



Ohio Department of Health Seasonal Influenza Activity Summary

MMWR Week 18

April 28th – May 4th, 2019

Current Influenza Activity:

Current Ohio Activity Level (Geographic Spread) – Regional

Definition: Increased ILI in ≥ 2 but less than half of the regions AND recent (within the past 3 weeks) lab confirmed influenza in the affected regions, OR institutional outbreaks (ILI or lab confirmed) in ≥ 2 but less than half of the regions AND recent (within the past 3 weeks) lab confirmed influenza in the affected regions.

During MMWR Week 18, public health surveillance data sources indicate Minimal intensity for influenza-like illness (ILI) in outpatient settings reported by Ohio’s sentinel providers. The percentage of emergency department (ED) visits with patients exhibiting constitutional symptoms and fever and ILI specified ED visits **decreased** and are now below baseline levels. Reported cases of influenza-associated hospitalizations remain **above** the seasonal threshold*. There were 49 influenza-associated hospitalizations reported during MMWR Week 18.

Ohio Weekly Influenza-associated Hospitalizations by Ohio Public Health Region

Central	8
East Central	6
Northeast	9
Northwest	8
Southeast	7
Southwest	7
West Central	4
Total	49

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)	0.52%	-17.46%	↓ 6	
Thermometer Sales (National Retail Data Monitor)	756	-5.03%	↓ 1	
Fever and ILI Specified ED Visits (EpiCenter)	1.43%	-10.06%	↓ 8	
Constitutional ED Visits (EpiCenter)	8.10%	-3.11%	↓ 8	
Confirmed Influenza-associated Hospitalizations (Ohio Disease Reporting System)	49	-66.44%	↓ 6	
Outpatient Medical Claims Data⁴	0.40%	-48.05%	↓ 8	

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 1310 **positive** influenza tests from specimens sent from various submitters. 2018-2019 influenza season positive results: **(665) A/pdmH1N1; (633) A/H3N2; (12) Influenza B;** (through 05/04/2019).
- The **National Respiratory and Enteric Virus Surveillance System (NREVSS)** has reported **77,890** influenza tests performed at participating facilities. 2018-2019 influenza season positive results: **(446) A/pdmH1N1, (567) A/H3N2, (12,731) Flu A Not Subtyped, and (306) Flu B** (through 05/04/2019).
- **4 pediatric influenza-associated mortalities** have been reported during the 2018-2019 season (through 05/04/2019).
- No **novel influenza A virus infections** have been reported during the 2018-2019 season (through 05/04/2019).
- Incidence of confirmed **influenza-associated hospitalizations** in 2018-2019 season = 9808 (through 05/04/2019).

HHS Regional Surveillance Data*: During week 16 (**April 21th – April 27th, 2019**), the proportion of outpatient visits for ILI in Region 5 (Ohio is in Region 5) was 1.09%, which is **below** the regional baseline of 1.8%. Ohio reported Regional Activity; Pennsylvania, Kentucky, West Virginia, and Michigan reported Local Activity; Indiana reported Sporadic Activity.

National Surveillance Data*: During week 16 (**April 21th – April 27th, 2019**) Most U.S. States reported Minimal influenza activity. The proportion of outpatient visits for ILI was 1.8%, which is **below** the national baseline of 2.2%. All 10 regions reported ILI at or above their region-specific baseline level. The most frequently identified virus was influenza A(H3).

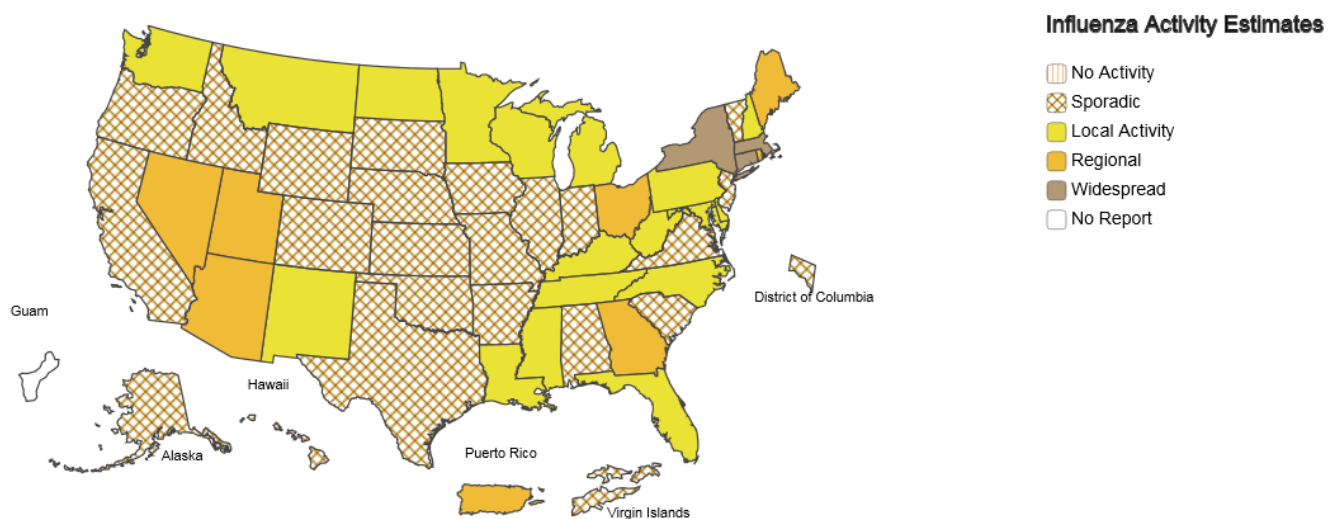
*National-level and regional-level data are reported one week later than Ohio state-level data



