Arizona Department of Health Services

ARIZONA – INFLUENZA SUMMARY

Week 18 (5/1/2016 – 5/7/2016)

2015-2016 Season (10/4/2015 – 10/1/2016)

Synopsis:

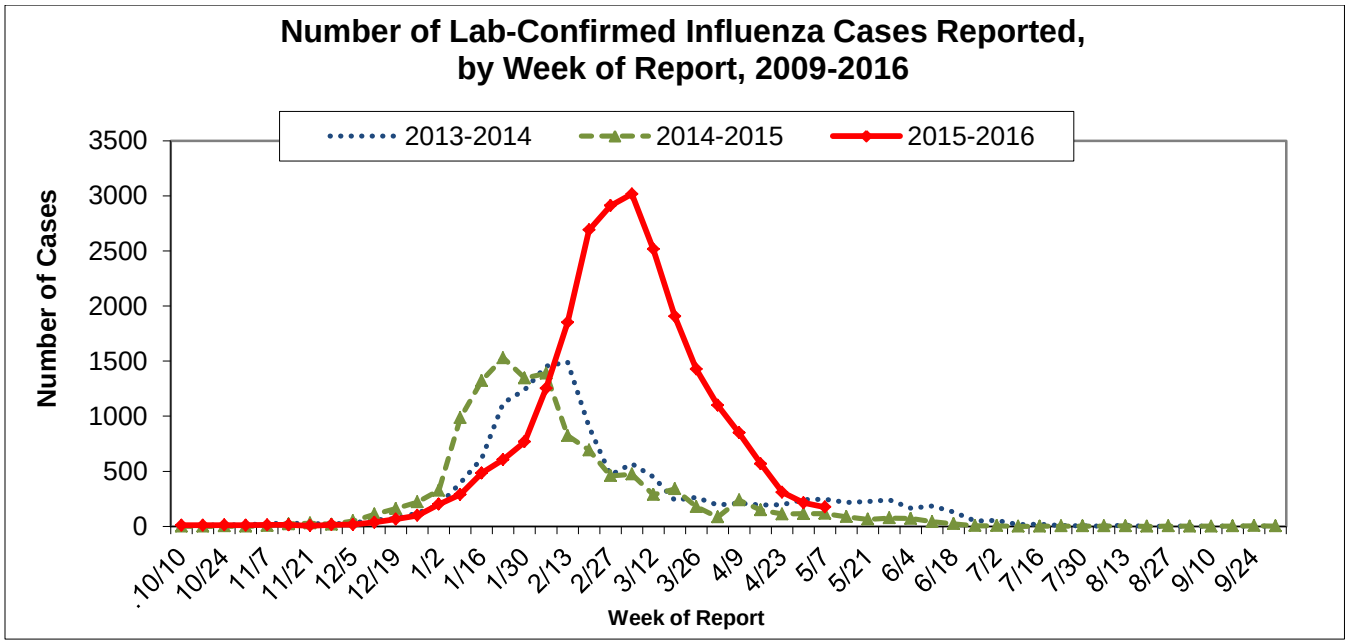
Influenza activity is decreasing in Arizona. Arizona reported Local activity for week 18.

Influenza activity highlights:

- 174 laboratory-confirmed cases of influenza were reported in the past week, from thirteen counties. 23,429 cases have been reported this season, with laboratory-confirmed cases identified in fifteen counties.
- 17,119 (73%) reports this season are influenza A, 6,049 (26%) are influenza B, and 261 (1%) are of unknown type.
- In the past week, 155 (96%) of 161 specimens tested positive for influenza at ASPHL: 29 influenza A (H1N1) pdm09 viruses, 50 influenza A (H3) viruses, 67 influenza B/Yamagata viruses and 9 influenza B/Victoria viruses.
- Influenza-like illness activity at sentinel providers was below Arizona's threshold in week 17.
- Influenza-like illness activity at sentinel schools decreased in week 18.
- Three influenza-associated pediatric deaths have been reported for the 2015-2016 season. The first resided in Maricopa County, had no underlying conditions and was PCR positive for influenza A (H1N1) pdm09. The second resided in Pinal County, had underlying conditions and was PCR positive for influenza A (H1N1) pdm09. The third resided in Maricopa County, had underlying conditions and was PCR positive for influenza A (H1N1) pdm09.
- The cases included in this report represent a small proportion of the true number of cases of influenza. Many people do not visit the doctor when ill and doctors should not be expected to run tests on all patients exhibiting influenza-like symptoms.

