vermont).
- Sporadic activity was reported in the District of Columbia, Puerto Rico, and 22 states (Alaska, Arkansas, Delaware, Georgia, Idaho, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oregon, South Dakota, Utah, Washington, West Virginia, Wisconsin, 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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