

**2007-2008 Influenza Season**  
**Week 7, ending February 16, 2008**

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

**Synopsis:** During week 7 (February 10 - 16, 2008), influenza activity continued to increase in the United States.

- Two thousand three hundred forty (34.0%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories were positive for influenza.
- The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the sixth consecutive week.
- The proportion of outpatient visits for influenza-like illness (ILI) and acute respiratory illness (ARI) was above national baseline levels. ILI increased in six of the nine regions compared to week 6, and was above region-specific baselines in all nine regions. All nine regions reported ARI at or above their region specific baselines.
- Forty-nine states reported widespread influenza activity; one state reported regional influenza activity; and the District of Columbia reported local influenza activity.

**National and Regional Summary of Select Surveillance Components**

	Data for current week				Data cumulative for the season				
	Sentinel Provider ILI*	DoD and VA ARI*	% pos. for flu†	Number of jurisdictions reporting regional or widespread activity‡	A (H1)	A (H3)	A Unsub-typed	B	Pediatric Deaths
<b>Nation</b>	Elevated	Elevated	34.0%	50 of 51	1266	2156	8956	2457	22
<b>New England</b>	Elevated	Elevated	22.4%	6 of 6	34	17	293	235	0
<b>Mid-Atlantic</b>	Elevated	Elevated	21.7%	3 of 3	57	20	339	379	3
<b>East North Central</b>	Elevated	Elevated	50.1%	5 of 5	119	532	347	223	3
<b>West North Central</b>	Elevated	Elevated	26.3%	7 of 7	62	65	851	182	0
<b>South Atlantic</b>	Elevated	Elevated	31.8%	8 of 9	191	676	2119	424	1
<b>East South Central</b>	Elevated	Elevated	42.9%	4 of 4	21	301	22	14	4
<b>West South Central</b>	Elevated	Elevated	34.9%	4 of 4	86	304	3999	472	7
<b>Mountain</b>	Elevated	Elevated	27.7%	8 of 8	325	172	567	346	2
<b>Pacific</b>	Elevated	Elevated	17.5%	5 of 5	371	69	419	182	2

\* Elevated means the % of visits for ILI or ARI 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

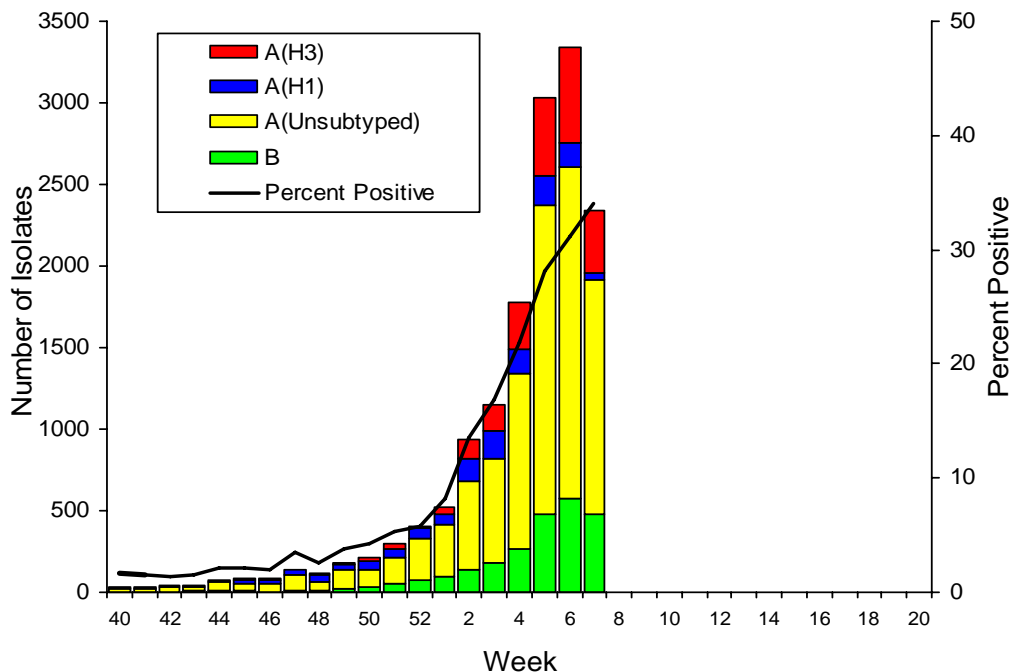
‡ Includes all 50 states and the District of Columbia

**Laboratory Surveillance:** During week 7, WHO and NREVSS laboratories reported 6,889 specimens tested for influenza viruses, 2,340 (34.0%) of which were positive, including 47 influenza A (H1) viruses, 379 influenza A (H3) viruses, 1,432 influenza A viruses that were not subtyped, and 482 influenza B viruses.