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending Apr 27, 2019 - Week 17



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

2018-2019 Influenza Vaccine Components:

A/B	Virus	Trivalent	Quadrivalent
A	Michigan/45/2015 (H1N1)pdm09-like	X	X
A	A/Singapore/INFIMH-16-0019/2016 (H3N2)-like	X	X
B	B/Colorado/06/2017-like virus (Victoria lineage)	X	X
B	Phuket/3073/2013-like (B/Yamagata lineage)		X

Antigenic Characterization:

CDC has antigenically or genetically characterized 2,266 influenza viruses collected September 30, 2018 – April 27, 2019, and submitted by U.S. laboratories, including 1,080 influenza A(H1N1)pdm09 viruses, 869 influenza A(H3N2) viruses, and 317 influenza B viruses.

Influenza A Viruses

- **A (H1N1)pdm09:** Phylogenetic analysis of the HA genes from 1,080 A(H1N1)pdm09 viruses showed that all belonged to clade 6B.1. Three hundred and five A(H1N1)pdm09 viruses were antigenically characterized, and 296 (97%) were antigenically similar (analyzed using HI with ferret antisera) to A/Michigan/45/2015 (6B.1), a cell-propagated A/Michigan/45/2015-like reference virus representing the A(H1N1)pdm09 component for the 2018-19 Northern Hemisphere influenza vaccines.
- **A (H3N2):** Phylogenetic analysis of the HA genes from 869 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=66), subclade 3C.2a1 (n=173) or clade 3C.3a (n=630). Three hundred eighty-two A(H3N2) viruses were antigenically characterized by FRA with ferret antisera, and 168 (44%) were well-inhibited (reacting at titers that were within 4-fold of the homologous virus titer) by ferret antisera raised against A/Singapore/INFIMH-16-0019/2016 (3C.2a1), a cell-propagated reference virus representing the A(H3N2) component of 2018-19 Northern Hemisphere influenza vaccines. Two hundred and fourteen (56%) viruses reacted poorly (at titers that were 8-fold or greater reduced compared with that of the homologous virus A/Singapore/INFIMH-16-0019/2016) and of those, 213 (99.5%) belonged to clade 3C.3a.

