



Texas Influenza Surveillance Report 2017–2018 Season/2018 MMWR Week 09

(Feb. 25, 2018 – Mar. 3, 2018)

Report produced on 3/9/2018

Summary

Influenza activity continues to decrease across the state of Texas. It appears that influenza activity peaked in late January. Compared to the previous week, the percentage of patient visits due to influenza-like illness (ILI) and the percentage of specimens testing positive for influenza reported by public health and hospital laboratories has marginally decreased. Two influenza-associated pediatric deaths were reported. Nineteen ILI or influenza-associated outbreaks were reported. In addition to flu, other respiratory viruses—especially rhinovirus/enterovirus—were detected in Texas during week 09.

Table 1: Summary of Texas Influenza (Flu) and Influenza-like Illness (ILI) Activity for the Current Week

Texas Surveillance Component	Change from Previous Week	Current Week	Previous Week†	Page of Report
Statewide influenza activity level reported to CDC (geographic spread of influenza)	No change	Regional	Regional	--
Statewide ILINet Activity Indicator assigned by CDC (intensity of influenza-like illness)	No change	High	High	--
Percentage of specimens positive for influenza by hospital laboratories	▼3.86%	16.60%	20.46%	1
Percentage of specimens positive for influenza by public health laboratories	▼6.36%	64.77%	71.13%	2
Percentage of visits due to ILI (ILINet)	▼1.83%	6.61%	8.44%	4
Number of regions reporting increased flu/ILI activity	▼1	0	1	6
Number of regions reporting decreased flu/ILI activity	▲1	7	6	6
Number of variant/novel influenza infections	No cases reported	0	0	6
Number of ILI/influenza outbreaks	▲16	19	3	6
Number of pediatric influenza deaths	New cases reported	3	1	7

†Data displayed have been updated since last week's flu report with any new reports received.

Laboratory Results

Influenza

Hospital laboratories across Texas voluntarily report influenza tests (antigen, culture, and PCR) to the National Respiratory and Enteric Virus Surveillance System (NREVSS). Providers throughout Texas also submit specimens for influenza testing (PCR) to Texas public health laboratories, including the Texas Department of State Health Services (DSHS) state laboratory in Austin and the nine Texas Laboratory Response Network (LRN) laboratories. The results reported by Texas NREVSS participants and public health laboratories for the current week are summarized in the two tables below. Additional influenza test results (rapid tests, culture, PCR) and ILI activity were reported from providers and public health departments throughout the state (see county map at the end of this report).

Table 2: Influenza Testing Performed by Texas Hospital Laboratories for the Current Week

	Week 09	Season to Date Week Ending: Mar. 3, 2018
Number of labs reporting flu tests	10	
Number of specimens tested	1873	127785
Number of positive specimens (%)†	311 (16.60%)	32893 (25.74%)
Percentage of total tests that were antigen detection tests	24.45%	
Positive specimens by type/subtype [n (%)]		
Influenza A	72 (23.15%)	22259 (67.67%)
Subtyping performed	8 (11.11%)	3290 (14.78%)
A (H1N1)	3 (37.50%)	434 (13.19%)
A (H3N2)	5 (62.50%)	2856 (86.81%)
Subtyping not performed	64 (88.89%)	18969 (85.22%)
Influenza B	239 (76.85%)	10634 (32.33%)

†Laboratory data in 2016-2017 and 2017-2018 season reports may not be comparable to reports from seasons previous to 2016-2017 because the data only includes hospital laboratories data for the current season.

Figure 1: Number and Percentage of Tests (Antigen, Culture, PCR) Positive for Influenza by Type and Subtype Reported by Texas Hospital Laboratories, 2017–2018 Season

