

2010-2011 Influenza Season Week 3 ending January 22, 2011

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

Synopsis: During week 3 (January 16-22, 2011), influenza activity in the United States increased.

- Of the 5,823 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, 1,754 (30.1%) were positive for influenza.
- The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold.
- Three influenza-associated pediatric deaths were reported. Two of these deaths were associated with influenza A (H3) virus infection and one was associated with an influenza B virus.
- The proportion of outpatient visits for influenza-like illness (ILI) was 3.6%, which is above the national baseline of 2.5%. Six of the 10 regions (Regions 2, 3, 4, 5, 6, and 7) reported ILI above region-specific baseline levels. Nine states experienced high ILI activity, eight states experienced moderate ILI activity, New York City and nine states experienced low ILI activity, 24 states experienced minimal ILI activity, and data were insufficient from the District of Columbia.
- The geographic spread of influenza in 25 states was reported as widespread; 16 states reported regional influenza activity; the District of Columbia and four states reported local influenza activity, Puerto Rico, the U.S. Virgin Islands, and four states reported sporadic influenza activity, Guam reported no influenza activity, and one state did not report.

National and Regional Summary of Select Surveillance Components

HHS Surveillance Regions*	Data for current week			Data cumulative since October 3, 2010 (Week 40)				
	Out-patient ILI†	% positive for flu‡	Number of jurisdictions reporting regional or widespread activity§	A (H3)	2009 A (H1N1)	A (Subtyping not performed)	B	Pediatric Deaths
Nation	Elevated	30.1%	41 of 54	5,316	1,534	3,516	4,440	13
Region 1	Normal	36.2%	6 of 6	468	66	4	33	0
Region 2	Elevated	20.1%	2 of 4	253	22	283	31	2
Region 3	Elevated	28.6%	3 of 6	567	314	144	102	2
Region 4	Elevated	23.7%	8 of 8	582	338	1,376	2,614	3
Region 5	Elevated	54.8%	6 of 6	550	309	74	187	0
Region 6	Elevated	31.7%	5 of 5	744	69	750	757	2
Region 7	Elevated	27.8%	3 of 4	195	106	161	96	0
Region 8	Normal	24.2%	4 of 6	1,063	128	593	123	3
Region 9	Normal	27.4%	2 of 5	735	138	119	471	1
Region 10	Normal	21.4%	2 of 4	159	44	12	26	0

*HHS regions (Region 1 CT, ME, MA, NH, RI, VT; Region 2: NJ, NY, Puerto Rico, U.S. Virgin Islands; Region 3: DE, DC, MD, PA, VA, WV; Region 4: AL, FL, GA, KY, MS, NC, SC, TN; Region 5: IL, IN, MI, MN, OH, WI; Region 6: AR, LA, NM, OK, TX; Region 7: IA, KS, MO, NE; Region 8: CO, MT, ND, SD, UT, WY; Region 9: AZ, CA, Guam, HI, NV; and Region 10: AK, ID, OR, WA).

† 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.

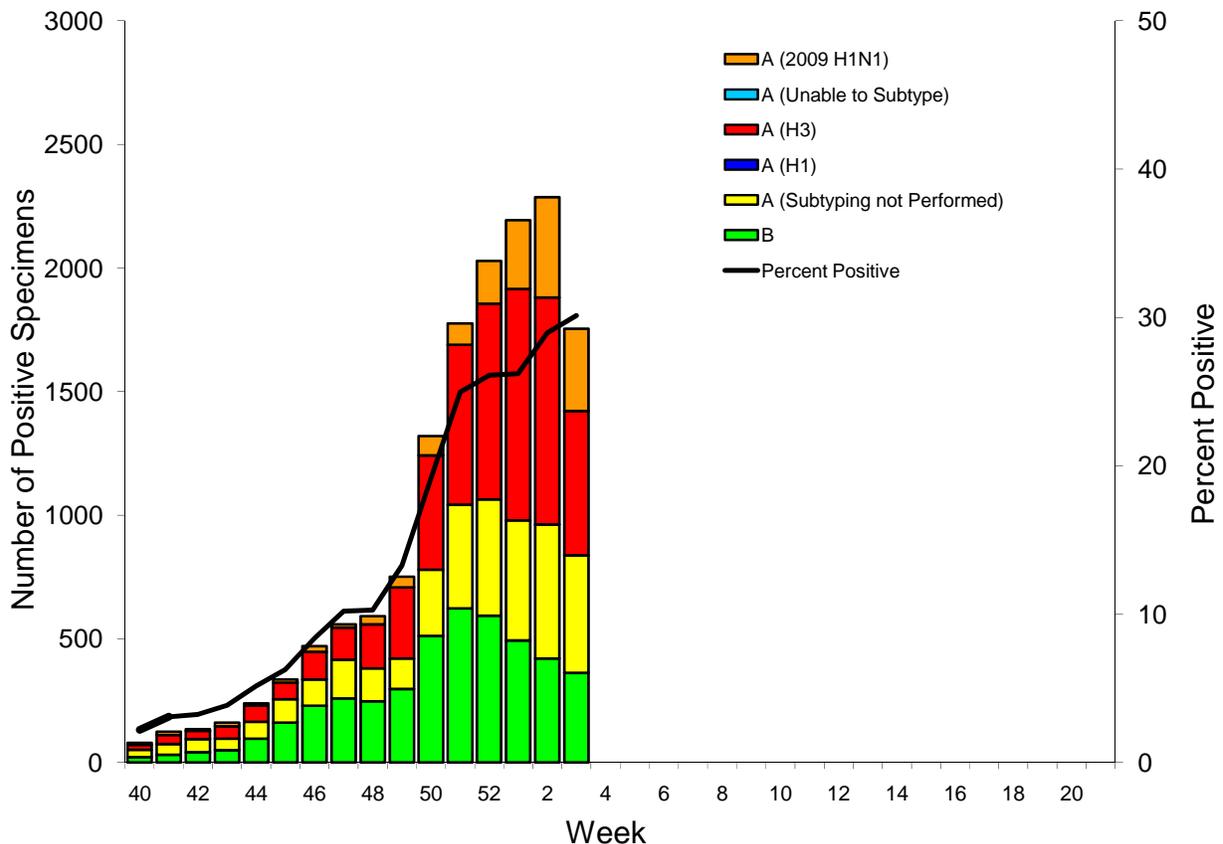
§ Includes all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands.

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 and the number positive by influenza type and subtype. The results of tests performed during the current week are summarized in the table below.