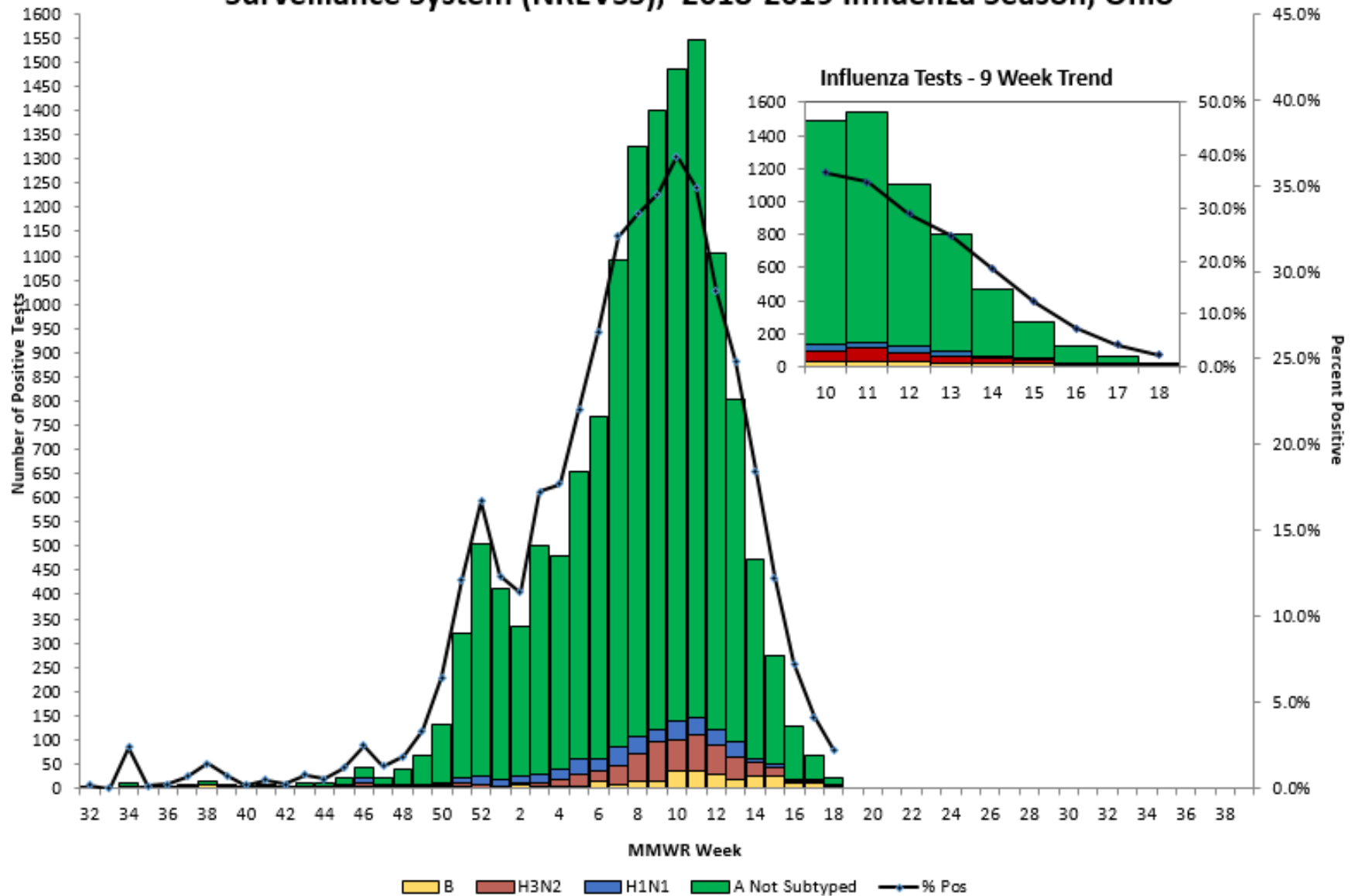
Influenza B Viruses

- **B/Victoria:** Phylogenetic analysis of 164 B/Victoria-lineage viruses indicate that all HA genes belonged to genetic clade V1A, however genetic subclades which are antigenically distinct have emerged. Genetic subclades which are antigenically distinct include viruses with a two amino acid deletion (162-163) in the HA protein (V1A.1, previously abbreviated as V1A-2Del) and viruses with a three amino acid deletion (162-164) in the HA protein (abbreviated as V1A-3Del). One hundred and eight B/Victoria lineage viruses were antigenically characterized and 82 (75.9%) were antigenically similar with ferret antisera raised against cell-propagated B/Colorado/06/2017-like V1A.1 reference virus. Twenty-six (24.1%) viruses reacted poorly (at titers that were 8-fold or greater reduced compared with the homologous virus titer) and belonged to clade V1A or genetic subclade V1A-3Del.
- **B/Yamagata:** Phylogenetic analysis of 153 influenza B/Yamagata-lineage viruses indicate that the HA genes belonged to clade Y3. A total of 137 influenza B/Yamagata-lineage viruses were antigenically characterized, and all were antigenically similar to cell-propagated B/Phuket/3073/2013 (Y3), the reference vaccine virus representing the influenza B/Yamagata-lineage component of the 2018-19 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), 2018-2019 Influenza Season, Ohio