Laboratory-Confirmed Influenza Activity by Season [2009-2016]

Positive influenza tests are reported to ADHS. Many types of tests are included in the numbers below: rapid antigen tests, direct fluorescent antigen tests, viral culture, and molecular testing.



Reported Laboratory-Confirmed Cases Compared to Last Week and Last Season

	Cumulative Season Total	Current Week Total
2015-2016	23,429	174
2014-2015	11,575	115
5 year average	9,390	118
% increase, compared to 2014-2015 season	102%	51%
% increase, compared to a typical flu season	150%	47%
% increase, compared to last week	1%	-18%

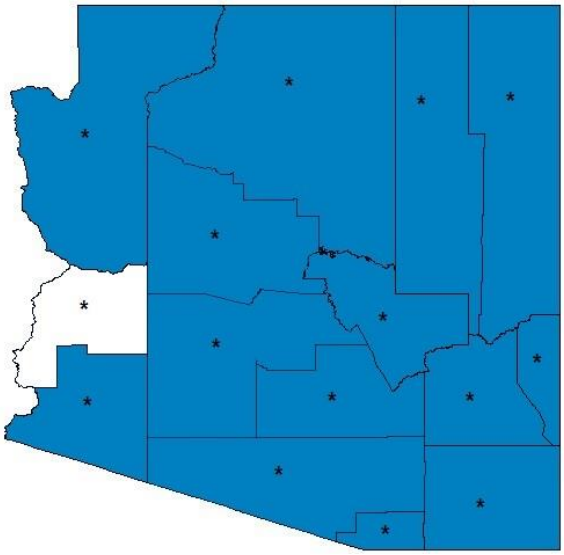
Arizona Influenza Activity Levels *(see definitions at the end of this report)*

	2015-2016	2014-2015	2013-2014	2012-2013	2011-2012
This Week	Local	Local	Local	Sporadic	Local
Last Week	Regional	Local	Local	Local	Regional
Date First Case Confirmed, no travel	Oct. 4, 2015	Nov. 3, 2014	Oct. 4, 2013	Oct. 30, 2012	Dec. 14, 2011
Weeks with Widespread Activity	Week 5-14	Weeks 1-6	Weeks 3-8	Weeks 1-7	Weeks 11 – 14

Laboratory-Confirmed Cases Reported, by County, 2015-2016 Influenza Season

(Includes ALL reported lab-confirmed flu reports, regardless of subtype)

County	2015-2016 Season	Past Three Weeks	Last Week
Apache	211	4	0
Cochise	600	16	3
Coconino	687	27	5
Gila	109	6	2
Graham	143	9	1
Greenlee	104	6	2
La Paz	14	0	0
Maricopa	14,247	441	88
Mohave	314	16	12
Navajo	462	5	1
Pima	3,386	55	10
Pinal	1,514	71	28
Santa Cruz	148	2	1
Yavapai	1,088	32	20
Yuma	402	6	1
Total	**23,429**	**696**	**174**



Key:

* = Any activity reported this season

■ = Activity reported in the previous three weeks

□ = No activity reported in the previous three weeks

Age of Reported Influenza Cases

The age groups most affected by influenza vary somewhat season-to-season, depending in part on the circulating influenza types and subtypes and any existing immunity in the community. Variations in age groups of reported influenza cases can also be caused by differences in laboratory testing and reporting practices year-to-year.

