



Texas Influenza Surveillance Report 2018-2019 Season/2019 MMWR Week 17

(April 21, 2019 – April 27, 2019)

Report produced on 5/3/2019

Summary

Influenza activity is decreasing across the state of Texas. The influenza season appears to have peaked in mid-February. 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 hospital laboratories slightly decreased. Two influenza-associated pediatric deaths were reported. Three ILI/influenza-associated outbreaks were reported. In addition to flu, other respiratory viruses—especially rhinovirus/enterovirus—were detected in Texas during week 17.

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	Sporadic	Sporadic	--
Statewide ILINet Activity Indicator assigned by CDC (intensity of influenza-like illness)	No change	Minimal	Minimal	--
Percentage of specimens positive for influenza by hospital laboratories	▼ 3.04%	7.01%	10.05%	1
Percentage of visits due to ILI (ILINet)	▼ 0.58%	2.72%	3.30%	4
Number of regions reporting increased flu/ILI activity	▲ 1	1	0	7
Number of regions reporting decreased flu/ILI activity	▼ 1	6	7	7
Number of variant/novel influenza infections	No cases reported	0	0	7
Number of ILI/influenza outbreaks	▲ 1	3	2	7
Number of pediatric influenza deaths	New cases reported	2	0	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 17	Season to Date Week Ending: Apr. 27, 2019
Number of labs reporting flu tests	31	
Number of specimens tested	2655	133132
Number of positive specimens (%) [†]	186 (7.01%)	25631 (19.25%)
Percentage of total tests that were antigen detection tests	43.09%	
Positive specimens by type/subtype [n (%)]		
Influenza A	83 (44.62%)	22797 (88.94%)
Subtyping performed	11 (13.25%)	2093 (9.18%)
A (H1N1)	2 (18.18%)	610 (29.14%)
A (H3N2)	9 (81.82%)	1483 (70.86%)
Subtyping not performed	72 (86.75%)	20704 (90.82%)
Influenza B	103 (55.38%)	2834 (11.06%)

