Influenza Surveillance Report

www.infectiousdisease.dhh.la.gov   **Week 3: 1/13/19 - 1/19/19**

Influenza activity increased slightly this week in Louisiana. The percent of positive tests reported from clinical labs increased this week in Louisiana and nationwide. Rhino/Enteroviruses, RSV, and Coronaviruses continue to represent the majority of non-influenza viruses reported.

The Influenza Surveillance Summary Report describes the results of the tracking done by the Louisiana Office of Public Health Infectious Disease Epidemiology Section (IDEpi). This report relies on data supplied by sentinel surveillance sites, including hospital emergency departments (ED), laboratories and physicians' offices. Sentinel sites provide weekly data on Influenza Like Illness (ILI) and/or laboratory confirmed cases.

Taken together, ILI surveillance and laboratory surveillance provide a clear picture of the influenza activity occurring in Louisiana each week. If you have any questions about our surveillance system or would like more information, please contact Julie Hand at 504-568-8298 or julie.hand@la.gov.

ILI is defined as an illness characterized by cough and/or cold symptoms and a fever of 100° F or greater in the absence of a known cause. While not every case of ILI is a case of influenza, the CDC has found that trends in ILI from sentinel sites are a good proxy measure of the amount of influenza activity in an area. For this reason, all states and territories participating in the national surveillance program monitor weekly ILI ratios from their sentinel surveillance sites.

Tracking Surveillance

Laboratory testing: Not all sentinel sites have access to laboratory testing. However, many hospitals and physicians' offices do perform some influenza testing. Sites that test for influenza report the number of positive tests each week and the total number of tests performed each week. This information is included on page 3 of this report.
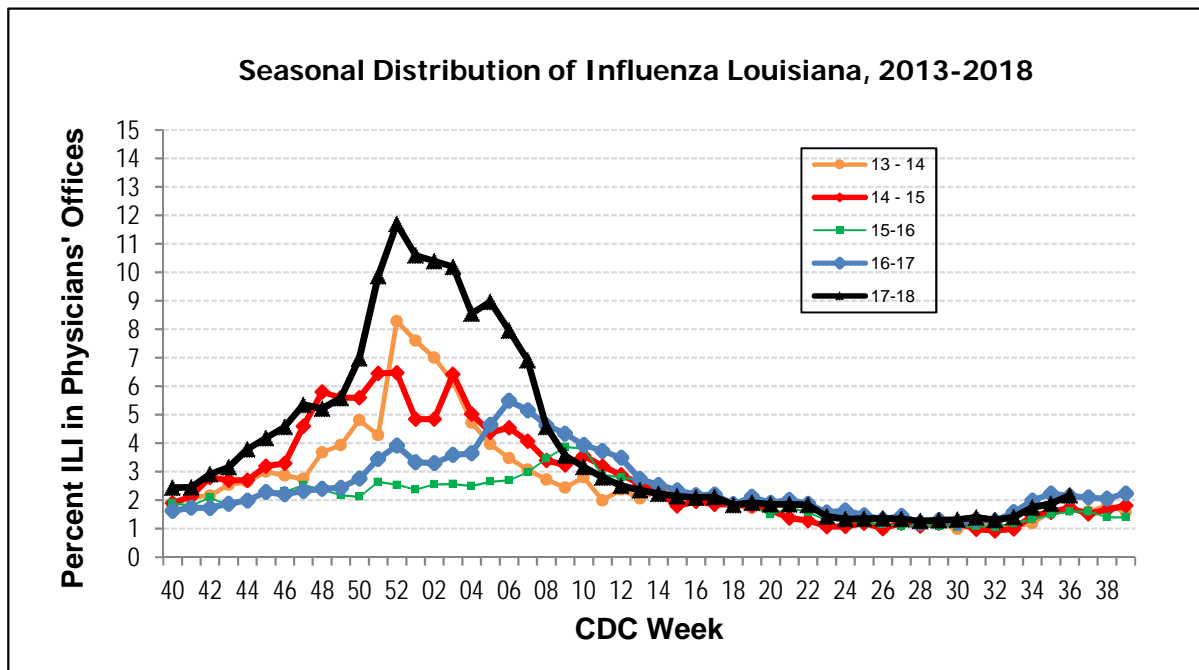
2018-2019 Season

This graph shows the percentage of visits for ILI over the total number of visits for sentinel surveillance sites. This is the best approach to estimate the magnitude of influenza transmission. ILI counts do include some viral infections other than influenza, but experience over the last 50 years has shown that this approach is a reliable method to estimate influenza transmission. It does not show which strain of influenza virus is responsible. The page on lab surveillance does show the proportion of specimens attributable to each virus strain.