Age Group of Reported Influenza Cases, 2012-2013 through 2015-2016 Seasons

Age Group	2015-2016 Season (N=23,429)	2014-2015 Season (N=12,580)	2013-2014 Season (N=12,484)	2012-2013 Season (N=11,301)
0 to 4 years	4,061 (17%)	2,153 (17%)	2,329 (19%)	2,114 (19%)
5 to 18 years	5,042 (22%)	3,365 (27%)	2,802 (22%)	3,013 (27%)
19 to 49 years	7,287 (31%)	3,039 (24%)	4,487 (36%)	3,107 (27%)
50 to 64 years	3,123 (13%)	1,223 (10%)	1,566 (13%)	1,156 (10%)
65 years or older	3,826 (16%)	2,659 (21%)	1,205 (10%)	1,799 (16%)
Unknown age	90 (0.3%)	141 (1%)	95 (1%)	112 (1%)

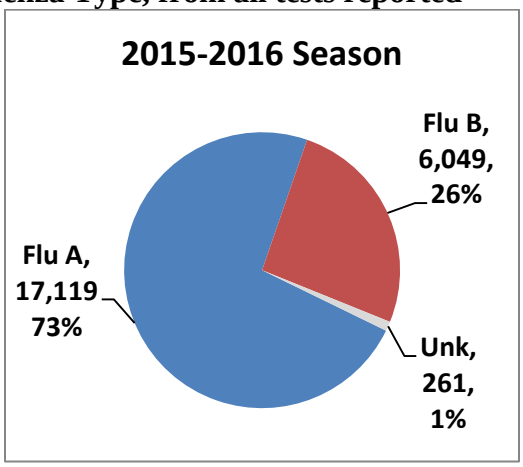
Age Group of Reported Influenza Cases by Type, 2015-2016 Season

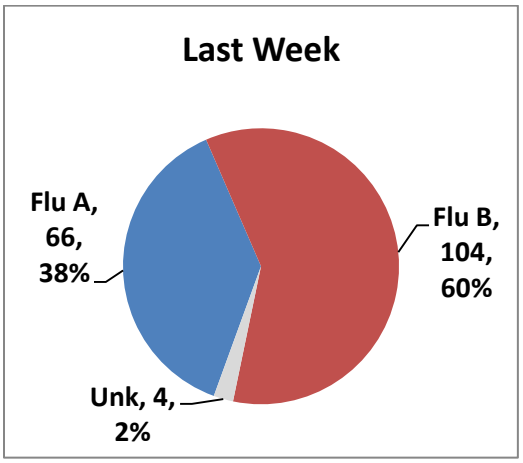
Age Group	All Confirmed Cases (N=23,429)	Influenza A (N=17,119)	Influenza B (N=6,049)	Unknown Type (N=261)
0 to 4 years	4,061 (17%)	3,312 (19%)	706 (12%)	43 (16%)
5 to 18 years	5,042 (22%)	3,430 (20%)	1,553 (26%)	59 (23%)
19 to 49 years	7,287 (31%)	5,518 (32%)	1,681 (28%)	88 (34%)
50 to 64 years	3,123 (13%)	2,091 (12%)	996 (16%)	36 (14%)
65 years or older	3,826 (16%)	2,711 (16%)	1,090 (18%)	25 (10%)
Unknown age	90 (0.3%)	57 (0.3%)	23 (0.3%)	10 (4%)

Influenza Types and Subtypes

There are two main types of influenza – Type A and Type B – that cause illness in people. Influenza A viruses can be further divided into subtypes such as A (H1), or A (H3). Influenza B viruses can be further divided into lineages, B/Victoria lineage or B/Yamagata lineage. While most tests can distinguish between influenza A and B, only specialized testing such as that done at the State Public Health Laboratory and a few other labs around the state can differentiate subtypes. Viral culture or molecular testing (reverse transcriptase polymerase chain reaction or RT-PCR) are the methods used to identify subtypes; knowing the type and subtype of the influenza viruses circulating can help health professionals make the best treatment and vaccination decisions.