[†]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, 2018-2019 Season

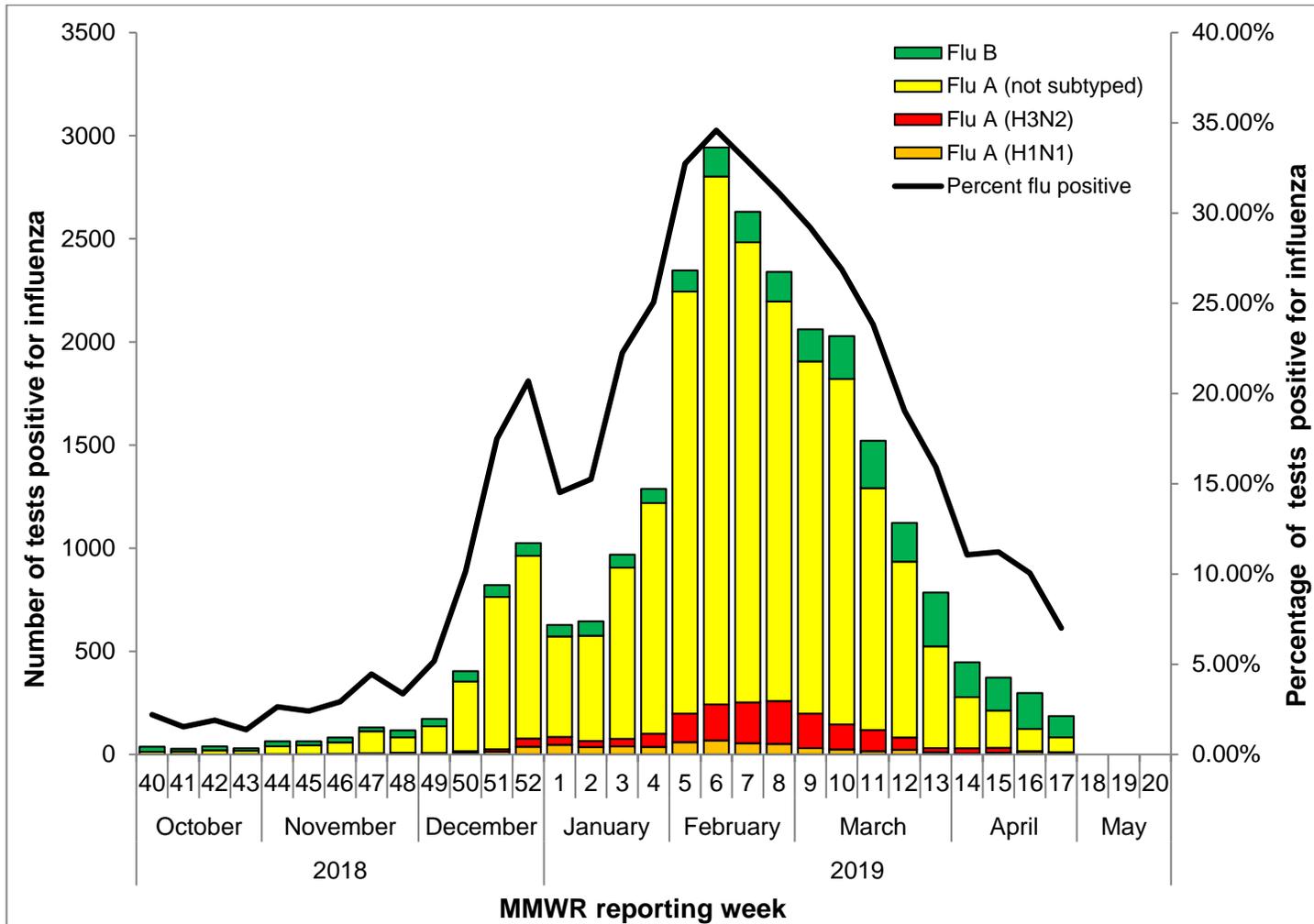


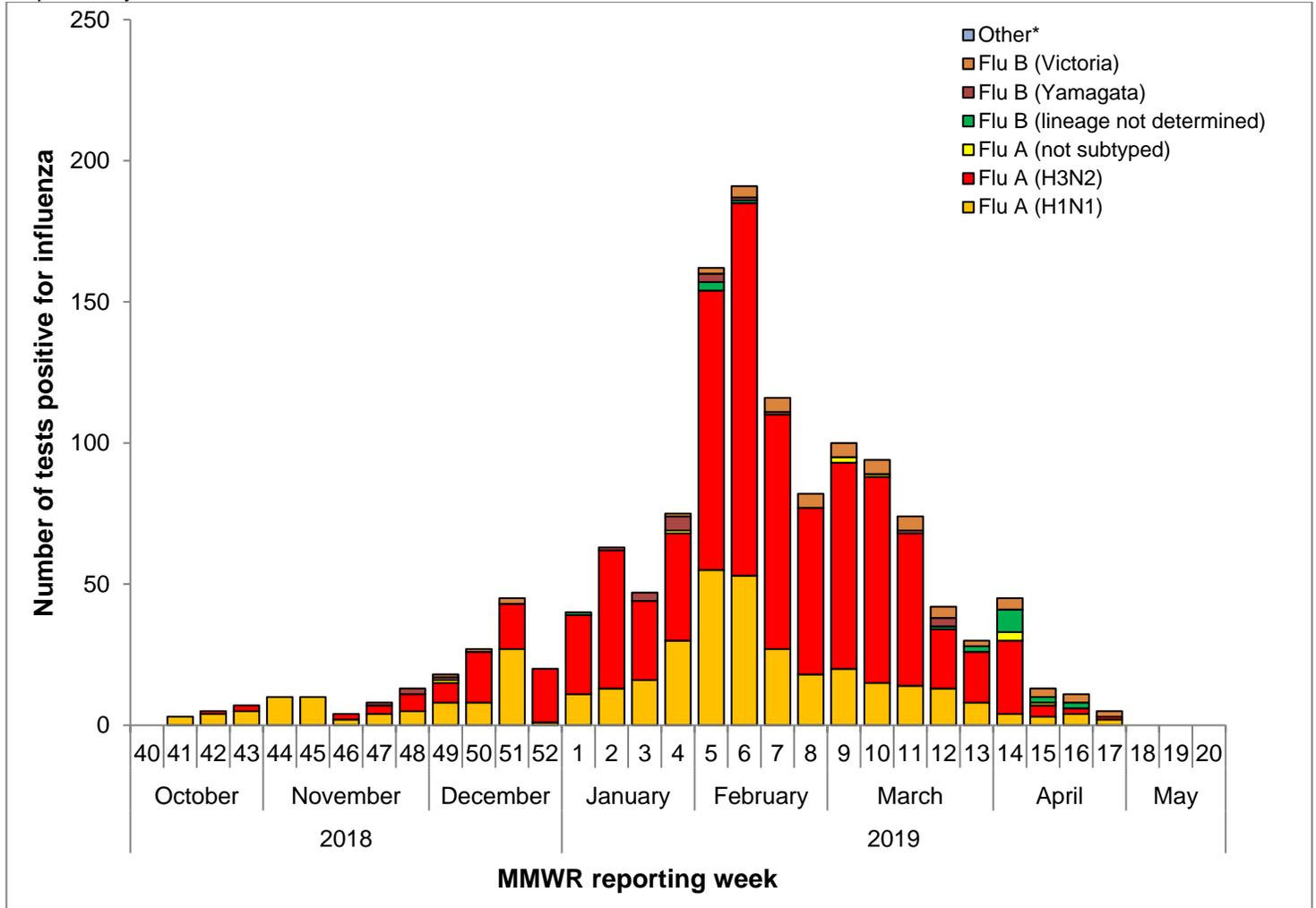
Table 3: Influenza Testing Performed by Texas Public Health Laboratories for the Current Week