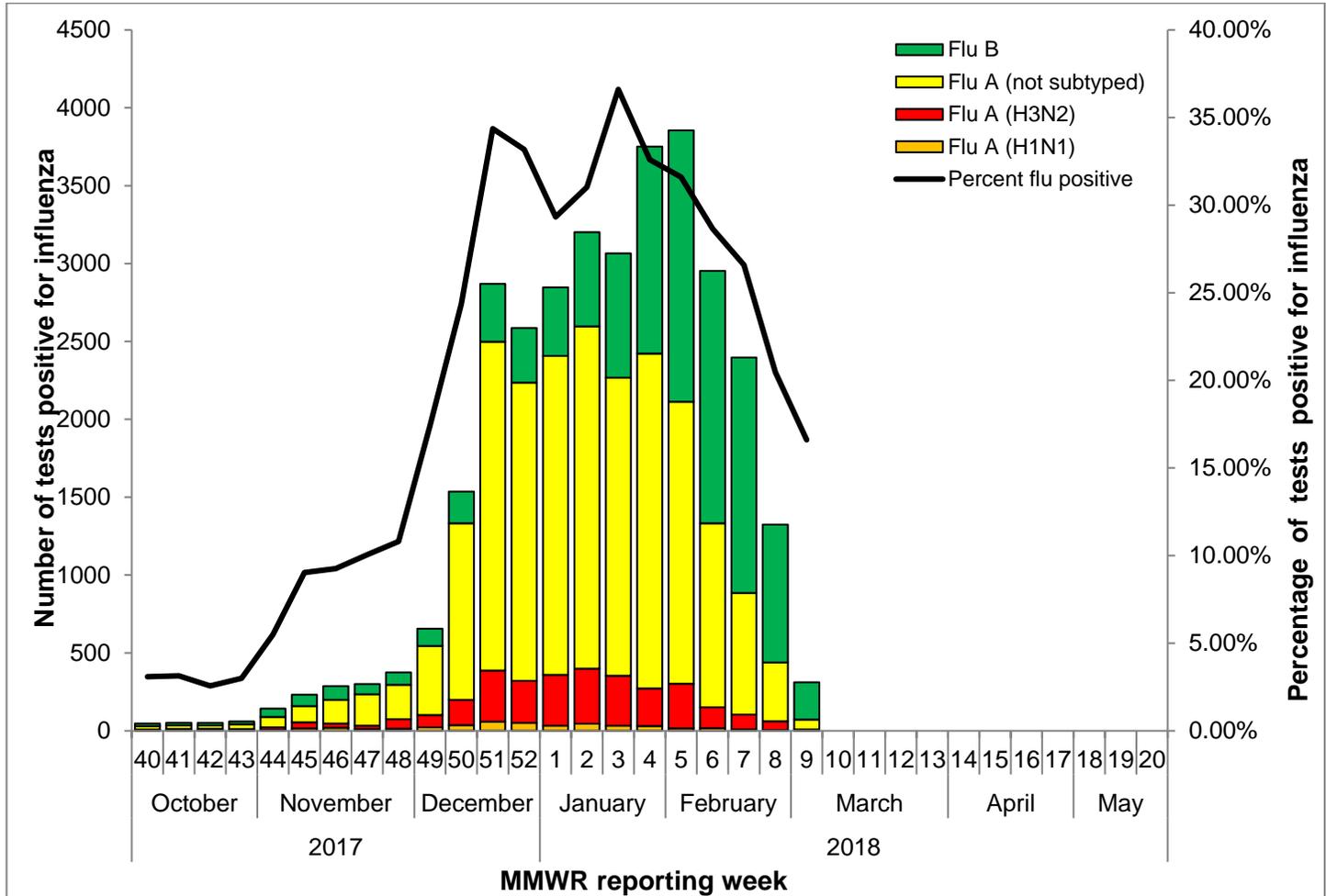


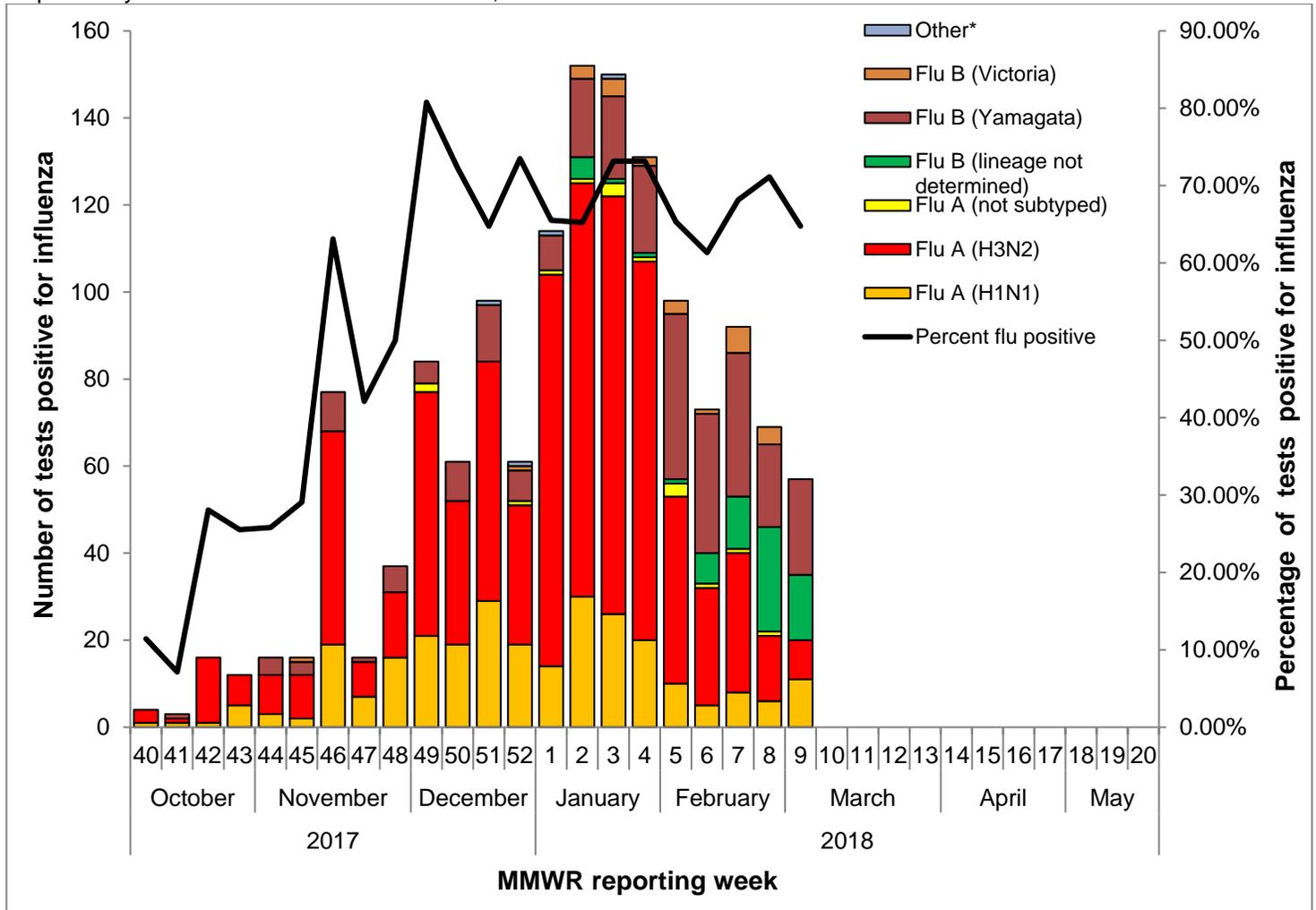
Table 3: Influenza Testing Performed by Texas Public Health Laboratories for the Current Week