Influenza Type, from all tests reported





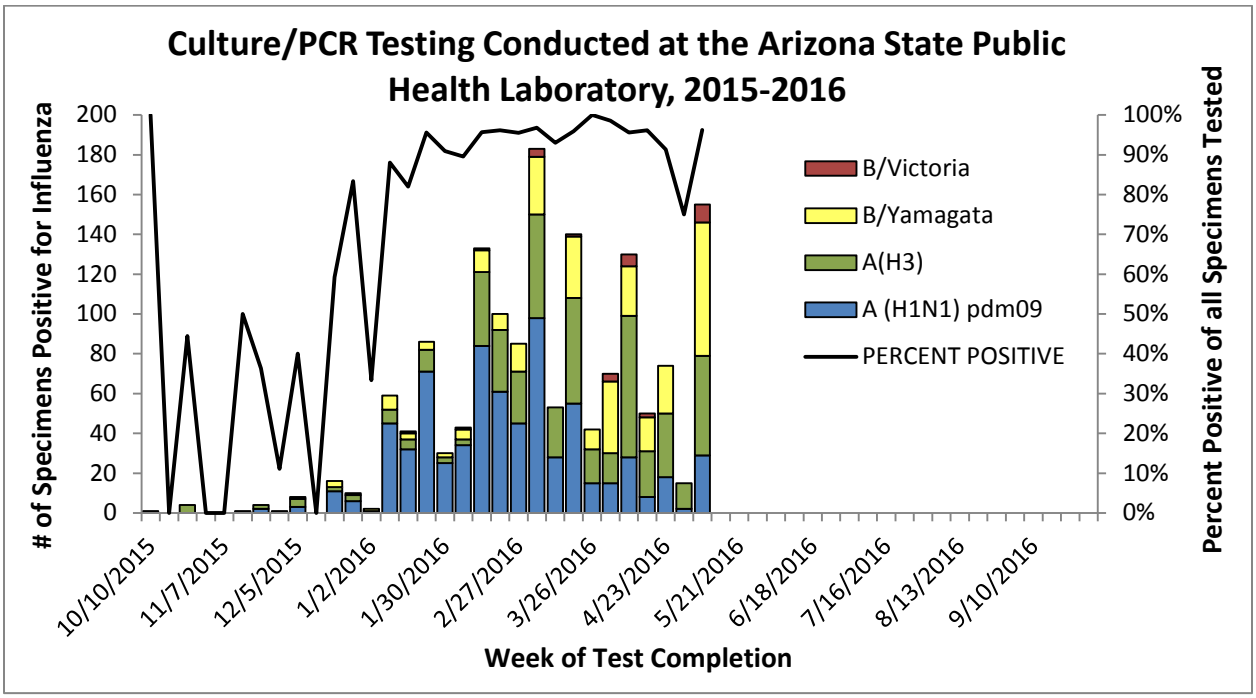
Influenza Type, by Season

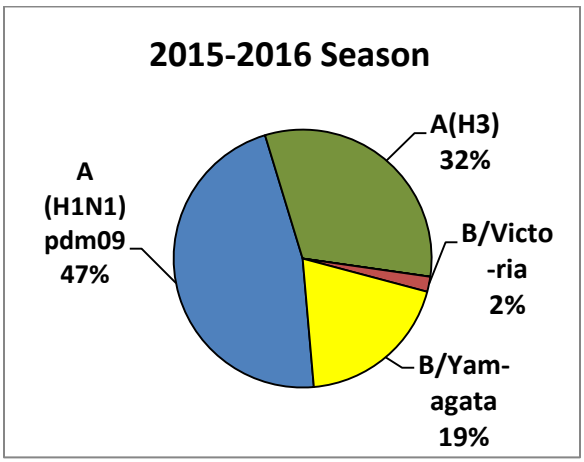
	2015-2016 Season Number	2015-2016 Season Percent	2014-2015 Number (Percent)	2013-2014 Number (Percent)	2012-2013 Number (Percent)
Total	23,429	100%	12,592 (100%)	11,780 (100%)	11,306 (100%)
Influenza A	17,119	73%	11,015 (87%)	9,355 (79%)	8,059 (71%)
Influenza B	6,049	26%	1,424 (11)	2,229 (19%)	2,951 (26%)
Unknown	261	1%	153 (1%)	196 (2%)	296 (3%)

