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 December 21, 2019
MMWR Week 51

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 2019–20 influenza season began on 9/29/2019.

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 51	1.6% = increase from previous week	2.7% = same as previous week	5.9% (below threshold*)	13 Specimens Submitted • 1 positive for A(H1N1)pdm09 • 6 positive for A(H3) • 2 positive for B/Victoria lineage • 4 negative	Regional

**Epidemic threshold = 9.3%*

New Hampshire Surveillance

Outpatient Illness Surveillance

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

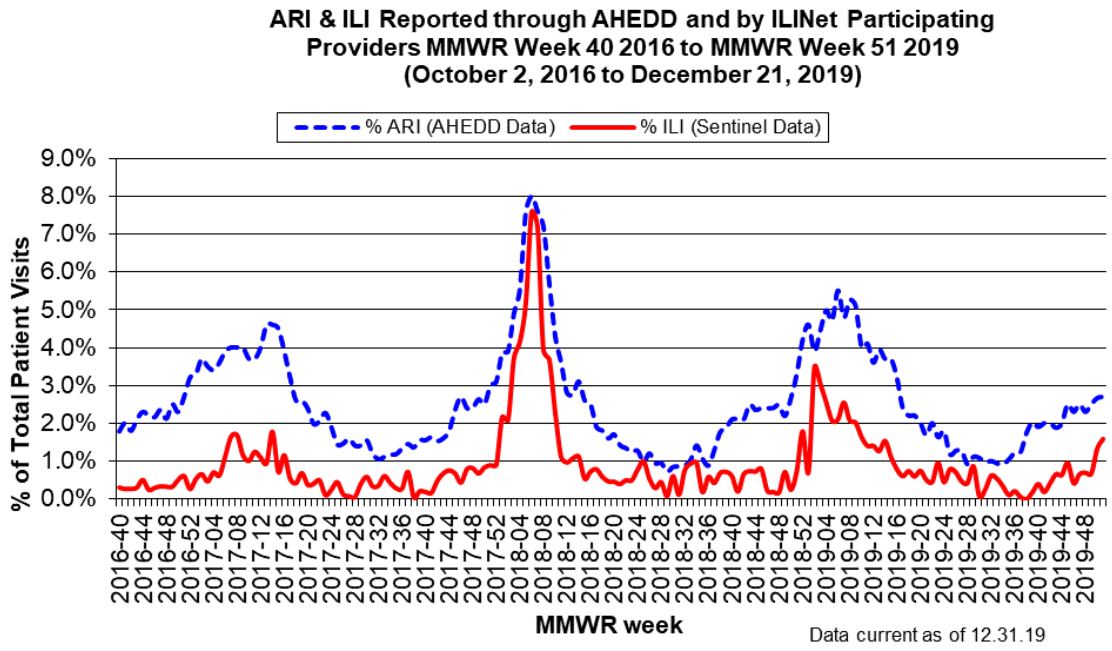
1. **U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet)**: Beginning in 1997, NH has participated in this collaborative effort between the Centers for Disease Control and Prevention, state and local health departments, and health care providers. For the 2019-20 influenza season, 17 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 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, 25 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	33/2,079	12	1.6%		Increase from 1.3%
AHEDD	268/10,001	19		2.7%	Same as 2.7%

Maps illustrating the degree of ARI activity for each of the ten counties for weeks 51 and 52 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 2019-20 Influenza Season

	Week 51 (12/15/19–12/21/19)		YTD (9/29/19–12/28/19)	
Results	# specimens	% of total positive	# specimens	% of total positive
Influenza A (H3)	6	66.7	8	22.9
Influenza A (H1N1)pdm09	1	11.1	14	40.0
Influenza B/Victoria	2	22.2	12	34.3
Influenza B/Yamagata	0	0	1	2.9
Negative for influenza	4		35*	
Total	13		70**	

* Of specimens that tested negative for influenza, 2 were positive for Human Rhino / Enterovirus, 1 for Respiratory Syncytial Virus (RSV), and 1 for Parainfluenza_4.

**One specimen result was reported as inconclusive.

Supplemental Influenza Results

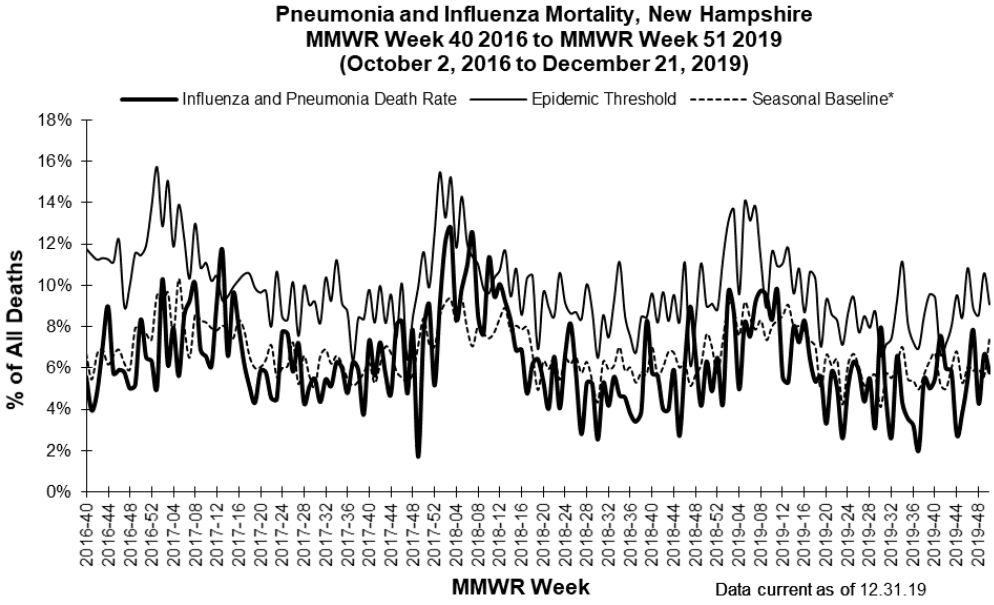
In addition to PHL influenza test results, DHHS is now reporting supplemental influenza test results from participating clinical laboratories throughout the state. Supplemental influenza test results are for specimens collected from patients who present with respiratory illness and may be generated by a variety of assays, including real-time polymerase chain reaction (RT-PCR) or rapid influenza diagnostic tests (RIDT). Currently there are 14 clinical laboratories that report weekly test results. Results were reported for 563 specimens tested during week 51, and 56 (10.0%) were positive for influenza, which is an increase compared to the previous week (5.1%).