	Week 17	Season to Date Week Ending: Apr. 27, 2019
Number of labs reporting flu tests	4	
Number of specimens tested	25	2369
Number of positive specimens (%) [†]	5 (20.00%)	1360 (57.41%)
Positive specimens by type/subtype/lineage [n (%)]		
Influenza A	3 (60.00%)	1264 (92.94%)
Subtyping performed	3 (100.00%)	1255 (99.29%)
A (H1N1)	2 (66.67%)	393 (31.31%)
A (H3N2)	1 (33.33%)	862 (68.69%)
Subtyping not performed	0 (0.00%)	9 (0.71%)
Influenza B	2 (40.00%)	96 (7.06%)
Lineage testing performed	2 (100.00%)	76 (79.17%)
B/Victoria	2 (00.00%)	54 (71.05%)
B/Yamagata	0 (0.00%)	22 (28.95%)
Lineage testing not performed	0 (0.00%)	20 (20.83%)
Other*	0 (0.00%)	0 (0.00%)

[†]Laboratory data in 2016-2017, 2017-2018, and 2018-2019 seasons 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, 2018-2019 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)	15	1224	75	6.13%
HMPV	16	1291	87	6.74%
Parainfluenza virus	16	1500	150	10.00%
Rhinovirus	14	965	263	27.25%
RSV ^{†^}	27	1560	30	1.92%
Seasonal coronavirus (does not include MERS-CoV)	9	797	20	2.51%

[†]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 September 30, 2018, CDC has reported antigenic characterization results from eighteen influenza A (H3N2) viruses, fourteen influenza A (H1N1) viruses and thirteen influenza B viruses 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) [18]

- Eighteen (100.00%) viruses were related to A/Singapore/INFIMH-16-0019/2016-LIKE (H3N2). This virus strain was included in the 2018-2019 influenza vaccine for the Northern Hemisphere.

Influenza A (H1N1) [14]

- Fourteen (100.00%) viruses were related to A/Michigan/45/2015 (H1N1). This virus strain was included in the 2018-2019 influenza vaccine for the Northern Hemisphere.

Influenza B [13]

- Victoria lineage [9]
 - Nine (69.23%) virus was related to B/Colorado/06/2017-LIKE. This virus strain was included in the 2018-2019 influenza vaccine for the Northern Hemisphere.
- Yamagata lineage [4]
 - Four (30.77%) viruses were related to B/Phuket/3073/2013-LIKE. This virus strain was included in the quadrivalent but not trivalent 2018-2019 influenza vaccine for the Northern Hemisphere.

Antiviral Resistance

No antiviral resistance testing data for Texas specimens are available at this time.

