

Weekly Influenza Surveillance Report
Week Ending March 9, 2019
MMWR Week 10

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 2018–19 influenza season began on 9/30/2018.

Summary for New Hampshire

	Influenza-Like Illness (ILI)	Acute Respiratory Illness (ARI)	Pneumonia and Influenza-Like Illness (ILI) Related Deaths	Respiratory Specimens Submitted to the Laboratory	Flu Activity
Week 10	2.0% = similar to previous week	4.0% = decrease from previous week	8.4% (below threshold*)	23 Total: <ul style="list-style-type: none"> ▪ 1 positive for A(H1N1)pdm09 ▪ 9 positive for A(H3) ▪ 13 negative 	Widespread

*Epidemic threshold = 11.6%

New Hampshire Surveillance

Outpatient Illness Surveillance

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

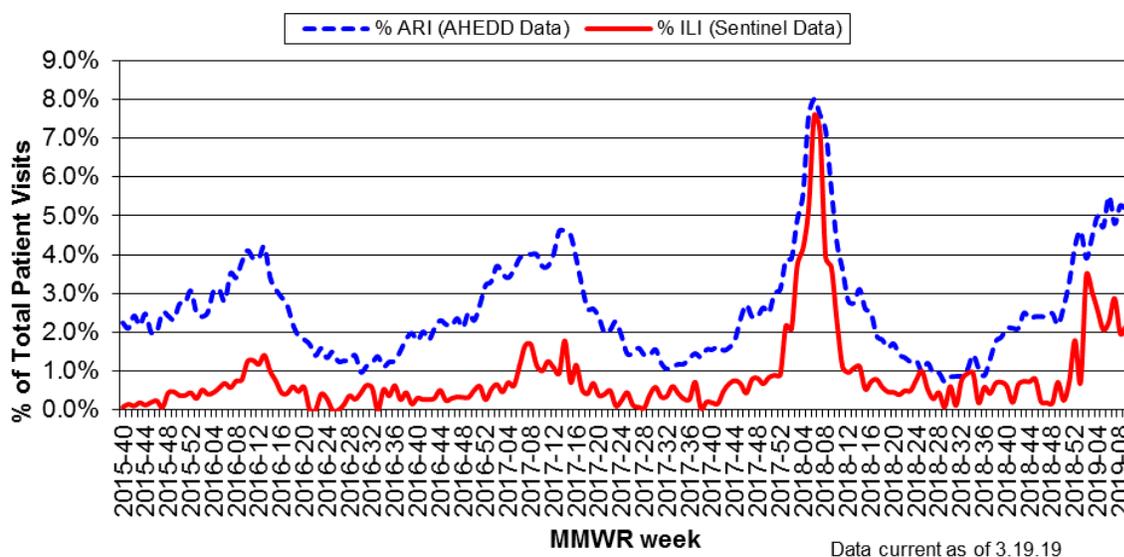
1. **U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet):** Beginning in 1997, NH has participated in this collaborative effort between the Centers for Disease Control and Prevention, state and local health departments, and health care providers. For the 2018-19 influenza season, 17 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 another 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 could only be used in a meaningful way for 19 of the reporting hospitals due to key changes in how some hospitals report chief complaint text into AHEDD (i.e., changes in method of reporting resulted in challenges at comparing to historical data for determining if respiratory illness was elevated). 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	42/2,058	14	2.0%		Similar to 2.1%
AHEDD	414/10,415	19		4.0%	Decrease from 5.1%

Maps illustrating the degree of ARI activity for each of the ten counties for weeks 10 and 11, respectively, 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 2015 to MMWR Week 10 2019 (October 4, 2015 to March 9, 2019)



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 2018-19 Influenza Season

Results	Week 10 (3/03/19–3/09/19)		YTD (9/30/18–3/16/19)	
	# specimens	% of total positive	# specimens	% of total positive
Influenza A (H1)	0	0	0	0
Influenza A (H3)	9	90.0	40	16.1
Influenza A (H1N1)pdm09	1	10.0	203	81.5
Influenza B/Victoria	0	0	0	0
Influenza B/Yamagata	0	0	6	2.4
Negative for influenza	13		171*	
Total	23		427	

* Of specimens that tested negative for influenza 13 tested positive for Human Rhino / Enterovirus, 5 for Human Metapneumovirus, 2 for Adenovirus, 3 for Coronavirus OC43, 3 for Parainfluenza, and 1 for Respiratory Syncytial 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 15 clinical laboratories enrolled to submit weekly supplemental results. Of the 837 specimens tested during week 10, 168 (20.1%) were positive for influenza.

