Arizona Department of Health Services

ARIZONA – INFLUENZA SUMMARY

Week 4 (1/25/2015 – 1/31/2015)

2014-2015 Season (9/28/2014 – 10/3/2015)

Synopsis:

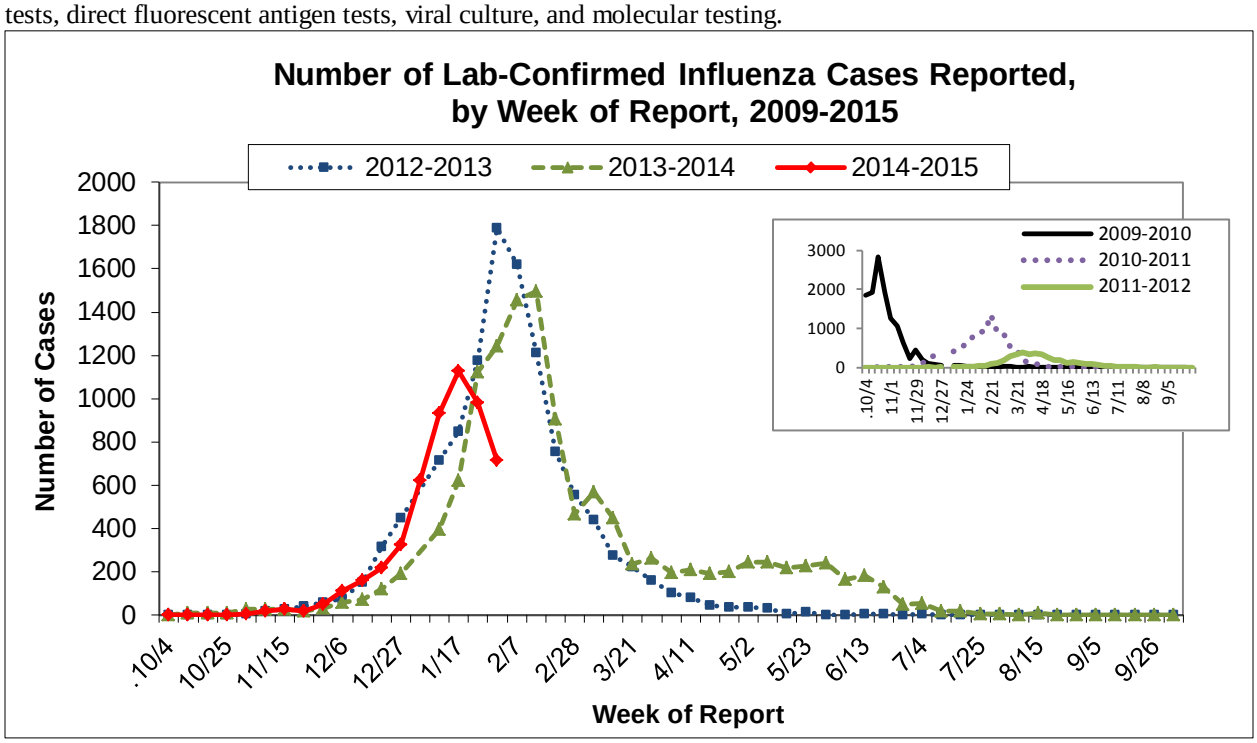
Influenza activity is elevated in Arizona. Arizona reported Widespread activity for week 4.

Influenza activity highlights:

- The numbers in this report are based on processed cases. There are a large number of reports that are still being processed. This means the numbers in this report are provisional.
- 715 laboratory-confirmed cases of influenza were reported in the past week, from fifteen counties. 5,320 cases have been reported this season, with laboratory-confirmed cases identified in fifteen counties.
- 4,972 (93%) reports this season are influenza A, 255 (5%) are influenza B, and 93 (2%) are of unknown type.
- 53 (90%) of 59 specimens tested positive for influenza at ASPHL last week; 53 influenza A (H3) viruses.
- Influenza-like illness activity at sentinel providers was above Arizona's threshold in week 3.
- Influenza-like illness activity at sentinel schools increased in week 4.
- Two influenza-associated pediatric deaths have been reported for the 2014-2015 season. One resided in Pima County, had underlying conditions and was PCR positive for influenza A (H3). The second resided in Maricopa County, had no underlying conditions and was PCR positive for influenza A (H3).
- 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 [2009-2015]

