

**Weekly Influenza Surveillance Report**  
**Week Ending April 7, 2018**  
**MMWR Week 14**

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 2017–18 influenza season began on 10/01/2017.

**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
<b>Week 14</b>	1.3% = increase from previous week	3.1% = increase from previous week	8.6% (below threshold*)	24 Total <ul style="list-style-type: none"> <li>• 2 positive for A(H3)</li> <li>• 2 positive for A(H1N1)pdm09</li> <li>• 6 positive for B/Yamagata</li> <li>• 14 negative</li> </ul>	Regional
<b>Week 13</b>	0.7%	2.8%	9.3%		Widespread

\*Epidemic threshold = 9.5%

**New Hampshire Surveillance**

**Outpatient Illness Surveillance**

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

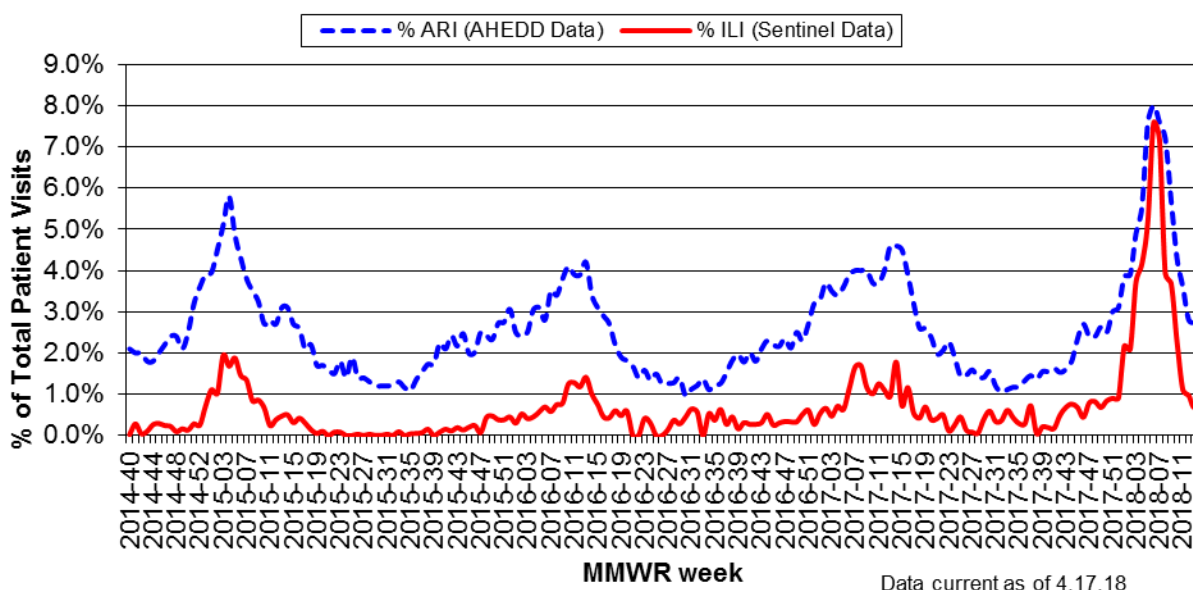
1. **U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet):** Beginning in 1997, NH has participated in this collaborative effort between the Centers for Disease Control and Prevention, state and local health departments, and health care providers. For the 2017-18 influenza season, 19 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, 23 hospitals electronically transmit real-time data from emergency department encounters throughout the day to NH DHHS. However, data is only assessed for 18 of the 23 hospitals due to recent key changes in how 5 of these began reporting their chief complaint text to AHEDD. 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	35/2,642	15	1.3%		Increase from 0.7%
AHEDD	286/9,179	18		3.1%	Increase from 2.8%

Maps illustrating the degree of ARI activity for each of the ten counties for weeks 14 and 15 are available at <http://www.dhhs.nh.gov/dphs/cdcs/influenza/arisurveillance.htm>

**ARI & ILI Reported through AHEDD and by ILINet Participating Providers MMWR Week 40 2014 to MMWR Week 14 2018 (September 28, 2014 to April 7, 2018)**



### 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 2017-18 Influenza Season

Results	Week 14 (4/01/18–4/07/18)		YTD (10/01/17–4/14/18)	
	# specimens	% of total positive	# specimens	% of total positive
Influenza A (H3)	2	20.0	175	60.3
Influenza A (H1N1)pdm09	2	20.0	39	13.4
Influenza B/Victoria	0	0.0	9	3.1
Influenza B/Yamagata	6	60.0	67	23.1
Negative for influenza	14		157*	
<b>Total</b>	<b>24</b>		<b>447</b>	

\*Includes 3 specimens that tested positive for Human Rhinovirus/Enterovirus and 4 for Human Parainfluenza virus.