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

Table 5: Texas ILINet Reporting and Patient Visit Summary for the Current Week

	Week 17
Number of providers reporting [†]	83
Number of providers reporting patient visits	83
Number (%) of providers with at least one ILI case	73 (87.95%)
Percentage of all visits due to ILI	2.72%
Texas ILINet baseline [‡] , 2018-2019	5.60%

[†]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 6: Percentage of Visits for Influenza-like Illness Reported by Texas ILINet Providers (as of 5/2/2019 8:30 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+			
201840	114	139	341	169	132	135	916	30158	3.04%
201841	113	155	216	185	116	98	770	29476	2.61%
201842	113	126	275	180	92	120	793	29031	2.73%
201843	112	165	335	209	108	128	945	30576	3.09%
201844	114	168	357	230	121	139	1015	30443	3.33%
201845	116	225	388	253	118	136	1120	31595	3.54%
201846	116	227	374	278	168	130	1177	30725	3.83%
201847	116	199	249	236	134	125	943	22934	4.11%
201848	115	261	396	310	213	179	1359	32471	4.19%
201849	115	217	406	303	188	199	1313	30324	4.33%
201850	115	254	494	308	167	157	1380	29536	4.67%
201851	107	267	472	363	206	213	1521	27103	5.61%
201852	107	238	433	406	202	165	1444	21301	6.78%
201901	111	196	305	462	173	108	1244	24340	5.11%
201902	111	219	405	443	165	99	1331	28543	4.66%
201903	114	258	665	472	153	73	1621	29076	5.58%
201904	116	288	980	521	202	101	2092	29554	7.08%
201905	114	318	1521	605	203	83	2730	31267	8.73%
201906	116	383	1896	734	265	85	3363	32964	10.20%
201907	116	407	1709	799	235	119	3269	31919	10.24%
201908	114	344	1424	777	268	72	2885	31000	9.31%
201909	117	354	1483	827	274	117	3055	31881	9.58%
201910	118	310	1355	670	249	93	2677	30909	8.66%
201911	114	260	819	618	220	104	2021	26190	7.72%
201912	117	220	679	511	211	93	1714	29589	5.79%
201913	112	224	586	382	122	54	1368	28134	4.86%
201914	113	172	548	312	123	33	1188	27229	4.36%
201915	113	166	515	288	87	43	1099	28215	3.90%
201916	107	135	394	228	71	31	859	26023	3.30%
201917	83	36	204	195	47	27	509	18702	2.72%

Figure 3: Percentage of Visits Due to Influenza-like Illness Reported by Texas ILINet Participants, 2018-2019 Season