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
2014-2015	5,320	715
2013-2014	3,996	1,243
5 year average*	2,665	777
% increase, compared to 2013-2014 season	33%	-42%
% increase, compared to a typical flu season	100%	-8%
% increase, compared to last week	16%	-27%

* Mean of past 5 years, excludes 2009-2010 pandemic season

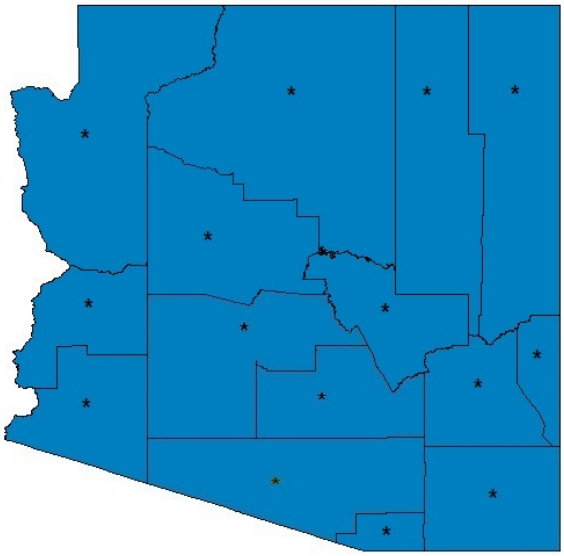
Arizona Influenza Activity Levels *(see definitions at the end of this report)*

	2014-2015	2013-2014	2012-2013	2011-2012	2010-2011
This Week	Widespread	Widespread	Widespread	Sporadic	Widespread
Last Week	Widespread	Widespread	Widespread	Sporadic	Widespread
Date First Case Confirmed, no travel	Nov. 3, 2014	Oct. 4, 2013	Oct. 30, 2012	Dec. 14, 2011	Sept. 28, 2010
Weeks with Widespread Activity	Weeks 1-4	Weeks 3-8	Weeks 1-7	Weeks 11 – 14	Weeks 52 – 10

Laboratory-Confirmed Cases Reported, by County, 2014-2015 Influenza Season

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

County	2014-2015 Season	Past Three Weeks	Last Week
Apache	62	45	19
Cochise	234	164	49
Coconino	174	117	34
Gila	41	31	12
Graham	81	54	15
Greenlee	45	11	3
La Paz	2	2	1
Maricopa	2,580	1,259	227
Mohave	179	113	43
Navajo	138	73	40
Pima	1,082	497	109
Pinal	407	265	107
Santa Cruz	41	30	14
Yavapai	35	27	11
Yuma	219	133	31
Total	5,320	2,821	715



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, 2011-2012 through 2014-2015 Seasons

Age Group	2014-2015 Season (N=5,320)	2013-2014 Season (N=12,484)	2012-2013 Season (N=11,301)	2011-2012 Season (N=4,004)
0 to 4 years	888 (17%)	2,329 (19%)	2,114 (19%)	750 (19%)
5 to 18 years	1,425 (27%)	2,802 (22%)	3,013 (27%)	1,053 (26%)
19 to 49 years	1,319 (25%)	4,487 (36%)	3,107 (27%)	1,352 (34%)
50 to 64 years	505 (9%)	1,566 (13%)	1,156 (10%)	400 (10%)
65 years or older	1,057 (20%)	1,205 (10%)	1,799 (16%)	436 (11%)
Unknown age	126 (2%)	95 (1%)	112 (1%)	13 (0.3%)

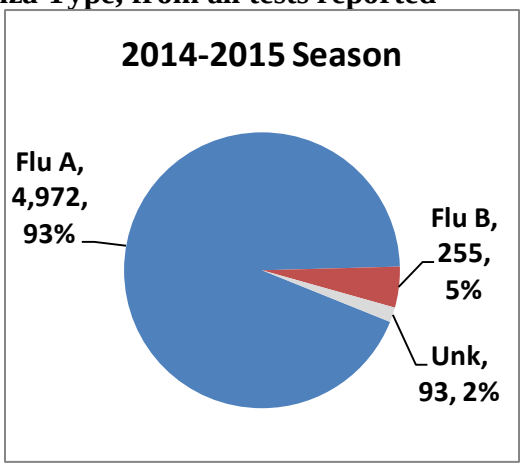
Age Group of Reported Influenza Cases by Type, 2014-2015 Season