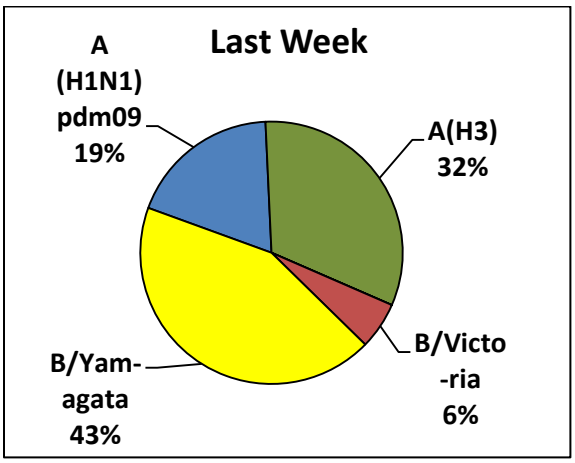
Influenza Subtype

Data from the Arizona State Public Health Laboratory (ASPHL)

- 155 (96%) of 161 specimens tested positive for influenza at ASPHL last week: 29 influenza A (H1N1) pdm09 viruses, 50 influenza A (H3) viruses, 67 influenza B/Yamagata viruses and 9 B/Victoria viruses.







Influenza subtype, by season, from any laboratories performing culture or RT-PCR

	2015-2016 Season Number	2015-2016 Season Percent	2014-2015 Number (Percent)	2013-2014 Number (Percent)	2012-2013 Number (Percent)
Influenza Subtypes	2,602	100%	2,202 (100%)	1,795 (100%)	1,954 (100%)
Influenza A (H1N1)pdm09	1,286	49%	5 (0.1%)	1,480 (82%)	80 (4%)
Influenza A (H3)	962	37%	2,127 (97%)	151 (8%)	1,606 (82%)
Influenza B/Yamagata	316	12%	50 (2%)	36 (2%)	175 (9%)
Influenza B/Victoria	38	2%	20 (1%)	128 (7%)	93 (5%)

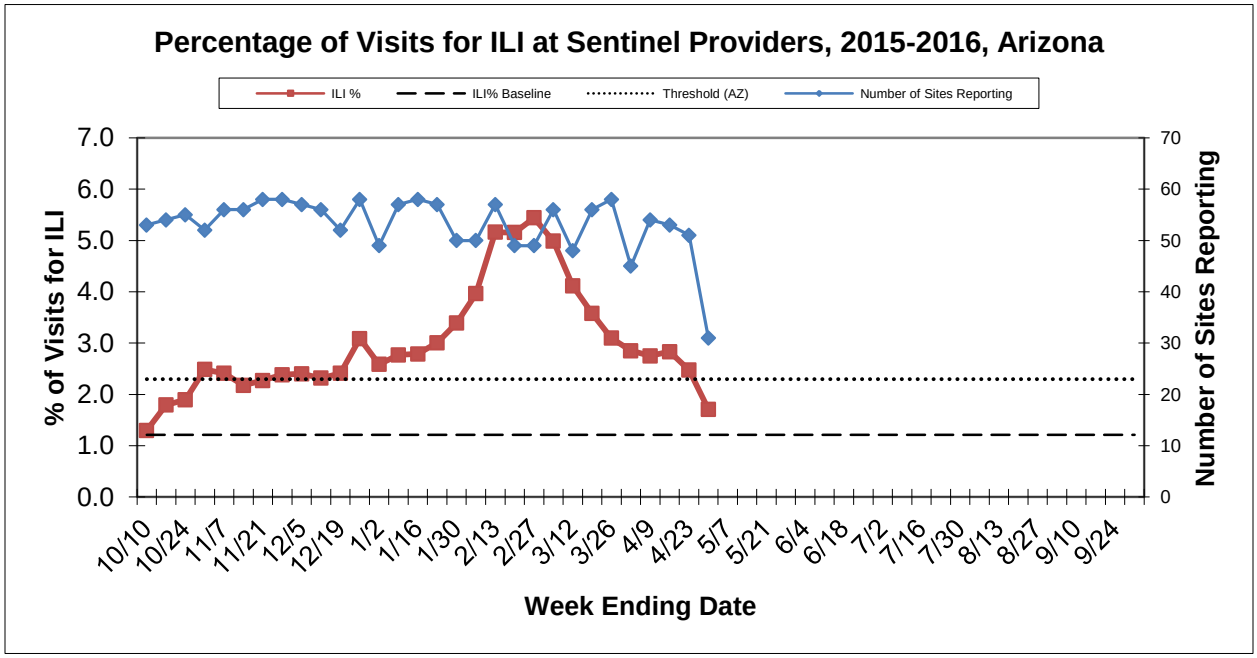
Influenza subtyping of culture or RT-PCR results, by region