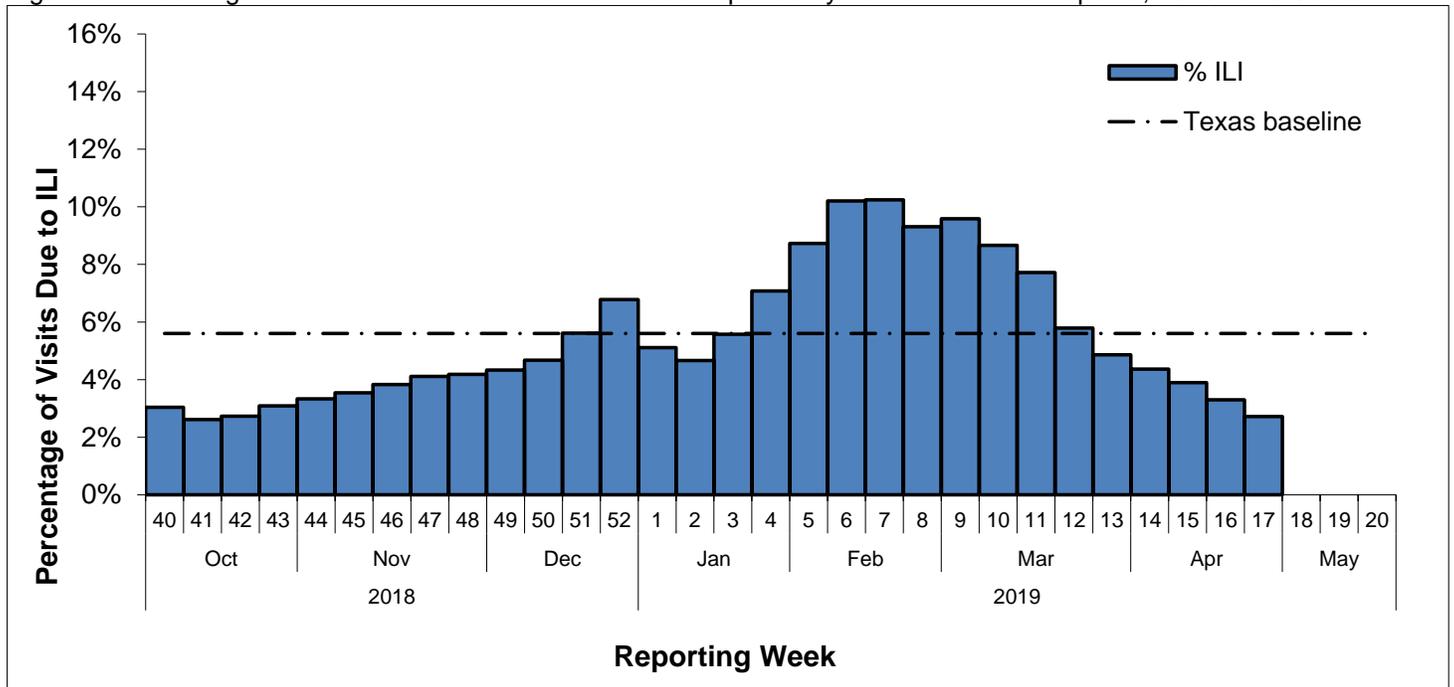
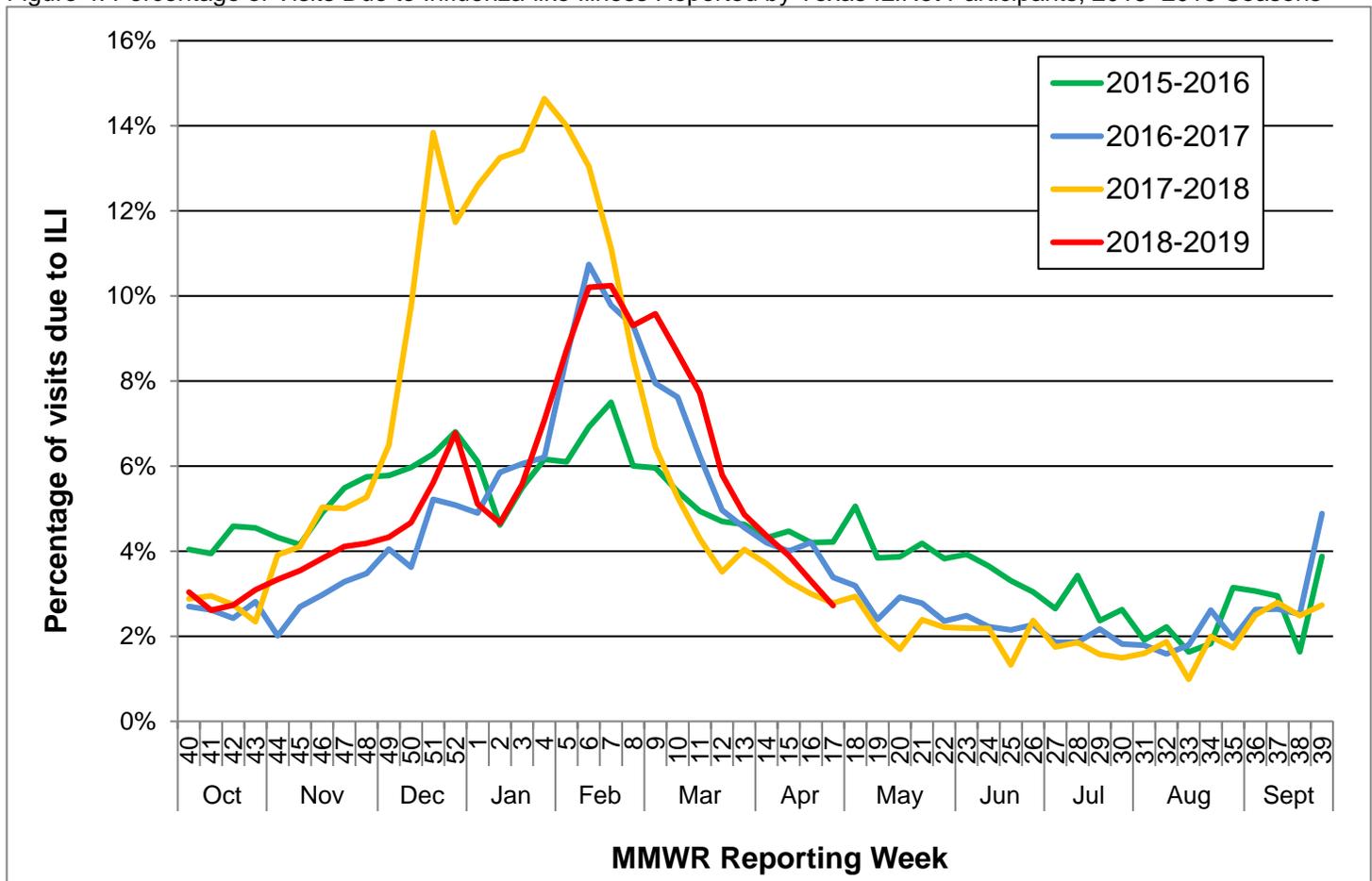