**Influenza-Associated Hospitalizations, Ohio
2018-2019 Season***

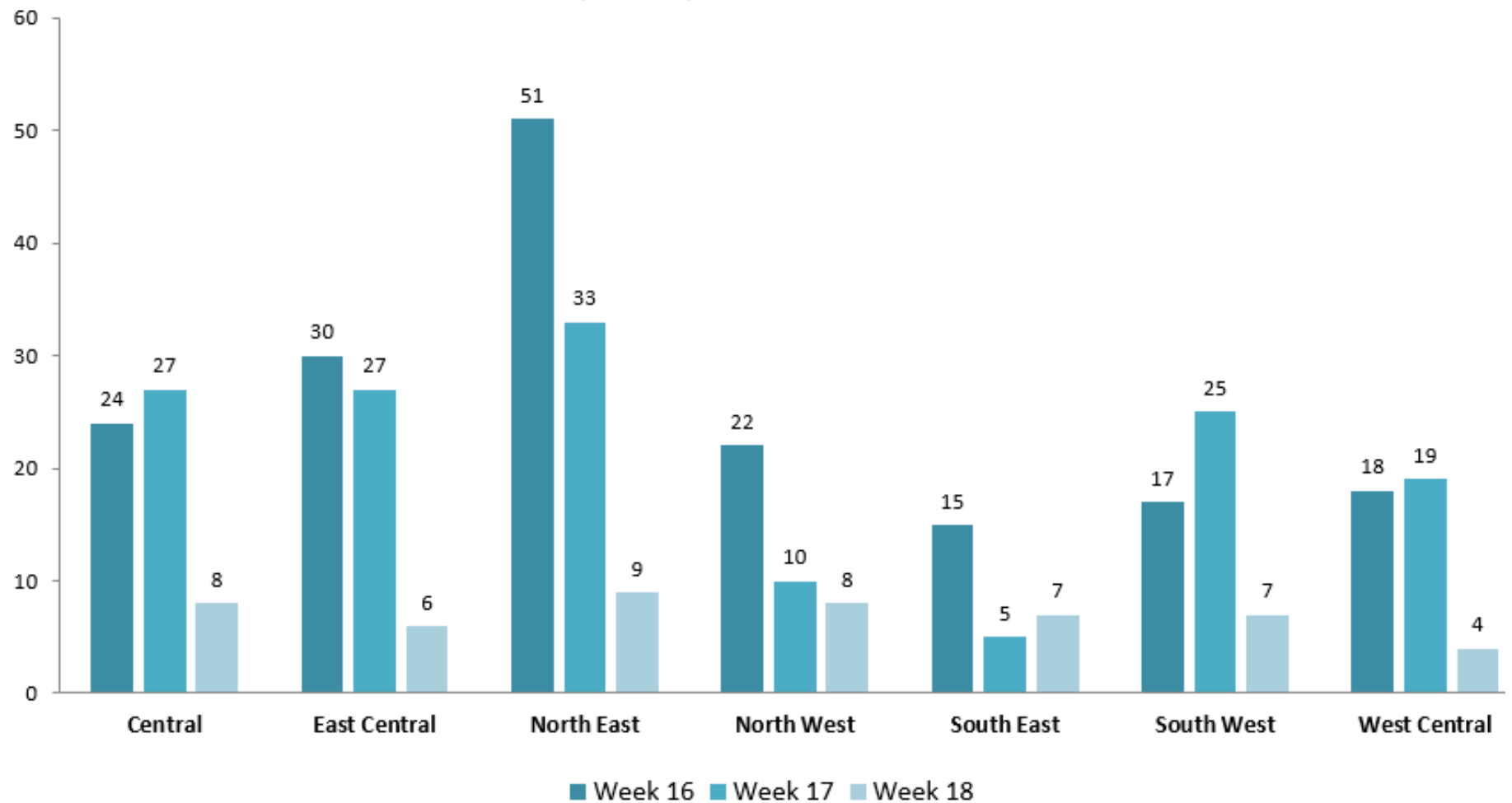
County	Influenza-Associated Hospitalizations	Percent of All Influenza-Associated Hospitalizations	Rate per 100,000 Population†	County	Influenza-Associated Hospitalizations	Percent of All Influenza-Associated Hospitalizations	Rate per 100,000 Population†
ADAMS	14	0.1%	49.04	LOGAN	17	0.2%	37.07
ALLEN	139	1.4%	130.72	LORAIN	137	1.4%	45.46
ASHLAND	29	0.3%	54.57	LUCAS	451	4.6%	102.08
ASHTABULA	79	0.8%	77.83	MADISON	38	0.4%	87.49
ATHENS	38	0.4%	58.68	MAHONING	215	2.2%	90.02
AUGLAIZE	48	0.5%	104.46	MARION	80	0.8%	120.30
BELMONT	30	0.3%	42.61	MEDINA	145	1.5%	84.14
BROWN	3	0.0%	6.69	MEIGS	22	0.2%	92.55
BUTLER	292	3.0%	79.32	MERCER	46	0.5%	112.71
CARROLL	25	0.3%	86.70	MIAMI	61	0.6%	59.51
CHAMPAIGN	13	0.1%	32.42	MONROE	7	0.1%	47.81
CLARK	174	1.8%	125.78	MONTGOMERY	595	6.1%	111.18
CLERMONT	149	1.5%	75.50	MORGAN	16	0.2%	106.28
CLINTON	12	0.1%	28.54	MORROW	20	0.2%	57.43
COLUMBIANA	125	1.3%	115.91	MUSKINGUM	135	1.4%	156.84
COSHOCTON	25	0.3%	67.75	NOBLE	3	0.0%	20.48
CRAWFORD	36	0.4%	82.22	OTTAWA	29	0.3%	70.00
CUYAHOGA	1330	13.6%	103.90	PAULDING	23	0.2%	117.26
DARKE	52	0.5%	98.19	PERRY	43	0.4%	119.25
DEFIANCE	28	0.3%	71.73	PICKAWAY	64	0.7%	114.91
DELAWARE	79	0.8%	45.35	PIKE	30	0.3%	104.50
ERIE	54	0.6%	70.06	PORTAGE	125	1.3%	77.44
FAIRFIELD	78	0.8%	53.37	PREBLE	24	0.2%	56.78
FAYETTE	20	0.2%	68.89	PUTNAM	18	0.2%	52.18
FRANKLIN	833	8.5%	71.60	RICHLAND	99	1.0%	79.53
FULTON	19	0.2%	44.50	ROSS	75	0.8%	96.08
GALLIA	40	0.4%	129.31	SANDUSKY	45	0.5%	73.84
GEAUGA	57	0.6%	61.04	SCIOTO	68	0.7%	85.54
GREENE	155	1.6%	95.93	SENECA	42	0.4%	74.02
GUERNSEY	32	0.3%	79.83	SHELBY	33	0.3%	66.77
HAMILTON	668	6.8%	83.25	STARK	415	4.2%	110.49
HANCOCK	57	0.6%	76.22	SUMMIT	550	5.6%	101.52
HARDIN	20	0.2%	62.39	TRUMBULL	207	2.1%	98.43
HARRISON	12	0.1%	75.64	TUSCARAWAS	87	0.9%	93.97
HENRY	29	0.3%	102.78	UNION	17	0.2%	32.50
HIGHLAND	27	0.3%	61.94	VAN WERT	12	0.1%	41.75
HOCKING	13	0.1%	44.25	VINTON	14	0.1%	104.21
HOLMES	22	0.2%	51.93	WARREN	154	1.6%	72.40
HURON	47	0.5%	78.82	WASHINGTON	45	0.5%	72.84
JACKSON	28	0.3%	84.27	WAYNE	129	1.3%	112.64
JEFFERSON	46	0.5%	65.99	WILLIAMS	26	0.3%	69.07
KNOX	45	0.5%	73.87	WOOD	108	1.1%	86.06
LAKE	144	1.5%	62.60	WYANDOT	25	0.3%	110.55
LAWRENCE	39	0.4%	62.45	UNKNOWN	0	0.0%	*
LICKING	108	1.1%	64.87	TOTAL	9808	100%	85.02