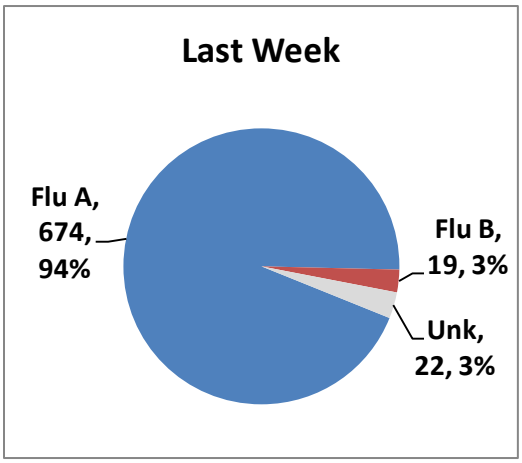
Age Group	All Confirmed Cases (N=5,320)	Influenza A (N=4,972)	Influenza B (N=255)	Unknown Type (N=93)
0 to 4 years	888 (17%)	849 (17%)	32 (13%)	7 (8%)
5 to 18 years	1,425 (27%)	1,341 (27%)	44 (17%)	40 (43%)
19 to 49 years	1,319 (25%)	1,228 (25%)	69 (27%)	22 (24%)
50 to 64 years	505 (9%)	445 (9%)	50 (20%)	10 (11%)
65 years or older	1,057 (20%)	991 (20%)	52 (20%)	14 (15%)
Unknown age	126 (2%)	118 (2%)	8 (3%)	0 (0%)

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). 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





