



Ohio Department of Health Seasonal Influenza Activity Summary

MMWR Week 4

January 21st – January 27th, 2018

Current Influenza Activity:

Current Ohio Activity Level (Geographic Spread) – Widespread

Definition: Increased ILI in at least half of the regions AND recent (within the past 3 weeks) lab confirmed influenza in the state.

During MMWR Week 4, public health surveillance data sources indicate elevated influenza-like illness (ILI) activity in outpatient settings reported by Ohio’s sentinel ILINet providers. Outpatient medical claims related to influenza-like illness decreased during MMWR Week 3 but increased again during MMWR Week 4. The percentage of emergency department visits with patients exhibiting constitutional symptoms and fever and ILI specified ED visits increased again after a brief decline. Reported cases of influenza-associated hospitalizations are above the seasonal threshold*. There were 1681 influenza-associated hospitalizations reported.

Ohio Weekly Influenza-associated Hospitalizations by Ohio Public Health Region

Central	255
East Central	228
Northeast	220
Northwest	140
Southeast	75
Southwest	206
West Central	136
Total	1260

Weekly influenza-associated hospitalization totals are provisional and may be subject to change as more information is reported. Combined weekly totals presented in this report may not reflect the seasonal totals reported in subsequent reports.

Ohio Influenza Activity Summary Dashboard:

Data Source	Current week value	Percent Change from last week ¹	# of weeks ²	Trend Chart ³
Influenza-like Illness (ILI) Outpatient Data (ILINet Sentinel Provider Visits)	4.00%	5.26%	↑ 2	
Thermometer Sales (National Retail Data Monitor)	3264	13.73%	↑ 7	
Fever and ILI Specified ED Visits (EpiCenter)	3.55%	13.06%	↑ 1	
Constitutional ED Visits (EpiCenter)	16.00%	7.10%	↑ 1	
Confirmed Influenza-associated Hospitalizations (Ohio Disease Reporting System)	1260	-25.04%	↓ 2	
Outpatient Medical Claims Data⁴	3.27%	8.28%	↑ 1	

¹Interpret percent changes with caution. Large variability may be exhibited in data sources with low weekly values.

²Number of weeks that the % change is increasing or decreasing.

³Black lines represent current week's data; red lines represent baseline averages

⁴Medical Claims Data provided by athenahealth®

*The seasonal threshold is 25 cases of influenza-associated hospitalizations; historical data demonstrate that once the weekly count exceeds 25 cases, the number of weekly cases thereafter will likely not decrease until after the peak of influenza activity for the season

State, Regional, and National Data:

Ohio Surveillance Data:

- **ODH lab** has reported **742** influenza tests from specimens sent from various submitters. 2017-2018 influenza season results: **(537) A/H3N2; (62) A/pdmH1N1; (42) Influenza B;** (through 01/27/2018).
- The **National Respiratory and Enteric Virus Surveillance System (NREVSS)** has reported **38,806** influenza tests performed at participating facilities. 2017-2018 influenza season positive results: **(30) H1N1, (239) A/H3N2, (5720) Flu A Not Subtyped, and (728) Flu B** (through 01/27/2018).
- **3 pediatric influenza-associated mortalities** have been reported during the 2017-2018 season (through 01/27/2018).
- No **novel influenza A virus infections** have been reported during the 2017-2018 season (through 01/27/2018).
- Incidence of confirmed **influenza-associated hospitalizations** in 2017-2018 season = **8611*** (through 01/27/2018).

HHS Regional Surveillance Data:** During week 3 (January 14th – January 20th, 2018), the proportion of outpatient visits for ILI in Region 5 (Ohio is in Region 5) was 5.09%, which is above the regional baseline of 1.8%. Michigan, West Virginia, Pennsylvania, Ohio, Indiana, and Kentucky reported Widespread Activity.

National Surveillance Data:** During week 3 (January 14th – January 20th, 2018), most U.S. states reported Moderate or High influenza activity, though a few are still reporting Low or Minimal activity. The proportion of outpatient visits for ILI was 6.6%, which is **above** the national baseline of 2.2%. All 10 regions reported ILI at or above their region-specific baseline level. The most frequently identified influenza virus type reported by public health laboratories was **influenza A (H3N2)**.

*Weekly influenza-associated hospitalization totals are provisional and may be subject to change as more information is reported. Combined weekly totals presented in this report may not reflect the seasonal totals reported in subsequent reports.