*2018-2019 Season 10/1/2018 thru 9/29/2019

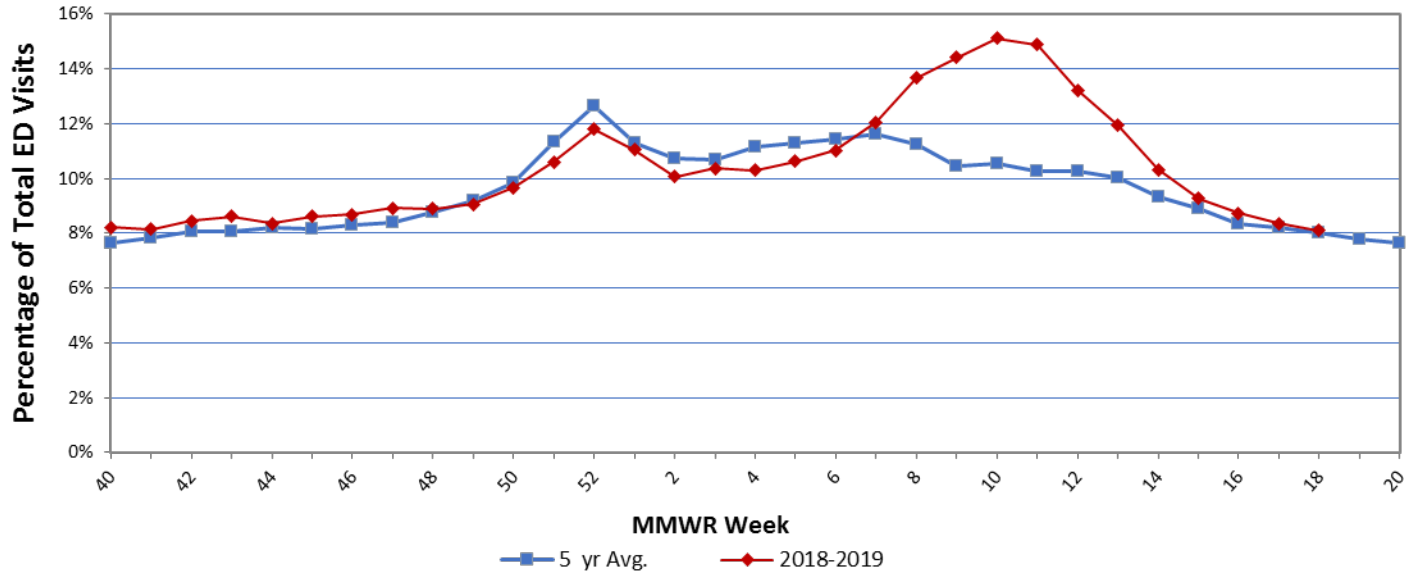
† Disease rates were calculated by number of cases per 100,000 residents using 2010 census data.

