NH DIVISION OF Public Health Services
Improving health, preventing disease, reducing costs *for all*
Department of Health and Human Services

Bureau of Infectious Disease Control
Infectious Disease Surveillance Section (IDSS)

Weekly Influenza Surveillance Report
Week Ending January 30, 2016
MMWR Week 4

The NH Department of Health and Human Services (DHHS) provides weekly influenza surveillance reports during the traditional influenza season, which starts at the beginning of October and continues through mid-May. The 2015–16 influenza season began on 10/04/2015.

Summary for New Hampshire

	Influenza-Like Illness (ILI)	Acute Respiratory Illness (ARI)	Pneumonia and Influenza (P&I) Related Deaths	Respiratory Specimens Submitted to the Laboratory	Flu Activity
Week 4	0.5% = similar to previous week	3.1% = increase from previous week	5.6% (below threshold*)	0 Total	Regional
Week 3	0.4%	2.5%	6.4%		Regional

**Epidemic threshold = 14.0%*

New Hampshire Surveillance

Outpatient Illness Surveillance

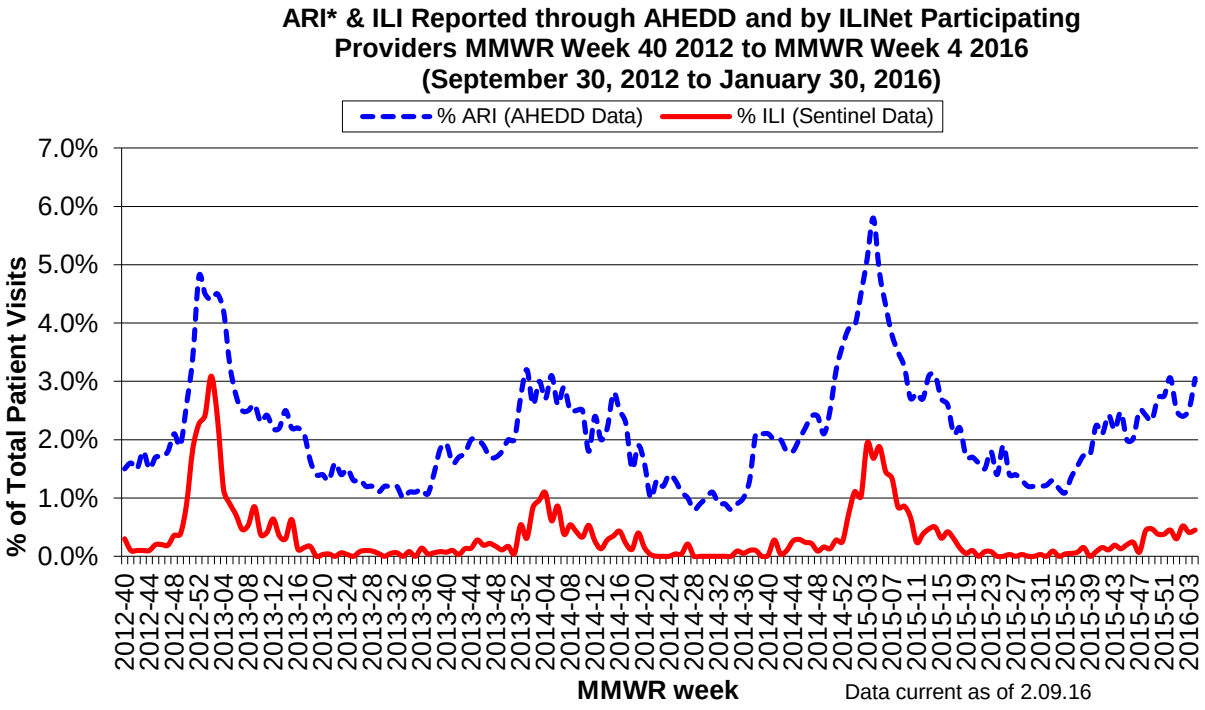
The two components of outpatient illness surveillance in New Hampshire are as follows:

1. **U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet)**: Beginning in 1997, NH has participated in this collaborative effort between the Centers for Disease Control and Prevention, state and local health departments, and health care providers. For the 2015-16 influenza season, 24 NH health care providers are participating. Participating providers report the proportion of patients who present with influenza-like illness (ILI) on a weekly basis. ILI is defined as 1) a fever and 2) cough and/or sore throat, in the absence of a known cause. Participating providers are also asked to collect respiratory specimens from select patients and submit them to the PHL for viral subtyping.
2. **The Automated Hospital Emergency Department Data (AHEDD) system**: This system is a collaborative effort between NH acute care hospitals and the NH DHHS. Currently, 26 hospitals electronically transmit real-time data from emergency department encounters throughout the day to NH DHHS. Chief complaint text within the system is queried for complaints of acute respiratory illness (ARI) in patients seen in emergency departments. While ARI includes encounters that fit the definition of ILI above, it also includes encounters for complaints such as acute bronchitis or otitis media.