**National-level and regional-level data are reported one week later than Ohio state-level data

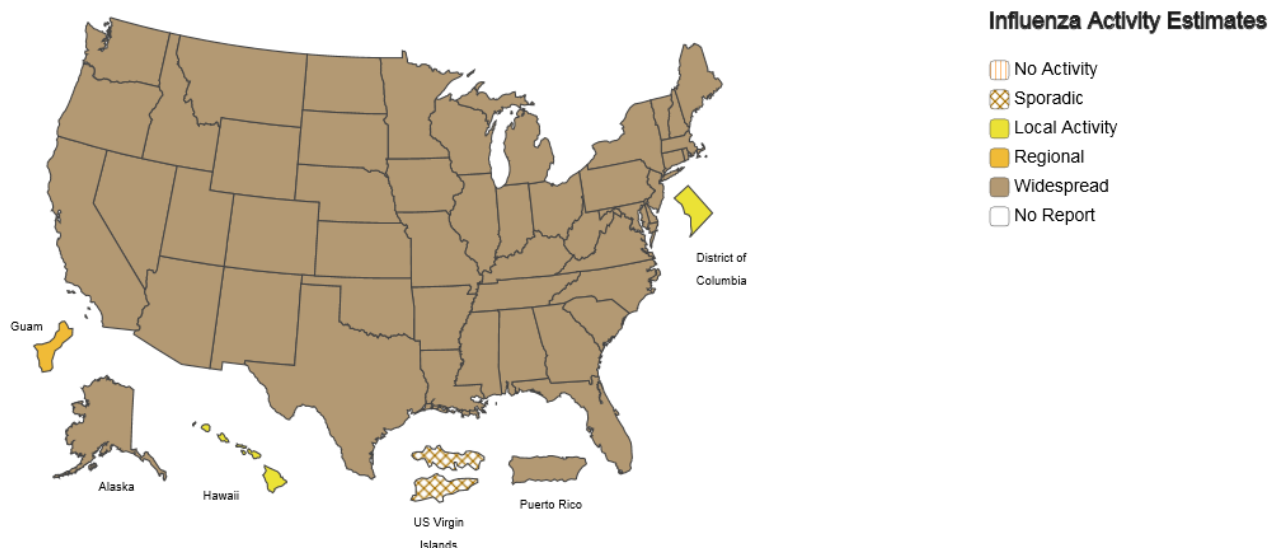
FLUVIEW



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending Jan 20, 2018 - Week 3



*This map indicates geographic spread and does not measure the severity of influenza activity.

2017-2018 Influenza Vaccine Components:

A/B	Virus	Trivalent	Quadrivalent
A	Michigan/45/2015 (H1N1)pdm09-like	X	X
A	Hong Kong/4801/2014 (H3N2)-like	X	X
B	Brisbane/60/2008-like (B/Victoria lineage)	X	X
B	Phuket/3073/2013-like (B/Yamagata lineage)		X

Influenza Virus Characterization:

CDC has antigenically or genetically characterized 1,041 influenza viruses collected during October 1, 2017 – January 20, 2018, and submitted by U.S. laboratories, including 181 influenza A(H1N1)pdm09 viruses, 561 influenza A(H3N2) viruses, and 299 influenza B viruses.

- **A (H1N1)pdm09:** Phylogenetic analysis of the HA genes from 181 A(H1N1)pdm09 viruses showed that all belonged to clade 6B.1. Eighty-five A(H1N1)pdm09 viruses were antigenically characterized, and all were antigenically similar (analyzed using HI with ferret antisera) to the reference 6B.1 virus A/Michigan/45/2015, representing the recommended influenza A(H1N1)pdm09 reference virus for the 2017–18 Northern Hemisphere influenza vaccines.
- **A (H3N2):** Phylogenetic analysis of the HA genes from 561 A(H3N2) viruses revealed extensive genetic diversity with multiple clades/subclades co-circulating. The HA genes of circulating viruses belonged to clade 3C.2a (n=461), subclade 3C.2a1 (n=93) or clade 3C.3a (n=7). One hundred ninety four influenza A(H3N2) viruses were antigenically characterized, and 191 (98.5%) A(H3N2) viruses tested were well-inhibited (reacting at titers that were within fourfold of the homologous virus titer) by ferret antisera raised against A/Michigan/15/2014 (3C.2a), a cell propagated A/Hong Kong/4801/2014-like reference virus representing the A(H3N2) component of 2017–18 Northern Hemisphere influenza vaccines.