Source: Ohio Disease Reporting System

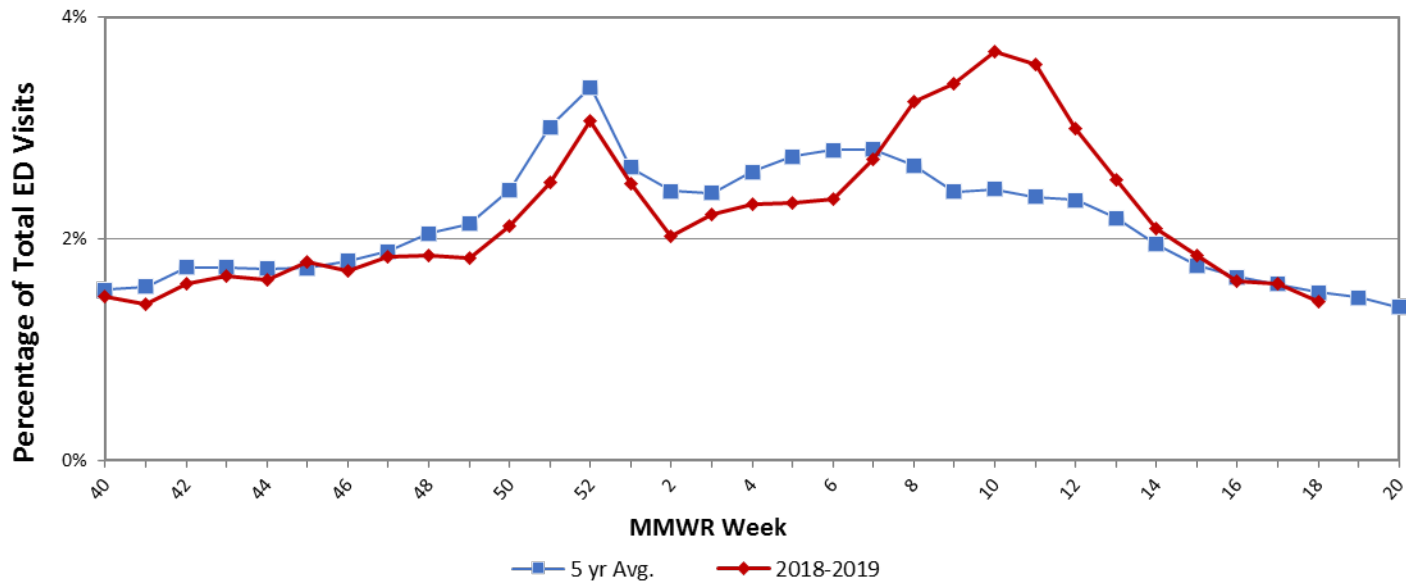
Influenza-associated Hospitalizations by Public Health Region and MMWR Week, Ohio, 2018-2019 Influenza Season



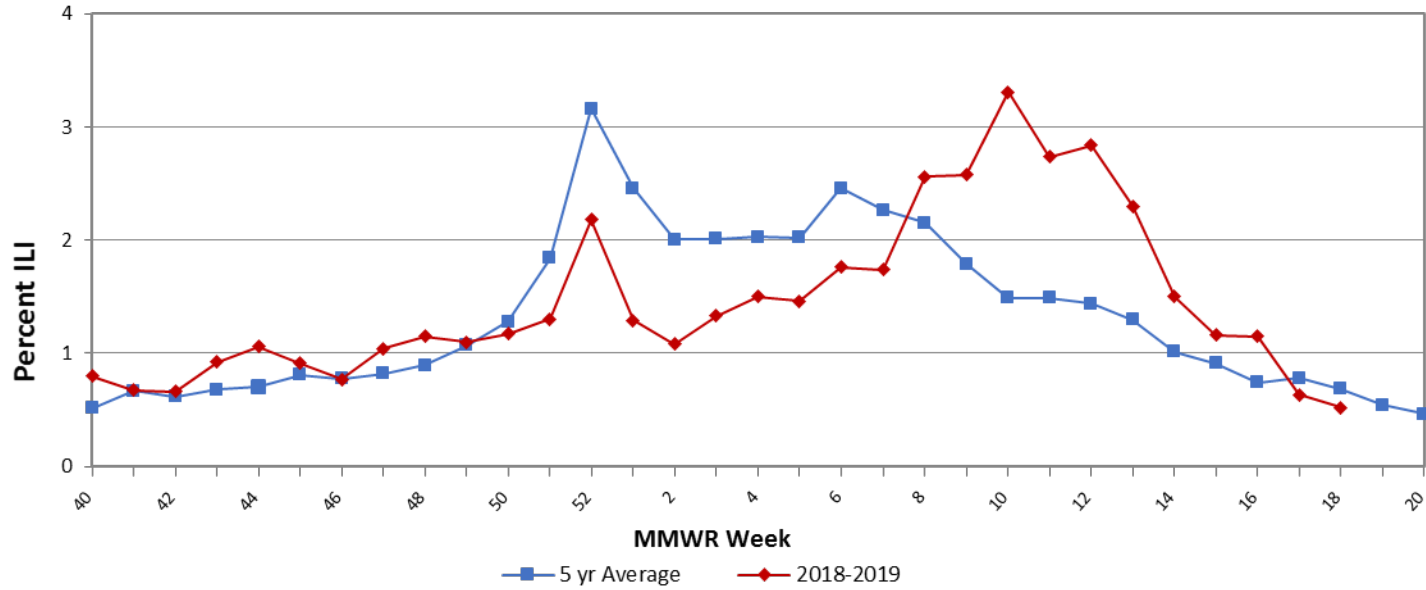
Ohio Constitutional ED Visits with 5 Year Baseline Average; 2018-2019