Region	Influenza A (H1N1) pdm09	Influenza A (H3)	Influenza B/Yamagata	Influenza B/Victoria	Total
Arizona	1,286 (49%)	962 (37%)	316 (12%)	38 (2%)	2,602 (100%)
Central	745 (50%)	484 (32%)	235 (16%)	33 (2%)	1,497 (100%)
Northern	211 (69%)	93 (30%)	4 (1%)	0 (0%)	308 (100%)
Southern	271 (42%)	326 (51%)	41 (6%)	2 (1%)	640 (100%)
Western	57 (37%)	59 (38%)	36 (23%)	3 (2%)	157 (100%)

Influenza-Like Illness (ILI) Surveillance from Sentinel Outpatient Providers

ILI is defined as a fever of at least 100ºF plus either a cough or a sore throat. In weeks when a relatively low number of enrolled facilities report data, the ILI proportion may not be as representative of Arizona activity as for other weeks. The state ILI baseline is 1.2% and the epidemic threshold is 2.2%*.

	Week 17	Week 16
Proportion of patient visits to sentinel providers for ILI	1.7%	2.5%
Comparison to epidemic threshold*	Below threshold	Above threshold
Intensity level *(see definitions at the end of report)*	Minimal	Low

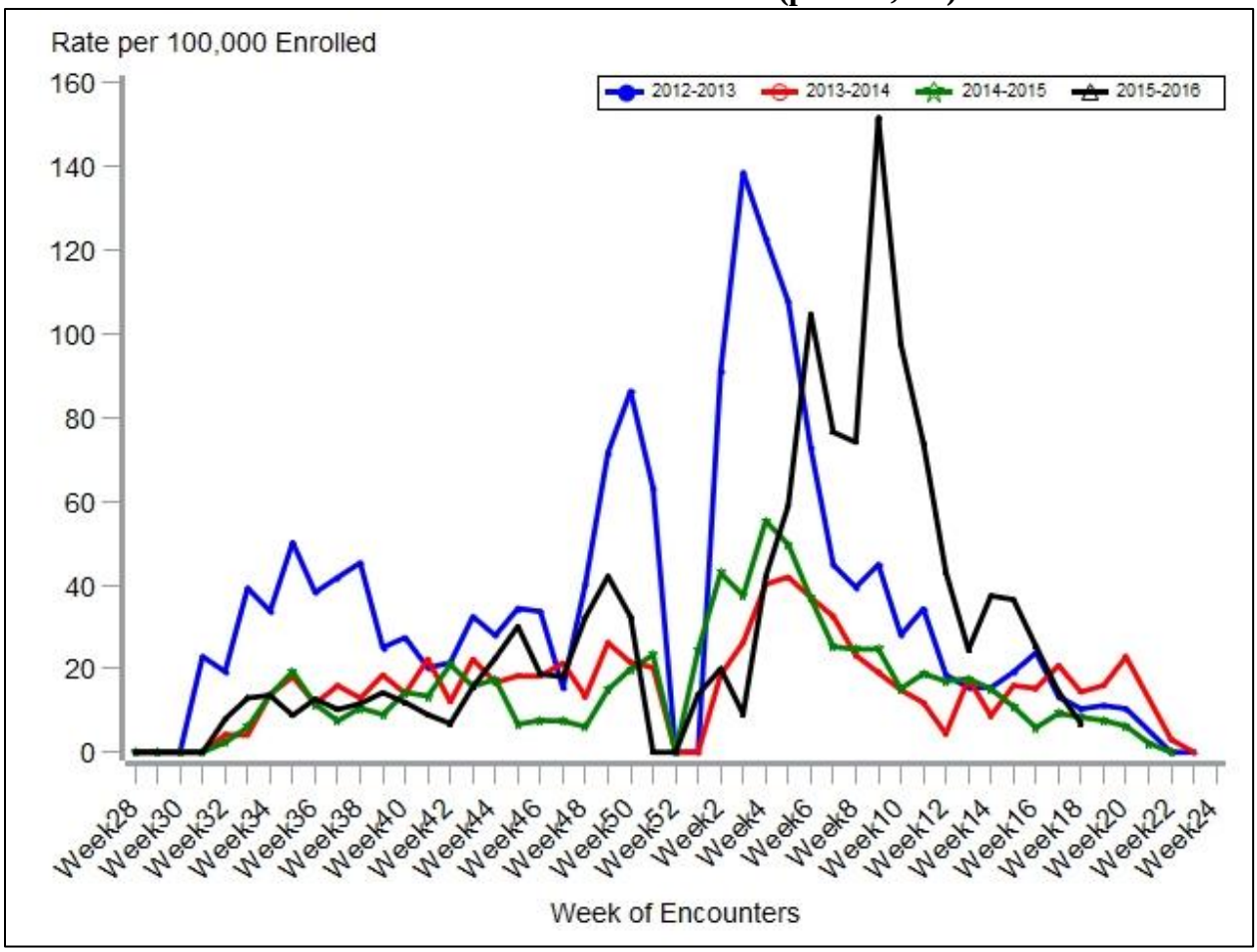


*Note: The baseline is defined as the mean of the state ILI% in weeks in the 2012-2015 flu seasons in which two or more consecutive weeks each accounted for less than 2% of the season's total number of specimens testing positive for influenza at the Arizona State Public Health Laboratory. The epidemic threshold is defined as the mean plus two standard deviations.

School Surveillance for Influenza-Like Illness (ILI)

School nurses in approximately 140 Arizona schools around the state use a specific computer program (the Child Health Indicator Program) for electronic management of student health records. The graph presents the weekly trend of ILI syndromes reported among students during the past four school years. School nurse encounters are not diagnosed cases of communicable diseases but are based on the nursing codes that school nurses enter to track student conditions. Also, the numbers in the graph are only from schools that used CHIP during the school year.

Influenza-Like Illness Per School Enrollment in Arizona (per 100,000)

