



Ohio Department of Health Seasonal Influenza Activity Summary

MMWR Week 15

April 8th – April 14th, 2018

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 15, public health surveillance data sources indicate decreased influenza-like illness (ILI) activity in outpatient settings reported by Ohio's sentinel ILINet providers. Outpatient medical claims related to influenza-like illness also decreased during MMWR Week 15. The percentage of emergency department visits with patients exhibiting constitutional symptoms and ILI specified ED visits decreased as well. Reported cases of influenza-associated hospitalizations are above the seasonal threshold* with 365 influenza-associated hospitalizations reported during MMWR Week 15.

Ohio Weekly Influenza-associated Hospitalizations by Ohio Public Health Region

Central	43
East Central	107
Northeast	95
Northwest	54
Southeast	8
Southwest	28
West Central	30
Total	365

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)	0.61%	-54.48%	↓ 2	
Thermometer Sales (National Retail Data Monitor)	1263	-6.65%	↓ 10	
Fever and ILI Specified ED Visits (EpiCenter)	1.76%	-7.85%	↓ 3	
Constitutional ED Visits (EpiCenter)	9.57%	-5.34%	↓ 4	
Confirmed Influenza-associated Hospitalizations (Ohio Disease Reporting System)	365	-30.61%	↓ 2	
Outpatient Medical Claims Data ⁴	0.84%	-20.75%	↓ 2	

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 **1188** influenza tests from specimens sent from various submitters. 2017-2018 influenza season positive results: **(683) A/H3N2; (104) A/pdmH1N1; (195) Influenza B;** (through 04/14/2018).
- The **National Respiratory and Enteric Virus Surveillance System (NREVSS)** has reported **74,291** influenza tests performed at participating facilities. 2017-2018 influenza season positive results: **(195) H1N1, (636) A/H3N2, (11,199) Flu A Not Subtyped, and (4107) Flu B** (through 04/14/2018).
- **4 pediatric influenza-associated mortalities** have been reported during the 2017-2018 season (through 04/14/2018).
- No **novel influenza A virus infections** have been reported during the 2017-2018 season (through 04/14/2018).
- Incidence of confirmed **influenza-associated hospitalizations** in 2017-2018 season = **16,565*** (through 04/14/2018).

Regional Surveillance Data:** During week 14 (April 1st – April 7th, 2018), the proportion of outpatient visits for ILI in Region 5 (Ohio is in Region 5) was 1.95%, which is above the regional baseline of 1.8%. Ohio reports Widespread Activity (Regional for Week 15); Kentucky, Michigan, and Pennsylvania reported Regional Activity; and Indiana and West Virginia reported Local Activity.

National Surveillance Data:** During week 14 (April 1st – April 7th, 2018), most U.S. states reported Minimal or Low influenza activity, though a few are still reporting Moderate or High activity. The proportion of outpatient visits for ILI was 2.1%, which is **below** the national baseline of 2.2%. Six of 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 B**.

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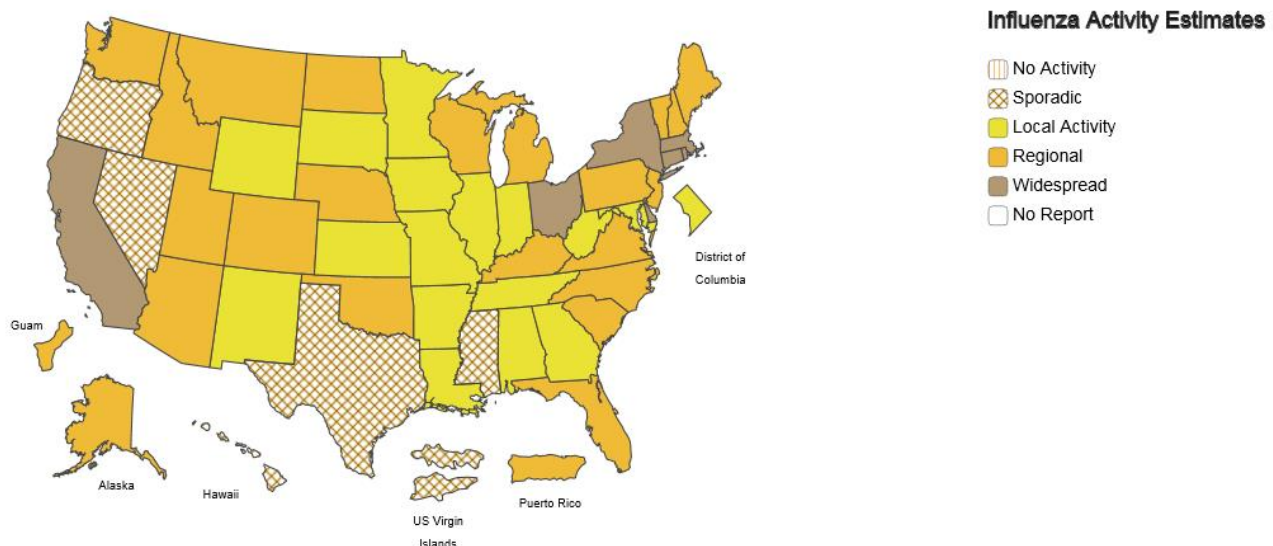
**National-level and regional-level data are reported one week later than Ohio state-level data