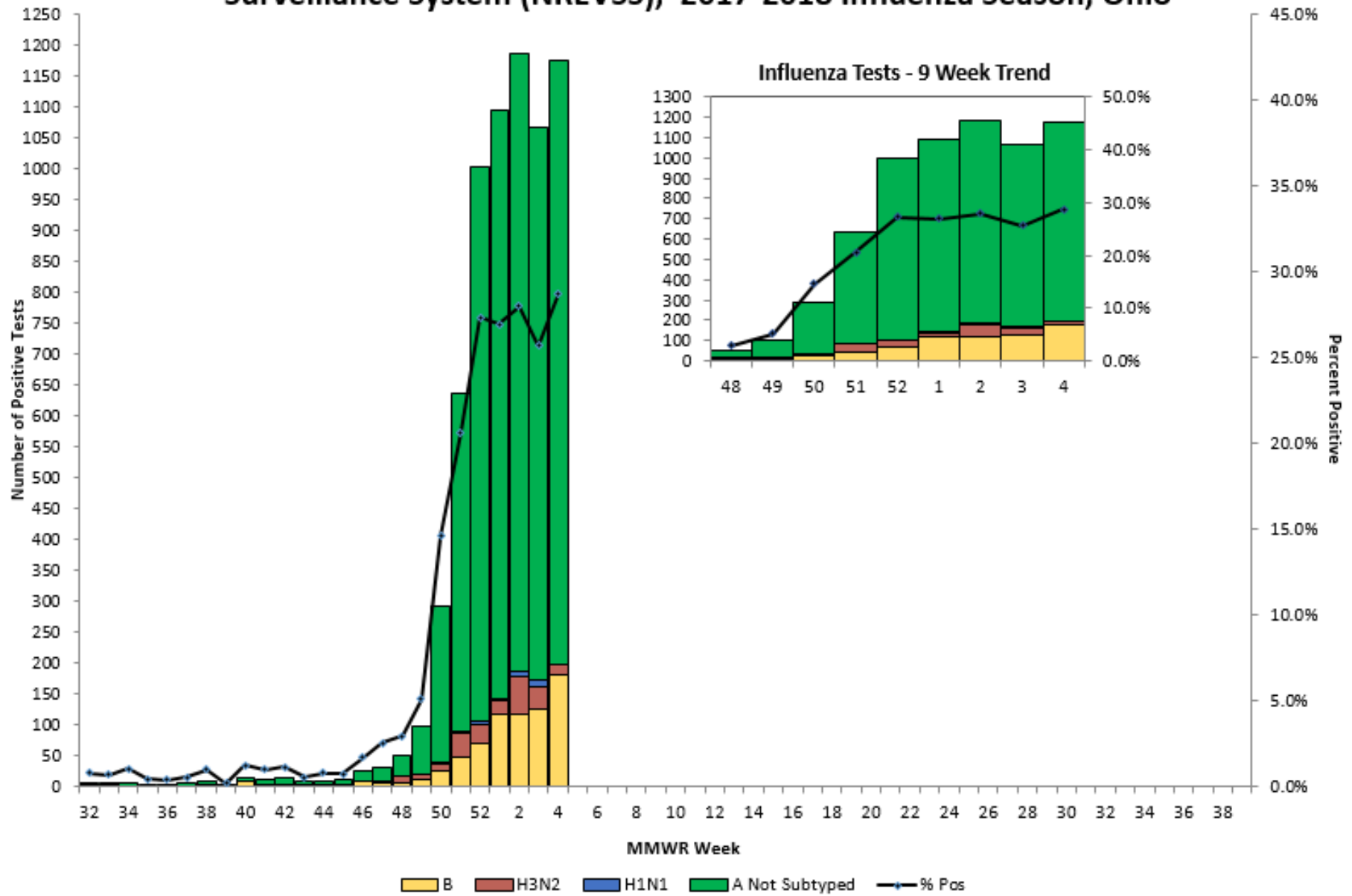
Influenza B Viruses

- **B/Victoria:** Phylogenetic analysis of 43 B/Victoria-lineage viruses indicate that all HA genes belonged to genetic clade V1A, the same genetic clade as the vaccine reference virus, B/Brisbane/60/2008. However, a small number of viruses had a 6-nucleotide deletion (encoding amino acids 162 and 163) in the HA (abbreviated as V1A-2Del). Sixteen (59.3%) B/Victoria lineage viruses were well-inhibited by ferret antisera raised against cell -propagated B/Brisbane/60/2008 reference virus, representing a recommended B virus component of 2017–18 Northern Hemisphere influenza vaccines. Eleven (40.7%) B/Victoria lineage viruses reacted poorly (at titers that were 8-fold or greater reduced compared with the homologous virus titer) with ferret antisera raised against cell-propagated B/Brisbane/60/2008, and these viruses had the V1A-2Del HA.
- **B/Yamagata:** Phylogenetic analysis of 256 influenza B/Yamagata-lineage viruses indicate that the HA genes belonged to clade Y3. A total of 152 influenza B/Yamagata-lineage viruses were antigenically characterized, and all were antigenically similar to cell propagated B/Phuket/3073/2013, the reference vaccine virus representing the influenza B/Yamagata-lineage component of the 2017–18 Northern Hemisphere quadrivalent vaccines.

National activity levels and more information can be found at the following CDC pages:

- <http://www.cdc.gov/flu/weekly/usmap.htm>
- <http://www.cdc.gov/flu/>

Positive Influenza Tests (PCR), National Respiratory and Enteric Virus Surveillance System (NREVSS), 2017-2018 Influenza Season, Ohio



