

2007-2008 Influenza Season
Week 5, ending February 2, 2008

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

Synopsis: During week 5 (January 27 – February 2, 2008), influenza activity continued to increase in the United States.

- One thousand five hundred thirty-eight (23.9%) 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 fourth 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 eight of the nine regions compared to week 4, and was above region-specific baselines in all nine regions. The West North Central region reported ARI above its region specific baseline.
- Thirty-one states reported widespread influenza activity; 17 states reported regional influenza activity; and two states 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
Nation	Elevated	Elevated	23.9%	48 of 51	860	745	4200	1119	1
New England	Elevated	Normal	10.8%	5 of 6	26	4	135	104	0
Mid-Atlantic	Elevated	Normal	14.4%	3 of 3	54	15	236	231	0
East North Central	Elevated	Normal	58.7%	5 of 5	88	229	63	123	0
West North Central	Elevated	Elevated	19.6%	7 of 7	38	20	397	77	0
South Atlantic	Elevated	Normal	20.5%	7 of 9	88	204	819	184	0
East South Central	Elevated	Normal	22.1%	4 of 4	8	63	14	6	0
West South Central	Elevated	Normal	28.1%	4 of 4	42	139	1888	147	1
Mountain	Elevated	Normal	17.2%	8 of 8	255	41	348	144	0
Pacific	Elevated	Normal	16.9%	5 of 5	261	30	300	103	0

* 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.

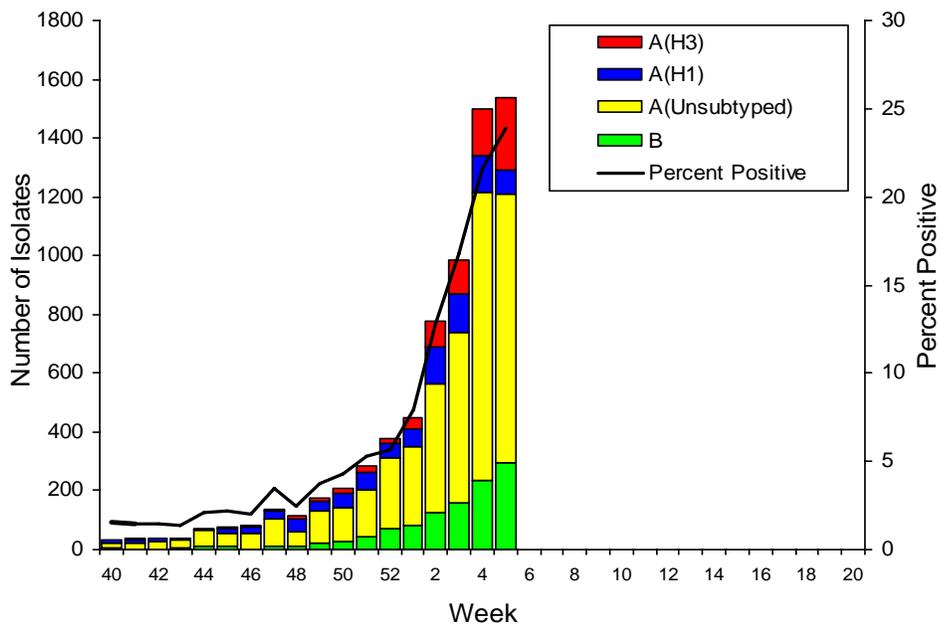
‡ Includes all 50 states and the District of Columbia

Laboratory Surveillance: During week 5, WHO and NREVSS laboratories reported 6,430 specimens tested for influenza viruses, 1,538 (23.9%) of which were positive, including 81 influenza A (H1) viruses, 248 influenza A (H3) viruses, 916 influenza A viruses that were not subtyped, and 293 influenza B viruses. The District of Columbia and 47 states from all nine surveillance regions have reported laboratory-confirmed influenza this season.

Since September 30, 2007, WHO and NREVSS laboratories have tested a total of 82,705 specimens for influenza viruses and 6,924 (8.4%) were positive. Among the 6,924 influenza viruses, 5,805 (83.8%) were influenza A viruses and 1,119 (16.2%) were influenza B viruses. One thousand six hundred five (27.6%) of the 5,805 influenza A viruses have been subtyped: 860 (53.6%) were influenza A (H1) viruses and 745 (46.4%) were influenza A (H3) viruses.