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending Apr 07, 2018 - Week 14



*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 2,618 influenza viruses collected during October 1, 2017 – April 7, 2018, and submitted by U.S. laboratories, including 643 influenza A(H1N1)pdm09 viruses, 1,100 influenza A(H3N2) viruses, and 865 influenza B viruses.

Influenza A Viruses

- **A (H1N1)pdm09:** Phylogenetic analysis of the HA genes from 643 A(H1N1)pdm09 viruses showed that all belonged to clade 6B.1. Five hundred 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 1,110 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=928), subclade 3C.2a1 (n=134) or clade 3C.3a (n=48). Five hundred twenty-five influenza A(H3N2) viruses were antigenically characterized, and 509 (96.9%) 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.

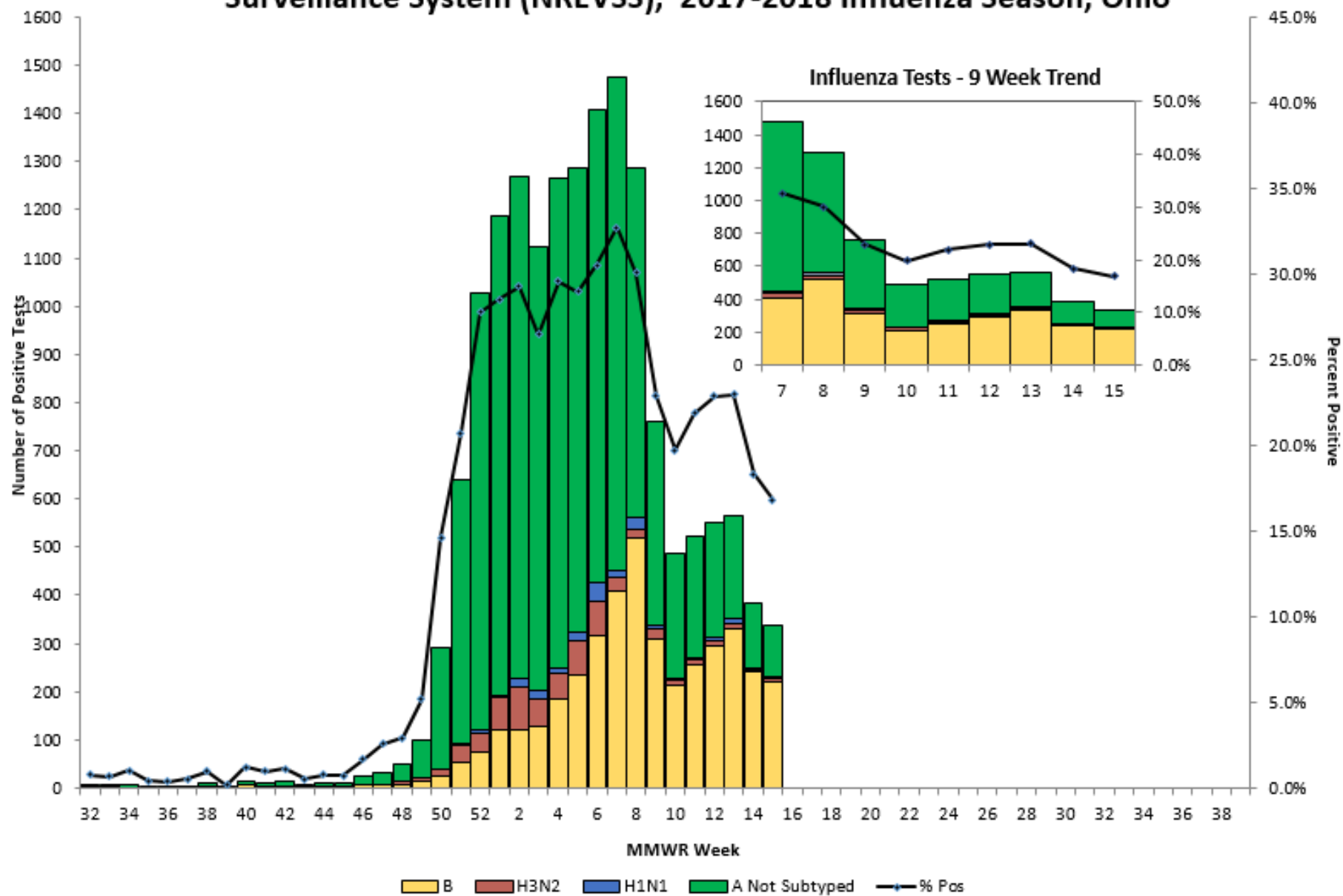
Influenza B Viruses

- **B/Victoria:** Phylogenetic analysis of 180 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 number of viruses had a 6-nucleotide deletion (encoding amino acids 162 and 163) in the HA (abbreviated as V1A-2Del). Thirty-seven (27.8%) 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. Ninety-six (72.2%) 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 685 influenza B/Yamagata-lineage viruses indicate that the HA genes belonged to clade Y3. A total of 544 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***

