

Weekly Influenza Surveillance Report
Week Ending January 21, 2017
MMWR Week 3

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 2016–17 influenza season began on 10/02/2016.

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 3	0.5% = decrease from previous week	3.5% = decrease from previous week	6.3% (below threshold*)	22 Total <ul style="list-style-type: none"> • 17 positive for A (H3) • 1 B/Yamagata • 4 negative 	Widespread
Week 2	0.7%	3.7%	10.3%		Widespread

*Epidemic threshold = 15.1%

New Hampshire Surveillance

Outpatient Illness Surveillance

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

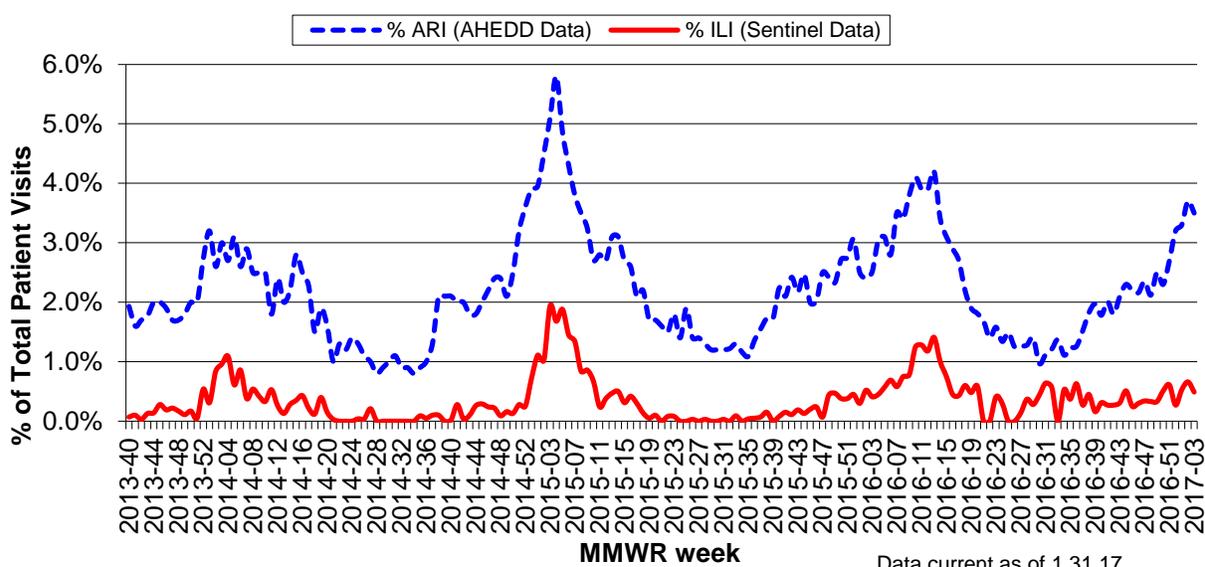
1. **U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet):** Beginning in 1997, NH has participated in this collaborative effort between the Centers for Disease Control and Prevention, state and local health departments, and health care providers. For the 2016-17 influenza season, 22 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	15/3,050	17	0.5%		Decrease from 0.7%
AHEDD	395/11,306	26		3.5%	Decrease from 3.7%

Maps illustrating the degree of ARI activity for each of the ten counties for weeks 3 and 4 are available at <http://www.dhhs.nh.gov/dphs/cdcs/influenza/arisureillance.htm>

ARI & ILI Reported through AHEDD and by ILINet Participating Providers MMWR Week 40 2013 to MMWR Week 3 2017 (September 29, 2013 to January 21, 2017)



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 2016-17 Influenza Season

Results	Week 03 (1/15/17–1/21/17)		YTD (10/02/16–01/28/17)	
	# specimens	% of total positive	# specimens	% of total positive
Influenza A (H1)	0	0	0	0
Influenza A (H3)	17	94.4	99	93.4
2009 Influenza A (H1N1)	0	0	0	0
Influenza B (Yamagata)	1	5.6	7	6.6
Influenza B (Victoria)	0	0	0	0
Negative for influenza	4		59*	
Total	22		165	

* Includes 4 specimens positive for Metapneumovirus, 1 for human Rhinovirus/Enterovirus, and 1 for Coronavirus OC43.