Because these two systems collect information using different methods and represent different patient populations, it is expected that the proportions of ILI and ARI seen in these systems will differ. However, the overall trend of activity is expected to be similar.

	Patient Visits/Encounters	Reporting Providers/Hospitals	ILI	ARI	Change from Previous Week
ILINet	18/4,037	17	0.5%		Similar to 0.4%
AHEDD	348/11,422	26		3.1%	Increase from 2.5%

Maps illustrating the degree of ARI activity for each of the ten counties for week 4 and week 5 are available at http://www.dhhs.nh.gov/dphs/cdcs/influenza/arisurveillance.htm



Laboratory Surveillance

The NH Public Health Laboratories (PHL) receives respiratory specimens for influenza testing from health care providers and hospitals throughout the State. Testing is important to identify circulating influenza viral subtypes and to confirm specimens that test positive by rapid test.

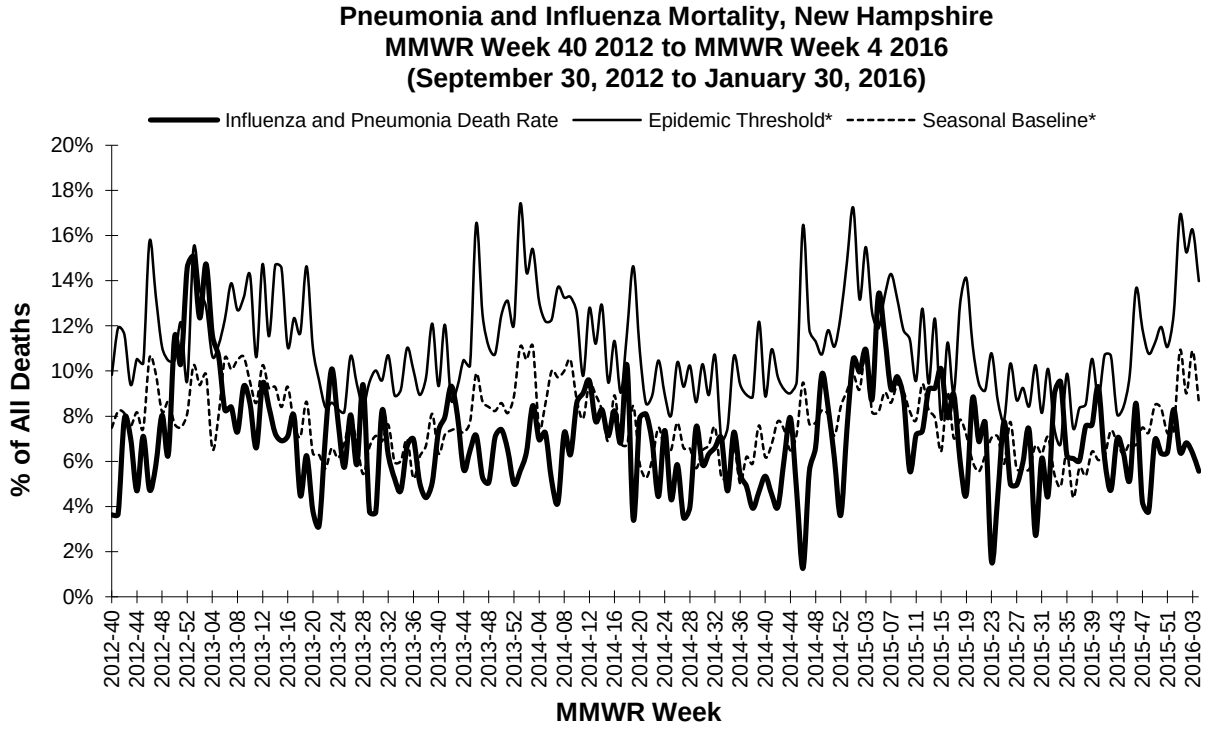
Results of Specimens Received by the PHL and Cumulative Totals for the 2015-16 Influenza Season

	Week 4 (1/24/16–1/30/16)		YTD (10/04/15–2/06/16)	
Results	# specimens	% of total positive	# specimens	% of total positive
Influenza A (H1)	0	0	0	0
Influenza A (H3)	0	0	1	12.5
Influenza A (H1N1)pdm09	0	0	5	62.5
Influenza B (Yamagata)	0	0	2	25.0
Influenza B (Victoria)	0	0	0	0
Negative for influenza	0		23	
Total	0		31	

Pneumonia and Influenza (P&I) Mortality

Pneumonia and Influenza (P&I) deaths in New Hampshire are identified through review of electronically filed death certificates by looking at the causes of death listed on each death certificate. The following graph, which shows the proportion of deaths attributed to P&I, represents all deaths recorded by NH's Division of Vital Records Administration. This includes resident and non-resident deaths that occurred within the State, and may not include deaths of NH residents that occurred out-of-state, or cases being investigated by the Medical Examiner's Office.