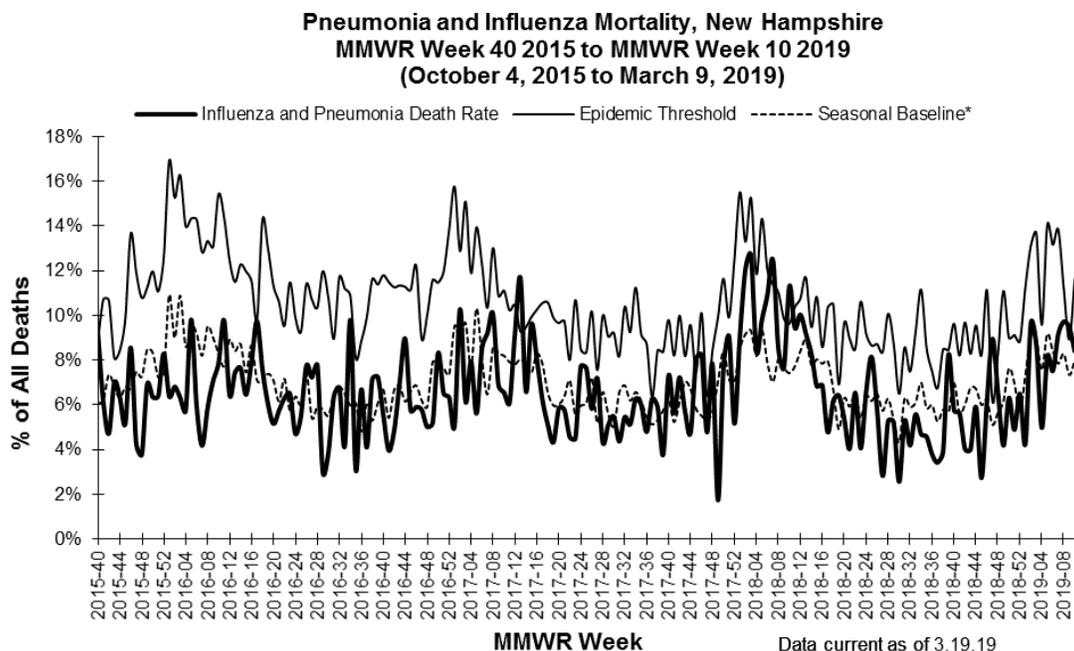
Results of Specimens Tested by Clinical Laboratories and Cumulative Totals for the 2018-19 Influenza Season

Results	Week 10 (3/03/19–3/09/19)				YTD (9/30/18–3/16/19)			
	RIDT		PCR-based		RIDT		PCR-based	
	# specimens	% positive	# specimens	% positive	# specimens	% positive	# specimens	% positive
Influenza A	35	97.2	129	97.7	759	98.4	1,861	97.8
Influenza B	1	2.8	3	2.3	12	1.6	42	2.2
Negative	186		483		4,308		8,230*	
Total	222		615		5,079		10,133	

* 2 of these clinical laboratories test and report results for a subset of specimens that test negative for influenza for additional pathogens. For the season YTD positive results were as follows: Respiratory Syncytial Virus (335), Rhinovirus/Enterovirus (101), Parainfluenza (24), Adenovirus (19), Metapneumovirus (34), Coronavirus OC43 (60), Coronavirus 229E (7), Coronavirus NL63 (10), and Mycoplasma pneumoniae (8).

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



*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.

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.

- ❑ 8.4% of all deaths recorded in NH were reported as due to P&I. This is below the epidemic threshold of 11.6%.
- ❑ Twenty-eight adult influenza-related deaths have been identified so far this influenza season. The counties of residence for the persons with an identified influenza-related death are Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan. 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	4.8%	122	18%	-
Influenza-Like-Illness	0.3%	78	12%	-

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	21,322 / 37,246 (57%)	23,862 / 40,782 (59%)

*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 10 was **widespread**.
- Influenza activity in NH for week 11 was **widespread**, and will be included in CDC's update for week 11.