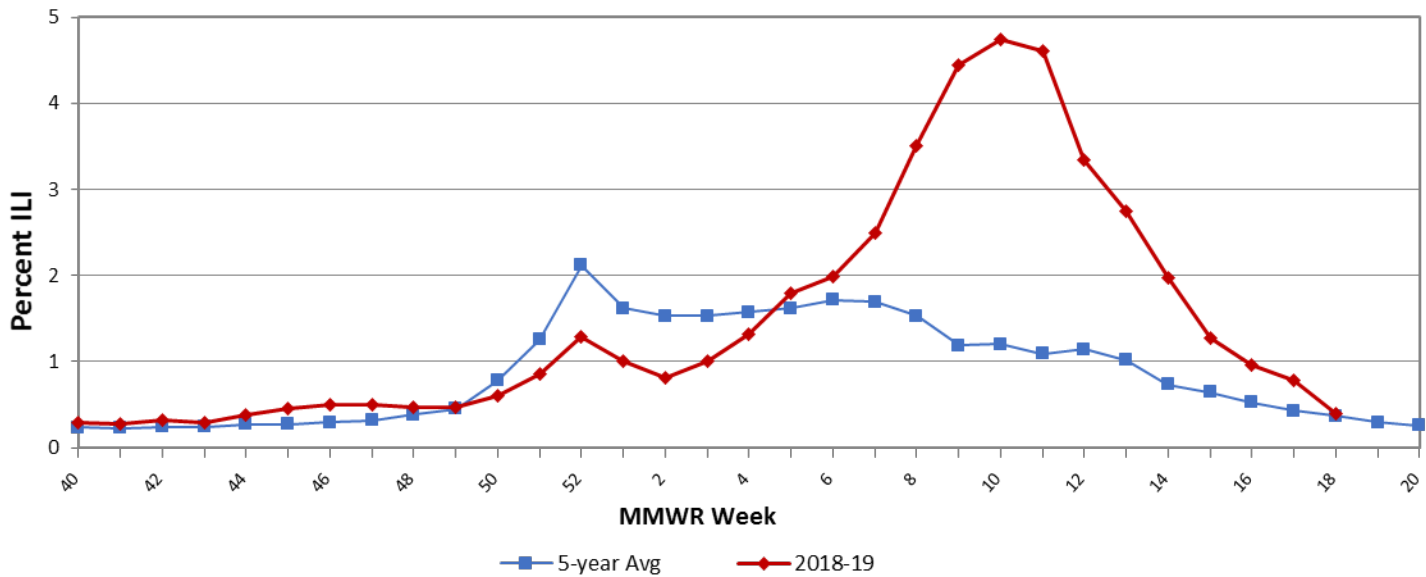
Ohio Fever & ILI Specified ED Visits with 5 Year Baseline Average; 2018-2019