Although influenza A (H1) viruses have been the predominant subtype overall this season, influenza A (H3) viruses have been reported more frequently than A (H1) viruses in the past two weeks. This season influenza A (H3) viruses have been reported more frequently than A (H1) viruses in four of the nine surveillance regions (East North Central, East South Central, South Atlantic, and West South Central).

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



Antigenic Characterization: CDC has antigenically characterized 197 influenza viruses [101 influenza A (H1N1), 53 influenza A (H3N2), and 43 influenza B viruses] collected by U.S. laboratories since September 30, 2007.

Influenza A (H1N1) [101]

- Ninety-seven (96%) of the 101 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.
- Four (4%) of the 101 viruses showed somewhat reduced titers with antisera produced against A/Solomon Islands/3/2006.

Influenza A (H3N2) [53]

- Six (11%) of the 53 viruses were characterized as A/Wisconsin/67/2005-like, the influenza A (H3N2) component of the 2007-08 influenza vaccine for the Northern Hemisphere.
- Forty-six (87%) of the 53 viruses were characterized as A/Brisbane/10/2007-like. A/Brisbane/10/2007 is a recent antigenic variant which evolved 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.
- One (2%) of the 53 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) [43]

Victoria lineage [3]

- Three (7%) of the 43 influenza B viruses characterized belong to the B/Victoria lineage of viruses.
 - Two (67%) of these 3 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.
 - One (33%) of these 3 viruses showed somewhat reduced titers with antisera produced against B/Ohio/01/2005 and B/Malaysia/2506/2004.

Yamagata lineage [40]

- Forty (93%) of the 43 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 the FDA for use in treating or preventing influenza infections. These two groups of antiviral drugs are: neuraminidase inhibitors (oseltamivir and zanamavir) 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 331 influenza A and B viruses tested for antiviral resistance so far this season, 15 (4.5%) have been found to be resistant to oseltamivir. Currently all of the resistant viruses are H1N1 viruses, with 15 (8.1%) of all H1N1 viruses exhibiting a genetic mutation that confers oseltamivir resistance. These resistant viruses have been found sporadically across 4 of the 9 surveillance regions. All tested viruses retain their sensitivity to zanamavir. Additional information on antiviral resistance can be found at:

<http://www.cdc.gov/flu/about/qa/antiviralresistance.htm>

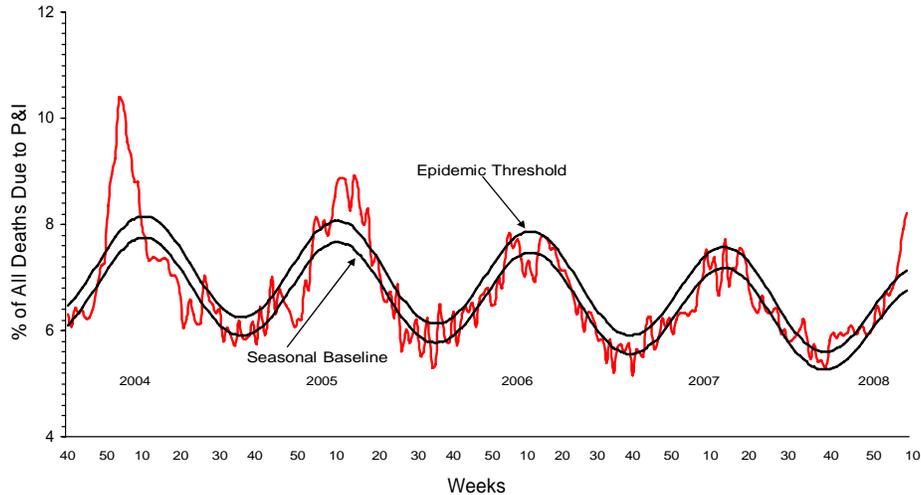
Adamantane Antiviral Drugs: Resistance to the adamantanes continues to be high. Among 189 influenza A viruses tested, 84 (44.4%) are resistant to adamantanes, including 99% of H3N2 viruses and 8.3% of H1N1 viruses. The adamantanes are not effective against influenza B viruses.