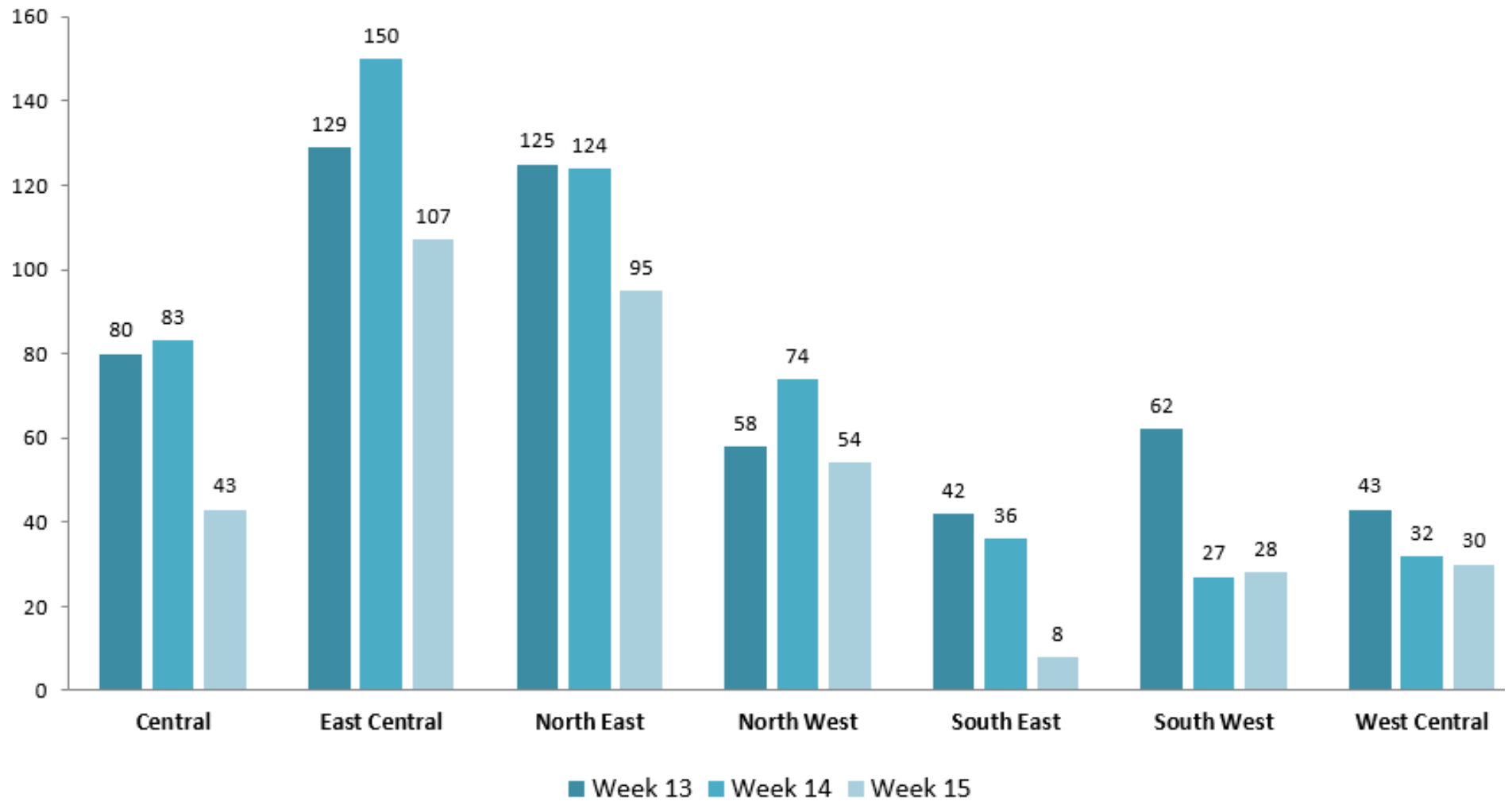
County	Influenza-Associated Hospitalizations	Percent of All Influenza-Associated Hospitalizations	Rate per 100,000 Population†	County	Influenza-Associated Hospitalizations	Percent of All Influenza-Associated Hospitalizations	Rate per 100,000 Population†
ADAMS	9	0.1%	31.52	LOGAN	21	0.1%	45.79
ALLEN	206	1.2%	193.73	LORAIN	295	1.8%	97.89
ASHLAND	49	0.3%	92.21	LUCAS	671	4.1%	151.87
ASHTABULA	96	0.6%	94.58	MADISON	93	0.6%	214.11
ATHENS	53	0.3%	81.84	MAHONING	415	2.5%	173.77
AUGLAIZE	61	0.4%	132.76	MARION	148	0.9%	222.55
BELMONT	58	0.4%	82.39	MEDINA	246	1.5%	142.75
BROWN	7	0.0%	15.61	MEIGS	22	0.1%	92.55
BUTLER	514	3.1%	139.62	MERCER	57	0.3%	139.66
CARROLL	69	0.4%	239.28	MIAMI	119	0.7%	116.09
CHAMPAIGN	57	0.3%	142.16	MONROE	11	0.1%	75.13
CLARK	342	2.1%	247.23	MONTGOMERY	956	5.8%	178.64
CLERMONT	294	1.8%	148.96	MORGAN	11	0.1%	73.07
CLINTON	36	0.2%	85.63	MORROW	46	0.3%	132.08
COLUMBIANA	158	1.0%	146.51	MUSKINGUM	126	0.8%	146.39
COSHOCTON	22	0.1%	59.62	NOBLE	15	0.1%	102.42
CRAWFORD	37	0.2%	84.51	OTTAWA	66	0.4%	159.31
CUYAHOGA	2616	15.8%	204.36	PAULDING	23	0.1%	117.26
DARKE	81	0.5%	152.95	PERRY	26	0.2%	72.11