	Week 3
No. of specimens tested	5,823
No. of positive specimens (%)	1,754 (30.1%)
Positive specimens by type/subtype	
Influenza A	1,392 (79.4%)
A (2009 H1N1)	332 (23.9%)
A (subtyping not performed)	476 (34.2%)
A (H3)	584 (42.0%)
Influenza B	362 (20.6%)

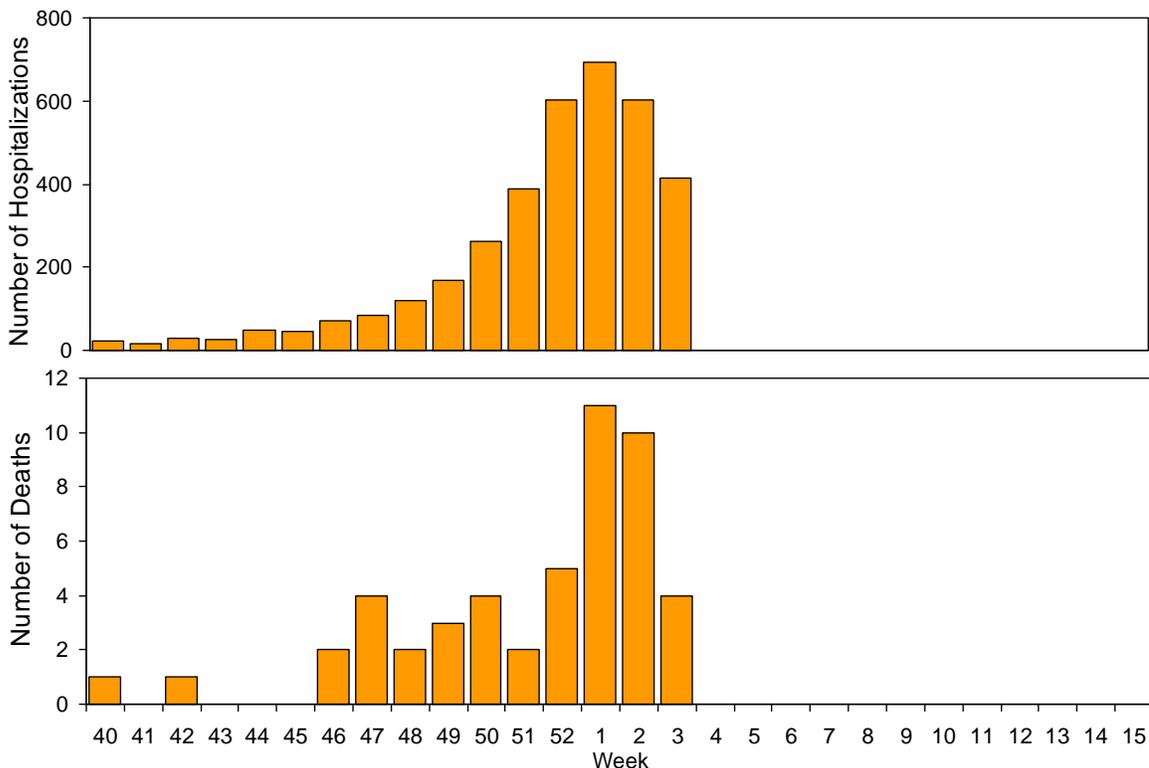
All 50 states and the District of Columbia have reported laboratory-confirmed influenza this season.

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2010-11 Season



Aggregate Hospitalization and Death Reporting Activity (AHDRA): This system tracks weekly counts of laboratory-confirmed influenza-associated hospitalizations and deaths and was implemented on August 30, 2009 during the 2009 pandemic, and ended on April 4, 2010. AHDRA surveillance during the 2010-11 season is being continued on a voluntary basis and 19 jurisdictions reported during week 3. From October 3, 2010-January 22, 2011, 3,597 laboratory-confirmed influenza associated hospitalizations and 49 laboratory-confirmed influenza associated deaths were reported to CDC.

Weekly Laboratory-Confirmed Influenza-Associated Hospitalizations and Deaths, National Summary, 2010-11 Season



Antigenic Characterization: CDC has antigenically characterized 368 influenza viruses [46 2009 influenza A (H1N1) viruses, 188 influenza A (H3N2) viruses, and 134 influenza B viruses] collected by U.S. laboratories since October 1, 2010.

2009 Influenza A (H1N1) [46]

- All 46 were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2010-11 influenza vaccine for the Northern Hemisphere.

Influenza A (H3N2) [188]

- All 188 were characterized as A/Perth/16/2009-like, the influenza A (H3N2) component of the 2010-11 influenza vaccine for the Northern Hemisphere.

Influenza B (B/Victoria/02/87 and B/Yamagata/16/88 lineages) [134]

Victoria Lineage [123]

- One hundred twenty-three (92%) of the 134 influenza B viruses tested belong to the B/Victoria lineage of viruses.
 - 122 (99.2%) of these 123 viruses were characterized as B/Brisbane/60/2008-like, the recommended influenza B component for the 2010-11 Northern Hemisphere influenza vaccine.
 - One (0.8%) of these 123 viruses showed somewhat reduced titers with antisera produced against B/Brisbane/60/2008.

Yamagata Lineage [11]

- Eleven (8%) of the 134 viruses were identified as belonging to the B/Yamagata lineage of viruses.

Antiviral Resistance: Testing of 2009 influenza A (H1N1), influenza A (H3N2), and influenza B virus isolates for resistance to neuraminidase inhibitors (oseltamivir and zanamivir) is performed at CDC using a functional assay. Additional 2009 influenza A (H1N1) clinical samples are tested for a single known mutation in the neuraminidase protein of the virus that confers oseltamivir resistance (H275Y). The data summarized below combine the results of both test methods and includes samples that were tested as part of routine surveillance purposes; it does not include diagnostic testing specifically done because of clinical suspicion of antiviral resistance.

High levels of resistance to the adamantanes (amantadine and rimantadine) persist among 2009 influenza A (H1N1) and A (H3N2) viruses (the adamantanes are not effective against influenza B viruses) circulating globally. As a result of the sustained high levels of resistance, data from adamantane resistance testing are not presented weekly in the table below.