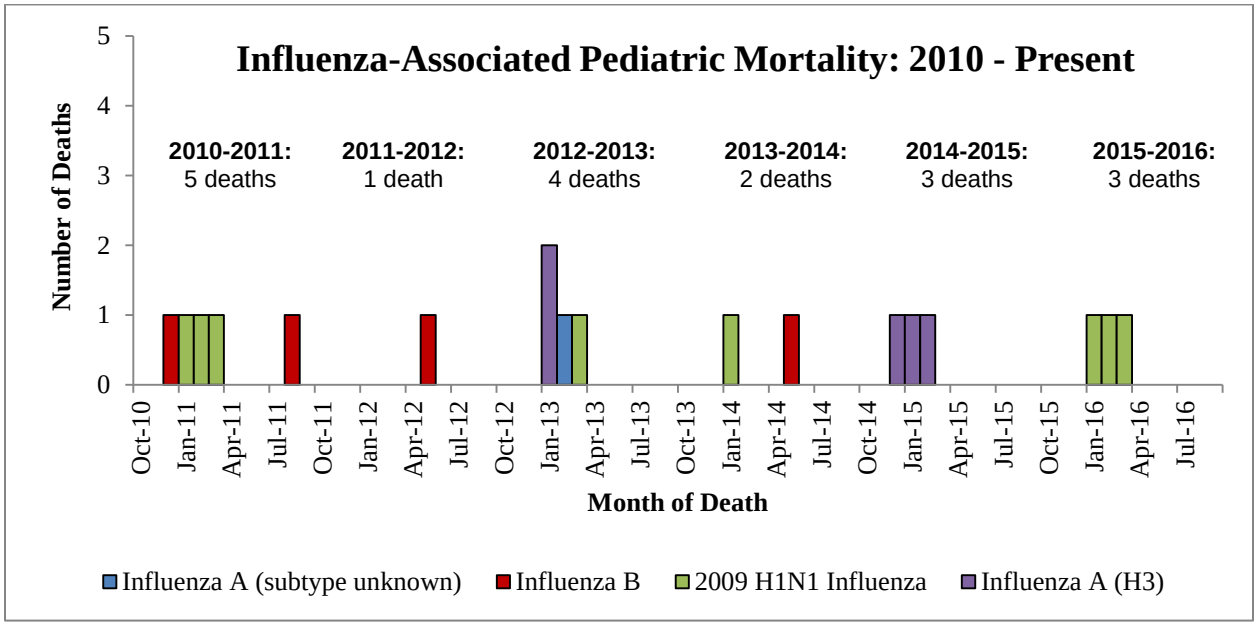


Mortality Surveillance

Influenza-associated Pediatric Deaths

Influenza-associated pediatric deaths are reportable to the public health departments in Arizona. The 2008-2009 and 2009-2010 seasons showed an increase in influenza-associated deaths in children related to the circulation of the 2009 H1N1 strain. One to five deaths were reported in each of the other seasons since 2004.

Three influenza-associated pediatric deaths have been reported for the 2015-2016 season. The first, reported in week 6, was a Maricopa County resident who had no underlying conditions and was PCR positive for influenza A (H1N1) pdm09. The second, reported in week 8, was a Pinal County resident who had underlying conditions and was PCR positive for influenza A (H1N1) pdm09. The third, reported in week 10, was a Maricopa County resident who had underlying conditions and was PCR positive for influenza A (H1N1) pdm09. Influenza A (H1N1) pdm09 was confirmed by PCR for all three cases at the Arizona State Public Health Laboratory.



Glossary of Key Terms:

2015-2016 Influenza Season – The season is defined by surveillance weeks. The first day of the 2015-2016 influenza season was October 4th, 2015, or week 40 and the 2015-2016 surveillance season will continue through October 1st, 2016, or week 39.

Regions – Regions in Arizona are defined by county: Central (Gila, Maricopa, Pinal); Northern (Apache, Coconino, Navajo, Yavapai); Southern (Cochise, Graham, Greenlee, Pima, Santa Cruz); Western (La Paz, Mohave, Yuma)

Activity Levels: Indicator of the geographic spread of influenza activity, reported to CDC by all states each week.
Widespread: Increased influenza-like illness from sentinel providers (ILI) in three or more regions and large numbers of laboratory-confirmed influenza cases in those regions.
Regional: Increased ILI in two regions and elevated numbers of laboratory-confirmed influenza cases in those regions.
Local: Increased ILI in one region and elevated numbers of laboratory-confirmed influenza cases in that region.
Sporadic: No increase in ILI activity and only isolated laboratory-confirmed influenza cases.
No Activity: No increase in ILI activity and no laboratory-confirmed influenza cases.

Intensity Levels: Intensity levels are based on the percent of outpatient visits in a state due to ILI and are compared to the average percent of ILI visits that occur during spring and fall weeks with little or no influenza virus circulation. Intensity levels range from minimal, corresponding to ILI activity from outpatient clinics being below the average, to intense, which would correspond to ILI activity from outpatient clinics being much higher than average.