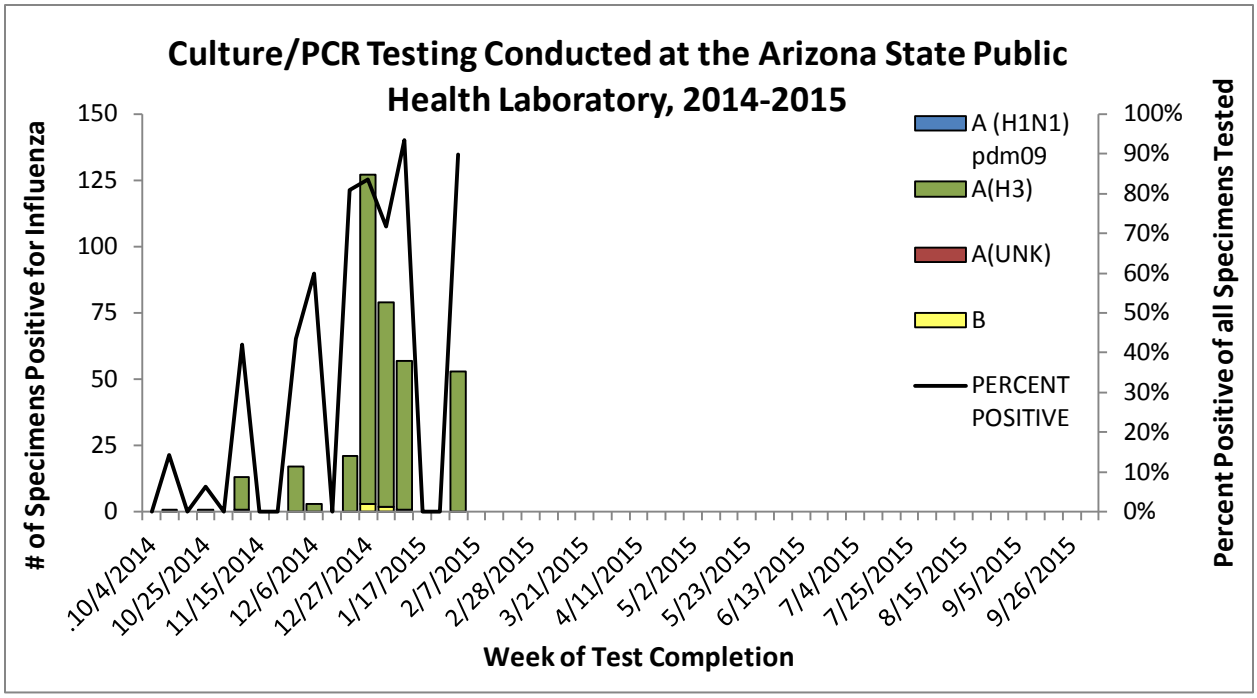
Influenza Type, by Season

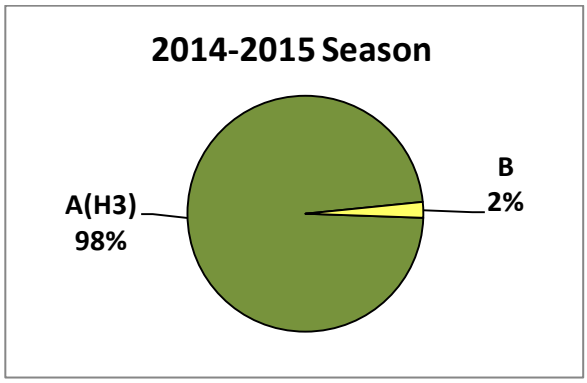
	2014-2015 Season Number	2014-2015 Season Percent	2013-2014 Number (Percent)	2012-2013 Number (Percent)	2011-2012 Number (Percent)
Total	5,320	100%	11,780 (100%)	11,306 (100%)	4,004 (100%)
Influenza A	4,972	93%	9,355 (79%)	8,059 (71%)	2,820 (70%)
Influenza B	255	5%	2,229 (19%)	2,951 (26%)	1,078 (27%)
Unknown	93	2%	196 (2%)	296 (3%)	106 (3%)

Influenza Subtype

Data from the Arizona State Public Health Laboratory (ASPHL)