	Week 09	Season to Date Week Ending: Mar. 3, 2018
Number of labs reporting flu tests	7	
Number of specimens tested	88	2342
Number of positive specimens (%) [†]	57 (64.77%)	1436 (61.32%)
Positive specimens by type/subtype/lineage [n (%)]		
Influenza A	20 (35.09%)	1075 (74.86%)
Subtyping performed	20 (100.00%)	1060 (98.60%)
A (H1N1)	11 (55.00%)	273 (25.75%)
A (H3N2)	9 (45.00%)	787 (74.25%)
Subtyping not performed	0 (0.00%)	15 (1.40%)
Influenza B	37 (64.91%)	357 (24.86%)
Lineage testing performed	22 (59.46%)	292 (81.79%)
B/Victoria	0 (0.00%)	25 (8.56%)
B/Yamagata	22 (100.00%)	267 (91.44%)
Lineage testing not performed	15 (40.54%)	65 (18.21%)
Other*	0 (0.00%)	4 (0.28%)

[†]Laboratory data in 2016-2017 and 2017-2018 season reports may not be comparable to reports from seasons previous to 2016-2017 because the data only includes hospital laboratories data for the current season

*Other denotes specimens with coinfections (i.e. one specimen was positive for both influenza A (H1N1) and influenza A (H3N2))

Figure 2: Number and Percentage of Tests (Antigen, Culture, PCR) Positive for Influenza by Type, Subtype, and Lineage Reported by Texas Public Health Laboratories, 2017-2018 Season



*Other denotes specimens with coinfections (i.e. one specimen was positive for both influenza A (H1N1) and influenza A (H3N2))

Other Respiratory Viruses

The NREVSS system collects information on a variety of respiratory viruses in addition to influenza including parainfluenza virus, respiratory syncytial virus (RSV), rhinovirus, human metapneumovirus (HMPV), seasonal coronavirus, and respiratory adenovirus. The results for the current week are summarized below.

Table 4: Non-Influenza Respiratory Virus Testing Performed by Texas NREVSS Laboratories for the Current Week

Virus	Number of Laboratories Testing	Tests Performed	Positive Tests	Percentage of Tests Positive
Adenovirus (respiratory)	6	756	48	6.35%
HMPV	6	555	78	14.05%
Parainfluenza virus	6	758	37	4.88%
Rhinovirus	6	527	137	26.00%
RSV ^{†^}	11	1876	143	7.62%
Seasonal coronavirus (does not include MERS-CoV)	3	400	11	2.75%

[†]RSV tests displayed in the table are a combination of antigen detection, PCR, and culture tests. Some non-NREVSS reporters also contribute to the RSV data.

[^]Numbers and percentage may differ from the weekly RSV report. The weekly RSV report may be accessed at <https://www.dshs.state.tx.us/RSV/disease/rsv-Data.aspx>.

Antigenic Characterization

Since October 01, 2017, CDC has reported antigenic characterization results from thirteen influenza A (H3N2) viruses, nine influenza A (H1N1) viruses and five influenza B virus received from the Texas Department of State Health Services (DSHS) Laboratory, the Dallas County Health and Human Services Laboratory Response Network (LRN) Laboratory, and the San Antonio LRN Laboratory. The DSHS Laboratory and the two LRN laboratories send a representative sample of influenza viruses to the CDC throughout the flu season.