DEFIANCE	34	0.2%	87.10	PICKAWAY	95	0.6%	170.56
DELAWARE	144	0.9%	82.66	PIKE	33	0.2%	114.95
ERIE	116	0.7%	150.49	PORTAGE	204	1.2%	126.38
FAIRFIELD	80	0.5%	54.74	PREBLE	48	0.3%	113.56
FAYETTE	16	0.1%	55.12	PUTNAM	43	0.3%	124.64
FRANKLIN	1226	7.4%	105.38	RICHLAND	133	0.8%	106.85
FULTON	52	0.3%	121.79	ROSS	114	0.7%	146.03
GALLIA	36	0.2%	116.38	SANDUSKY	77	0.5%	126.35
GEAUGA	118	0.7%	126.35	SCIOTO	111	0.7%	139.62
GREENE	266	1.6%	164.63	SENECA	50	0.3%	88.11
GUERNSEY	55	0.3%	137.20	SHELBY	58	0.4%	117.35
HAMILTON	1086	6.6%	135.35	STARK	671	4.1%	178.65
HANCOCK	80	0.5%	106.98	SUMMIT	1125	6.8%	207.65
HARDIN	41	0.2%	127.89	TRUMBULL	320	1.9%	152.15
HARRISON	9	0.1%	56.73	TUSCARAWAS	117	0.7%	126.37
HENRY	39	0.2%	138.22	UNION	56	0.3%	107.07
HIGHLAND	51	0.3%	117.00	VAN WERT	14	0.1%	48.71
HOCKING	24	0.1%	81.69	VINTON	18	0.1%	133.98
HOLMES	32	0.2%	75.53	WARREN	263	1.6%	123.65
HURON	66	0.4%	110.69	WASHINGTON	109	0.7%	176.44
JACKSON	69	0.4%	207.67	WAYNE	168	1.0%	146.70
JEFFERSON	158	1.0%	226.66	WILLIAMS	49	0.3%	130.17
KNOX	52	0.3%	85.36	WOOD	178	1.1%	141.85
LAKE	247	1.5%	107.37	WYANDOT	24	0.1%	106.12
LAWRENCE	50	0.3%	80.06	UNKNOWN	0	0.0%	*
LICKING	208	1.3%	124.93	TOTAL	16565	100%	143.59