Influenza Sentinel Surveillance - Louisiana, 2018-2019 Season
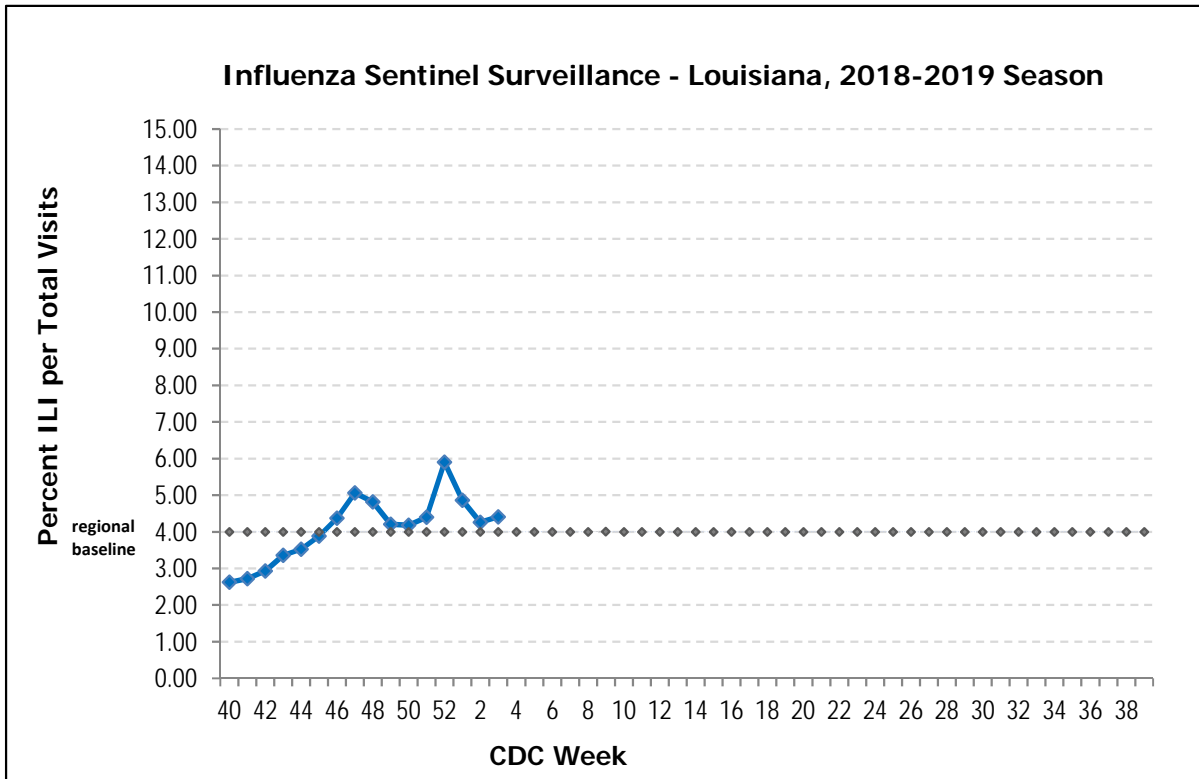