- ❑ 5.6% of all deaths recorded in NH were reported as due to P&I. This is below the epidemic threshold of 14.0%.
- ❑ One influenza-related death in an adult has been identified so far this influenza season. The county of residence for the person with an identified influenza-related death is Rockingham. No pediatric influenza-related deaths have been identified this influenza season. Due to delays in electronic filing of death certificates, newly identified deaths in the last week may have occurred at any point during the flu season and not necessarily within the last week.



**Seasonal baseline is calculated using the previous 5 years of data. If the proportion of P&I deaths for a given week exceeds the baseline value for that week by a statistically significant amount (1.645 standard deviations), then P&I deaths are said to be above the epidemic threshold, and the proportion of deaths above threshold are considered attributable to influenza.*

School Surveillance for Absenteeism

Beginning with the 2009-2010 school year, an influenza-like illness (ILI) web-reporting tool for NH schools was implemented to better evaluate trends of ILI in communities over time. All public schools were asked to voluntarily report daily aggregate counts for student and staff absenteeism, those absent for ILI, total school nurse visits, and nurse visits for ILI. An analysis tool has been developed, and student

absenteeism and student ILI rates, reported by SAU, are posted on the DHHS website each week at http://www.dhhs.nh.gov/dphs/cdcs/influenza/schoolsurveillance.htm

Student Absenteeism	Overall Rate	Number of Schools Reporting	Percentage of Schools Reporting	Previous Week's Overall Rate
Total Absenteeism	4.2%	128/676	19%	4.3%
Influenza-Like-Illness	0.3%	87/676	13%	0.3%

Over-the-Counter Pharmaceuticals

DHHS receives automated data of OTC pharmaceuticals sales from 20 pharmacies statewide. Sales are categorized into six categories based on the UPC code, including categories for cough and cold remedies.

STEMS - Weekly OTC Sales

Medication Category	Sales Current Week Count/Weekly Total* (%)	Sales Previous Week Count/Weekly Total* (%)
Cold Remedies	**871 / 6135 (14%)**	**883 / 7310 (12%)**
Cough Remedies	**1730 / 6135 (28%)**	**2004 / 7310 (27%)**

***Total** = total sales of the six categories for this reporting period

Influenza Activity in New Hampshire as Assessed by the State Epidemiologist

- ❑ Overall influenza activity in NH for week 4 was **regional**.
- ❑ Influenza activity in NH for week 5 was **regional**, and will be included in CDC's update for week 5.

Reported flu activity level is based on ILI reported by the participating providers and AHEDD surveillance systems, reported outbreaks in facilities, and reports of laboratory confirmed influenza. Influenza activity levels are defined by CDC as follows:

- **No Activity:** Low ILI activity and no laboratory-confirmed cases of influenza.
- **Sporadic:** Low ILI activity and isolated laboratory-confirmed influenza cases or a single influenza outbreak has been reported.
- **Local:** Increased ILI activity or influenza outbreaks in a single region of the state, and recent laboratory-confirmed influenza in that region.
- **Regional:** Increased ILI activity or influenza outbreaks in ≥ 2, but less than half of state regions, and recent laboratory-confirmed influenza in affected regions.
- **Widespread:** Increased ILI activity or influenza outbreaks in at least half of state regions, and recent laboratory-confirmed influenza in the state.

National Surveillance

National Geographic Spread of Influenza

Widespread	Regional	Local	Sporadic	No Activity
▪ 3 states, including Massachusetts ▪ Puerto Rico	▪ 18 states, including Connecticut, Maine, New Hampshire, Rhode Island, and Vermont ▪ Guam	▪ 16 states ▪ District of Columbia	▪ 12 states ▪ U.S. Virgin Islands	▪ 1 state

National Surveillance (continued)

- ❑ During week 4 (1/24/16-1/30/16), influenza activity increased slightly in the United States.
- ❑ The most frequently identified influenza virus type reported by public health laboratories in week 4 was influenza A, with influenza A (H1N1)pdm09 viruses predominating. The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased.
- ❑ The proportion of deaths reported through the 122 Cities Mortality Reporting System attributed to pneumonia and influenza (P&I) was 6.8%, which is below the epidemic threshold (7.2%).
- ❑ Two influenza-associated pediatric deaths were reported.
- ❑ A cumulative hospitalization rate for the season of 2.6 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.
- ❑ The proportion of outpatient visits for influenza-like illness (ILI) was 2.2%, which is above the national baseline of 2.1%. Six of 10 regions reported ILI at or above region-specific baseline levels. Puerto Rico experienced high ILI activity; two states experienced moderate ILI activity; New York City and 11 states experienced low ILI activity; 37 states experienced minimal ILI activity; and the District of Columbia had insufficient data.