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

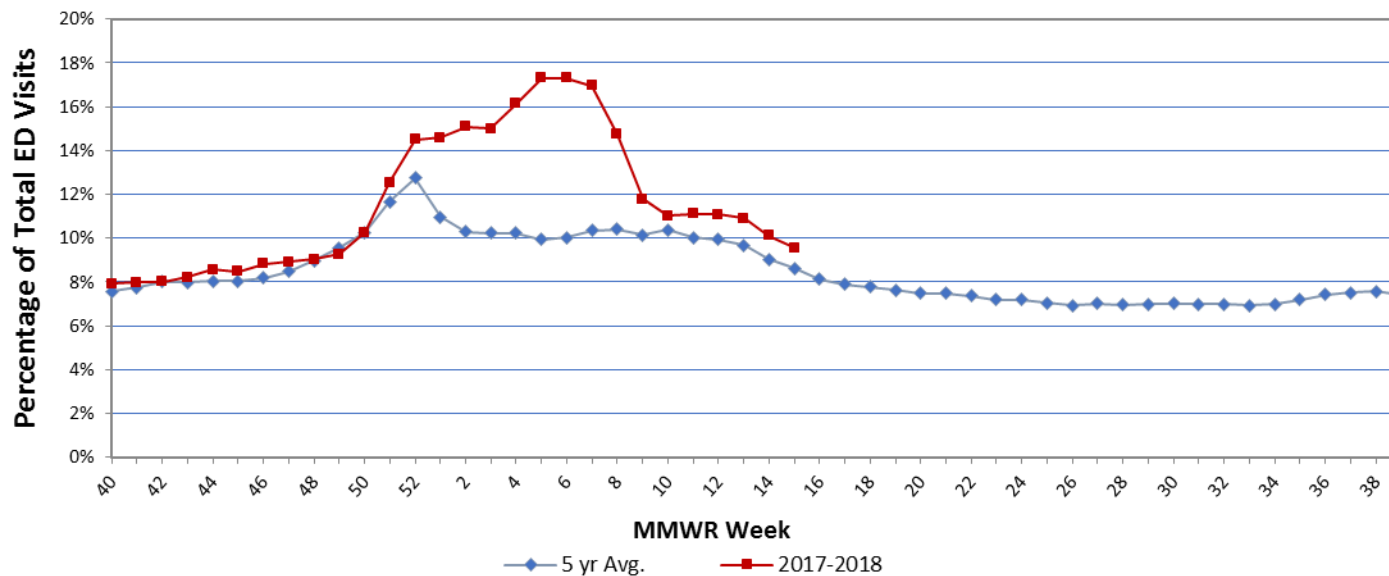
† Disease rates were calculated by number of cases per 100,000 residents using 2010 census data.