- 53 (90%) of 59 specimens tested positive for influenza at ASPHL last week; 53 influenza A (H3) viruses.





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

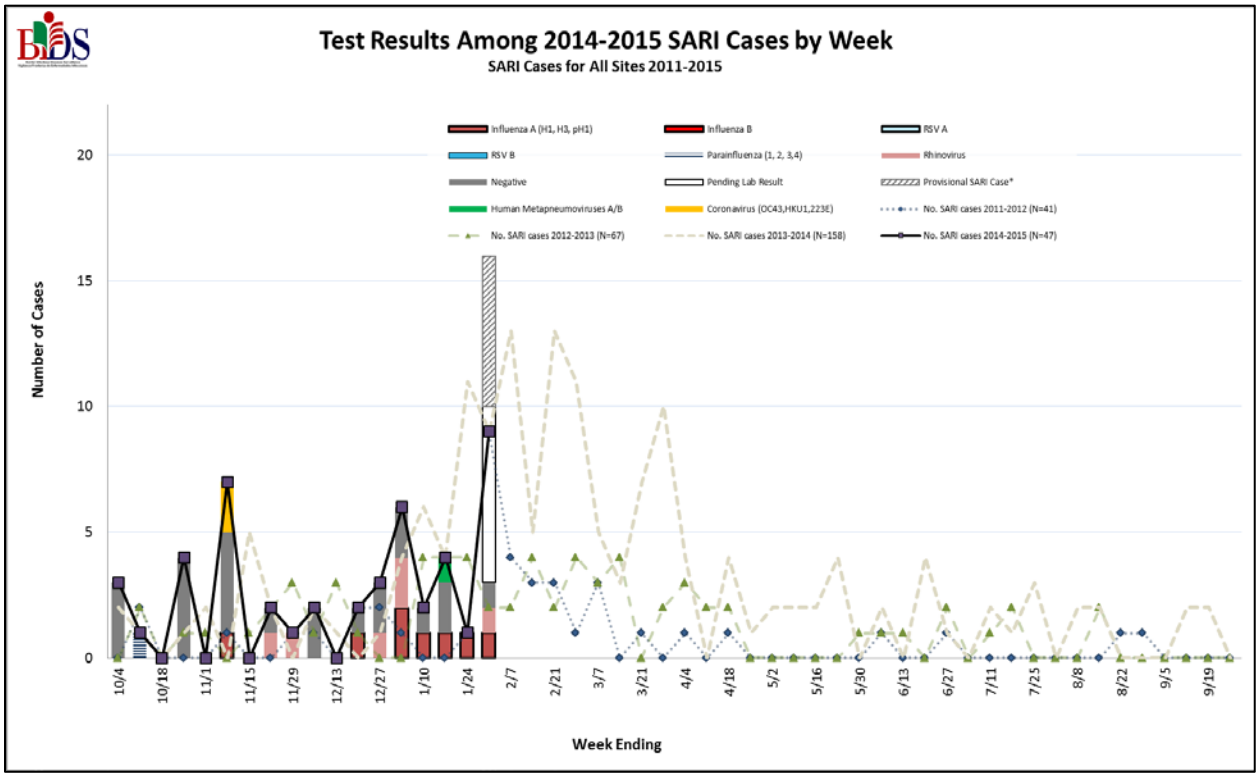
	2014-2015 Season Number	2014-2015 Season Percent	2013-2014 Number (Percent)	2012-2013 Number (Percent)	2011-2012 Number (Percent)
Influenza Subtypes	882	100%	3,307 (100%)	3,243 (100%)	1,564 (100%)
Influenza A (H1N1)pdm09	0	0%	1,467 (44%)	79 (2%)	594 (38%)
Influenza A (H3)	551	62%	132 (4%)	1,588 (49%)	351 (22%)
Influenza A (Unsubtyped)	302	34%	1,115 (34%)	829 (26%)	255 (16%)
Influenza B	29	3%	593 (18%)	747 (23%)	364 (23%)