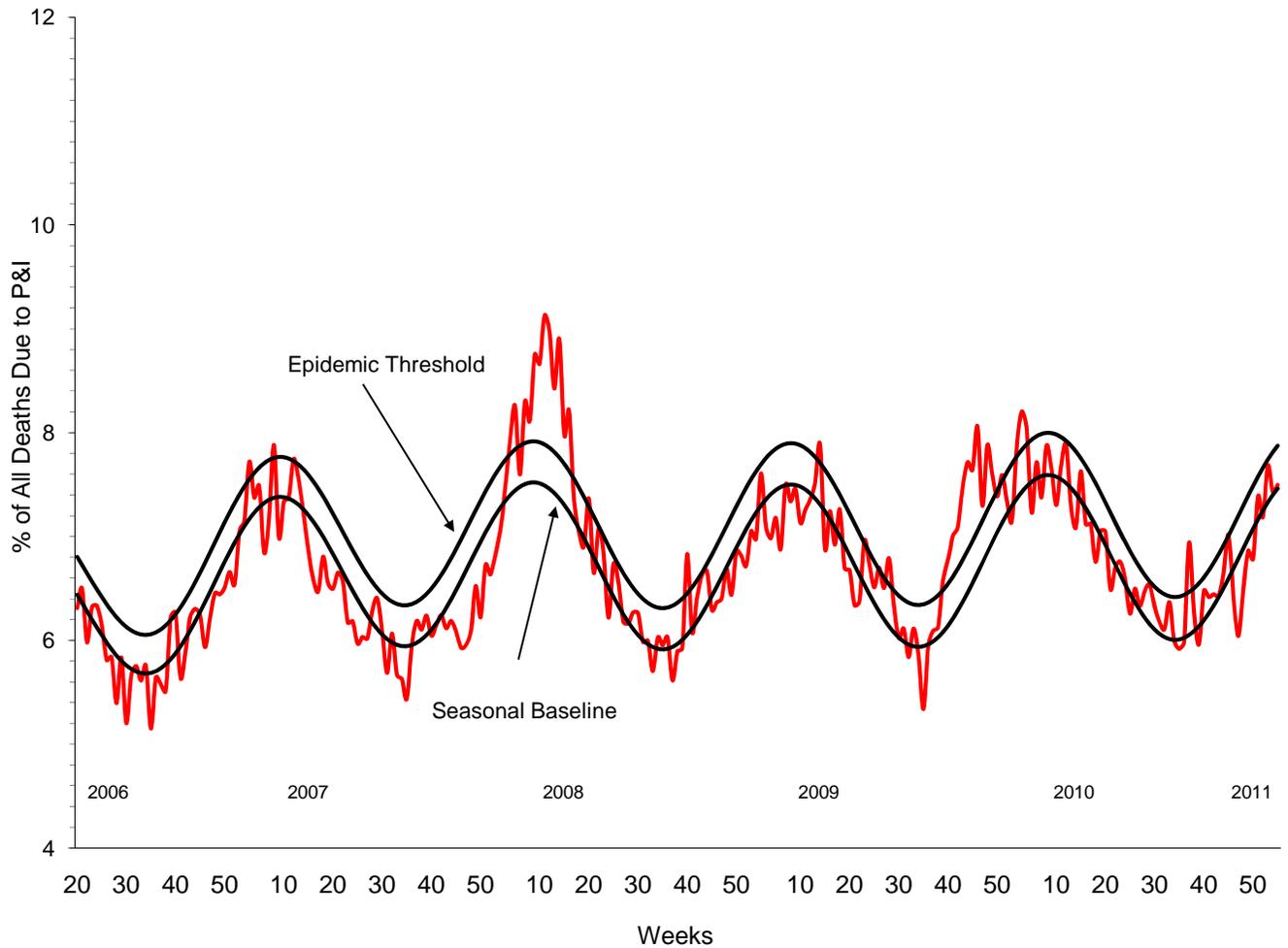
Neuraminidase Inhibitor Resistance Testing Results on Samples Collected Since October 1, 2010.

	Virus Samples tested (n)	Resistant Viruses, Number (%)	Virus Samples tested (n)	Resistant Viruses, Number (%)
		Oseltamivir		Zanamivir
Seasonal Influenza A (H1N1)	0	0 (0.0)	0	0 (0.0)
Influenza A (H3N2)	158	0 (0.0)	158	0 (0.0)
Influenza B	119	0 (0.0)	119	0 (0.0)
2009 Influenza A (H1N1)	87	0 (0.0)	33	0 (0.0)

To prevent the spread of antiviral resistant virus strains, CDC reminds clinicians and the public of the need to continue hand and cough hygiene measures for the duration of any symptoms of influenza, even while taking antiviral medications. Additional information on antiviral recommendations for treatment and chemoprophylaxis of influenza virus infection is available at <http://www.cdc.gov/flu/antivirals/index.htm>.

Pneumonia and Influenza (P&I) Mortality Surveillance: During week 3, 7.5% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage was below the epidemic threshold of 7.9% for week 3.

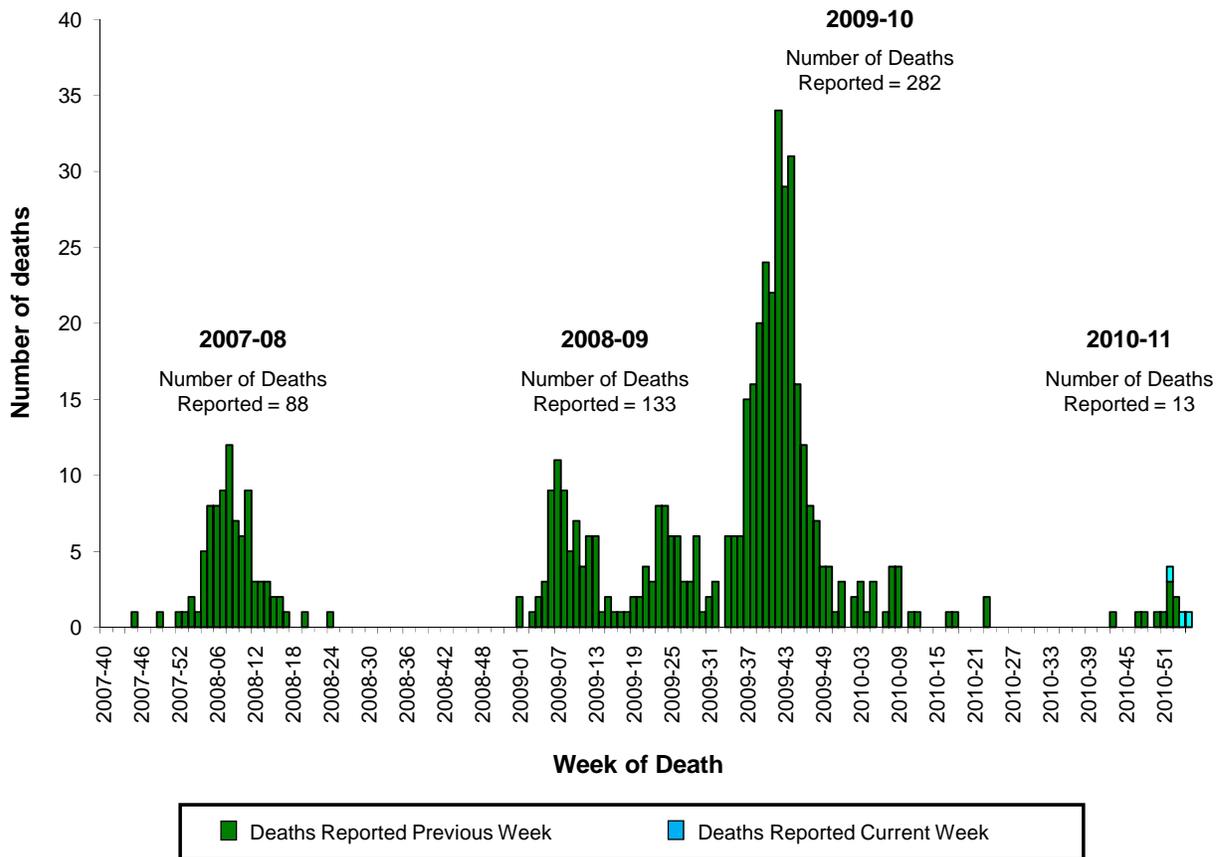
Pneumonia and Influenza Mortality for 122 U.S. Cities Week ending 1/22/2011



Influenza-Associated Pediatric Mortality: Three influenza-associated pediatric deaths were reported to CDC during week 3. Two of these deaths were associated with influenza A (H3) virus infection and the other death was associated with an influenza B virus. Thirteen deaths from 11 states (Arizona, Colorado, Florida, Georgia, New York, North Carolina, North Dakota, Pennsylvania, Texas, Utah, and West Virginia) have been reported during this influenza season.