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
<ul style="list-style-type: none"> ▪ 46 states, including Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island ▪ Puerto Rico 	<ul style="list-style-type: none"> ▪ 4 states, including Vermont 	<ul style="list-style-type: none"> ▪ District of Columbia 	<ul style="list-style-type: none"> ▪ U.S. Virgin Islands 	<ul style="list-style-type: none"> ▪ 0 states

- Influenza activity decreased slightly, but remains elevated in the United States.
- The percentage of respiratory specimens testing positive for influenza viruses in clinical laboratories decreased slightly.
- Nationally, during week 10, influenza A(H3) viruses were reported more frequently than influenza A(H1N1)pdm09 viruses. During the most recent three weeks, influenza A(H3) viruses were reported more frequently than influenza A(H1N1)pdm09 viruses in HHS Regions 2, 4, 5, 6, 7, 8 and 10.
- The majority of influenza viruses characterized antigenically are similar to the cell-grown reference viruses representing the 2018–2019 Northern Hemisphere influenza vaccine.
- The vast majority of influenza viruses tested (>99%) show susceptibility to oseltamivir and peramivir. All influenza viruses tested showed susceptibility to zanamivir.
- The proportion of outpatient visits for influenza-like illness (ILI) decreased slightly to 4.5%, which is above the national baseline of 2.2%. All 10 regions reported ILI at or above their region-specific baseline level (including New England).
- 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 9

(week ending March 2, 2019). P&I was reported at 7.2% for week 9, which is below the epidemic threshold (7.3%).

- ☐ Four influenza-associated pediatric deaths were reported to CDC during week 10. A total of 68 influenza-associated pediatric deaths occurring during the 2018-2019 season have been reported to CDC.

Laboratory Surveillance

Public Health laboratories located in all 50 states and Washington D.C. reported specimens testing positive during week 10 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 10 2018-19	478 (35.5%)	758 (56.4%)	73 (5.4%)	4 (0.3%)	16 (1.2%)	16 (1.2%)	1345/2047 (65.7%)

Antigenic Characterization

CDC has antigenically or genetically characterized 637 influenza viruses collected September 30, 2018 – March 9, 2019, and submitted by U.S. laboratories, including 276 influenza A(H1N1)pdm09 viruses, 224 influenza A(H3N2) viruses, and 137 influenza B viruses. Antigenic similarity is evaluated by comparing currently circulating viruses with the reference virus components of the Northern Hemisphere 2018-19 vaccine.

Influenza Subtype	Antigenic Characterization Summary
Influenza A (H1N1)	<ul style="list-style-type: none"> ▪ 276 total viruses tested ▪ Of the 276 A(H1N1)pdm09 viruses that were antigenically characterized, 270 (97.8%) were antigenically similar to A/Michigan/45/2015 (6B.1), the influenza A (H1N1)pdm09 component of the 2018-2019 Northern Hemisphere influenza vaccine
Influenza A (H3N2)	<ul style="list-style-type: none"> ▪ 224 total viruses tested ▪ Of the 224 influenza A (H3N2) viruses were antigenically characterized, 138 (61.6%) were antigenically similar to A/Singapore/INFIMH-16-0019/2016 (3C.2a1), the influenza A (H3N2) component of the 2018-2019 Northern Hemisphere influenza vaccine
Influenza B	<ul style="list-style-type: none"> ▪ 137 total influenza B viruses tested, including 54 Victoria lineage viruses and 83 Yamagata lineage viruses ▪ Victoria lineage: Of the 54 B/Victoria lineage viruses that were antigenically characterized, 44 (81.5%) were antigenically similar to B/Colorado/06/2017 (V1A.1), which is the influenza B component in both the 2018-2019 trivalent and quadrivalent influenza vaccines ▪ Yamagata lineage: A total of 83 B/Yamagata lineage viruses were antigenically characterized, and all (100%) were antigenically similar to B/Phuket/3073/2013 (Y3), which is the influenza B/Yamagata component in the 2018-2019 quadrivalent influenza vaccine

Antiviral Resistance

Testing of influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B viruses for resistance to the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) is performed at CDC using next-generation sequencing analysis and/or a functional assay. These samples are routinely obtained for surveillance purposes rather than for diagnostic testing of patients suspected to be infected with an antiviral-resistant virus.

	Viruses tested (n)	Resistant Viruses, Number Oseltamivir	Viruses tested (n)	Resistant Viruses, Number (%) Peramivir	Viruses tested (n)	Resistant Viruses, Number (%) Zanamivir
Influenza A(H1N1)pdm09	791	2 (0.3%)	791	2 (0.3%)	791	0 (0%)
Influenza A (H3N2)	519	0 (0%)	519	0 (0%)	519	0 (0%)
Influenza B/Victoria	71	0 (0%)	71	0 (0%)	71	0 (0%)
Influenza B/Yamagata	96	0 (0%)	96	0 (0%)	96	0 (0%)

- 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.