Figure 4: Percentage of Visits Due to Influenza-like Illness Reported by Texas ILINet Participants, 2015–2019 Seasons



Reports from Health Service Regions

Reports were received from seven Health Service Regions (HSRs) during week 17.

Table 7: Influenza Activity Compared to Week 16 by Health Service Region (HSR)

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

Variant Influenza Viruses

No variant or novel influenza viruses have been detected in Texas during the 2018-2019 season.

Institutional Outbreaks and School Closures

One influenza-associated institutional outbreak was reported in HSR 2/3. Twenty-five residents and 3 staff reported symptoms of ILI. Two residents tested positive for influenza A by PCR, 2 tested positive for influenza A by rapid test, and 6 tested positive for influenza by rapid test. Various control measures such as isolation of the ill, prophylaxis was given, and educational materials were displayed were used.

One school outbreak and one daycare outbreak were reported during week 17 in two different HSRs. The outbreak at a daycare was reported in HSR 11. Eight children and 1 staff member reported symptoms of ILI. Three children tested positive for influenza A, 5 tested positive for influenza B, and 1 tested positive for influenza by rapid test. The school outbreak was reported in HSR 8. Twenty-four students reported symptoms of ILI. Twenty of those students reported positive influenza A rapid test results.

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.

One thousand eight hundred and sixty-five P&I deaths have been reported in Texas during the 2018-2019 influenza season.

Table 8: Texas P&I Deaths Occurring Sept. 30, 2018- Jan. 02, 2019* by Age

Age Category (years)	Number of P&I Deaths ⁺	Mortality Rate (per 100,000)
0 - 4	<10	0.05
5 - 17	<10	0.11
18 - 49	112	0.84
50 - 64	315	6.07
65 +	1431	37.31
Overall	1865	6.23

*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 9: Texas P&I Deaths Occurring Sept. 30, 2018- Jan. 02, 2019* by Health Service Region (HSR)

HSR	Number of P&I Deaths	Mortality Rate (per 100,000)
1	56	6.01
2/3	573	6.61
4/5N	137	8.36
6/5S	438	5.59
7	207	5.64
8	207	6.70
9/10	96	6.00
11	151	6.01
Overall	1865	6.23

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

Influenza-Associated Pediatric Mortality

Two influenza-associated pediatric deaths were reported during week 17 in HSR 11. The first death occurred during week 08 in a 3-year-old with underlying health conditions. A specimen collected from the child was positive for influenza A by rapid test. The child was not vaccinated for the current season. The second death occurred during week 16 in a 2-year-old with underlying health conditions. A specimen collected from the child was positive for influenza B by PCR. The child was not vaccinated for the current season.