Results of Specimens Tested by Supplemental Clinical Laboratories and Cumulative Totals for the 2019-20 Influenza Season

	Week 51 (12/15/19–12/21/19)				YTD (9/29/19–12/28/19)			
	RIDT		PCR-based		RIDT		PCR-based	
Results	# specimens	% of total positive	# specimens	% of total positive	# specimens	% of total positive	# specimens	% of total positive
Influenza A	9	50.0	19	50.0	33	51.6	87	59.2
Influenza B	9	50.0	19	50.0	31	48.4	60	40.8
Negative	192		315		1,217		2,895	
Total	210		353		1,281		3,042	

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



**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.

- ❑ 5.9% of all deaths recorded in NH were reported as due to P&I. This is below the epidemic threshold of 9.3%.
- ❑ No adult or pediatric influenza-related deaths have been identified this influenza season.

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	5.3%	149/676	22%	4.9%
Influenza-Like-Illness	0.4%	105/676	16%	0.5%

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	**23,849 / 40,212 (59%)**	**22,214 / 37,415 (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 51 was **regional**.
- ❑ Influenza activity in NH for week 52 was **widespread,** and will be included in CDC's update for week 52.

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
▪ 39 states, including Connecticut, Massachusetts, and Rhode Island	▪ 9 states, including Maine and New Hampshire	▪ 2 states, including Vermont ▪ District of Columbia	▪ U.S. Virgin Islands	▪ 0 states

- ❑ Influenza activity in the United States has been elevated for seven weeks and continues to increase.
- ❑ Nationally influenza B/Victoria viruses are most common, followed by A(H1N1)pdm09. The predominant virus varies by region and age group.
- ❑ The proportion of outpatient visits for influenza-like illness (ILI) was 5.1%. ILI has been above the national baseline of 2.4% for seven weeks. All of the 10 regions, including New England Region 1, reported percentage of patient visits due to ILI at or above their region-specific baselines.
- ❑ 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 50 (week ending December 14, 2019). P&I was reported at 5.7% for week 50, which is below the epidemic threshold (6.7%).
- ❑ Three influenza-associated pediatric deaths were reported to CDC during week 51. So far a total of 22 influenza-associated pediatric deaths have been reported to CDC for the 2019-2020 season.

Laboratory Surveillance

Public Health laboratories located in all 50 states and Washington D.C. reported specimens testing positive during week 51 for influenza viruses, as follows:

Flu Season	Influenza A (H1N1) pdm09	Influenza A (H3N2)	Influenza A Unsubtyped	Influenza B – Yamagata lineage	Influenza B – Victoria lineage	Influenza B – lineage not performed	Percentage of Specimens Testing Positive
Week 51 2019-20	386 (35.9%)	21 (2.0%)	36 (3.4%)	6 (0.6%)	456 (42.4%)	169 (15.7%)	**1,074/1,848 (58.1%)**

Antigenic Characterization

Antigenic characterization shows if the circulating strains are the same strains that were used to make the vaccine. This does not tell you how effective the vaccine is at creating an immune response.

Federal CDC has antigenically characterized 148 influenza viruses from September 29 – December 21, 2019, including 47 A(H1N1)pdm09 viruses, 41 A(H3N2) viruses, 50 B/Victoria lineage viruses, and 10 B/Yamagata lineage viruses.

- 100% of influenza A(H1N1)pdm09 viruses match the vaccine strain (A/Brisbane/02/2018-like).
- 34.1% of the influenza A/H3N2 viruses match the vaccine strain (A/Kansas/14/2017-like).
- 58.0% of influenza B/Victoria lineage viruses match the vaccine strain (B/Colorado/06/2017-like).
- 100% of influenza B/Yamagata lineage viruses match the vaccine strain (B/Phuket/3073/2013-like).

Antiviral Resistance

CDC tests susceptibility of influenza viruses to antiviral medications including the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) and the PA endonuclease inhibitor baloxavir using next-generation sequencing analysis supplemented by laboratory assays.

	N*	Resistant Viruses, Number (%) Oseltamivir	N*	Resistant Viruses, Number Peramivir	N*	Resistant Viruses, Number Zanamivir	N*	Resistant Viruses, Number Baloxavir
Influenza A(H1N1)pdm09	142	1 (0.7%)	142	1 (0.7%)	142	0 (0%)	144	0 (0%)
Influenza A (H3N2)	166	0 (0%)	166	0 (0%)	166	0 (0%)	164	0 (0%)
Influenza B/Victoria	216	0 (0%)	216	0 (0%)	216	1 (0.5%)	216	0 (0%)
Influenza B/Yamagata	22	0 (0%)	22	0 (0%)	22	0 (0%)	22	0 (0%)

*N equals the number of viruses tested.

- 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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