Supplemental Influenza Results

In addition to PHL influenza test results, DHHS is now reporting supplemental influenza test results from participating clinical laboratories throughout the state. Supplemental influenza test results are for specimens collected from patients who present with respiratory illness and may be generated by a variety of assays, including real-time polymerase chain reaction (RT-PCR) or rapid influenza diagnostic tests (RIDT). Currently there are 16 clinical laboratories enrolled to submit weekly supplemental results.

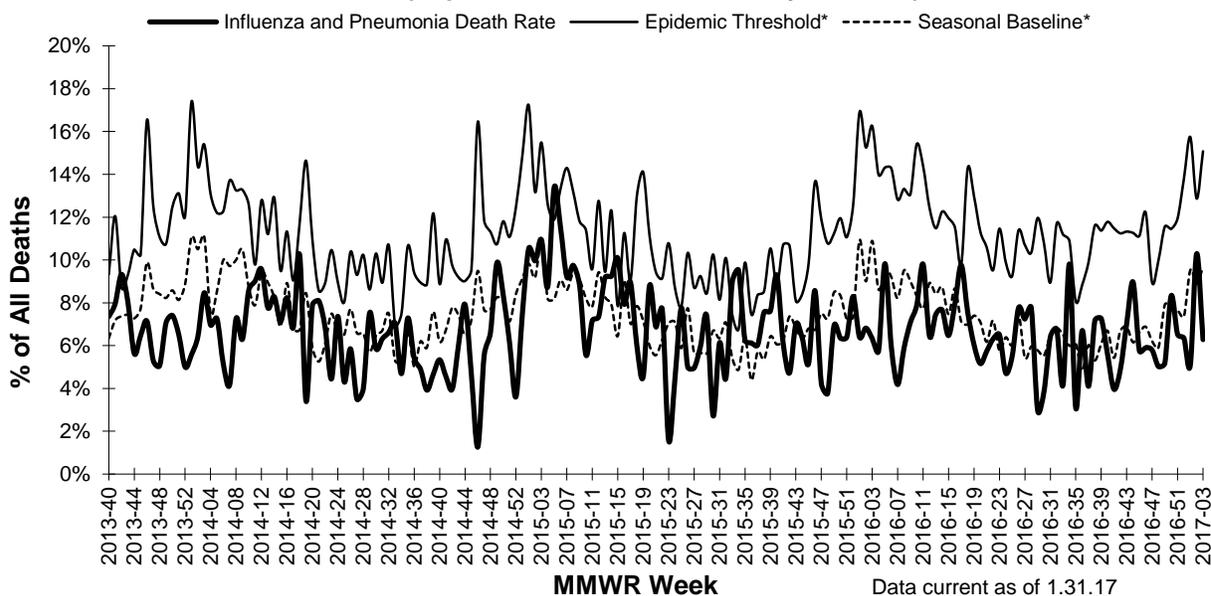
Results of Specimens Tested by Supplemental Clinical Laboratories and Cumulative Totals for the 2016-17 Influenza Season

Results	Week 3 (1/15/17–1/21/17)				YTD (10/02/16–1/28/17)			
	RIDT		PCR-based		RIDT		PCR-based	
	# specimens	% positive	# specimens	% positive	# specimens	% positive	# specimens	% positive
Influenza A	34	89.5	31	100.0	136	88.9	78	98.7
Influenza B	4	10.5	0	0.0	17	11.1	1	1.3
Negative	233		141		2,185		632	
Total	271		172		2,338		711	

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

**Pneumonia and Influenza Mortality, New Hampshire
MMWR Week 40 2013 to MMWR Week 03 2017
(September 29, 2013 to January 21, 2017)**



*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.

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.

- 6.3% of all deaths recorded in NH were reported as due to P&I. This is below the epidemic threshold of 15.1%.
- Six adult influenza-related deaths have been identified so far this influenza season. The counties of residence for the persons with identified influenza-related death are Cheshire, Grafton, Hillsborough, Merrimack and 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.

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	5.1%	108	16%	4.6%
Influenza-Like-Illness	0.3%	67	10%	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	1115 / 6842 (16%)	1271 / 7384 (17%)
Cough Remedies	1919 / 6842 (28%)	2116 / 7384 (29%)

*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 3 was **widespread**.
- Influenza activity in NH for week 4 was **widespread**, and will be included in CDC's update for week 4.