Source: Ohio Disease Reporting System

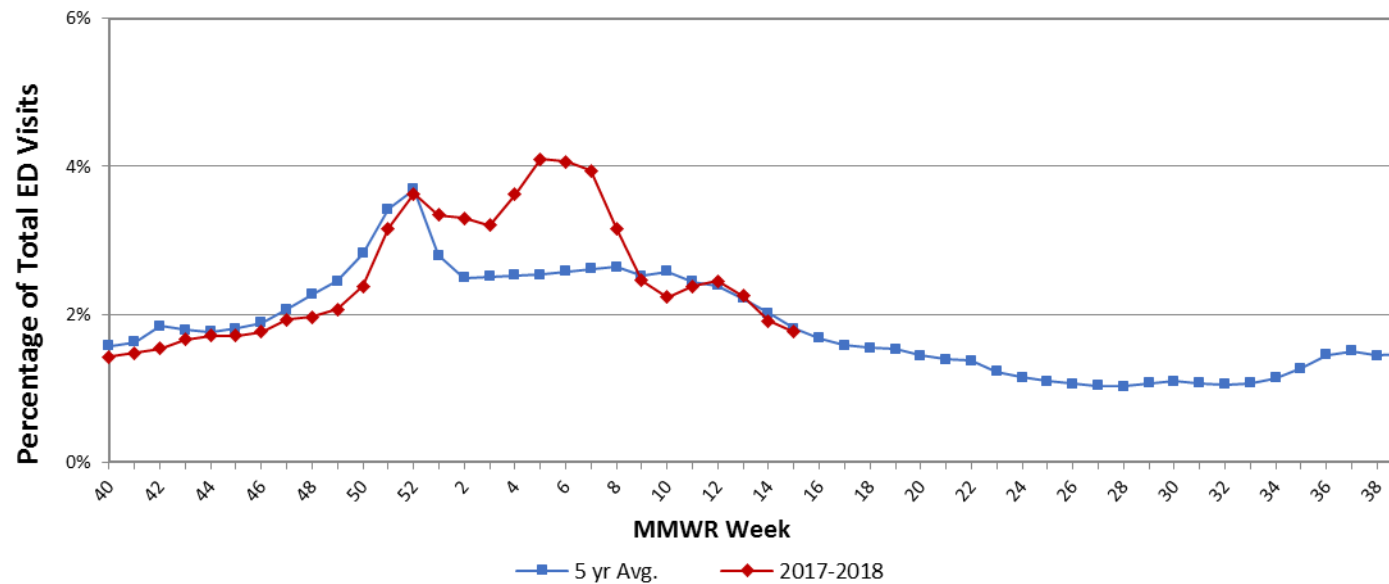
Influenza-associated Hospitalizations by Public Health Region and MMWR Week, Ohio, 2017-2018 Influenza Season



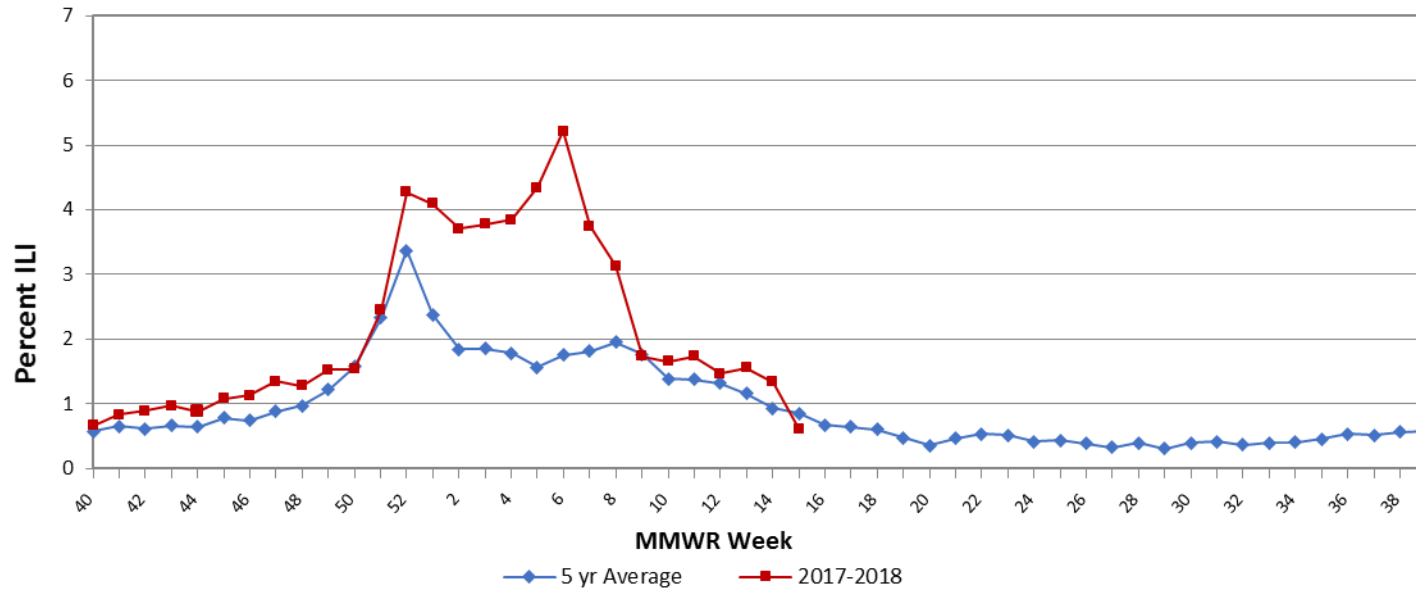
Ohio Constitutional ED Visits with 5 Year Baseline Average; 2017-2018