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 zanamavir 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>

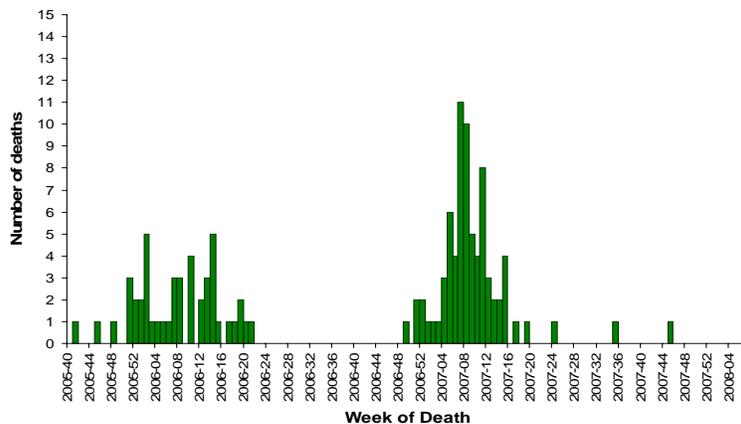
Pneumonia and Influenza (P&I) Mortality Surveillance: During week 5, 8.2% of all deaths reported through the 122-Cities Mortality Reporting System were reported as due to P&I. This percentage is above the epidemic threshold of 7.1% for week 5. Including week 5, P&I mortality has been above threshold for four consecutive weeks.

**Pneumonia and Influenza Mortality
for 122 U.S. Cities**
Week Ending 02/02/2008



Influenza-Associated Pediatric Mortality: No influenza-associated pediatric deaths were officially reported to CDC during week 5 due to technical problems with the reporting system; a total of one influenza-associated pediatric death was reported previously for the 2007-08 season. However, unofficial notifications were received for five deaths and these will be included in next week's report.

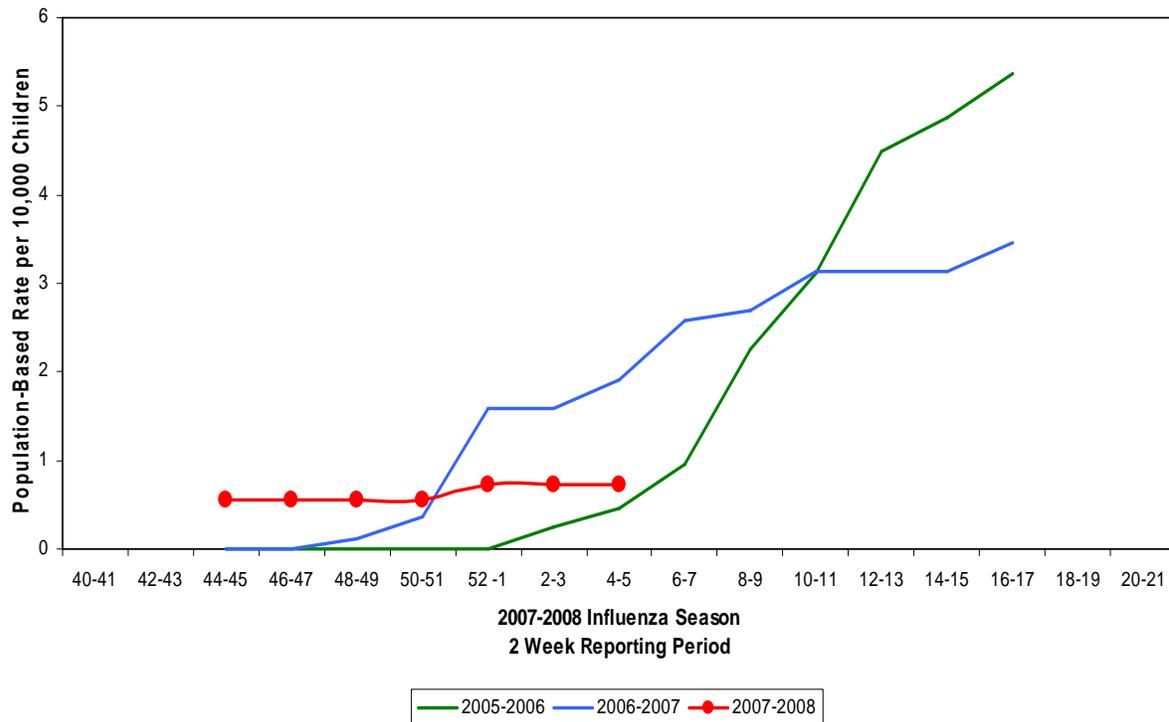
**Number of Influenza-Associated Pediatric Deaths
by Week of Death:**
2005-06 season to present



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).