**Influenza-Associated Hospitalizations, Ohio
2017-2018 Season***

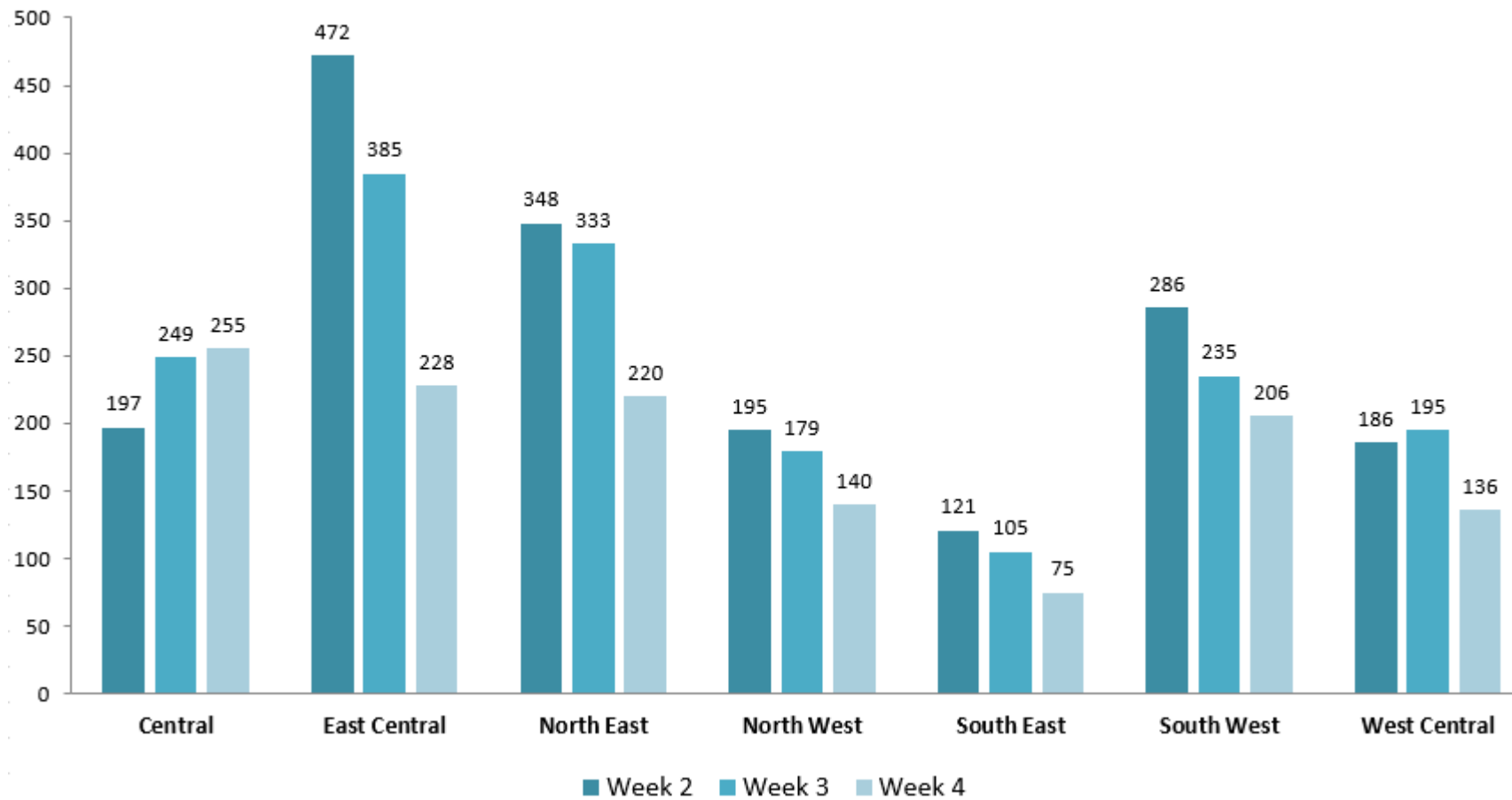
County	Influenza-Associated Hospitalizations	Percent of All Influenza-Associated Hospitalizations	Rate per 100,000 Population†	County	Influenza-Associated Hospitalizations	Percent of All Influenza-Associated Hospitalizations	Rate per 100,000 Population†
ADAMS	4	0.0%	14.01	LOGAN	6	0.1%	13.08
ALLEN	106	1.2%	99.69	LORAIN	144	1.7%	47.78
ASHLAND	25	0.3%	47.05	LUCAS	326	3.8%	73.79
ASHTABULA	29	0.3%	28.57	MADISON	51	0.6%	117.42
ATHENS	24	0.3%	37.06	MAHONING	184	2.1%	77.04
AUGLAIZE	21	0.2%	45.70	MARION	85	1.0%	127.82
BELMONT	30	0.3%	42.61	MEDINA	145	1.7%	84.14
BROWN	4	0.0%	8.92	MEIGS	8	0.1%	33.66
BUTLER	294	3.4%	79.86	MERCER	26	0.3%	63.70
CARROLL	42	0.5%	145.65	MIAMI	62	0.7%	60.48
CHAMPAIGN	34	0.4%	84.79	MONROE	4	0.0%	27.32
CLARK	175	2.0%	126.51	MONTGOMERY	616	7.2%	115.11
CLERMONT	170	2.0%	86.14	MORGAN	6	0.1%	39.86
CLINTON	22	0.3%	52.33	MORROW	22	0.3%	63.17
COLUMBIANA	53	0.6%	49.15	MUSKINGUM	81	0.9%	94.11
COSHOCTON	8	0.1%	21.68	NOBLE	11	0.1%	75.11
CRAWFORD	23	0.3%	52.53	OTTAWA	27	0.3%	65.17
CUYAHOGA	1234	14.3%	96.40	PAULDING	17	0.2%	86.67
DARKE	34	0.4%	64.20	PERRY	12	0.1%	33.28
DEFIANCE	20	0.2%	51.23	PICKAWAY	33	0.4%	59.25
DELAWARE	82	1.0%	47.07	PIKE	17	0.2%	59.21
ERIE	44	0.5%	57.08	PORTAGE	98	1.1%	60.71
FAIRFIELD	40	0.5%	27.37	PREBLE	31	0.4%	73.34
FAYETTE	9	0.1%	31.00	PUTNAM	21	0.2%	60.87
FRANKLIN	704	8.2%	60.51	RICHLAND	31	0.4%	24.90
FULTON	27	0.3%	63.23	ROSS	44	0.5%	56.36
GALLIA	23	0.3%	74.35	SANDUSKY	31	0.4%	50.87
GEAUGA	68	0.8%	72.81	SCIOTO	71	0.8%	89.31
GREENE	155	1.8%	95.93	SENECA	15	0.2%	26.43
GUERNSEY	37	0.4%	92.30	SHELBY	25	0.3%	50.58
HAMILTON	529	6.1%	65.93	STARK	411	4.8%	109.43
HANCOCK	36	0.4%	48.14	SUMMIT	669	7.8%	123.48
HARDIN	15	0.2%	46.79	TRUMBULL	116	1.3%	55.16
HARRISON	6	0.1%	37.82	TUSCARAWAS	72	0.8%	77.77
HENRY	21	0.2%	74.43	UNION	27	0.3%	51.63
HIGHLAND	26	0.3%	59.65	VAN WERT	8	0.1%	27.83
HOCKING	14	0.2%	47.65	VINTON	11	0.1%	81.88
HOLMES	10	0.1%	23.60	WARREN	156	1.8%	73.35
HURON	27	0.3%	45.28	WASHINGTON	80	0.9%	129.50
JACKSON	43	0.5%	129.42	WAYNE	80	0.9%	69.86
JEFFERSON	99	1.1%	142.02	WILLIAMS	25	0.3%	66.42
KNOX	17	0.2%	27.90	WOOD	82	1.0%	65.34
LAKE	100	1.2%	43.47	WYANDOT	12	0.1%	53.06
LAWRENCE	26	0.3%	41.63	UNKNOWN	0	0.0%	*
LICKING	102	1.2%	61.26	TOTAL	8611	100%	74.64