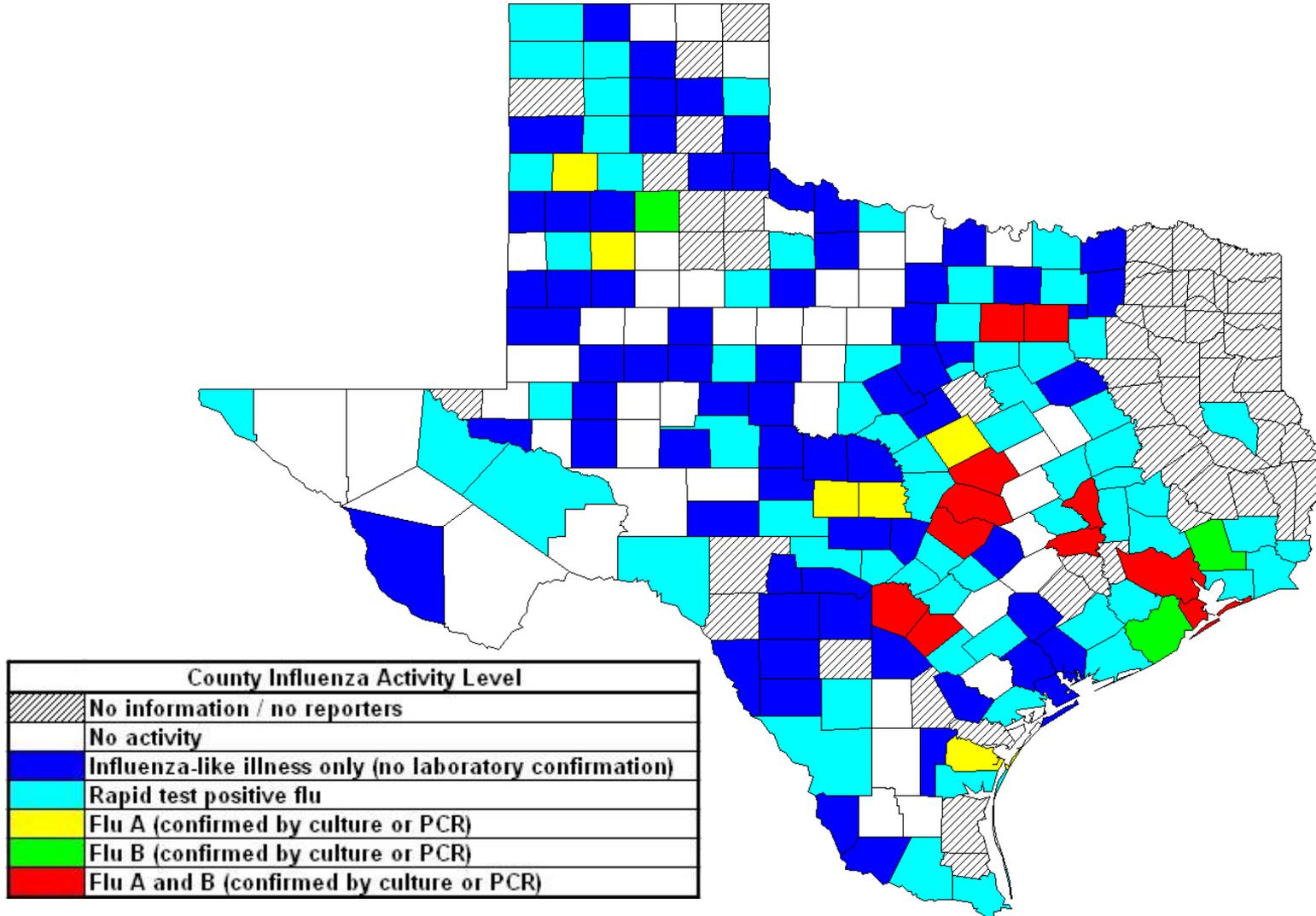
Ten influenza-associated pediatric deaths have been reported in Texas during the 2018-2019 influenza season. Cases of influenza-associated pediatric mortality (children <18 years of age) are reportable year-round and by law in Texas.

Table 10: Influenza-Associated Pediatric Deaths Reported in Texas during the 2018-2019 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
2018							
October	1	0	0	0	0	0	1
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
2019							
January	0	0	4	0	0	0	4
February	0	0	2	1	0	0	3
March	0	0	1	0	0	0	1
April	0	0	0	1	0	0	1
Total	1	0	7	2	0	0	10

Statewide Influenza Activity Map

Figure 5: Texas Map Displaying the Highest Level of Influenza or ILI Activity Reported by County for the Week Ending Apr. 27, 2019 (MMWR Week 17)



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/>