Influenza A (H3N2) [13]

- Thirteen (100.0%) viruses were related to A/Hong Kong/4801/2014 virus, the influenza A (H3N2) component of the 2017-2018 Northern Hemisphere influenza vaccine.

Influenza A (H1N1) [9]

- Nine (100%) viruses were related to A/Michigan/45/2015 (H1N1). This virus strain was included in the 2017-2018 influenza vaccine for the Northern Hemisphere.

Influenza B [5]

- Victoria lineage [0]
- Yamagata lineage [5]: Five (100.00%) influenza B/Yamagata-lineage virus has been characterized from Texas. A B/Phuket/3073/2013-like virus, which belongs to the B/Yamagata lineage, is included as an influenza B component of the 2017-2018 Northern Hemisphere quadrivalent influenza vaccine.

Antiviral Resistance

Table 5: Cumulative Antiviral Resistance Results from Texas Influenza Viruses, 2017-2018 Season[†]

	Oseltamivir		Zanamivir		Peramivir [^]	
	Virus samples tested (n)	Resistant viruses, number (%)	Virus samples tested (n)	Resistant viruses, number (%)	Virus samples tested (n)	Resistant viruses, number (%)
Influenza A (H1N1)	2	0 (0%)	0	0 (0%)	0	0 (0%)
Influenza A (H3N2)	0	0 (0%)	0	0 (0%)	0	0 (0%)
Influenza B	0	0 (0%)	0	0 (0%)	0	0 (0%)

[†]This table includes specimens submitted as part of routine surveillance and not for diagnostic purposes.

[^] Peramivir is an intravenous antiviral medication that was FDA-approved for use on December 19, 2014.

U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet)

Table 6: Texas ILINet Reporting and Patient Visit Summary for the Current Week

	Week 09
Number of providers reporting [†]	99
Number of providers reporting patient visits	98
Number (%) of providers with at least one ILI case	96 (97.96%)
Percentage of all visits due to ILI	6.61%
Texas ILINet baseline [‡] , 2017-2018	6.41%

[†]Reporting providers include both ILINet and RVSP providers.

[‡]The baseline is the mean percentage of patient visits for ILI during non-influenza weeks for the previous three seasons plus two standard deviations. A “non-influenza week” is defined as a week that accounted for less than 2% of the season’s total number of specimens that tested positive for influenza

Table 7: Percentage of Visits for Influenza-like Illness Reported by Texas ILINet Providers (as of 3/8/2018 10:30 AM)

Week	Providers Reporting	Number of ILI Cases by Age Group (Years)					Total ILI (all ages)	Total Patients	ILI
		0-4	5-24	25-49	50-64	65+			
201740	116	165	327	166	120	140	918	31871	2.88%
201741	118	171	286	186	130	155	928	31433	2.95%
201742	115	153	282	188	114	127	864	31527	2.74%
201743	111	188	297	138	61	26	710	30309	2.34%
201744	81	206	386	156	117	147	1012	25857	3.91%
201745	114	224	504	292	166	131	1317	32080	4.11%
201746	115	292	627	366	179	192	1656	32907	5.03%
201747	116	230	390	309	143	108	1180	23582	5.00%
201748	112	298	577	423	169	74	1541	29259	5.27%
201749	115	340	689	442	278	250	1999	30517	6.55%
201750	115	391	1268	803	368	260	3090	31664	9.76%
201751	110	409	1603	1267	636	401	4316	30838	14.00%
201752	72	348	546	576	358	263	2091	17713	11.80%
201801	107	309	918	1332	605	263	3427	27205	12.60%
201802	111	310	1333	1552	786	427	4408	33251	13.26%
201803	113	353	1551	1308	649	395	4256	31583	13.48%
201804	113	458	2381	1498	727	380	5444	36940	14.74%
201805	112	423	2544	1309	620	332	5228	37240	14.04%
201806	113	412	2155	1175	609	355	4706	35965	13.08%
201807	112	312	1727	968	493	300	3800	34318	11.07%
201808	109	243	1097	768	383	248	2739	32450	8.44%
201809	99	191	714	525	310	198	1938	29309	6.61%

Figure 3: Percentage of Visits Due to Influenza-like Illness Reported by Texas ILINet Participants, 2017–2018 Season