*2017-2018 Season 10/1/2017 thru 9/30/2018

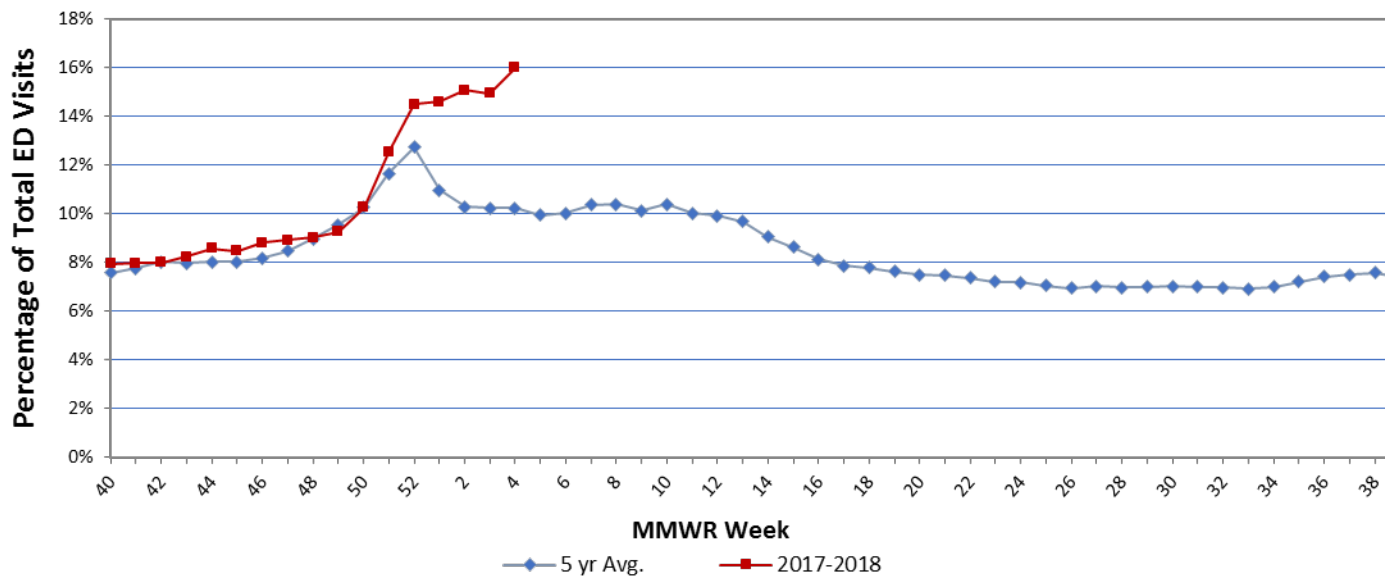
† Disease rates were calculated by number of cases per 100,000 residents using 2010 census data.

Source: Ohio Disease Reporting System

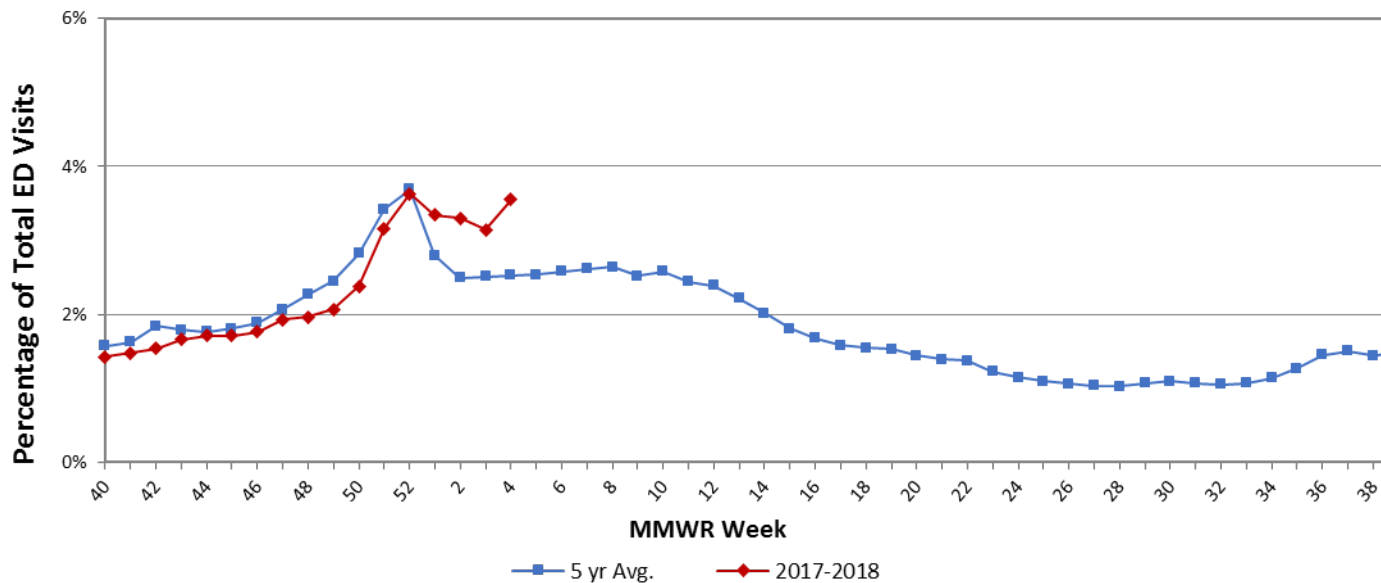
Influenza-associated Hospitalizations by Public Health Region and MMWR Week, Ohio, 2017-2018 Influenza Season