Since September 30, 2007, WHO and NREVSS laboratories have tested a total of 109,089 specimens for influenza viruses and 14,835 (13.6%) were positive. Among the 14,835 influenza viruses, 12,378 (83.4%) were influenza A viruses and 2,457 (16.6%) were influenza B viruses. Three thousand four hundred twenty-two (27.6%) of the 12,378 influenza A viruses have been subtyped: 1,266 (37.0%) were influenza A (H1) viruses and 2,156 (63.0%) were influenza A (H3) viruses.

Although influenza A (H1) viruses predominated through mid-January, an increasing proportion of subtyped influenza A viruses are influenza A (H3) viruses. Influenza A (H3) viruses were reported more frequently than influenza A (H1) viruses during January 20–February 9. During week 6, influenza A (H3) became the predominant virus for the season overall. This season influenza A (H3) viruses have been reported more frequently than A (H1) viruses nationally, as well as in five of the nine surveillance regions (East North Central, East South Central, South Atlantic, West North Central, and West South Central). Influenza A (H1) viruses have predominated circulation this season in the remaining four regions (Mid-Atlantic, Mountain, New England, and Pacific).

### U.S. WHO/NREVSS Collaborating Laboratories National Summary, 2007-08



**Antigenic Characterization:** CDC has antigenically characterized 280 influenza viruses [141 influenza A (H1N1), 70 influenza A (H3N2), and 69 influenza B viruses] collected by U.S. laboratories since September 30, 2007.

#### **Influenza A (H1N1) [141]**

- One hundred twenty-four (88%) of the 141 viruses were characterized as A/Solomon Islands/3/2006, the influenza A (H1N1) component of the 2007-08 influenza vaccine for the Northern Hemisphere and the 2008 influenza A (H1N1) component for the Southern Hemisphere.
- Seventeen (12%) of the 141 viruses showed somewhat reduced titers with antisera produced against A/Solomon Islands/3/2006.

#### **Influenza A (H3N2) [70]**

- Twelve (17%) of the 70 viruses were characterized as A/Wisconsin/67/2005-like, the influenza A (H3N2) component of the 2007-08 influenza vaccine for the Northern Hemisphere.
- Fifty-five (79%) of the 70 viruses were characterized as A/Brisbane/10/2007-like. A/Brisbane/10/2007-like viruses are a recent antigenic variant which evolved from, but are antigenically distinct from, A/Wisconsin/67/2005-like. A/Brisbane/10/2007-like virus is the recommended influenza A (H3N2) component for the 2008 Southern Hemisphere vaccine.
- Three (4%) of the 70 viruses showed somewhat reduced titers with antisera produced against A/Wisconsin/67/2005 and A/Brisbane/10/2007.

#### **Influenza B (B/Victoria/02/87 and B/Yamagata/16/88 lineages) [69]**

##### **Victoria lineage [4]**

- Four (6%) of the 69 influenza B viruses characterized belong to the B/Victoria lineage of viruses.
  - Two (50%) of these 4 viruses were characterized as B/Ohio/01/2005-like. The recommended influenza B component for the 2007-08 influenza vaccine is a B/Malaysia/2506/2004-like virus, belonging to the B/Victoria lineage. B/Ohio/01/2005 is a recent B/Malaysia/2506/2004-like reference strain.
  - Two (50%) of these 4 viruses showed somewhat reduced titers with antisera produced against B/Ohio/01/2005 and B/Malaysia/2506/2004.

##### **Yamagata lineage [65]**

- Sixty-five (94%) of the 69 viruses were identified as belonging to the B/Yamagata lineage of viruses.

**Antiviral Resistance:** In the United States, two groups of antiviral drugs have been approved by FDA for use in treating or preventing influenza infections. These two groups of antiviral drugs are: neuraminidase inhibitors (oseltamivir and zanamivir) and adamantanes (amantadine and rimantidine). A description of these drugs can be found at:  
<http://www.cdc.gov/flu/protect/antiviral/index.htm>.