## 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 14 clinical laboratories enrolled to submit weekly supplemental results.

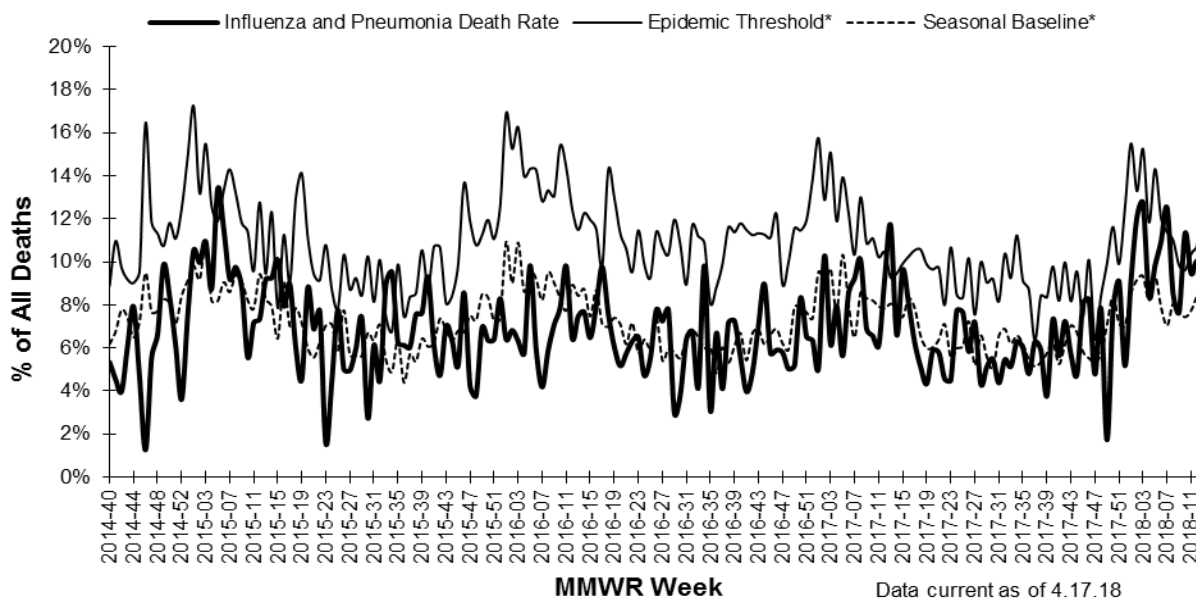
**Results of Specimens Tested by Supplemental Clinical Laboratories and Cumulative Totals for the 2017-18 Influenza Season**

Results	Week 14 (4/01/18–4/07/18)				YTD (10/01/17–4/14/18)			
	RIDT		PCR-based		RIDT		PCR-based	
	# specimens	% positive	# specimens	% positive	# specimens	% positive	# specimens	% positive
Influenza A	9	42.9	7	30.4	1,307	76.4	939	76.4
Influenza B	12	57.1	16	69.6	403	23.6	290	23.6
Negative	102		117		6,961		4,383	
Total	123		140		8,671		5,612	

## 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 2014 to MMWR Week 14 2018  
(September 28, 2014 to April 07, 2018)**



\*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.

- 8.6% of all deaths recorded in NH were reported as due to P&I. This is below the epidemic threshold of 9.5%.
- Fifty-nine adult influenza-related deaths have been identified so far this influenza season. These influenza-related deaths were identified in all ten counties. 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
<b>Total Absenteeism</b>	4.8%	103	15%	4.5%
<b>Influenza-Like-Illness</b>	0.3%	59	9%	0.2%

### Over-the-Counter Pharmaceuticals

An OTC surveillance tool referred to as Real-time Outbreak and Disease Surveillance (RODS) reports daily sales for OTC medications. DHHS receives automated data for daily OTC medications from 155 pharmacies statewide. Sales are categorized into 18 specific categories based on UPC codes, including total sales for cough and cold remedies. Examples of other OTC categories reported include antidiarrheal, antifever and rash treatment medications.

#### RODS - Weekly OTC Sales

Medication Category	Sales Current Week Count/Weekly Total* (%)	Sales Previous Week Count/Weekly Total* (%)
Cough/Cold Remedies	<b>19,227/34,404 (56%)</b>	<b>18,176/32,633 (56%)</b>

\*Total = total sales of the 18 categories for this reporting period

### Influenza Activity in New Hampshire as Assessed by the State Epidemiologist

- Overall influenza activity in NH for week 14 was **regional**.
- Influenza activity in NH for week 15 was **regional**, and will be included in CDC's update for week 15.