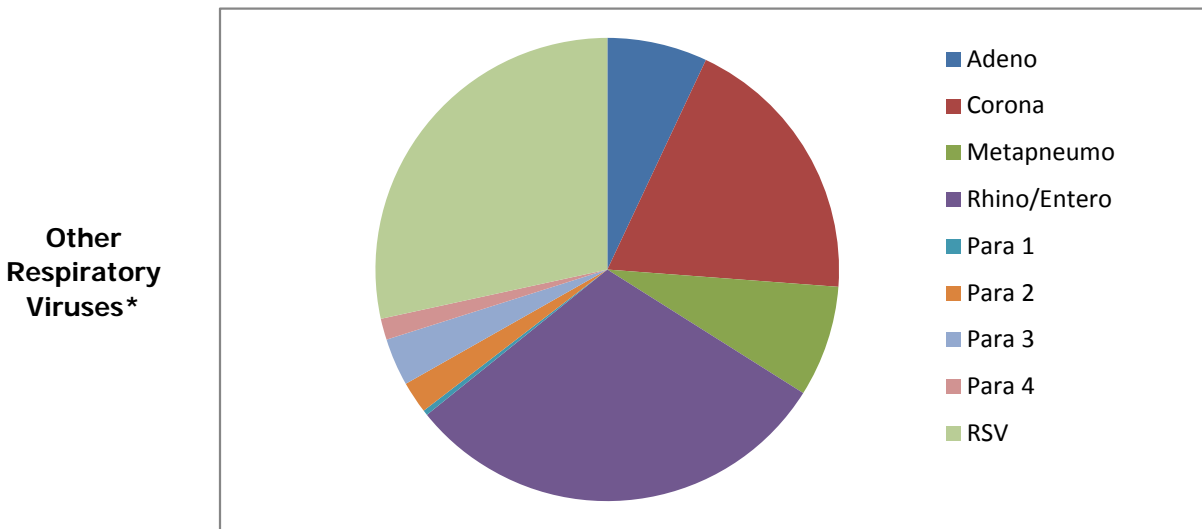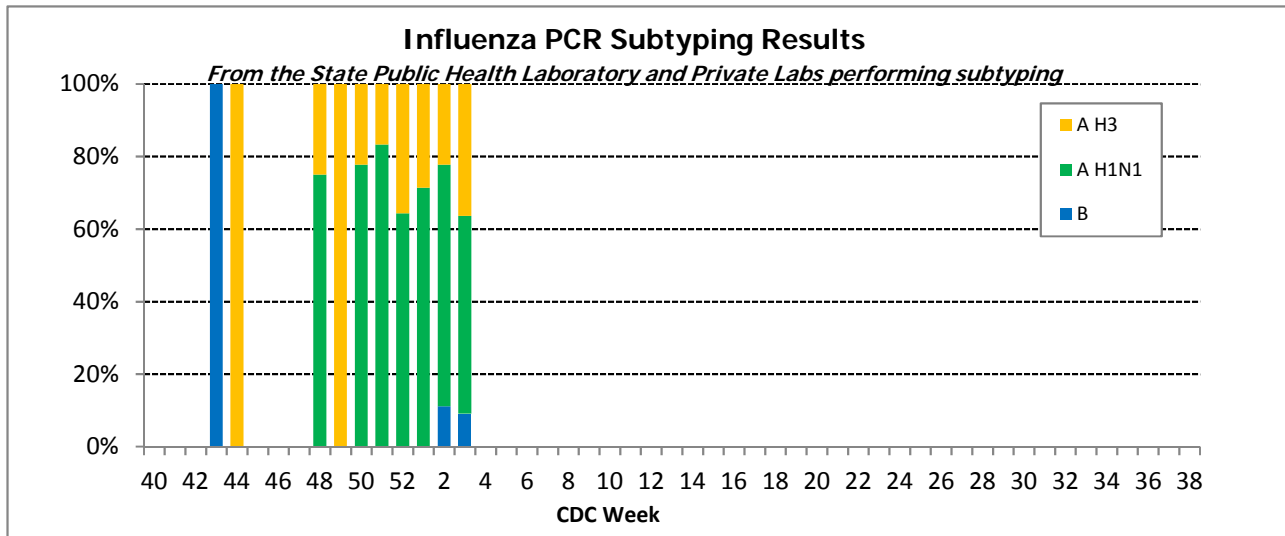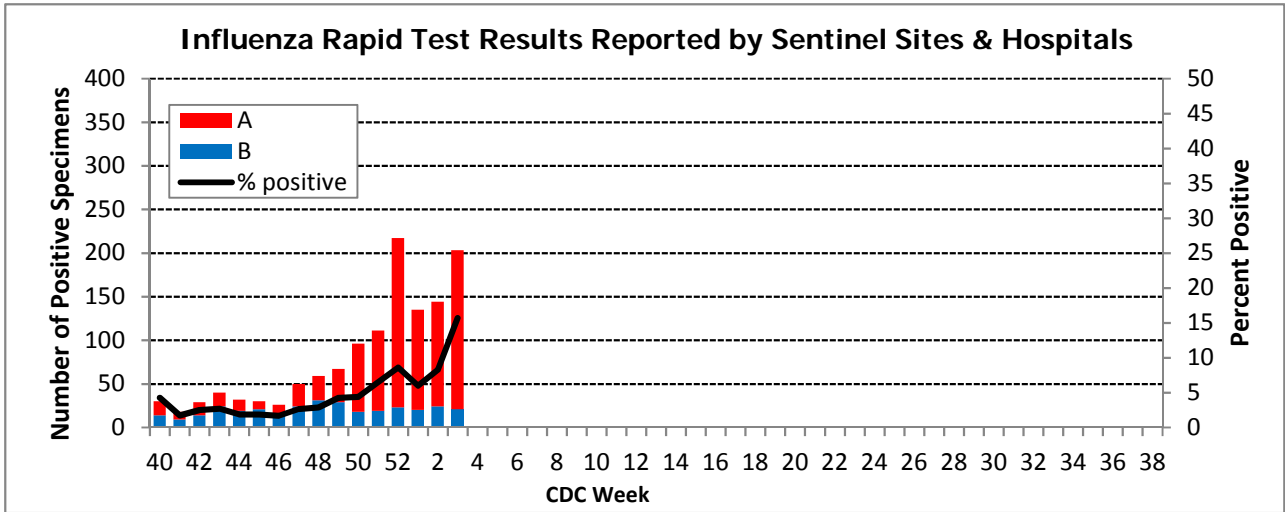