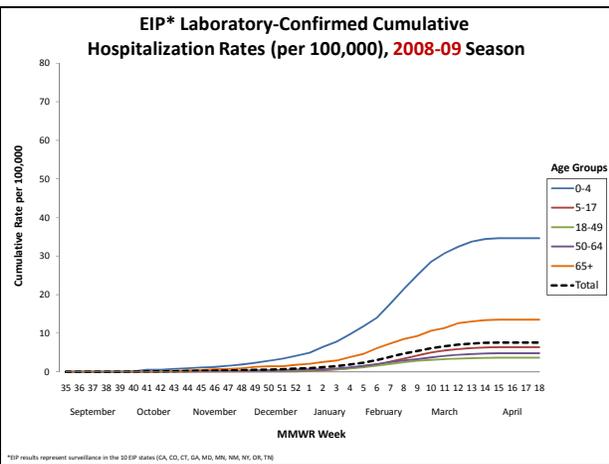
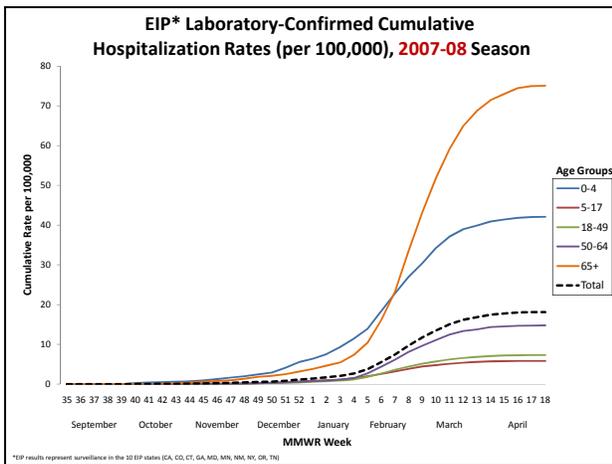
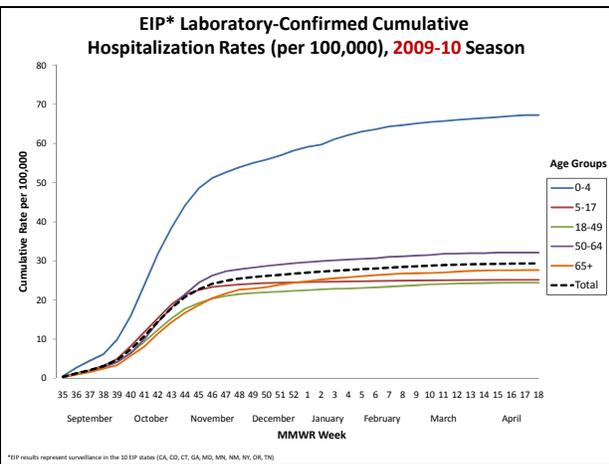
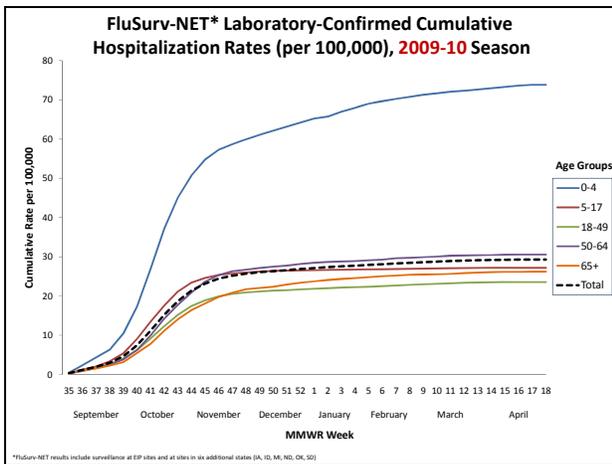
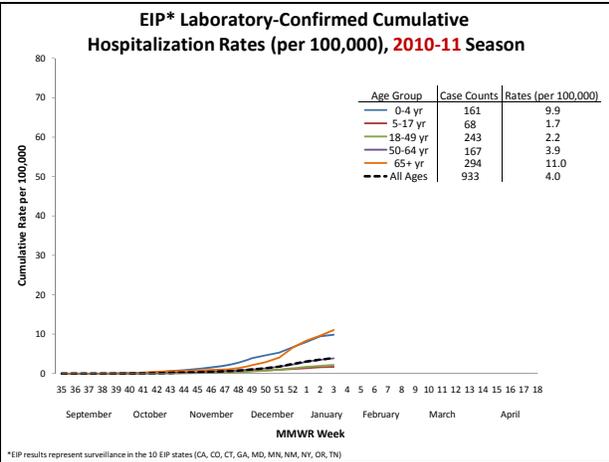
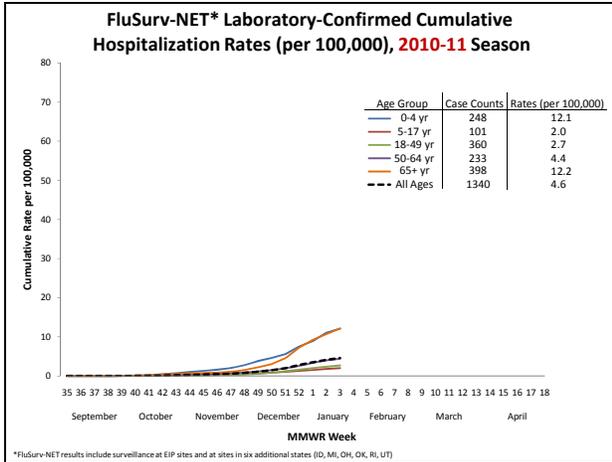
Seven of the 13 deaths reported were associated with influenza A (H3) virus infection, four deaths were associated with influenza B virus infection, and two were associated with an influenza A virus for which the subtype was not determined.