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  $\geq 2$ , 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"> <li>7 states, including Connecticut, Massachusetts, and Rhode Island</li> </ul>	<ul style="list-style-type: none"> <li>22 states, including Maine, New Hampshire, and Vermont</li> <li>Puerto Rico</li> <li>Guam</li> </ul>	<ul style="list-style-type: none"> <li>16 states</li> <li>District of Columbia</li> </ul>	<ul style="list-style-type: none"> <li>5 states</li> <li>U.S. Virgin Islands</li> </ul>	<ul style="list-style-type: none"> <li>0 states</li> </ul>

- During week 14 (4/01/18-4/07/18), influenza activity decreased in the United States.
- Overall, influenza A(H3) viruses have predominated this season. Since early March, influenza B viruses have been more frequently reported than influenza A viruses. The percentage of specimens testing positive in clinical laboratories decreased.
- The most recent data available for proportion of deaths attributed to P&I in the National Center for Health Statistics (NCHS) Mortality Surveillance System was MMWR week 12 (week ending 3/24/18). P&I was at 7.0% for week 12, which is below the epidemic threshold (7.3%).
- Nine influenza-associated pediatric deaths were reported.
- A cumulative rate of 101.6 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported.
- The proportion of outpatient visits for influenza-like illness (ILI) was 2.1%, which is below the national baseline of 2.2%. Six of 10 regions reported ILI at or above region-specific baseline levels. Two states experienced high ILI activity; two states experienced moderate ILI activity; 11 states experienced low ILI activity; and New York City, the District of Columbia, Puerto Rico, and 35 states experienced minimal ILI activity (including New Hampshire).

## Laboratory Surveillance

Public Health laboratories located in all 50 states and Washington D.C. reported specimens testing positive during week 14 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
<b>Week 14 2017-18</b>	42 (13.1%)	65 (20.3%)	13 (4.0%)	125 (38.9%)	21 (6.5%)	55 (17.1%)	<b>321/885 (36.3%)</b>

## Antigenic Characterization

CDC has antigenically characterized 1,702 influenza viruses collected during October 1, 2017 – April 7, 2018, and submitted by U.S. laboratories, including 500 influenza A(H1N1)pdm09 viruses, 525 influenza A(H3N2) viruses, and 677 influenza B viruses. Antigenic similarity is evaluated by comparing cell-propagated circulating viruses with cell-propagated reference viruses representing the recommended vaccine components of the Northern Hemisphere 2017-18 vaccine.

Influenza Subtype	Antigenic Characterization Summary
<b>Influenza A (H1N1)pdm09</b>	<ul style="list-style-type: none"> <li>500 total viruses tested</li> <li>All 500 (100%) of the viruses tested were characterized as A/Michigan/45/2015 (H1N1)pdm09-like, the influenza A (H1N1) component of the 2017-2018 Northern Hemisphere influenza vaccine</li> </ul>
<b>Influenza A (H3N2)</b>	<ul style="list-style-type: none"> <li>525 total viruses tested</li> <li>509 of 525 (97%) influenza A (H3N2) viruses were antigenically characterized as A/Hong Kong/4801/2014-like, which is the influenza A (H3N2) component of the 2017-2018 Northern Hemisphere vaccine</li> </ul>
<b>Influenza B</b>	<ul style="list-style-type: none"> <li>677 total influenza B viruses tested, including 133 Victoria lineage viruses and 544 Yamagata lineage viruses</li> <li><b>Victoria lineage:</b> 37 of 133 (28%) viruses tested were characterized as B/Brisbane/60/2008-like, which is the influenza B component in both the 2017-2018 trivalent and quadrivalent influenza vaccines</li> <li><b>Yamagata lineage:</b> All 544 (100%) viruses tested were characterized as B/Phuket/3073/2013-like, which is the influenza B component in the 2017-2018 quadrivalent influenza vaccine</li> </ul>

## 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, 2017) 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	911	10 (1.1)	614	0 (0.0)	911	10 (1.1)
Influenza A (H3N2)	1,890	0 (0.0)	1,890	0 (0.0)	1,063	0 (0.0)
Influenza B	807	0 (0.0)	807	0 (0.0)	807	0 (0.0)

- The majority of currently circulating influenza viruses are susceptible to the neuraminidase inhibitor antiviral medications oseltamivir and zanamivir; however, rare sporadic cases of oseltamivir-

resistant and peramivir-resistant influenza A(H1N1)pdm09 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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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.