This graph shows the data on ILI surveillance among sentinel physicians' over the past 5 seasons to enable comparisons with previous years and better estimate the amplitude of this season's influenza transmission.

Seasonal Distribution of Influenza Louisiana, 2013-2018

2018-2019 Season

Virologic Surveillance

Influenza Rapid Test Results Reported by Sentinel Sites & Hospitals

Legend:
- A (red)
- B (blue)
- % positive (black line)

Y-axis (left): Number of Positive Specimens (0–400)
Y-axis (right): Percent Positive (0–50)
X-axis: CDC Week (40–38)

Influenza PCR Subtyping Results
From the State Public Health Laboratory and Private Labs performing subtyping

Legend:
- A H3 (yellow)
- A H1N1 (green)
- B (blue)

X-axis: CDC Week (40–38)

Other Respiratory Viruses*

Legend:
- Adeno
- Corona
- Metapneumo
- Rhino/Entero
- Para 1
- Para 2
- Para 3
- Para 4
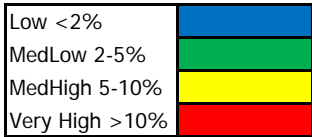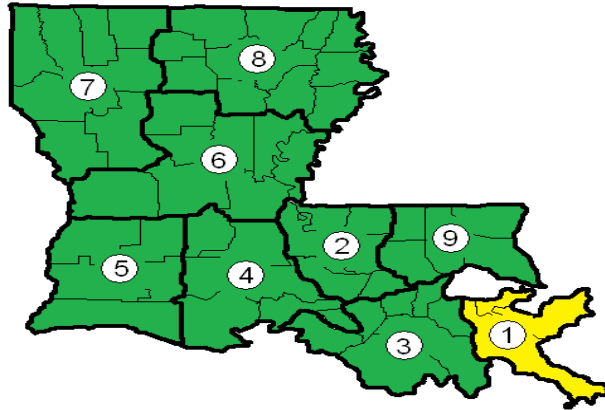- RSV

*Based on results from the State Public Heatlh Laboratory Respiratory Virus Panel (RVP) Testing and other labs reporting RVP results over the last 2 weeks.

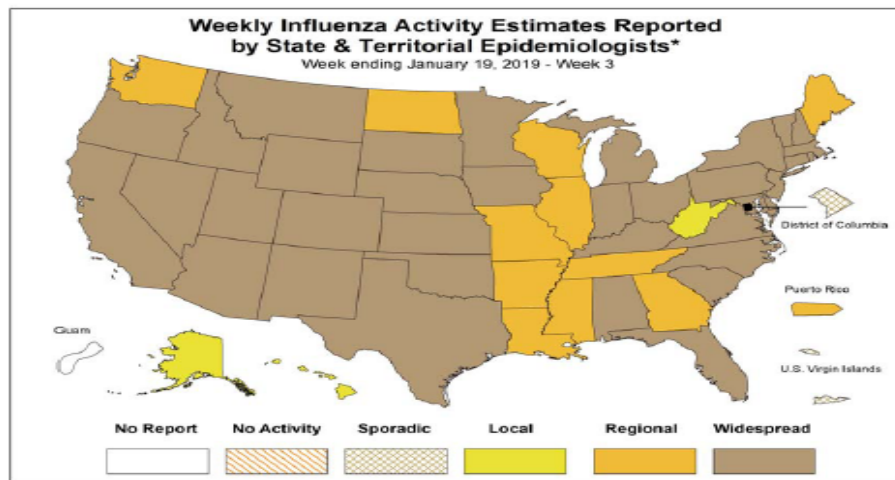## Geographical Distribution of ILI*

Low <2%	(blue)
MedLow 2-5%	(green)
MedHigh 5-10%	(yellow)
Very High >10%	(red)