**Number of Influenza-Associated Pediatric Deaths by Week of Death:
2007-08 season to present**



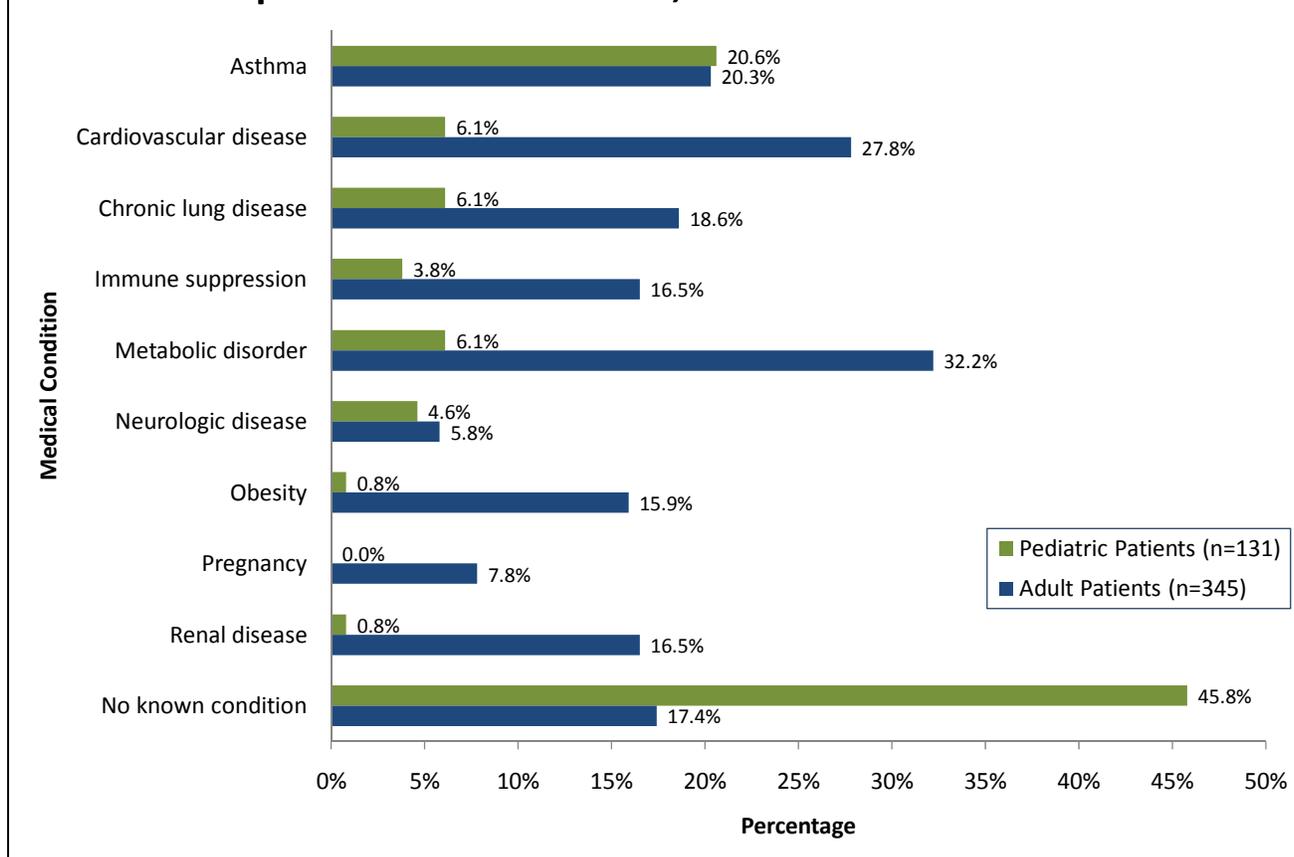
Influenza-Associated Hospitalizations: FluSurv-NET conducts population-based surveillance for laboratory-confirmed influenza-associated hospitalizations in children (persons younger than 18 years) and adults. The current network covers over 80 counties in the 10 Emerging Infections Program (EIP) states (CA, CO, CT, GA, MD, MN, NM, NY, OR, and TN) and six additional states (ID, MI, OH, OK, RI, and UT).

The current season's rates include cases from October 1, 2010 to January 22, 2011.



Please note the following: (i) The scale of the vertical axis on the Cumulative Hospitalization Rate figures for the current season has been adjusted on FluView to make it easier to read; (ii) FluSurv-NET was created during the 2009-2010 season when surveillance in six states was added to ongoing surveillance for influenza-associated hospitalizations in 10 EIP states. During the 2009-2010 season, FluSurv-NET included sites in the 10 EIP sites and sites in IA, ID, MI, ND, OK, and SD; (iii) the 2008-2009 EIP season ended April 14, 2009, due to the onset of the 2009 H1N1 pandemic.

Selected underlying medical conditions¹ in patients hospitalized with influenza, FluSurv-NET 2010-2011²



¹Asthma may include a diagnosis of asthma and reactive airway disease; Cardiovascular diseases may include conditions such as coronary heart disease, cardiac valve disorders, congestive heart failure, pulmonary hypertension, and aortic stenosis; Chronic lung diseases may include conditions such as bronchiolitis obliterans, chronic aspiration pneumonia, and interstitial lung disease; Immune suppression may include conditions such as immunoglobulin deficiency, leukemia, lymphoma, HIV/AIDS, and individuals taking immunosuppressive medications; Metabolic disorders may include conditions such as diabetes mellitus, thyroid dysfunction, adrenal insufficiency, and liver disease; Neurologic diseases may include conditions such as seizure disorders, neuromuscular disorders, and cognitive dysfunction; Obesity was defined as a body mass index (BMI) greater than 30 kg/m² in patients 20 years of age or older, or equal to or greater than the 95th percentile of a patient's age and sex category in patients under 20 years of age; Renal diseases may include conditions such as acute or chronic renal failure, nephrotic syndrome, glomerulonephritis, and impaired creatinine clearance.

²Data as of January 25, 2011. Includes 476 (of a total 1,356 reported) cases for which data collection has been completed through the medical chart review stage.

Demographic and clinical characteristics of laboratory-confirmed, influenza-associated hospitalizations identified in EIP¹ and FluSurv-NET² sites, 2006-2011

	2010-2011 FluSurv-NET ³ N (%)	2009-2010 FluSurv-NET ³ N (%)	2008-2009 EIP N (%)	2007-2008 EIP N (%)	2006-2007 EIP N (%)
Total Cases	1,356	7,517	1,698	3,930	1,279
Age in Years					
0-4	249 (18.4)	1,326 (17.6)	549 (32.3)	637 (16.2)	393 (30.7)
5-17	102 (7.5)	1,204 (16.0)	244 (14.4)	221 (5.6)	130 (10.2)
18-49	362 (26.7)	2,779 (37.0)	374 (22.0)	735 (18.7)	246 (19.2)
50-64	234 (17.3)	1,458 (19.4)	201 (11.8)	585 (14.9)	155 (12.1)
65+	406 (29.9)	750 (10.0)	330 (19.4)	1,749 (44.5)	355 (27.8)
Sex					
Male	628 (46.3)	3,517 (46.8)	832 (49.0)	1,825 (46.4)	631 (49.3)
Female	723 (53.3)	4,000 (53.2)	866 (51.0)	2,104 (53.5)	648 (50.7)
Flu Type and Subtype					
Influenza A	998 (73.6)	7,355 (97.8)	1,236 (72.8)	2,558 (65.1)	1,082 (84.6)
Specimens subtyped⁴	182	5,307	--	--	--
A (H1)	0 (0.0)	0 (0.0)	--	--	--
A (H3)	162 (89.0)	3 (0.1)	--	--	--
A (2009 H1N1)	20 (11.0)	5,304 (99.9)	--	--	--
Influenza B	274 (20.2)	52 (0.7)	382 (22.5)	1,199 (30.5)	149 (11.7)
Intensive Care Unit	71 (14.9)	1,552 (20.8)	298 (17.6)	495 (12.6)	198 (15.5)
Mechanical Ventilation	18 (3.8)	751 (10.0)	157 (9.3)	252 (6.4)	111 (8.7)
Diagnosis of Pneumonia	115 (24.2)	2,790 (37.3)	407 (24.0)	1,220 (31.0)	404 (31.6)
Died	7 (1.5)	221 (3.0)	49 (2.9)	104 (2.7)	24 (1.9)

Columns may not sum to 100% due to missing or unknown values.

¹Surveillance in EIP states (CA, CO, CT, GA, MD, MN, NM, NY, OR, TN) was conducted from 2006-2011.