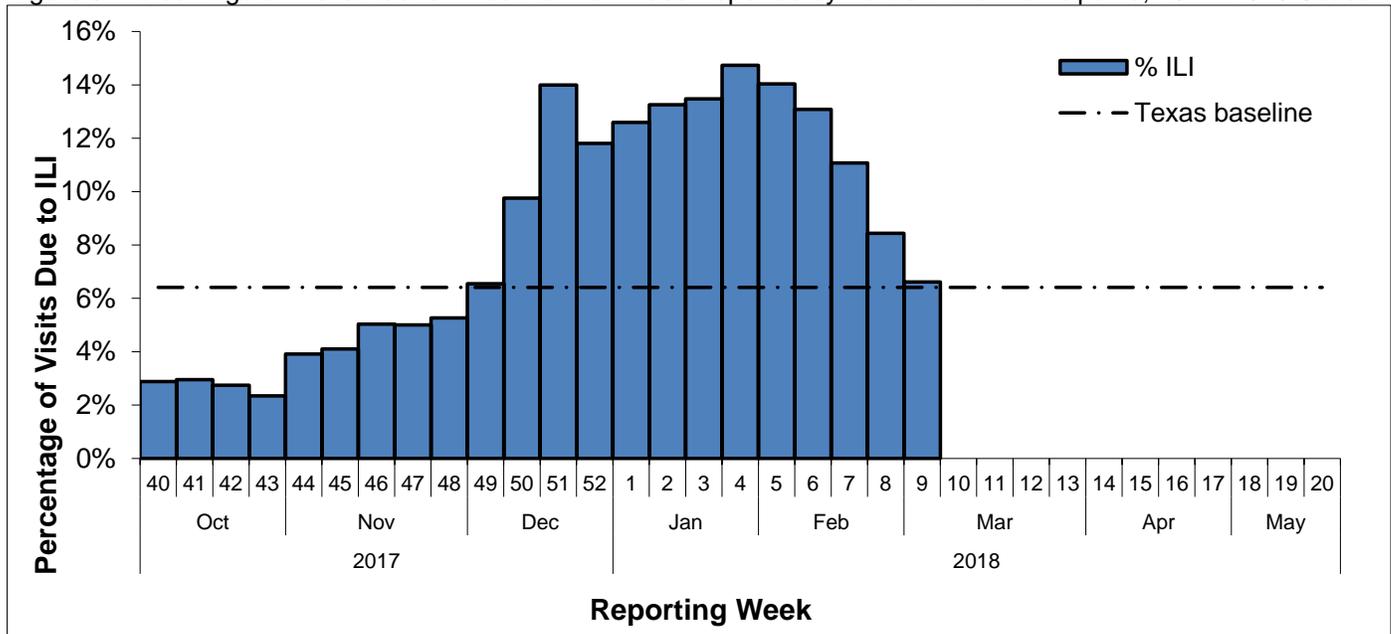
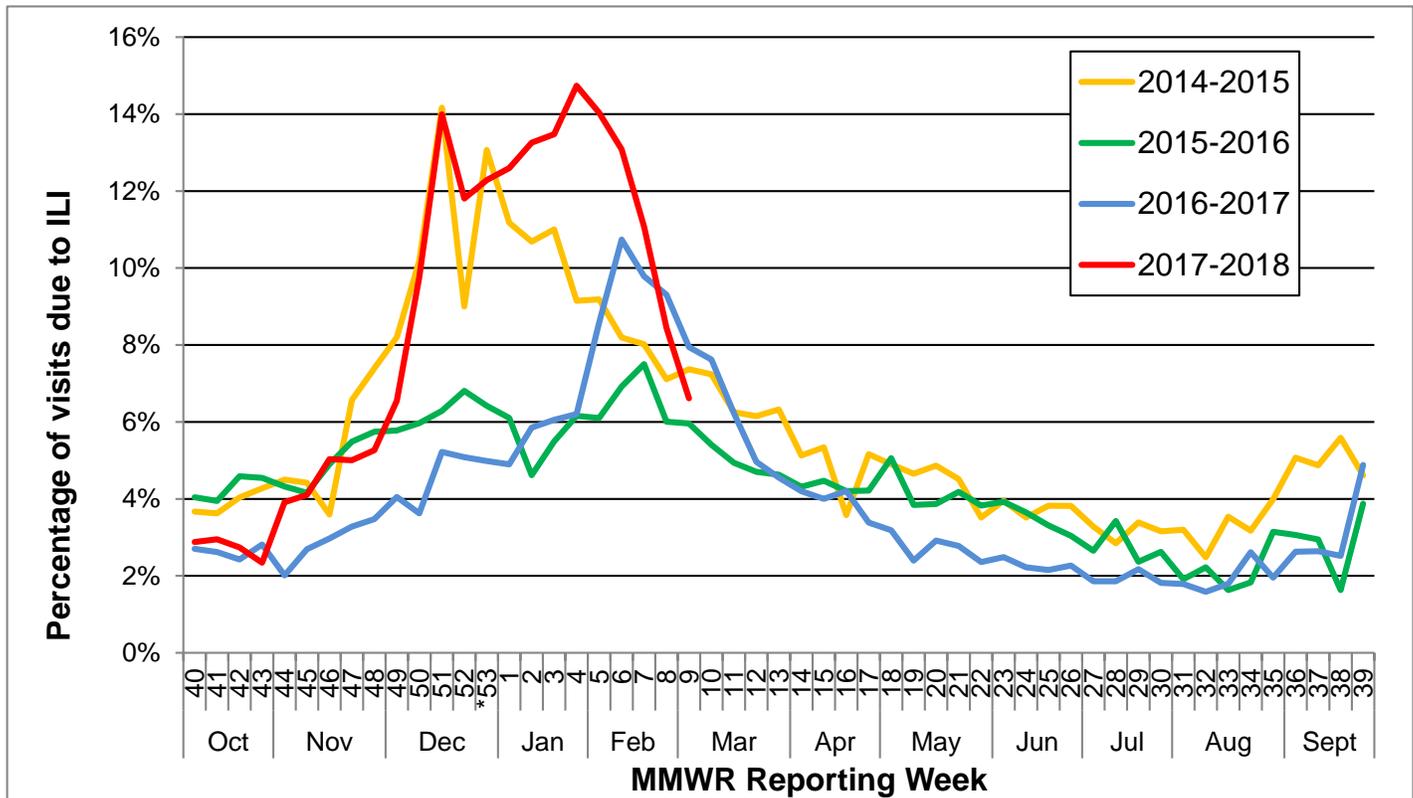