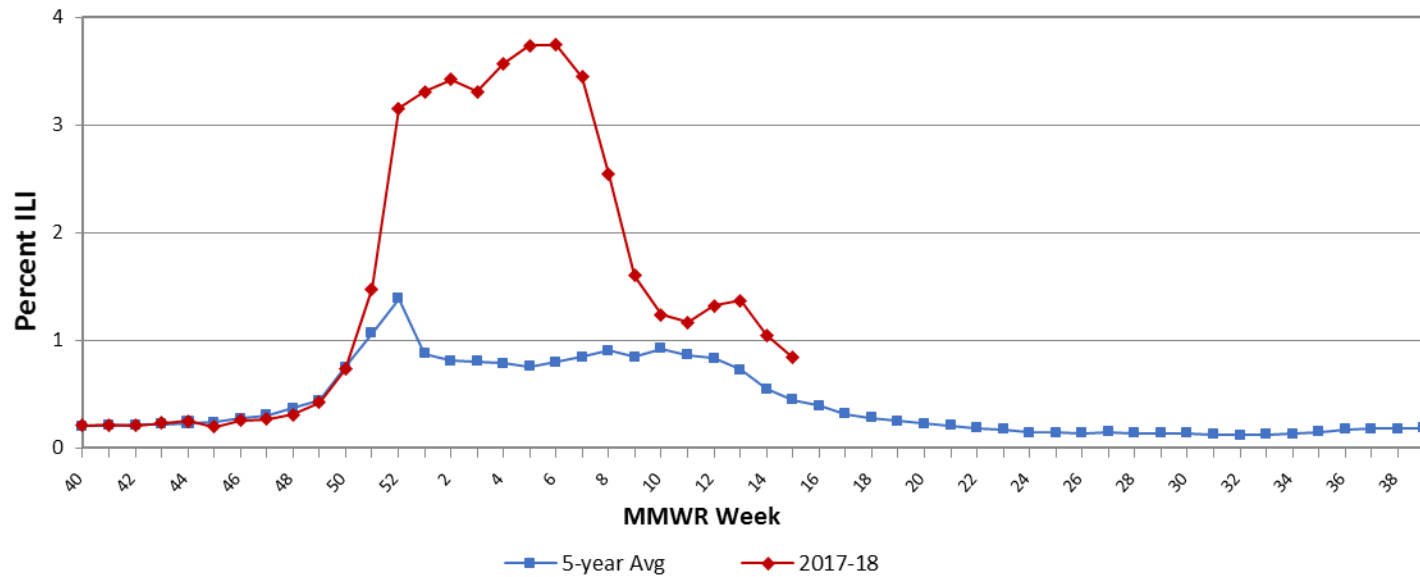
Ohio Fever & ILI Specified ED Visits with 5 Year Baseline Average; 2017-2018



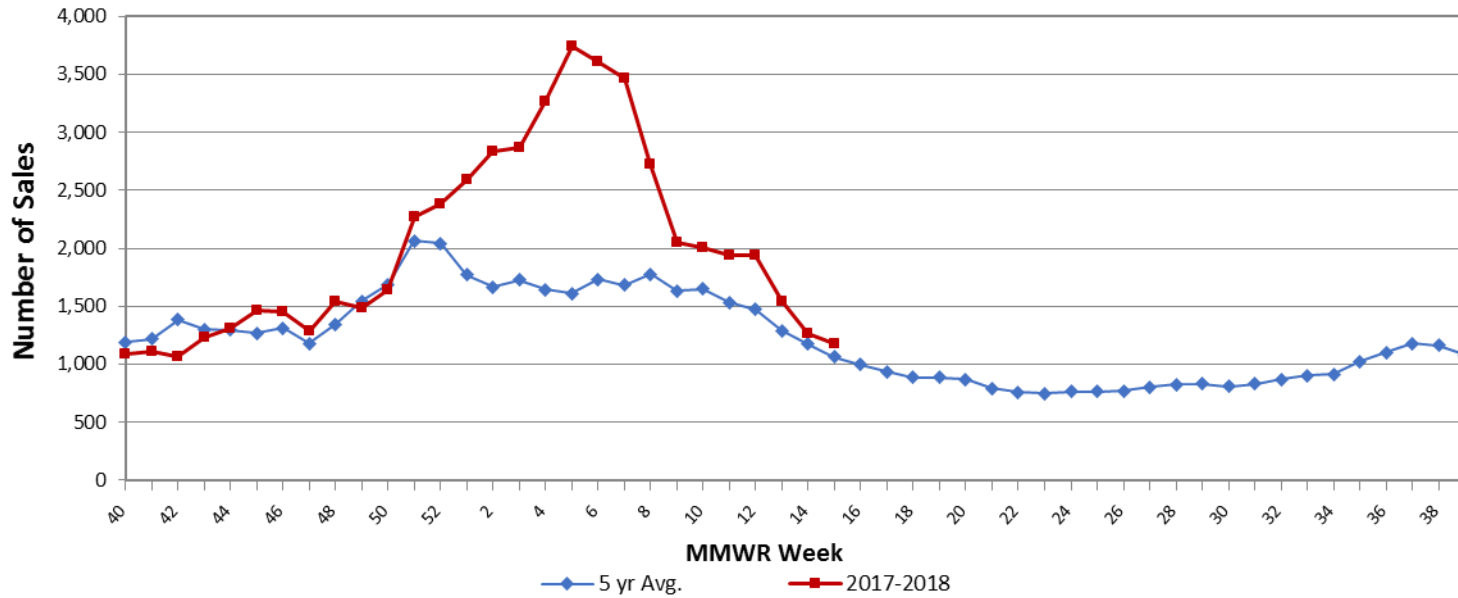
Ohio Outpatient Influenza-like Illness Network (ILINet) with 5 Year Baseline Average; 2017-2018