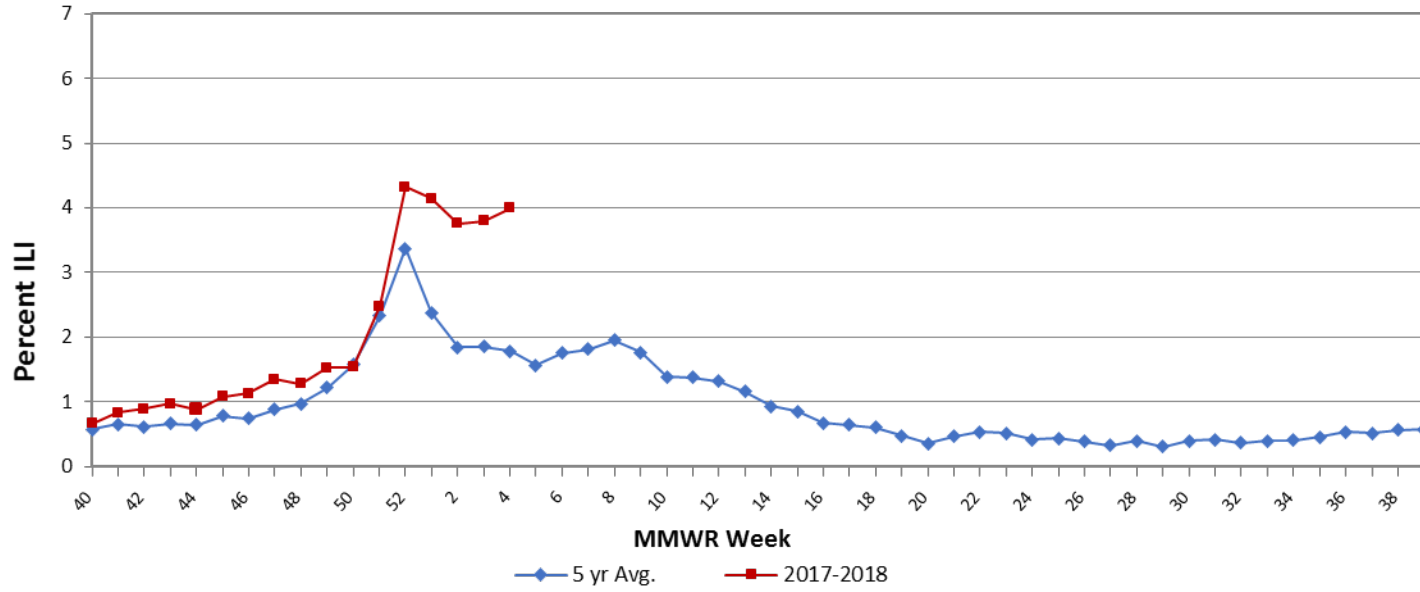
Ohio Constitutional ED Visits with 5 Year Baseline Average; 2017-2018



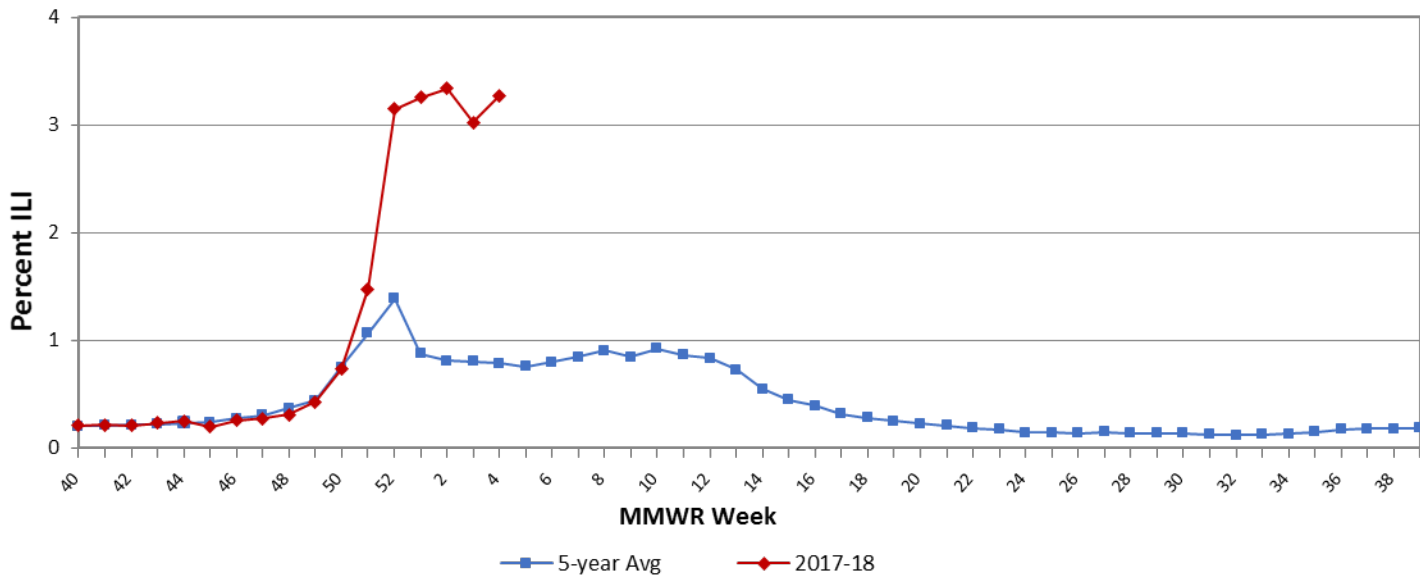
Ohio Fever & ILI Specified ED Visits with 5 Year Baseline Average; 2017-2018