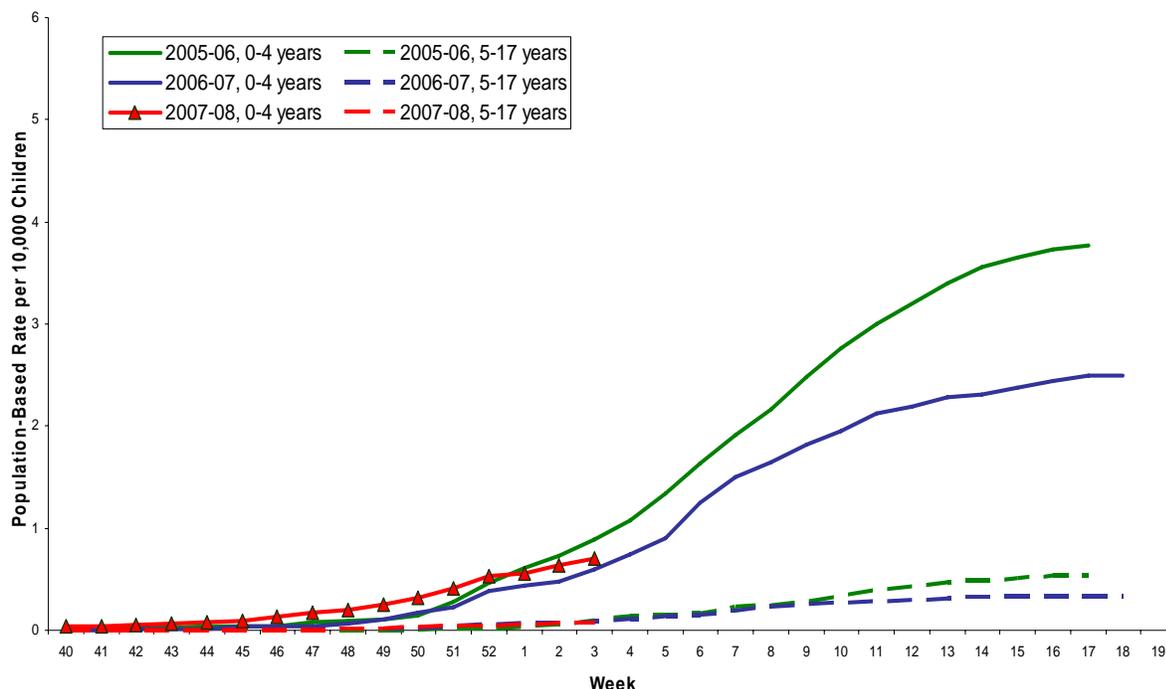
During November 4, 2007-January 26, 2008, the preliminary laboratory-confirmed influenza-associated hospitalization rate reported by the NVSN for children 0-4 years old was 0.73 per 10,000.

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



During September 30 – January 19, 2008, the preliminary laboratory-confirmed influenza-associated hospitalization rate reported by the EIP for children 0–17 years old was 0.25 per 10,000. For children aged 0-4 years and 5-17 years, the rate was 0.7 per 10,000 and 0.07 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