**Neuraminidase Inhibitor Antiviral Drugs:** Small numbers of influenza viruses resistant to the neuraminidase inhibitor oseltamivir have been detected in the United States. Of the 471 influenza A and B viruses tested for antiviral resistance so far this season, 27 (5.7%) have been found to be resistant to oseltamivir. Currently all of the resistant viruses are H1N1 viruses, with 27 (8.7%) of all H1N1 viruses exhibiting a genetic mutation that confers oseltamivir resistance. All tested viruses retain their sensitivity to zanamivir. Additional information on antiviral resistance can be found at:  
<http://www.cdc.gov/flu/about/qa/antiviralresistance.htm>

**Adamantane Antiviral Drugs:** Resistance to the adamantanes continues to be high. Among 282 influenza A viruses tested, 88 (31.2%) are resistant to adamantanes, including 98.6% of H3N2 viruses and 7.2% of H1N1 viruses. The adamantanes are not effective against influenza B viruses.

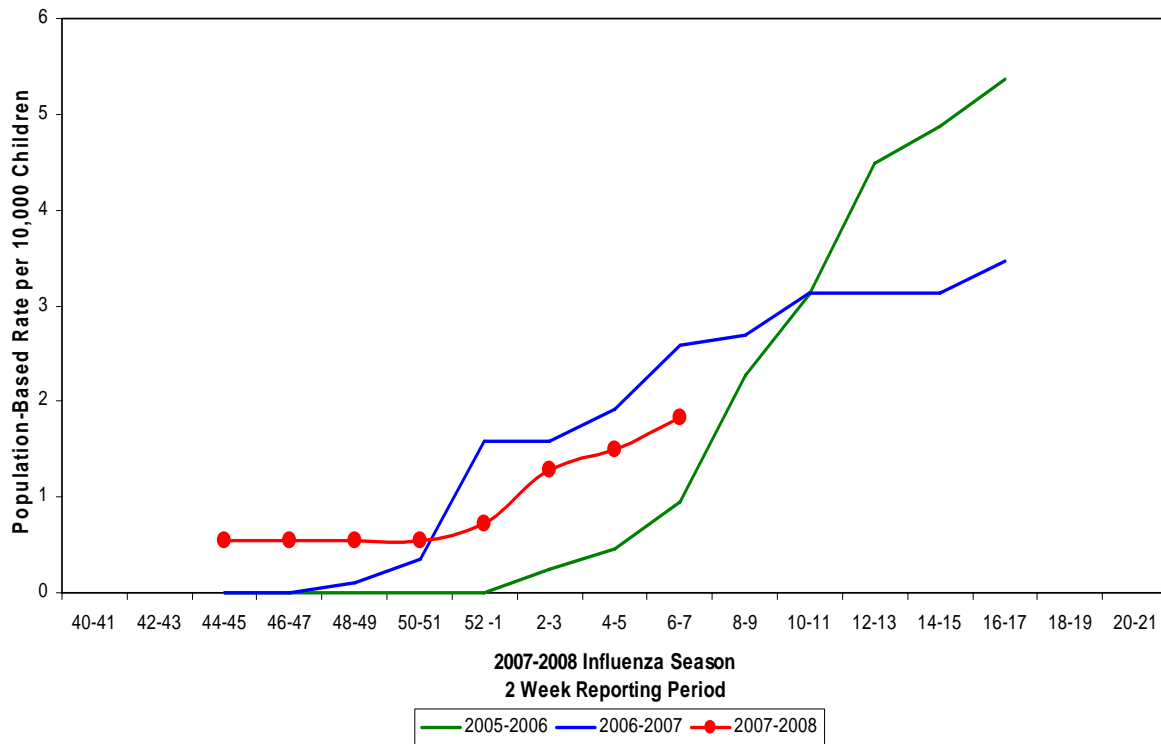
Based on the level of oseltamivir resistance observed in only one influenza subtype, H1N1, and persisting high levels of resistance to the adamantanes in both H3N2 and H1N1 viruses, CDC continues to recommend the use of oseltamivir and zanamivir for the treatment or prevention of influenza. Use of amantadine or rimantadine is not recommended. Guidance on influenza antiviral use can be found at:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5606a1.htm>