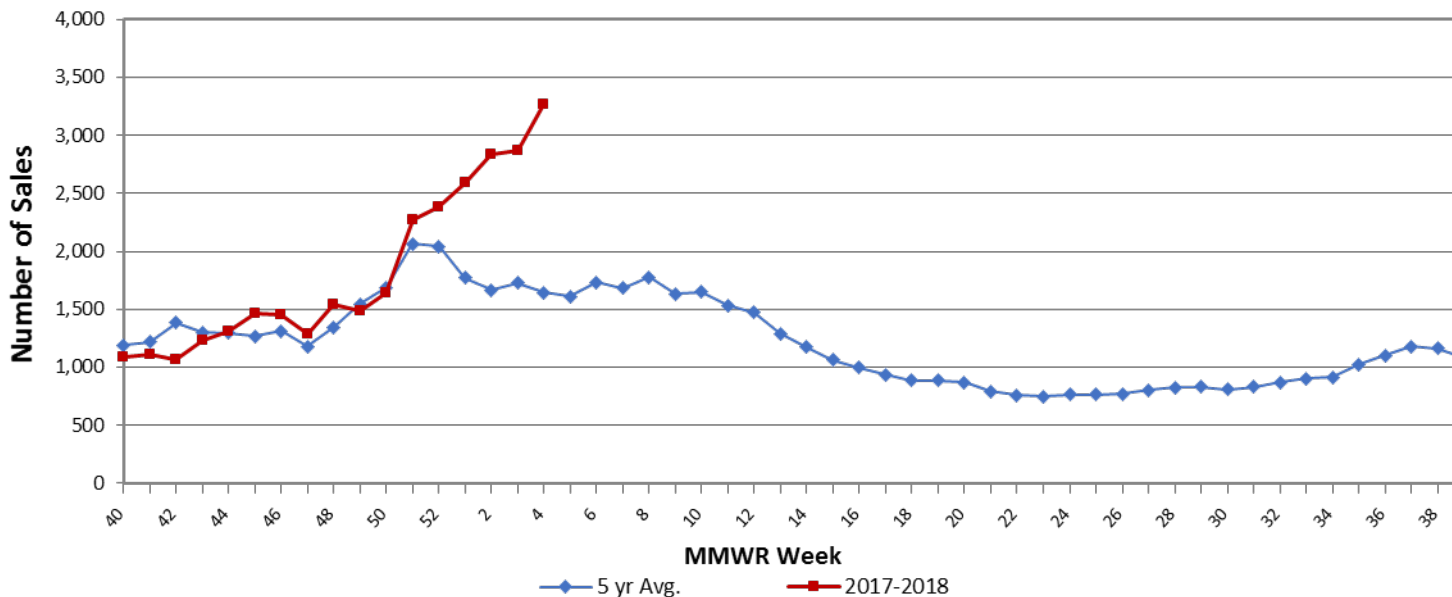
Ohio Outpatient Influenza-like Illness Network (ILINet) with 5 Year Baseline Average; 2017-2018



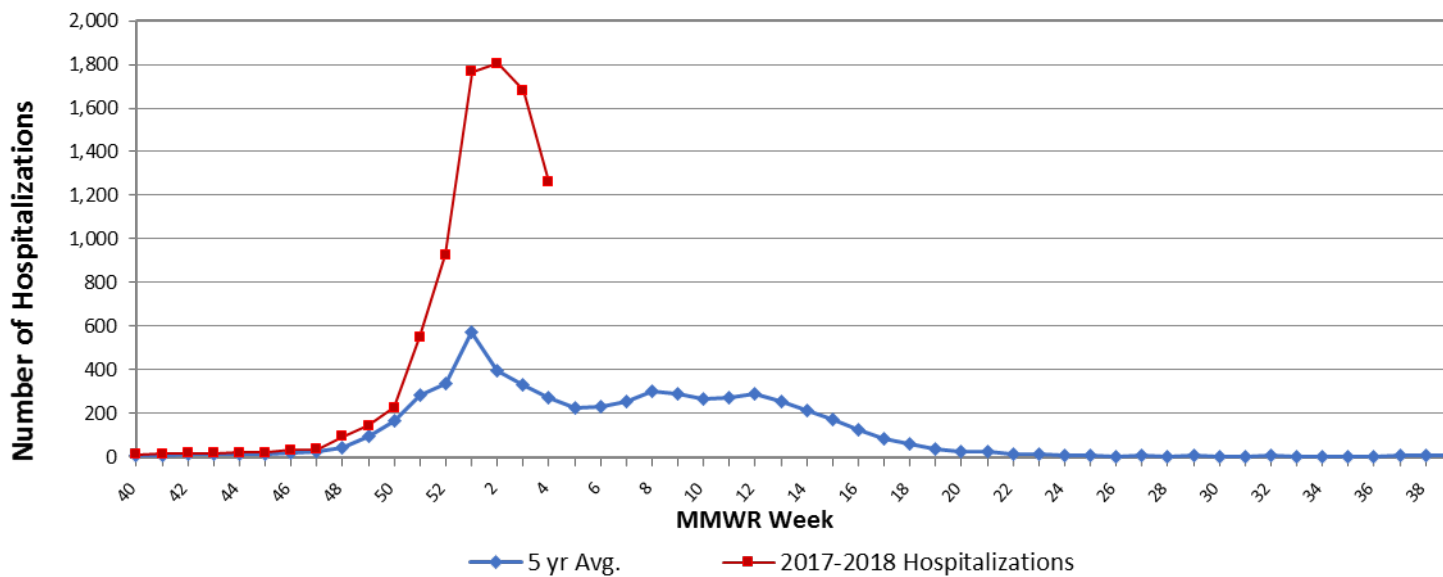
AthenaHealth: Ohio Influenza Related Outpatient Medical Claims 5 Year Baseline Average; 2017-2018