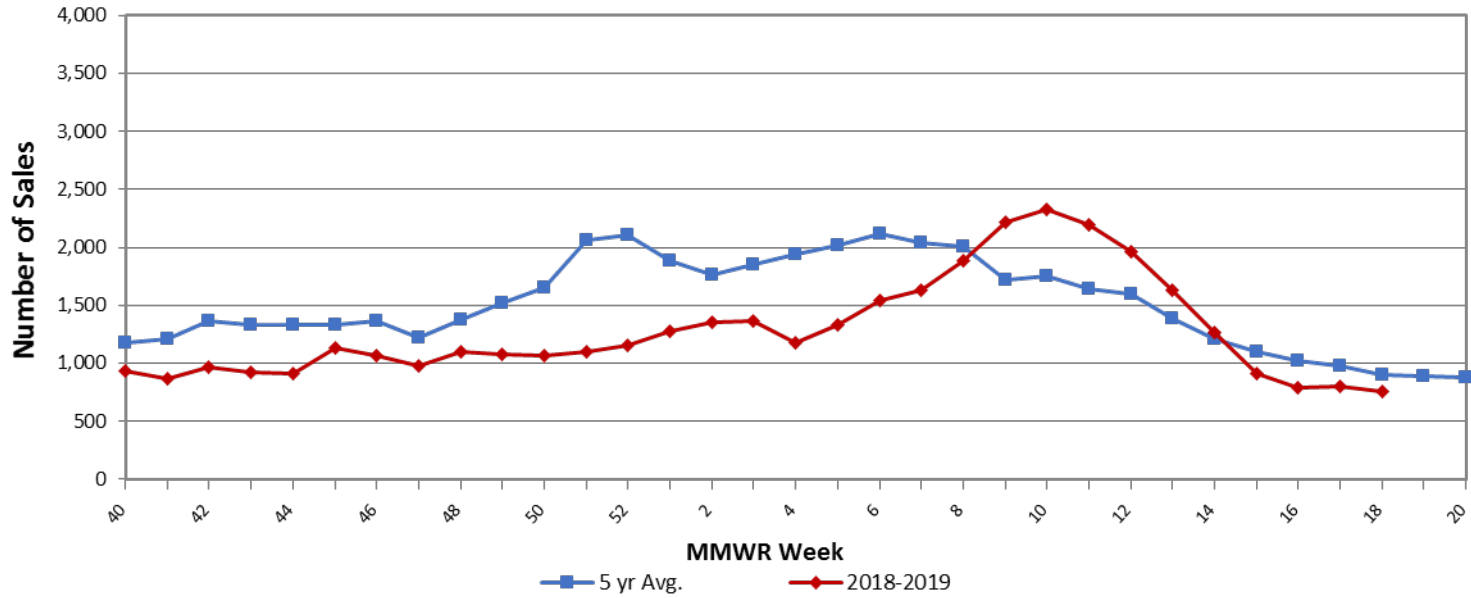
Ohio Outpatient Influenza-like Illness Network (ILINet) with 5 Year Baseline Average; 2018-2019



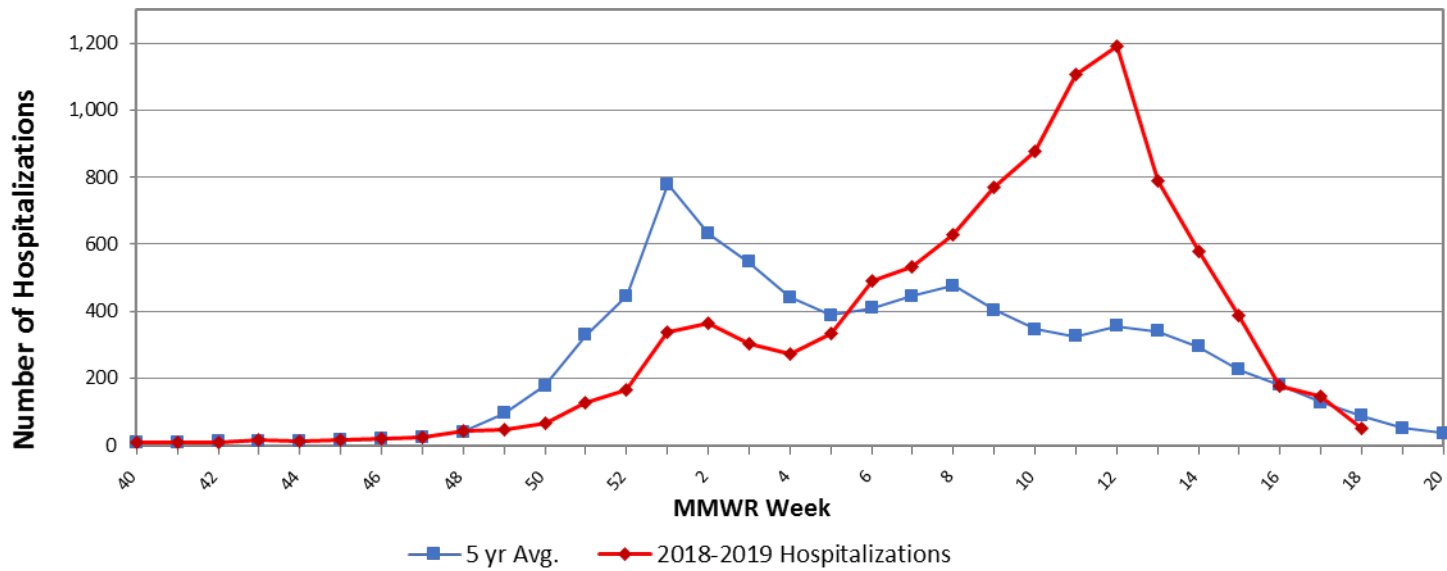
AthenaHealth: Ohio Influenza Related Outpatient Medical Claims with 5 Year Baseline Average; 2018-2019



Ohio Thermometer Sales with 5 Year Baseline Average; 2018-2019



Ohio Confirmed Influenza-associated Hospitalizations by MMWR Week; 2018-2019 Season (n=9808)



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.