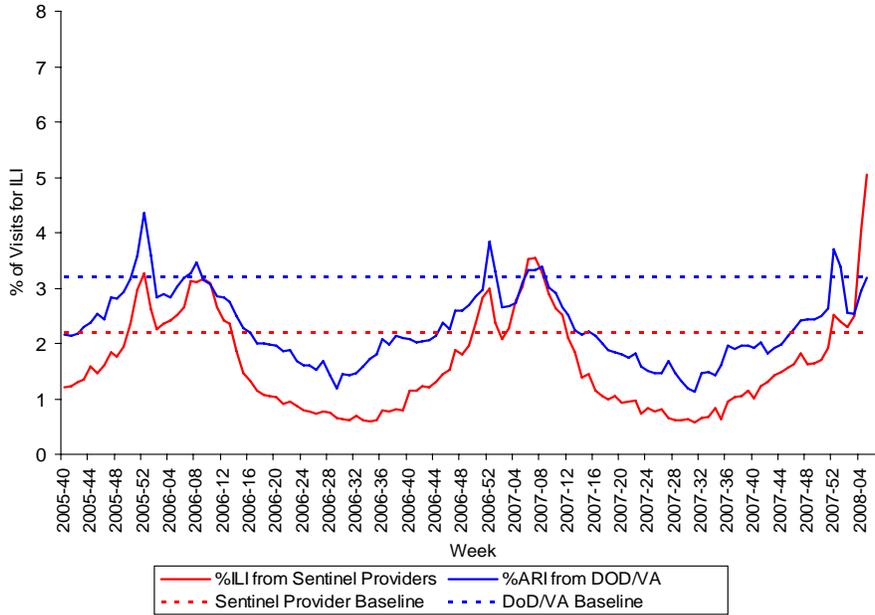


Outpatient Illness Surveillance: Nationwide during week 5, 5.1% of outpatient visits reported through the U.S. Influenza Sentinel Provider Surveillance Network were due to influenza-like illness (ILI), which is above the national baseline of 2.2%. On a regional level, the percentage of visits for ILI increased in all nine regions compared to last week and ranged from 2.7% to 10.4%. All nine regions reported ILI above their region-specific baselines.

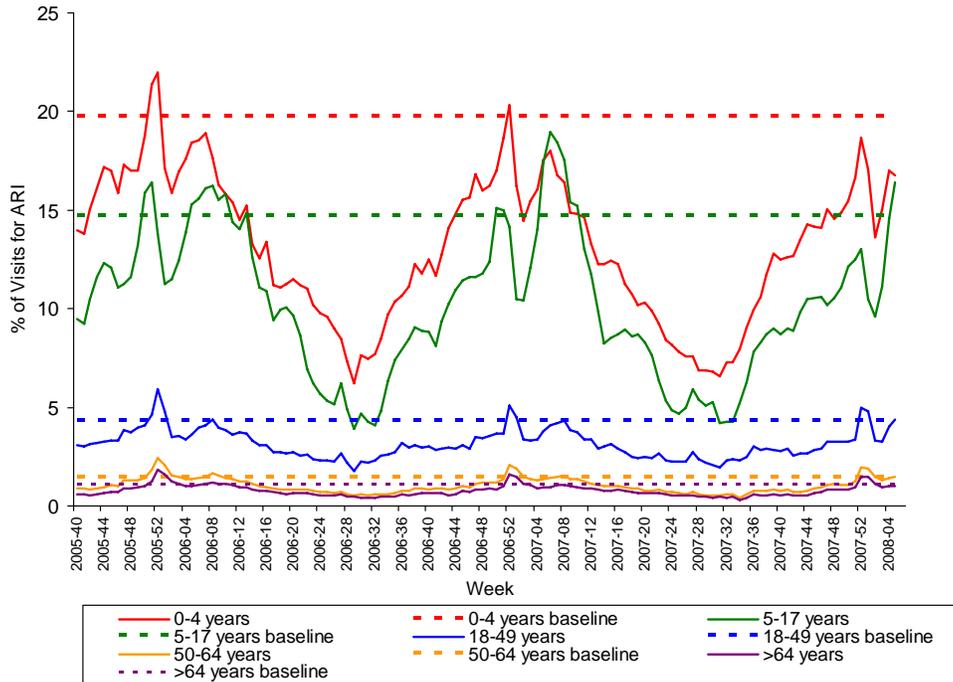
Starting in week 5, New York City began reporting ILI data collected electronically from emergency departments city-wide, adding approximately 60,000 additional patient visits per week to the U.S. Influenza Sentinel Provider Surveillance Network. Retrospective reports were submitted for all earlier weeks 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 5, 3.2% 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 at the national baseline of 3.2%. On a regional level, the percentage of visits for ARI ranged from 1.4% to 4.0%, and was slightly above the West North Central region-specific baseline. The percentage of visits reported for ARI was above age-specific baselines in the 5-17 year, 18-49 year, and 50-64 year age groups.