Severe Acute Respiratory Infections (SARI) Surveillance

Severe acute respiratory infections (SARI) surveillance is currently conducted at selected hospitals in counties along the Mexican border by the Office of Border Health's Border Infectious Disease Surveillance (BIDS) program. SARI is defined as a hospital admission with onset within the last 10 days with a fever of at least 100.4ºF (or a history of fever) plus a cough. This surveillance facilitates the detection of circulating influenza viruses and allows us to monitor various causes of morbidity and mortality among inpatients with SARI.

SARI cases are tested using an RT-PCR viral panel that detects: respiratory syncytial virus A and B; parainfluenza virus 1, 2, 3, and 4; human metapneumoviruses A/B; rhinovirus; adenovirus (B, C, and E); influenza A, A H1 (seasonal subtype), A H3 (seasonal subtype), A H1N1, and B; and coronavirus (NL63, HKU1, 229E, and OC43).

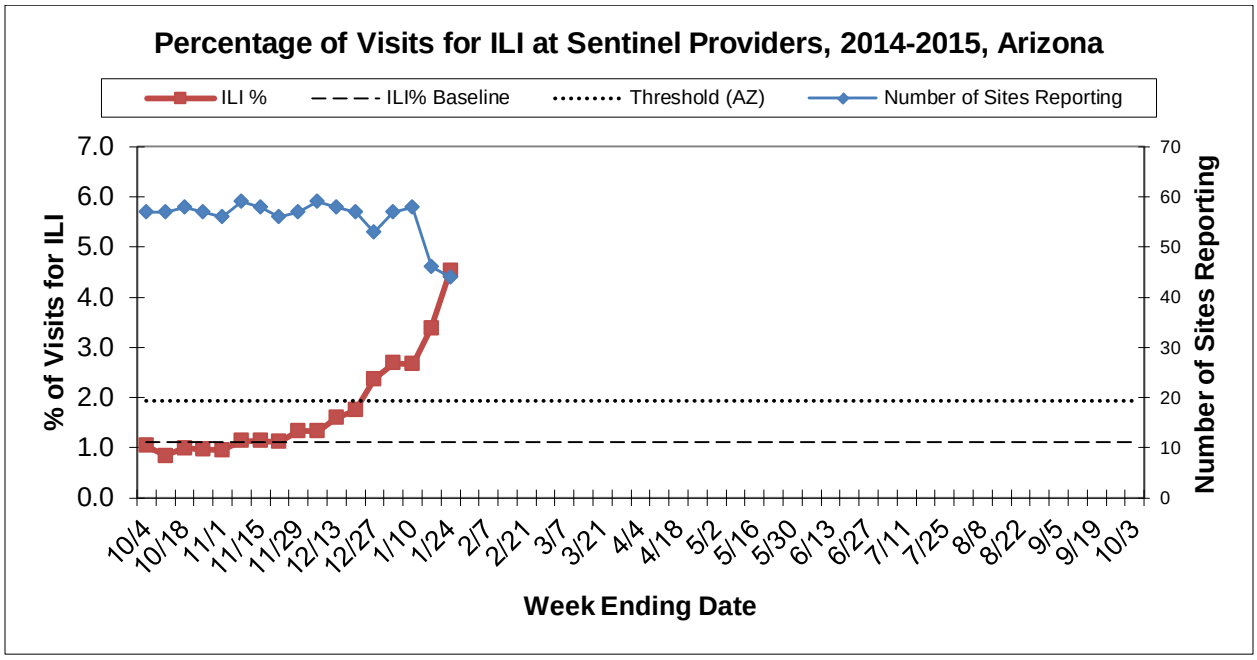
47 SARI cases have been identified this season. Parainfluenza (3 and 4), coronaviruses (NL63 and OC43), influenza A (H3), human menapneumovirus, and rhinovirus have been detected.



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 1.1% and the epidemic threshold is 1.9%*.

	Week 3	Week 2
Proportion of patient visits to sentinel providers for ILI	4.5%	3.4%
Comparison to epidemic threshold*	Above threshold	Above threshold
Intensity level *(see definitions at the end of report)*	High	Moderate