Laboratory Surveillance

Public Health laboratories located in all 50 states and Washington D.C. reported specimens testing positive during week 4 for influenza viruses, as follows:

Flu Season	Influenza A(H1N1) pdm09	Influenza A (H3)	Influenza A Unsubtyped	Influenza B (Yamagata lineage)	Influenza B (Victoria lineage)	Influenza B (lineage not performed)	Percentage of Specimens Testing Positive
Week 4 2015-16	167 (45.3%)	55 (14.9%)	51 (13.9%)	36 (9.8%)	15 (4.1%)	44 (12.0%)	**368/1,255 (29.3%)**

Antigenic Characterization

CDC has characterized 407 influenza viruses [130 A (H1N1)pdm09, 190 A (H3N2), and 87 influenza B viruses] collected by U.S. laboratories since October 1, 2015.

Influenza Subtype	Antigenic Characterization Summary
A (H1N1)pdm09	▪ 130 total viruses tested ▪ All 130 (100%) viruses tested were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2015-2016 Northern Hemisphere influenza vaccine

Influenza Subtype	Antigenic Characterization Summary (continued)
Influenza A (H3N2)	▪ 190 total viruses tested ▪ All 190 H3N2 viruses were genetically sequenced and all viruses belonged to genetic groups for which a majority of viruses antigenically characterized were similar to cell propagated A/Switzerland/9715293/2013, the influenza A (H3N2) reference virus component of the 2015-2016 Northern Hemisphere vaccine. ▪ A subset of 93 H3N2 viruses also were antigenically characterized; 92 of 93 (99%) H3N2 viruses were A/Switzerland/9715293/2013-like by HI testing or neutralization testing.
Influenza B	▪ 87 influenza B viruses tested ▪ **Yamagata lineage:** All 52 (100%) B/Yamagata-lineage viruses were antigenically characterized as B/Phuket/3073/2013-like, which is included as an influenza B component of the 2015-2016 Northern Hemisphere trivalent and quadrivalent influenza vaccines. ▪ **Victoria lineage:** All 35 (100%) B/Victoria-lineage viruses were antigenically characterized as B/Brisbane/60/2008-like, which is included as an influenza B component of the 2015-2016 Northern Hemisphere quadrivalent influenza vaccines.

Antiviral Resistance

Testing of influenza A(H1N1)pdm09, A (H3N2), and influenza B virus isolates for resistance to neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) is performed at CDC using a functional assay. Additional A(H1N1)pdm09 and influenza A (H3N2) clinical samples are tested for mutations of the virus known to confer oseltamivir resistance. The data summarized below combine the results of both testing methods. These samples are routinely obtained for surveillance purposes rather than for diagnostic testing of patients suspected to be infected with antiviral-resistant virus.

	Viruses tested (n)	Resistant Viruses, Number Oseltamivir	Viruses tested (n)	Resistant Viruses, Number (%) Zanamivir	Viruses tested (n)	Resistant Viruses, Number (%) Peramivir
Influenza A(H1N1)pdm09	229	2 (0.9)	173	0 (0.0)	229	2 (0.9)
Influenza A (H3N2)	225	0 (0.0)	225	0 (0.0)	211	0 (0.0)
Influenza B	130	0 (0.0)	130	0 (0.0)	130	0 (0.0)

- The majority of currently circulating influenza viruses are susceptible to the neuraminidase inhibitor antiviral medications oseltamivir, zanamivir, and peramivir; however, rare sporadic cases of oseltamivir-resistant and peramivir-resistant 2009 influenza A (H1N1) and oseltamivir-resistant A (H3N2) viruses have been detected worldwide.
- Antiviral treatment is recommended as early as possible for patients with confirmed or suspected influenza who have severe, complicated, or progressive illness; who require hospitalization; or who are at greater risk for influenza-related complications.

- Additional information on recommendations for treatment and chemoprophylaxis of influenza virus infection with antiviral agents is available at (http://www.cdc.gov/flu/antivirals/index.htm).
- 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 influenza topics is available from CDC at http://www.cdc.gov/flu.

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