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

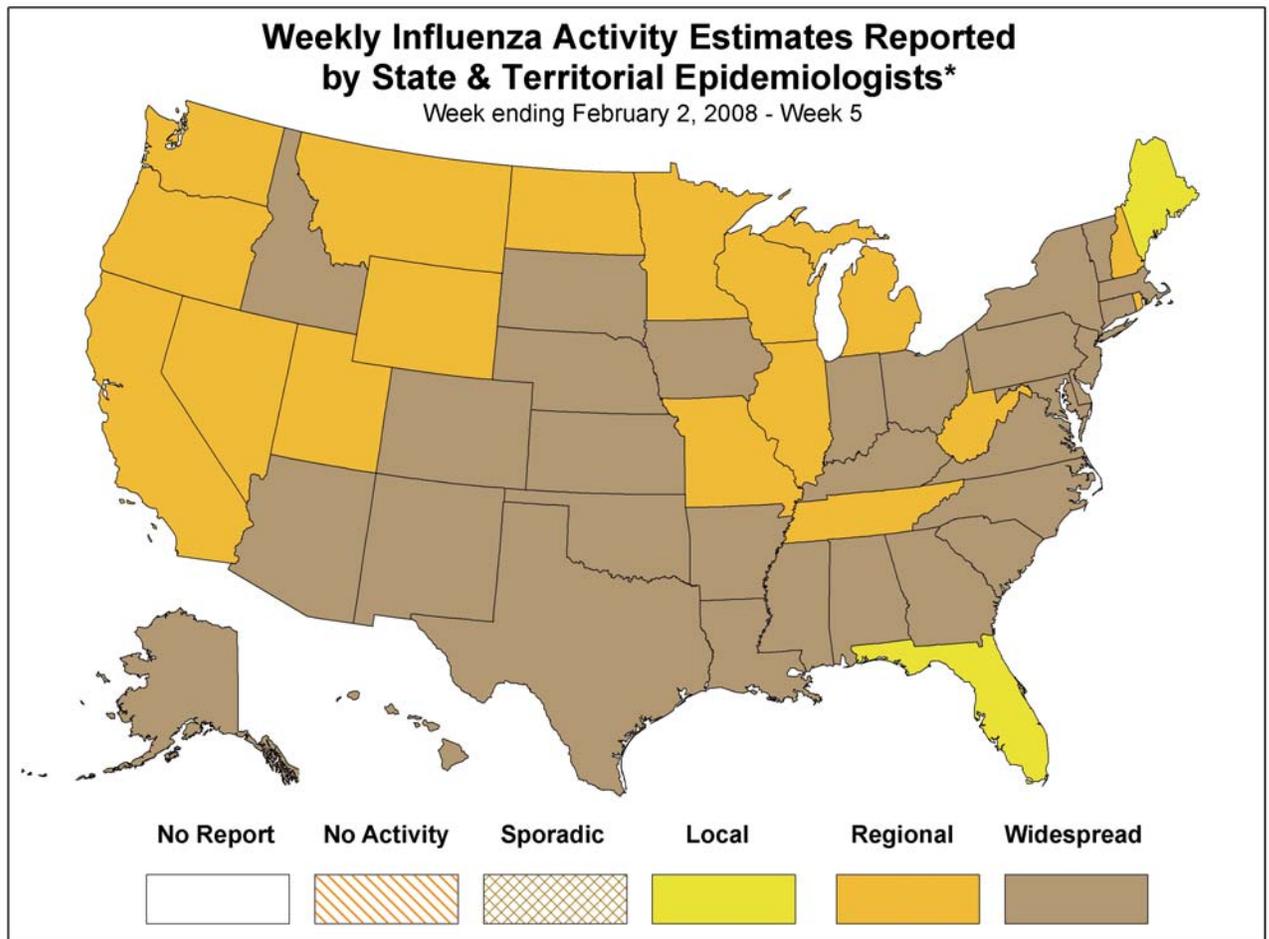


Percentage of Visits for ARI by Age Group Reported by DoD/VA Outpatient Clinics - National Summary



Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists: During week 5 the following influenza activity was reported:

- Widespread activity was reported by 31 states (Alabama, Alaska, Arizona, Arkansas, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Vermont, and Virginia).
- Regional activity was reported by 17 states (California, Illinois, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, North Dakota, Oregon, Rhode Island, Tennessee, Utah, Washington, West Virginia, Wisconsin, and Wyoming).
- Local activity was reported by the District of Columbia and two states (Florida and Maine).



* 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 8, 2008.