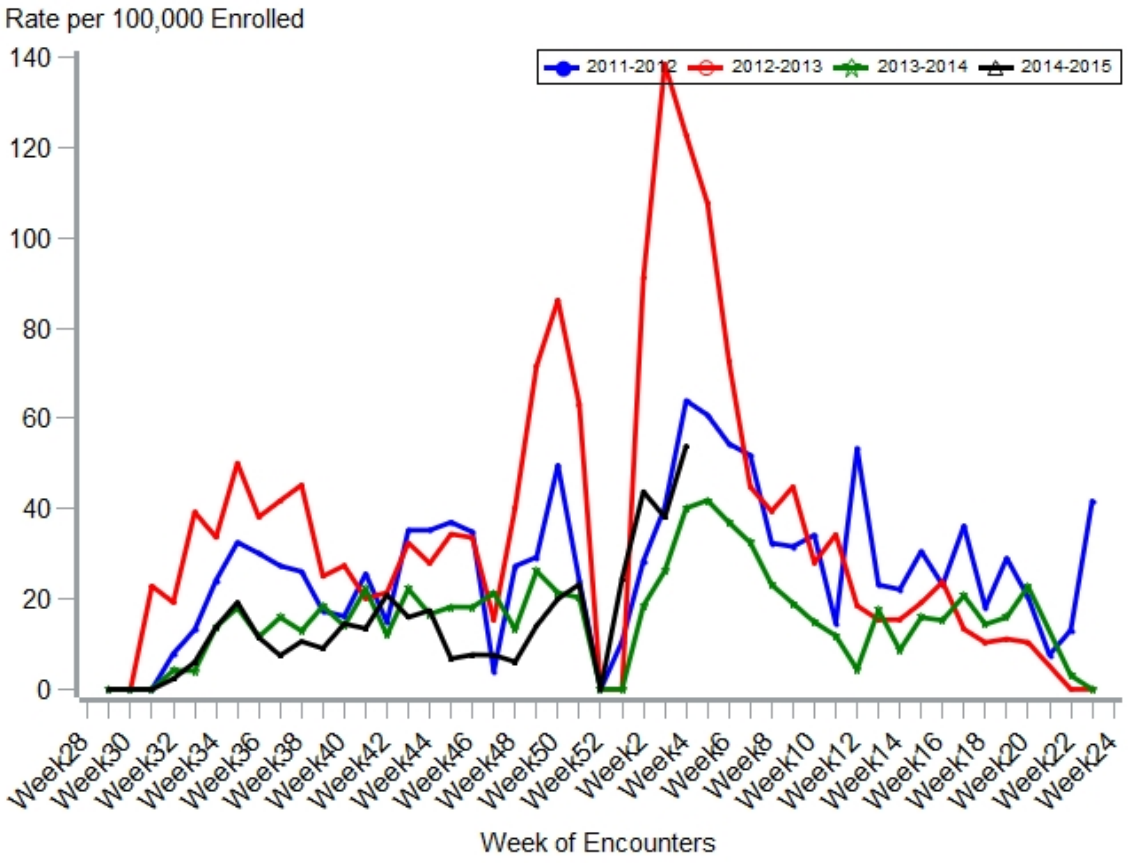


*Note: The baseline is defined as the mean of the state ILI% in weeks in the 2011-2014 flu seasons in which two or more consecutive weeks each accounted for less than 2% of the season's total number of specimens testing positive for influenza at the Arizona State Public Health Laboratory. The epidemic 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)

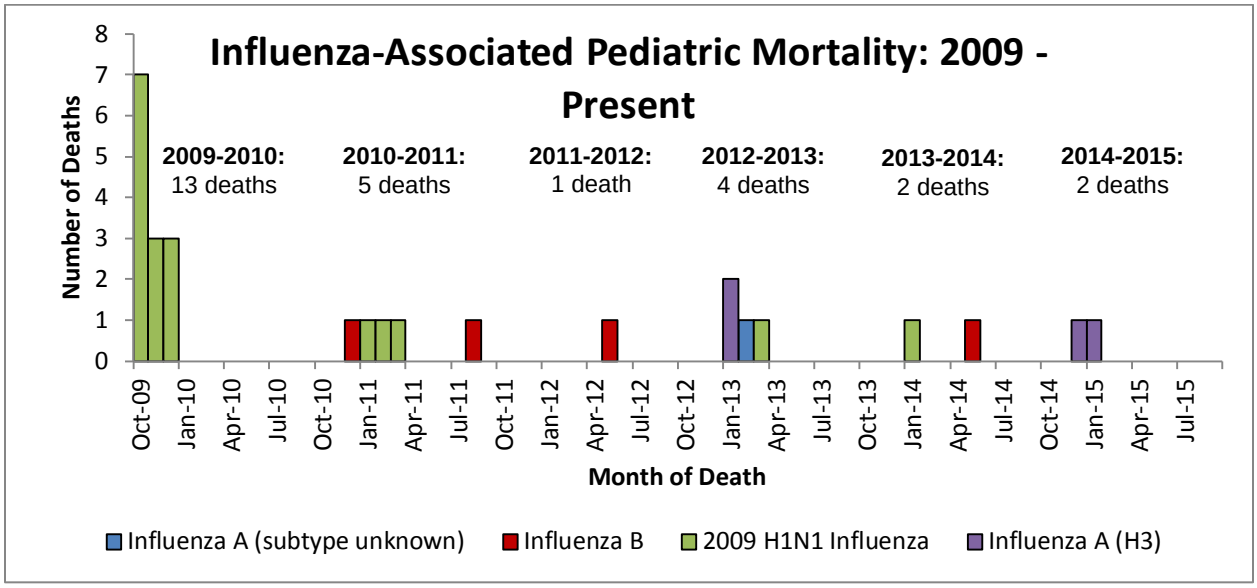


Mortality Surveillance

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.

Two influenza-associated pediatric deaths have been reported for the 2014-2015 season. One resided in Pima County, had underlying conditions and was PCR positive for influenza A (H3). The second resided in Maricopa County, had no underlying conditions and was PCR positive for influenza A (H3). Influenza A (H3) was confirmed by PCR for both cases at the Arizona State Public Health Laboratory.



Glossary of Key Terms:

2014-2015 Influenza Season – The season is defined by surveillance weeks. The first day of the 2014-2015 influenza season was September 28th, 2014, or week 40 and the 2014-2015 surveillance season will continue through October 3rd, 2015, 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.