Ohio Thermometer Sales with 5 Year Baseline Average; 2017-2018



Ohio Confirmed Influenza-associated Hospitalizations by MMWR Week; 2017-2018 Season (n=8611)



Sources of Influenza Surveillance Data

- **National Retail Data Monitor (NRDM)-OTC Drug Purchases:** The NRDM collects over-the-counter (OTC) drug sales information from approximately 1,420 Ohio chain drug stores and grocery stores. For influenza surveillance, thermometer and adult cold relief sales are monitored on a weekly basis.
- **Emergency Department Visits (EpiCenter):** EpiCenter collects emergency department chief complaint data from 180 hospitals and urgent care facilities across Ohio in real time and classifies them into symptom and syndrome categories. Chief complaints from the constitutional syndrome category and the fever + ILI symptoms classifier are analyzed for influenza surveillance.
- **Sentinel Providers (ILINet):** Sentinel providers, through the US Influenza-like Illness Surveillance Network (ILINet), collect outpatient influenza-like illness (ILI) data. ILI is defined as a fever (≥ 100 F), **and** cough and/or sore throat without another known cause. Providers report the total number of patients seen and the number of patients with ILI by age group on a weekly basis. Sentinel providers also submit specimens for influenza testing to the ODH laboratory throughout the influenza season. There are 83 sentinel providers enrolled in Ohio for the 2016-2017 season.
- **ODH Laboratory Surveillance:** The Ohio Department of Health Laboratory reports the number of specimens that test positive for influenza each week. Generally, specimens are submitted by sentinel provider participants. A subset of the positive specimens is sent to CDC for further testing during the season.
- **Influenza-associated Hospitalizations (ODRS):** Influenza-associated hospitalizations are reported to ODH from local health departments and hospitals by direct entry into the Ohio Disease Reporting System (ODRS). Hospitalizations can be used as an indicator of the severity of illness during a particular influenza season. This condition became reportable in 2009.
- **Influenza-associated Pediatric Mortality (ODRS):** Influenza-associated pediatric mortalities are reported into ODRS by local health department and hospital staff. Pediatric deaths can be an indicator of the severity of illness during the influenza season. This condition became reportable in 2005.
- **National Respiratory and Enteric Virus Surveillance System (NREVSS):** The National Respiratory and Enteric Virus Surveillance System (NREVSS) is a laboratory-based system that monitors temporal and geographic patterns associated with the detection of respiratory syncytial virus (RSV), human parainfluenza viruses (HPIV), respiratory and enteric adenoviruses and rotavirus. There are 19 facilities in Ohio that submit data to this system.
- **athenahealth®:** athenahealth is a technology and services company for medical billing and electronic health records. Diagnosis and procedure data from primary care visits are automatically queried to produce influenza related statistics.

Ohio Public Health Regions: These counties comprise the Ohio Public Health Regions described in the figures shown on pages 1 and 5.

Central		East Central		Noth East	North West		South East		South West	West Central
CRAWFORD	LOGAN	ASHLAND	RICHLAND	ASHTABULA	ALLEN	MERCER	ATHENS	MONROE	ADAMS	CHAMPAIGN
DELAWARE	MADISON	CARROLL	STARK	CUYAHOGA	AUGLAIZE	OTTAWA	BELMONT	MORGAN	BROWN	CLARK
FAIRFIELD	MARION	COLUMBIANA	SUMMIT	GEAUGA	DEFIANCE	PAULDING	COSHOCTON	MUSKINGUM	BUTLER	DARKE
FAYETTE	MORROW	HOLMES	TRUMBULL	LAKE	ERIE	PUTNAM	GALLIA	NOBLE	CLERMONT	GREENE
FRANKLIN	PICKAWAY	MAHONING	TUSCARAWAS	LORAIN	FULTON	SANDUSKY	GUERNSEY	PERRY	CLINTON	MIAMI
HARDIN	UNION	MEDINA	WAYNE		HANCOCK	SENECA	HARRISON	PIKE	HAMILTON	MONTGOMERY
KNOX	WYANDOT	PORTAGE			HENRY	VAN WERT	HOCKING	ROSS	HIGHLAND	PREBLE
LICKING					HURON	WILLIAMS	JACKSON	SCIOTO	WARREN	SHELBY
					LUCAS	WOOD	JEFFERSON	VINTON		
							LAWRENCE	WASHINGTON		
							MEIGS			

If you have any further questions or comments about surveillance for seasonal influenza for the State of Ohio, please contact the Infectious Disease Informatics and Vaccine Preventable Disease Epidemiology Unit at SMED@odh.ohio.gov or call (614) 995-5599.