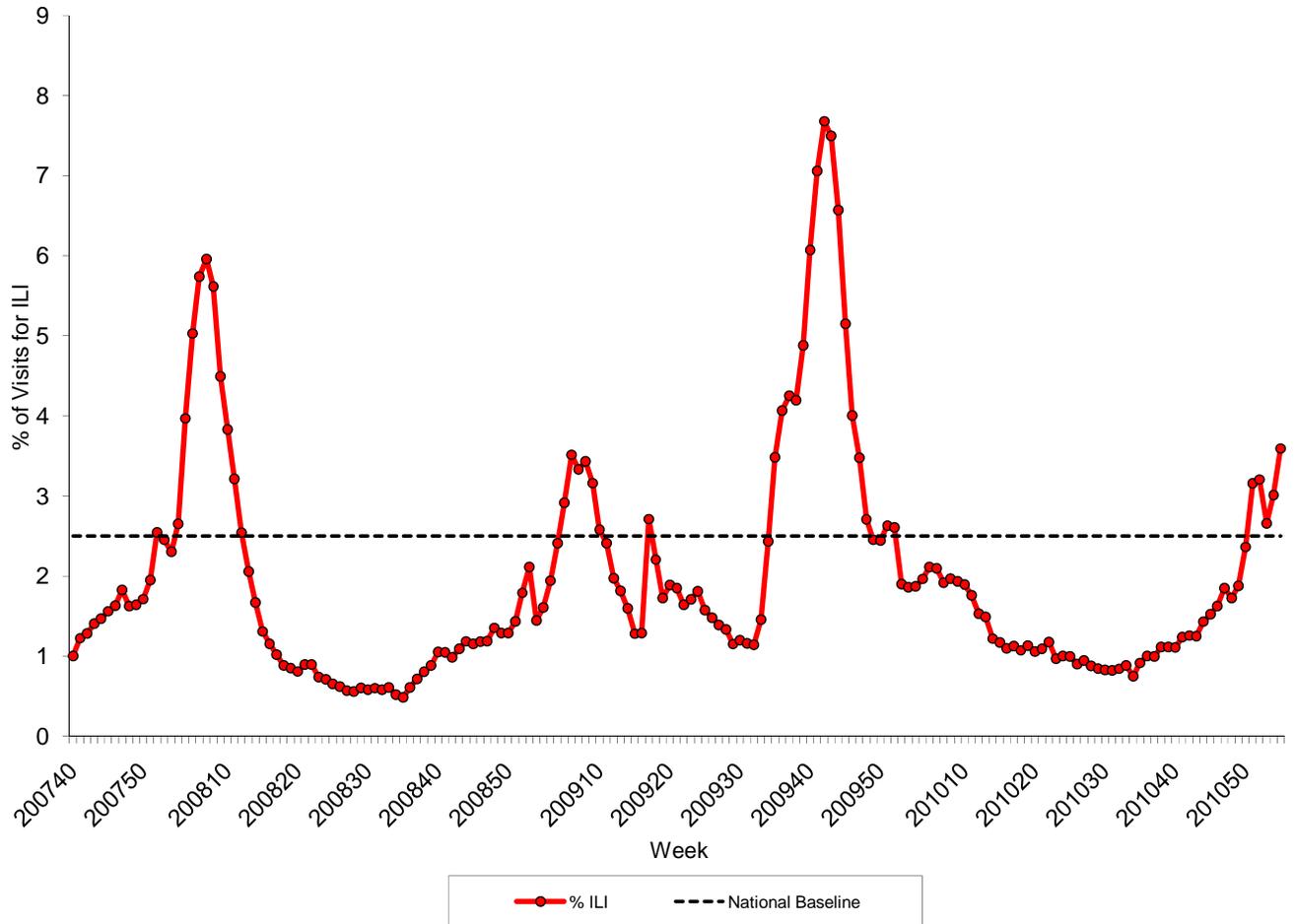
²FluSurv-Net includes surveillance at EIP sites and at sites in additional states (IA, ID, MI, ND, OK, SD in 2009-2010; ID, MI, OH, OK, RI, UT in 2010-2011).

³Data as of January 25, 2011. Results describing influenza A subtype, intensive care unit admission, mechanical ventilation, diagnosis of pneumonia, and death are from 7,480 (of a total 7,517 reported) and 476 (of a total 1,356 reported) cases for which data collection has been completed through the medical chart review stage for the 2009-2010 and 2010-2011 seasons, respectively.