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 by RT-PCR. 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
<ul style="list-style-type: none"> ▪ 37 states, including Connecticut, Massachusetts, New Hampshire, and Rhode Island ▪ Puerto Rico 	<ul style="list-style-type: none"> ▪ 12 states, including Maine and Vermont ▪ Guam 	<ul style="list-style-type: none"> ▪ 1 state ▪ District of Columbia 	<ul style="list-style-type: none"> ▪ 0 states 	<ul style="list-style-type: none"> ▪ 0 states ▪ U.S. Virgin Islands

National Surveillance (continued)

- ❑ During week 3 (1/15/17-1/21/17), influenza activity increased in the United States.
- ❑ The most frequently identified influenza virus subtype reported by public health laboratories during week 3 was influenza A (H3). The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased.
- ❑ The most recent data available for proportion of deaths attributed to pneumonia and influenza (P&I) in the National Center for Health Statistics (NCHS) Mortality Surveillance System was MMWR week 1 (week ending January 7, 2017). P&I was reported at 7.4% for week 1, which is above the epidemic threshold (7.3%).
- ❑ Three influenza-associated pediatric deaths were reported.
- ❑ A cumulative rate for the season of 15.4 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.
- ❑ The proportion of outpatient visits for influenza-like illness (ILI) was 3.4%, which is above the national baseline of 2.2%. All 10 regions reported ILI at or above their region-specific baseline levels. New York City and 10 states experienced high ILI activity; 10 states experienced moderate ILI activity; Puerto Rico and 17 states experienced low ILI activity; 13 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 3 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 3 2016-17	18 (1.6%)	980 (85.2%)	74 (6.4%)	35 (3.0%)	20 (1.7%)	23 (2.0%)	1,150/2,096 (54.9%)

Antigenic Characterization

CDC has antigenically characterized 298 influenza viruses [37 influenza A (H1N1)pdm09, 201 influenza A (H3N2), and 60 influenza B viruses] collected by U.S. laboratories since October 1, 2016.

Influenza Subtype	Antigenic Characterization Summary
Influenza A (H1N1)	<ul style="list-style-type: none"> 37 total viruses tested All 37 (100%) viruses tested were antigenically characterized using ferret post-infection antisera as A/California/7/2009-like, the influenza A (H1N1) component of the 2016-2017 Northern Hemisphere vaccine.
Influenza A (H3N2)	<ul style="list-style-type: none"> 201 total viruses tested 192 of 201 (96%) influenza A (H3N2) viruses were antigenically characterized as A/Hong Kong/4801/2014-like, a virus that belongs in genetic group 3C.2a and is the influenza A (H3N2) component of the 2016-2017 Northern Hemisphere vaccine, by HI testing or neutralization testing. Among the viruses which reacted poorly with ferret antisera raised against A/Hong Kong/4801/2014-like viruses, 6 out of 9 (67%) are more closely related to A/Switzerland/9715293/2013, a virus belonging to genetic group 3C.3a.
Influenza B	<ul style="list-style-type: none"> 60 total influenza B viruses tested, including 32 Victoria lineage viruses and 28 Yamagata lineage viruses Victoria lineage: 29 of 32 (91%) B/Victoria-lineage viruses were antigenically characterized using ferret post-infection antisera as B/Brisbane/60/2008-like, which is included as an influenza B component of the 2016-2017 Northern Hemisphere trivalent and quadrivalent influenza vaccines. Yamagata lineage: All 28 (100%) B/Yamagata-lineage viruses were antigenically characterized using ferret post-infection antisera as B/Phuket/3073/2013-like, which is included as an influenza B component of the 2016-2017 Northern Hemisphere quadrivalent influenza vaccine.

Antiviral Resistance

Testing of influenza A (H1N1)pdm09, influenza 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 influenza 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 (for specimens collected since October 1, 2016) 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	66	0 (0.0)	66	0 (0.0)	66	0 (0.0)
Influenza A (H3N2)	488	0 (0.0)	488	0 (0.0)	379	0 (0.0)
Influenza B	126	0 (0.0)	126	0 (0.0)	126	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 with oseltamivir or zanamivir 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>.

Report Date: 1/31/17

Prepared by: John Dreisig, MPH

JDreisig@dhhs.nh.gov / 603-271-6585

All data in this report are based upon information provided to the New Hampshire Department of Health and Human Services under specific legislative authority. The numbers reported may represent an underestimate of the true absolute number and incidence rate of cases in the state. The unauthorized disclosure of any confidential medical or scientific data is a misdemeanor under New Hampshire law. The department is not responsible for any duplication or misrepresentation of surveillance data released in accordance with this guideline.