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

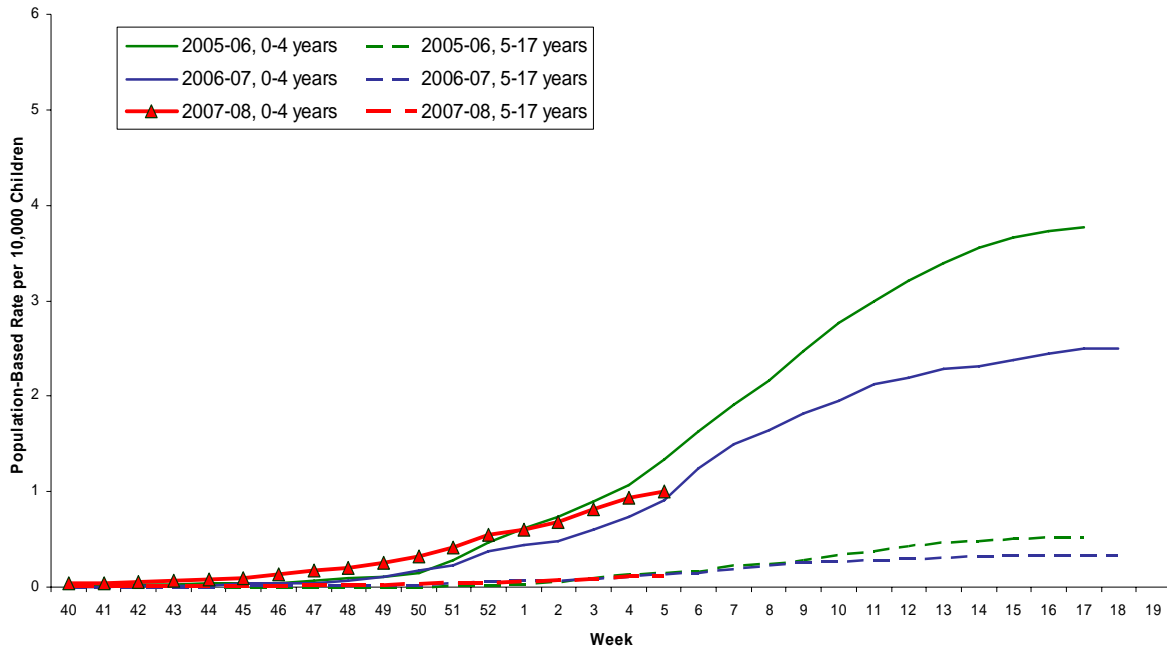
During November 4, 2007-February 9, 2008, the preliminary laboratory-confirmed influenza-associated hospitalization rate reported by the NVSN for children 0-4 years old was 1.83 per 10,000.

### NVSN Influenza Laboratory-Confirmed Cumulative Hospitalization Rates for Children 0 - 4 Years, 2007- 08 and Previous 2 Seasons



During September 30 – February 2, 2008, the preliminary laboratory-confirmed influenza-associated hospitalization rate reported by the EIP for children 0–17 years old was 0.36 per 10,000. For children aged 0-4 years and 5-17 years, the rate was 1.0 per 10,000 and 0.1 per 10,000, respectively.

EIP Influenza Laboratory-Confirmed Cumulative Hospitalization Rates for Children Aged 0-4 and 5-17 yrs, 2007-2008 and Previous 2 Seasons