Figure 4: Percentage of Visits Due to Influenza-like Illness Reported by Texas ILINet Participants, 2014–2018 Seasons*



*There was a week 53 in the 2014-2015 influenza season, but there is not a week 53 for the 2017-2018 influenza season or the other previous seasons; therefore, the week 53 data point for those seasons is an average of week 52 and 1.

Reports from Health Service Regions

Reports were received from all Health Service Regions (HSRs) during week 09.

Table 8: Influenza Activity Compared to Week 08 by Health Service Region (HSR)

Influenza Activity Comparison	Health Service Region (HSR)
Increased	
Same	8
Decreased	1, 2/3, 4/5N, 6/5S, 7, 9/10, and 11
Unsure	

Variant Influenza Viruses

No variant or novel influenza viruses have been detected in Texas during the 2017-2018 season.

Institutional Outbreaks and School Closures

Eleven influenza-associated outbreaks were reported in institutions during week 09 in four different regions at long-term care facilities. HSR 2/3 reported 7 outbreaks. Three of those outbreaks had positive test results for influenza A, 3 had positive test results for influenza, and one had positive test results for influenza A and B. In HSR 6/5S, one outbreak due to influenza A was reported. One outbreak due to influenza was reported in HSR 7. Two outbreaks, one due to influenza A and one due to influenza B, were reported in HSR 8. Various control measures such as limiting the movement of staff, isolation of the ill, and distributing prophylaxis were implemented at the facilities.

Two school closures, 2 school outbreaks, and 4 daycare outbreaks were reported during week 09 in two different HSRs. HSR 2/3 reported 2 school closures, 1 school outbreak and 4 daycare outbreaks all due to ILI. HSR 6/5S reported one school outbreak due to ILI.

TX P&I Mortality Surveillance Data

Pneumonia and influenza (P&I) death data are obtained from death certificates of Texas residents whose underlying or contributing cause(s) of death is reported as pneumonia or influenza. P&I deaths are identified based on ICD-10 multiple cause of death codes. In particular, P&I deaths are based on ICD-10 pneumonia and influenza mortality codes.

Five thousand two hundred and twenty-eight P&I deaths have been reported in Texas during the 2017-2018 influenza season.

Table 9: Texas P&I Deaths Occurring Oct. 01, 2017- Mar. 7, 2018* by Age

Age Category (years)	Number of P&I Deaths ⁺	Mortality Rate (per 100,000)
0 - 4	17	0.81
5 - 17	<10	0.15
18 - 49	300	2.31
50 - 64	815	15.93
65 +	4088	111.35
Overall	5228	17.80

*NOTE: Data are provisional and subject to change, errors, and duplicates

⁺ If the cell count is less than 10, the number of P&I deaths is suppressed and <10 is written in the cell.

Table 10: Texas P&I Deaths Occurring Oct. 01, 2017- Mar. 7, 2018* by Health Service Region (HSR)

HSR	Number of P&I Deaths	Mortality Rate (per 100,000)
1	195	21.18
2/3	1540	18.13
4/5N	410	25.28
6/5S	1134	14.78
7	641	17.90
8	593	19.54
9/10	280	17.77
11	435	17.65
Overall	5228	17.80

*NOTE: Data are provisional and subject to change, errors, and duplicates

Influenza-Associated Pediatric Mortality

Three influenza-associated pediatric deaths were reported in week 09 in two different regions. Two of the deaths were reported in HSR 6/5S. The first influenza-associated pediatric death was reported in a 10-year-old child with underlying conditions. The death occurred during MMWR week 06 (week ending February 10). A specimen collected from the child was positive for influenza A (H3N2) by PCR. It is unknown if the child received the influenza vaccine for the current season. The second influenza-associated pediatric death was reported in a child under one with underlying conditions. The death occurred during MMWR week 08 (week ending March 3). A specimen collected from the child was positive for influenza A (H1N1) by PCR. It is unknown if the child received the influenza vaccine for the current season. The third death was reported in HSR 9/10 in a 3-year-old child with underlying health conditions. The death occurred during MMWR week 6 (week ending February 10). A specimen collected from the child was positive for influenza B/Yamagata. The child was not vaccinated for the current season.