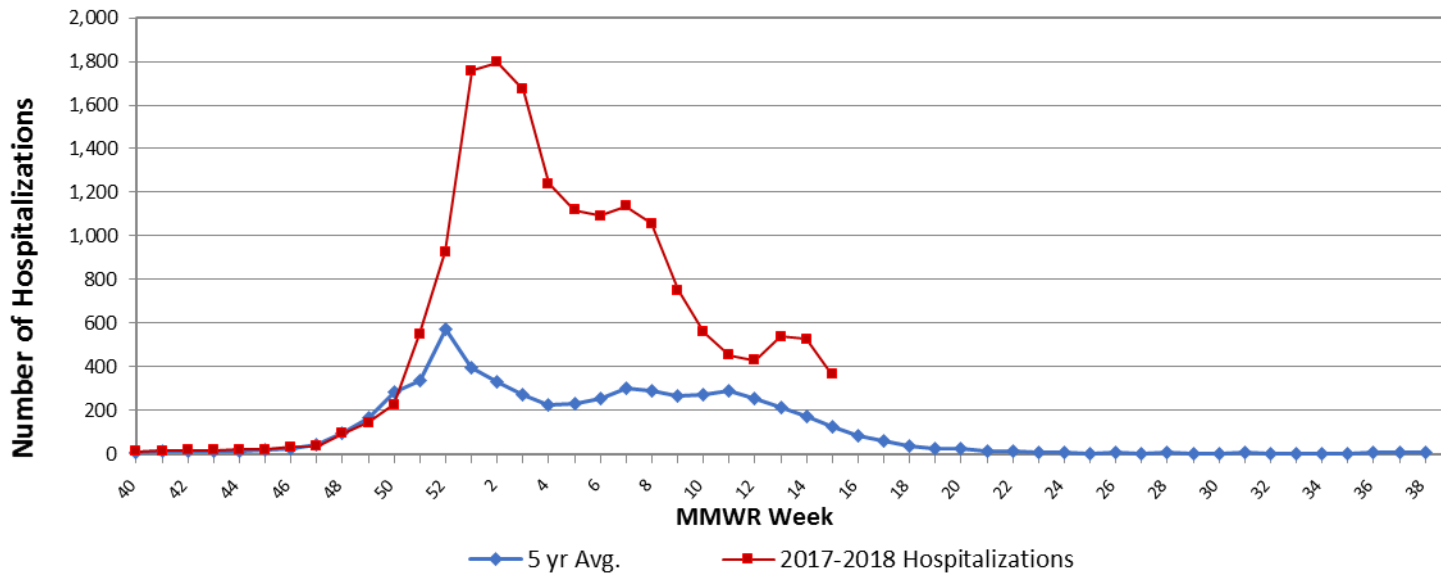
AthenaHealth: Ohio Influenza Related Outpatient Medical Claims 5 Year Baseline Average; 2017-2018



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



Ohio Confirmed Influenza-associated Hospitalizations by MMWR Week; 2017-2018 Season (n=16,565)



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.