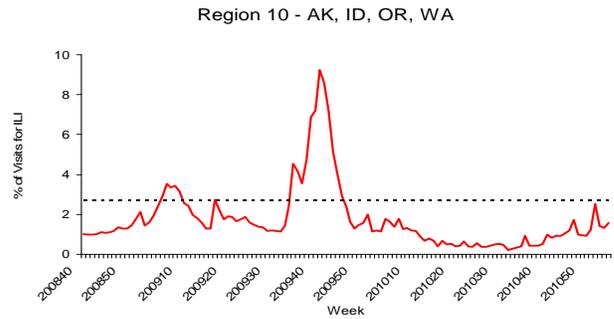
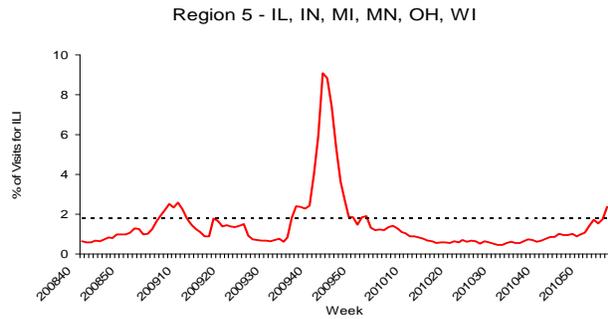
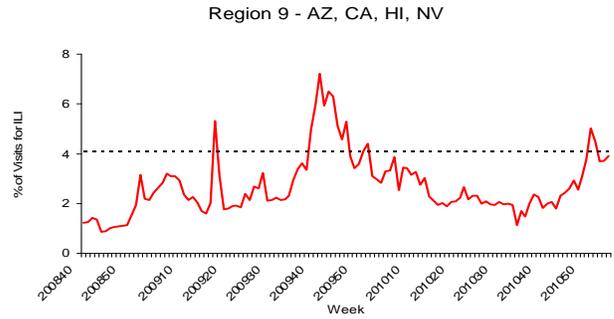
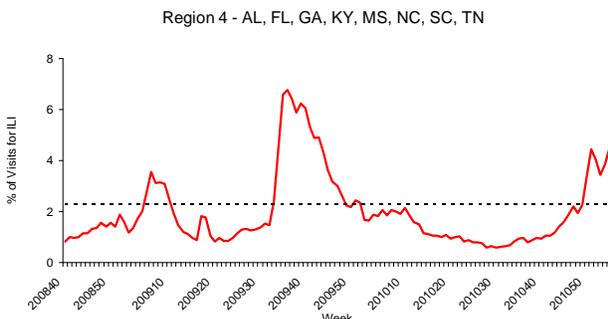
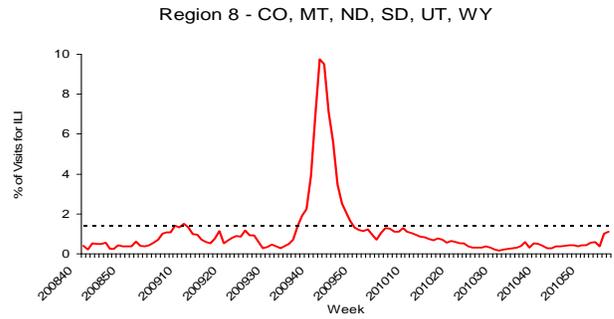
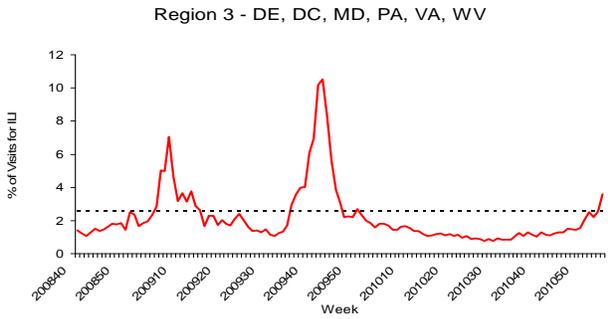
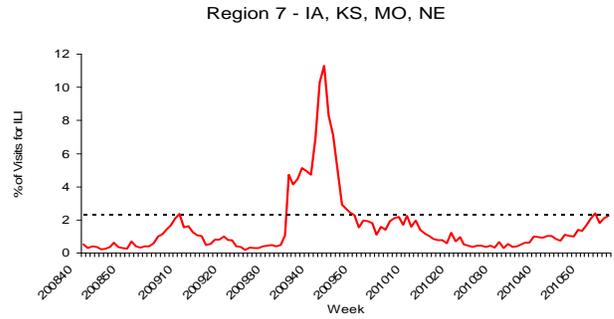
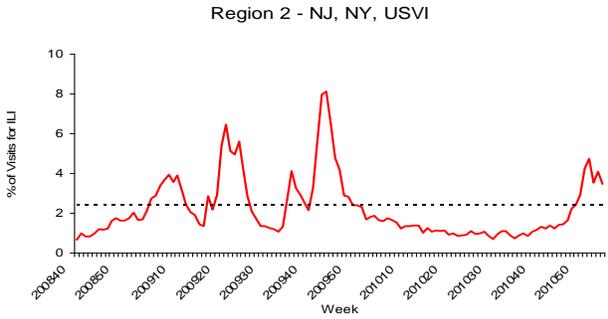
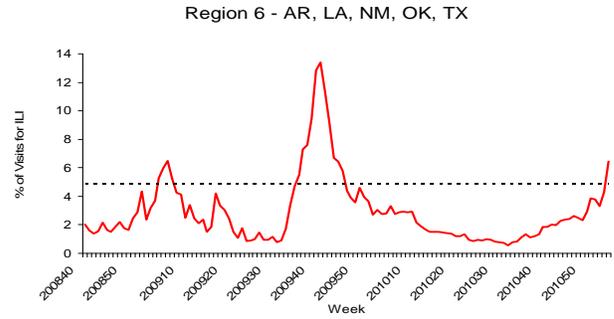
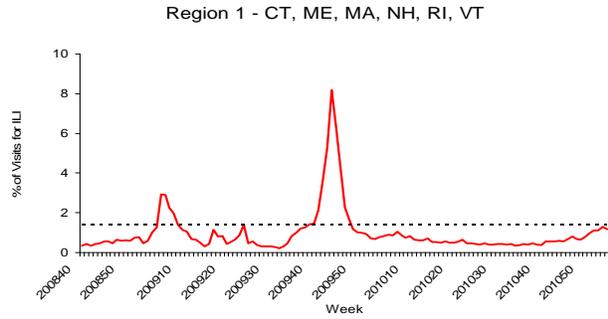
⁴Influenza A subtype results are available beginning with the 2007-2008 season. Percentages for influenza A subtypes are calculated using the number of influenza A specimens that were subtyped as a denominator.

Outpatient Illness Surveillance: Nationwide during week 3, 3.6% 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 2.5%.

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, September 30, 2007 – January 22, 2011



On a regional level, the percentage of outpatient visits for ILI ranged from 1.1% to 6.5% during week 3. Six of the 10 regions (Regions 2, 3, 4, 5, 6, and 7) reported a proportion of outpatient visits for ILI above region-specific baseline levels.



NOTE: Scales differ between regions

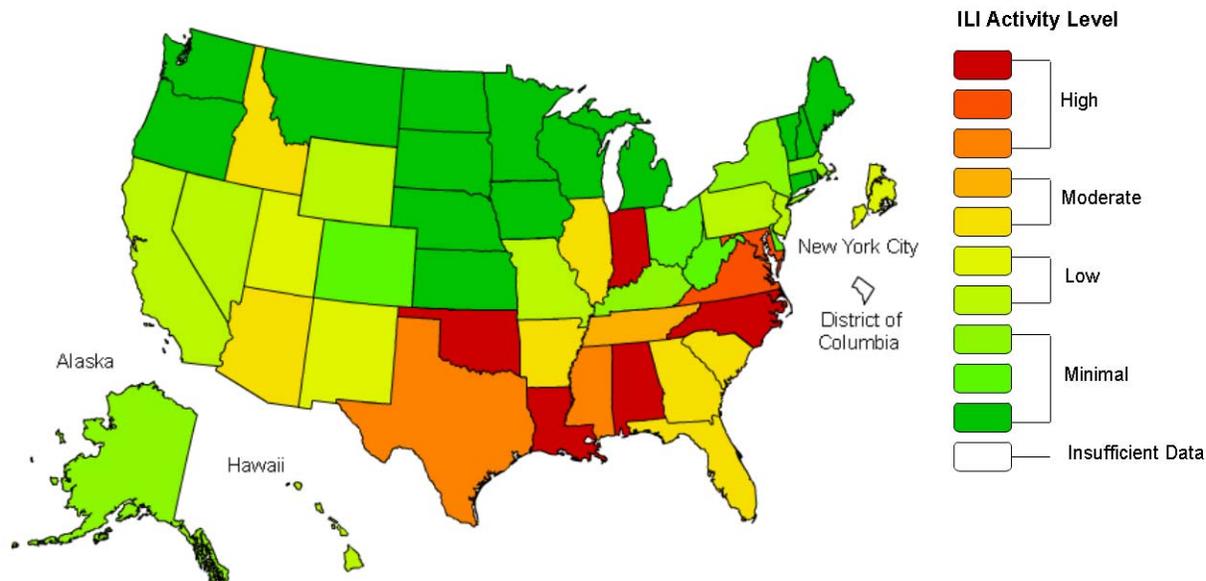
*Use of the regional baselines for state data is not appropriate.

ILINet Activity Indicator Map: Data collected in ILINet are used to produce a measure of ILI activity* by state. Activity levels are based on the percent of outpatient visits in a state due to ILI and are compared to the average percent of ILI visits that occur during spring and fall weeks with little or no influenza virus circulation. Activity levels range from minimal, which would correspond to ILI activity from outpatient clinics being below the average, to high, which would correspond to ILI activity from outpatient clinics being much higher than the average. Because the clinical definition of ILI is very general, not all ILI is caused by influenza; however, when combined with laboratory data, the information on ILI activity provides a clear picture of influenza activity in the United States.