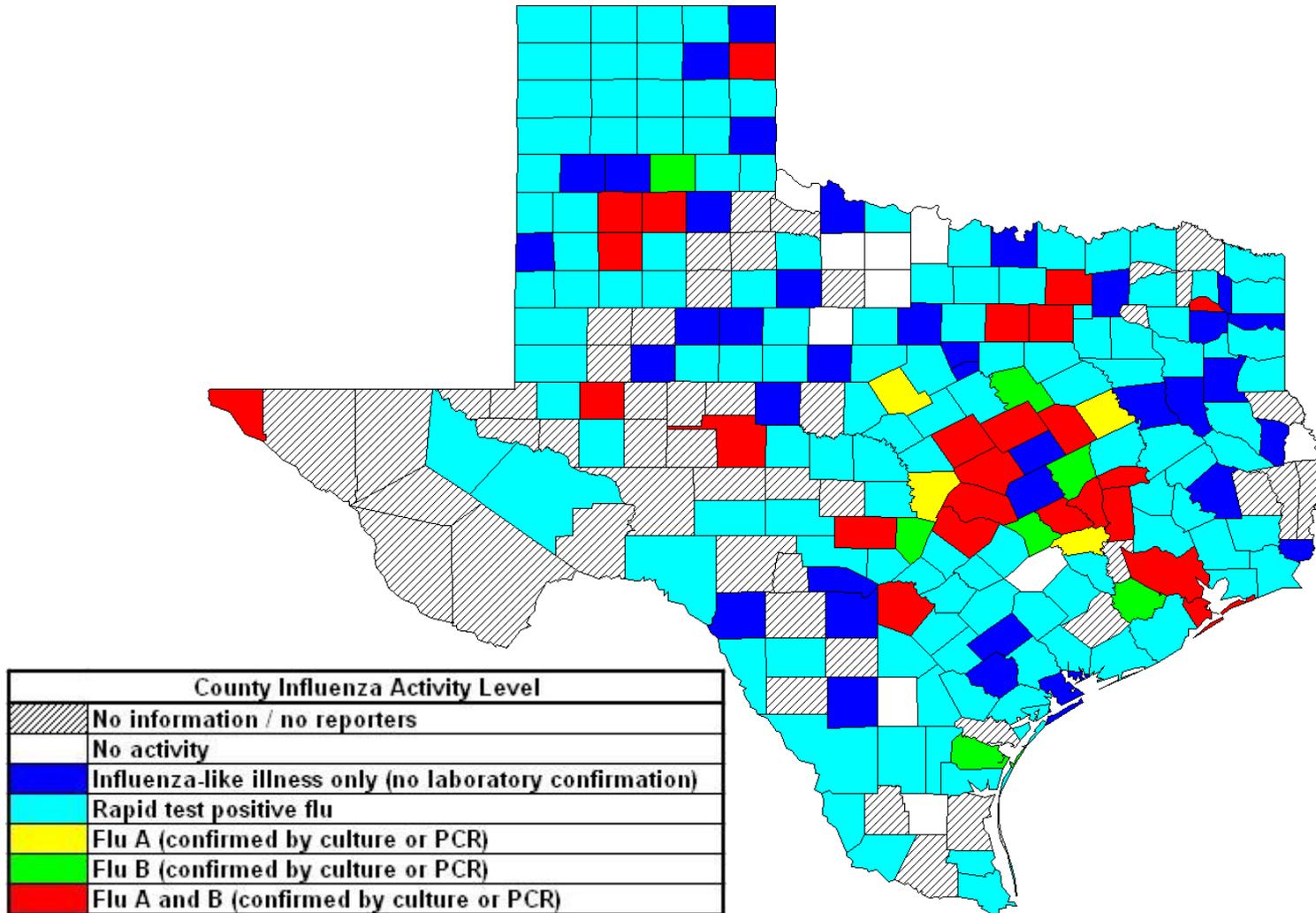
Eleven influenza-associated pediatric death has been reported in Texas during the 2017-2018 influenza season. Cases of influenza-associated pediatric mortality (children <18 years of age) are reportable year-round and by law in Texas.