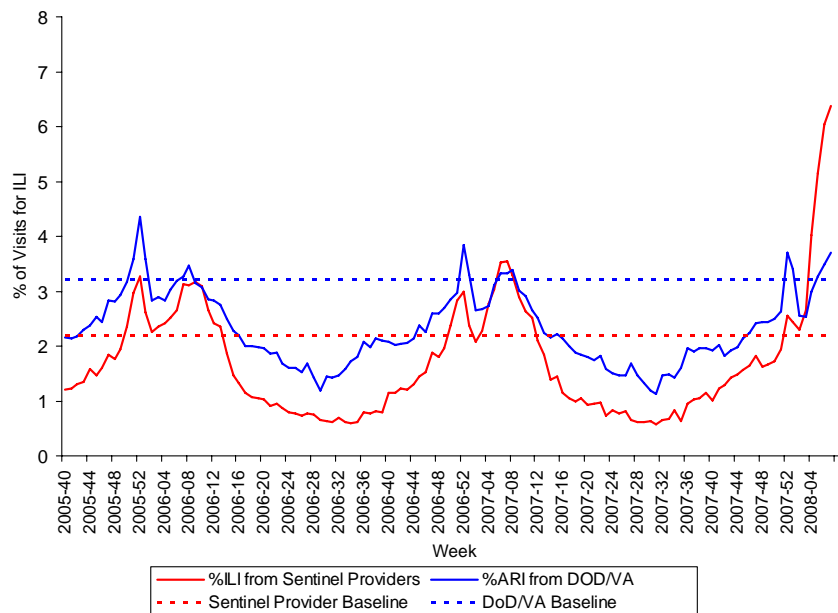


**Outpatient Illness Surveillance:** Nationwide during week 7, 6.4% of outpatient visits reported through the U.S. Influenza Sentinel Provider Surveillance Network were due to influenza-like illness (ILI), which is above the national baseline of 2.2%. On a regional level, the percentage of visits for ILI increased in six of the nine regions compared to last week and ranged from 4.1% to 10.1%. All nine regions reported ILI above their region-specific baselines.

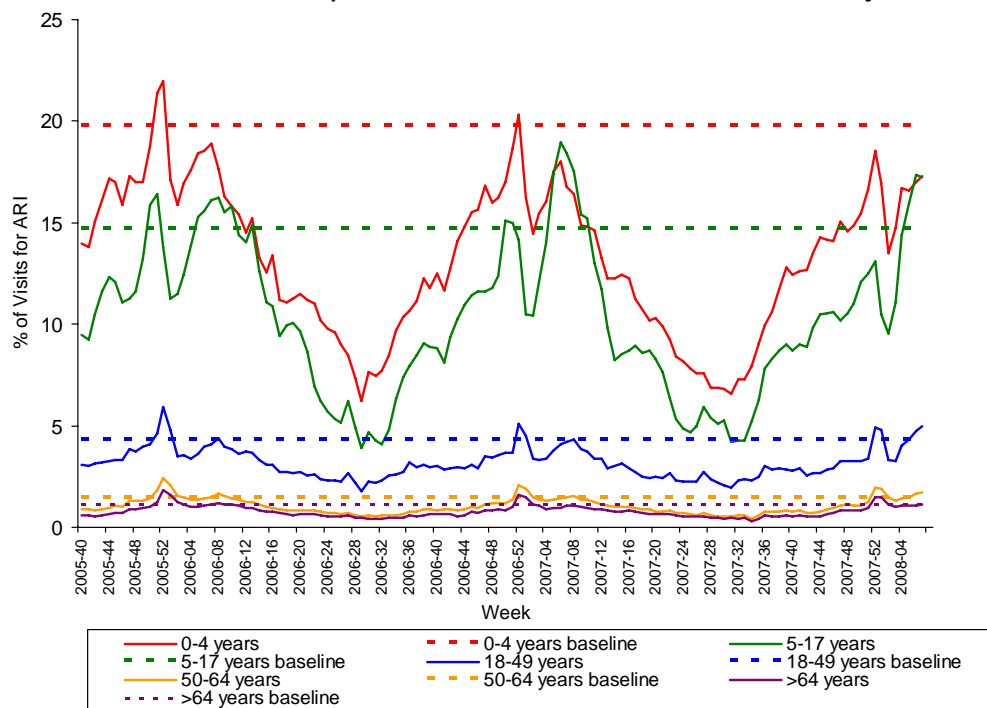
Starting in week 5, New York City began reporting ILI data collected electronically from emergency departments city-wide, adding approximately 60,000 additional patient visits per week to the U.S. Influenza Sentinel Provider Surveillance Network. Retrospective reports were submitted for all earlier weeks this season. While this change increases the total patient visits per week by approximately 15%, it is not expected to influence the national ILI outpatient visit percentage after population weighting, but may have a larger impact on the Mid-Atlantic regional ILI percentage.

During week 7, 3.7% of patient visits to Department of Veteran's Affairs (VA) and Department of Defense (DoD) outpatient treatment facilities were for acute respiratory illness (ARI), which was above the national baseline of 3.2%. On a regional level, the percentage of visits for ARI ranged from 1.8% to 4.3%, and was at or above the region-specific baselines in all nine regions. The percentage of visits reported for ARI was at or above age-specific baselines in the 5-17 years, 18-49 years, 50-64 years, and >64 years age groups.