During week 3, the following ILI activity levels were experienced:

- Nine states (Alabama, Indiana, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, Texas, and Virginia) experienced high ILI activity.
- Eight states (Arizona, Arkansas, Florida, Georgia, Idaho, Illinois, South Carolina, and Tennessee) experienced moderate ILI activity.
- New York City and nine states (California, Hawaii, Missouri, Nevada, New Jersey, New Mexico, Pennsylvania, Utah, and Wyoming) experienced low ILI activity.
- Minimal ILI activity was experienced by 24 states (Alaska, Colorado, Connecticut, Delaware, Iowa, Kansas, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, New Hampshire, New York, North Dakota, Ohio, Oregon, Rhode Island, South Dakota, Vermont, Washington, West Virginia, and Wisconsin).
- Data were insufficient to calculate an ILI activity level from the District of Columbia.

**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2010-11 Influenza Season Week 3 ending Jan 22, 2011**



Interactive web tool available at: <http://gis.cdc.gov/grasp/fluview/main.html>

*This map uses the proportion of outpatient visits to health care providers for influenza-like illness to measure the ILI activity level within a state. It does not, however, measure the extent of geographic spread of flu within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels.

Data collected in ILINet may disproportionately represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state.

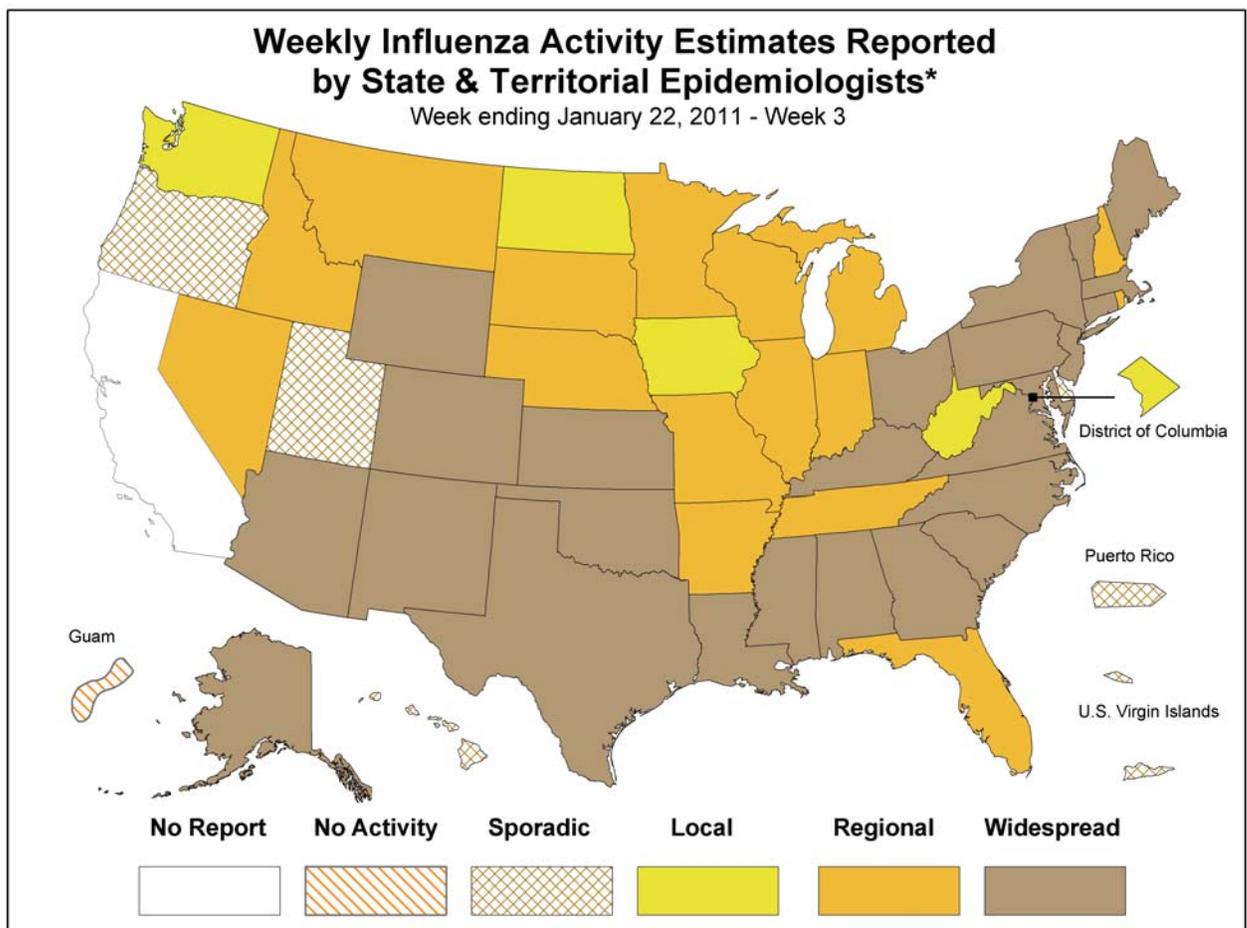
Data displayed in this map are based on data collected in ILINet, whereas the State and Territorial flu activity map are based on reports from state and territorial epidemiologists. The data presented in this map is preliminary and may change as more data is received.

Differences in the data presented by CDC and state health departments likely represent differing levels of data completeness with data presented by the state likely being the more complete.

Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists: The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity.

During week 3, the following influenza activity was reported:

- Widespread influenza activity was reported by 25 states (Alabama, Alaska, Arizona, Colorado, Connecticut, Georgia, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Vermont, Virginia, and Wyoming).
- Regional influenza activity was reported by 16 states (Arkansas, Florida, Idaho, Illinois, Indiana, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, Rhode Island, South Dakota, Tennessee, and Wisconsin).
- Local influenza activity was reported by the District of Columbia and four states (Iowa, North Dakota, Washington, and West Virginia).
- Sporadic influenza activity was reported by Puerto Rico, the U.S. Virgin Islands, and four states (Delaware, Hawaii, Oregon, and Utah).
- Guam reported no influenza activity.
- One state did not report (California).



* This map indicates geographic spread & does not measure the severity of influenza activity

Additional National and International Influenza Surveillance Information

Distribute Project: Additional information on the Distribute syndromic surveillance project, developed and piloted by the International Society for Disease Surveillance (ISDS) now working in collaboration with CDC, to enhance and support Emergency Department (ED) surveillance, is available at <http://isdsdistribute.org/>.

Google Flu Trends: Google Flu Trends uses aggregated Google search data in a model created in collaboration with CDC to estimate influenza activity in the U.S. For more information and activity estimates from the U.S. and worldwide, see <http://www.google.org/flutrends/>.

Europe: for the most recent influenza surveillance information from Europe, please see WHO/Europe at <http://www.euroflu.org/index.php> and visit the European Centre for Disease Prevention and Control at <http://ecdc.europa.eu/en/Activities/Surveillance/EISN/Pages/home.aspx>.

Public Health Agency of Canada: The most up to date influenza information from Canada is available at <http://www.phac-aspc.gc.ca/fluwatch/>.

World Health Organization FluNet: Additional influenza surveillance information from participating WHO member nations is available at <http://gamapserver.who.int/GlobalAtlas/home.asp>.

A description of surveillance methods is available at: <http://www.cdc.gov/flu/weekly/overview.htm>
Report prepared: January 28, 2011.