Table 11: Influenza-Associated Pediatric Deaths Reported in Texas during the 2017–2018 Season

Month of Pediatric Death	Influenza A (H1N1)	Influenza A (H3N2)	Influenza A (Not Subtyped)	Influenza B	Influenza, Not Typed / Not Differentiated	Influenza virus co-infection: A (not subtyped) and B	Total, All Influenza Types / Subtypes
2017							
October	0	0	0	0	0	0	0
November	0	1	1	0	0	0	2
December	1	0	1	0	0	0	2
2018							
January	0	1	0	0	0	0	1
February	0	1	0	4	0	0	5
March	1	0	0	0	0	0	1
Total	2	3	2	4	0	0	11

Statewide Influenza Activity Map

Figure 5: Texas Map Displaying the Highest Level of Influenza or ILI Activity Reported by County for the Week Ending Mar. 3, 2018 (MMWR Week 09)



Please note: The majority of influenza cases are not reportable by law in Texas. This map contains data from sentinel sites and only displays influenza and ILI cases that were reported to public health. Positive laboratory results are reported according to specimen collection date, or date received in the laboratory if the former is unknown.

Texas Influenza Surveillance Components and Measures

Activity codes (see <http://www.cdc.gov/flu/weekly/overview.htm>)

Statewide influenza activity level

A code reported weekly by states and territories to CDC indicating the geographic spread of influenza in the state. Levels are no activity, sporadic, local, regional, and widespread.

ILINet Activity Indicator

A statewide level of influenza-like illness intensity (on a scale of 1-10, with 1 being the lowest level) assigned to each state weekly by CDC based on data reported through ILINet.

Morbidity

Novel/variant influenza

Thorough investigations are performed on all cases of novel/variant influenza. *This condition is reportable by law in Texas.*

Texas ILINet

Providers voluntarily report weekly to CDC's ILINet system on the number of outpatient visits for ILI and total outpatient visits. Providers may submit up to 5 specimens per month for influenza testing. See <http://www.dshs.state.tx.us/idcu/disease/influenza/surveillance/ILINet/> for information on how to become an ILINet provider.

ILI activity

Non-ILINet providers report ILI or influenza data weekly to local or regional health departments.

Outbreaks

Healthcare, schools, childcare, and correctional facilities report ILI and influenza outbreaks to health departments in Texas. *This condition is reportable by law in Texas.*

Mortality

Pneumonia and Influenza (P&I) Mortality Surveillance

The DSHS Vital Statistics Unit collects death certificate information for all deaths on Texas residents from various partners such as funeral homes and local registrars around the state. The death certificates are then sent to the National Center for Health Statistics (NCHS) where the cause of death and underlying causes of death on the death certificates are coded with ICD-10 mortality codes. Once death certificates are coded, the information is sent back to DSHS Center for Health Statistics (CHS). CHS produces a Weekly Pneumonia and Influenza (P&I) Death Report and sends it to the State Influenza Surveillance Coordinator for inclusion in the Texas Weekly Flu Report. P&I deaths are identified based on ICD-10 multiple cause of death codes, and in particular, pneumonia and influenza mortality codes. Delays inherent in death reporting and coding practices may cause the number of reported P&I deaths to vary considerably each week.

Influenza-associated pediatric deaths

Deaths that are associated with influenza in children < 18 years of age are reported to health departments in Texas. *This condition is reportable by law in Texas.* <http://www.dshs.state.tx.us/idcu/disease/IAPM/>

Laboratory

DSHS Austin laboratory

Providers voluntarily submit specimens to the DSHS Austin laboratory for influenza PCR testing throughout the season. Providers sign up for this program through their local health departments.

Laboratory Response Network (LRN) laboratories

Providers voluntarily submit specimens to one of the 9 Texas LRNs for influenza PCR testing throughout the season. Providers sign up for this program through their local health departments.

NREVSS

Laboratories voluntarily report influenza and other respiratory virus data weekly through the CDC's online NREVSS reporting system. **Laboratories sign up for this program by contacting DSHS.** <http://www.cdc.gov/surveillance/nrevss/>

Recommended Resources

Texas Department of State Health Services

DSHS influenza page: <http://www.texasflu.org/>

Influenza surveillance data and reports: <http://www.dshs.state.tx.us/idcu/disease/influenza/surveillance/>

Map of Texas Health Service Regions: <http://www.dshs.state.tx.us/regions/state.shtm>

Centers for Disease Control and Prevention

National FluView weekly flu report: <http://www.cdc.gov/flu/weekly/>

Variant influenza viruses: <http://www.cdc.gov/flu/swineflu/variant.htm>

Avian influenza viruses: <http://www.cdc.gov/flu/avianflu/index.htm>

Swine influenza viruses: <http://www.cdc.gov/flu/swineflu/index.htm>

Infection Control in Healthcare Facilities: <http://www.cdc.gov/flu/professionals/infectioncontrol/>

Seasonal Flu Information for Schools and Childcare Providers: <http://www.cdc.gov/flu/school/index.htm>

World Health Organization

Influenza page: <http://www.who.int/topics/influenza/en/>

Disease Outbreak News: <http://www.who.int/csr/don/en/>