## Percentage of Visits for ILI & ARI Reported by Sentinel Providers and BioSense Outpatient Facilities, National Summary



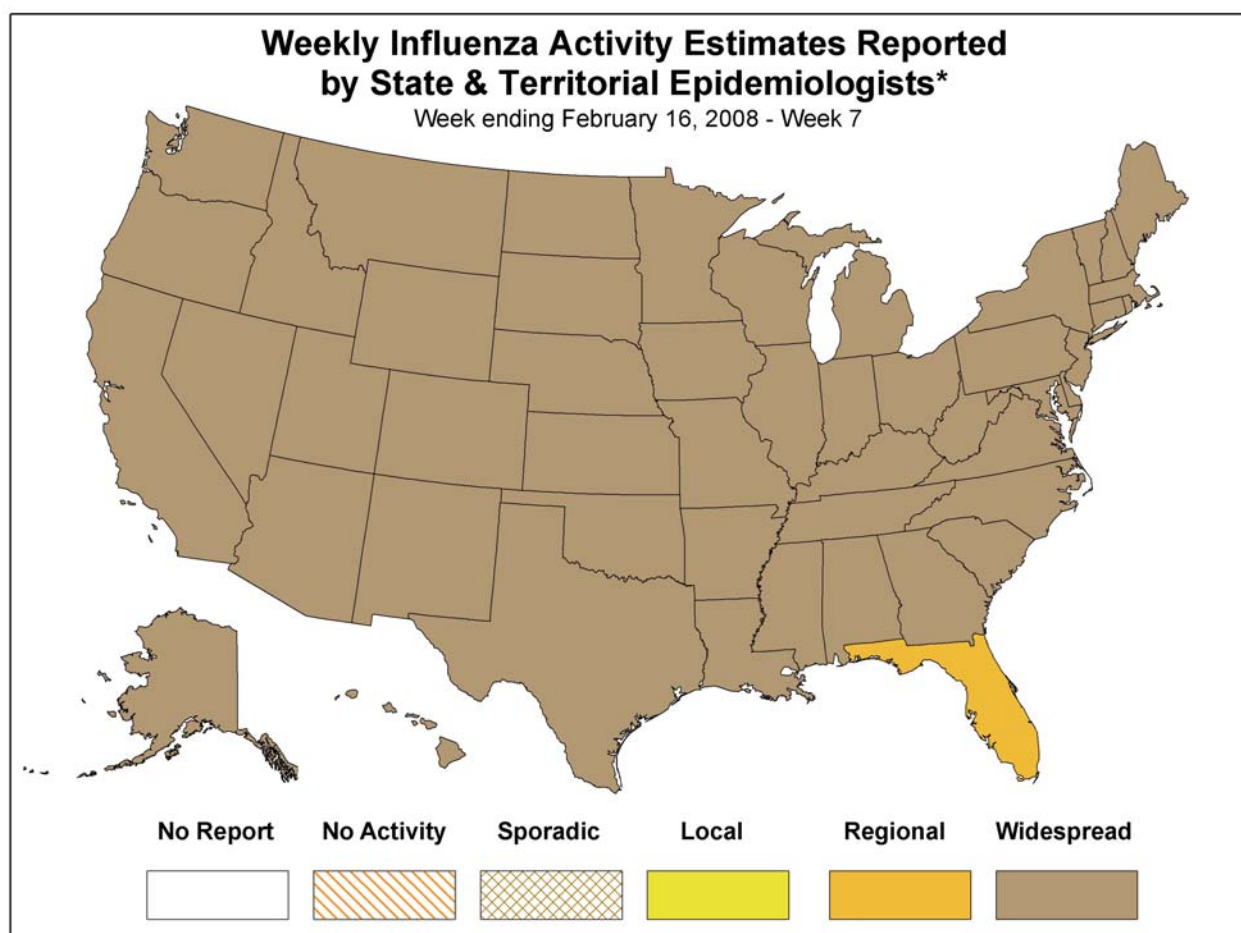
## Percentage of Visits for ARI by Age Group Reported by DoD/VA Outpatient Clinics - National Summary





**Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists:** During week 7 the following influenza activity was reported:

- Widespread activity was reported by 49 states (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, West Virginia, and Wyoming).
- Regional activity was reported by 1 state (Florida).
- The District of Columbia reported local influenza activity.



\* 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: February 22, 2008.