%ILI over the last 2 weeks based on sentinel surveillance data

Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists

Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists*
Week ending January 19, 2019 - Week 3

No Report   No Activity   Sporadic   Local   Regional   Widespread

*   This map indicates geographic spread & does not measure the severity of influenza activity

ILINet Activity Indicator Map

Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2018-19 Influenza Season Week 3 ending Jan 19, 2019

ILI Activity Level

High
Moderate
Low
Minimal
Insufficient Data
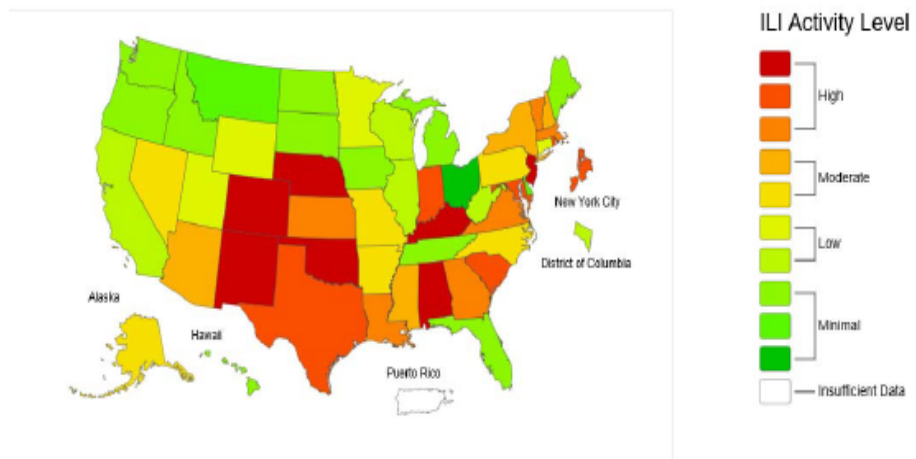
National Surveillance

Influenza activity increased in the United States.

The proportion of outpatient visits for influenza-like illness (ILI) increased to 3.3%, but remains above the national baseline of 2.2%.

The proportion of deaths attributed to pneumonia and influenza (P&I) was above the system-specific epidemic threshold.

Three influenza-associated pediatric deaths were reported to CDC during week 3.

Clinical Laboratory Data

	Week 3	Data Cumulative since September 30, 2018 (week 40)
No. of specimens tested	30,778	453,354
No. of positive specimens (%)	4,950 (16.1%)	38,276 (8.4%)
Positive specimens by type		
Influenza A	4,851 (98.0%)	36,293 (94.8%)
Influenza B	99 (2.0%)	1,983 (5.2%)

Public Health Laboratory Data

	Week 3	Data Cumulative since September 30, 2018 (week 40)
No. of specimens tested	1,284	24,430
No. of positive specimens*	752	8,677
Positive specimens by type/subtype		
Influenza A	740 (98.4%)	8,416 (97.0%)
(H1N1)pdm09	573 (81.2%)	6,593 (81.9%)
H3N2	133 (18.8%)	1,455 (18.1%)
Subtyping not performed	34	368
Influenza B	12 (1.6%)	261 (3.0%)
Yamagata lineage	5 (55.6%)	120 (60.0%)
Victoria lineage	4 (44.4%)	80 (40.0%)
Lineage not performed	3	61

HHS Surveillance Region Data:

Region 6 (AR, LA, NM, OK, TX)

CDC Week	Public Health Labs	Public Health Specimens Tested	AUNK	AH1N1 pdm09	AH3N2	AH3N2v	B	BVic	BYam	Clinical Labs	Clinical Specimens Tested	Clinical Flu Positive	% Positive	A	B
201851	10	270	0	188	4	0	0	0	0	24	5260	850	16.16	814	36
201852	8	103	1	50	14	0	0	1	0	24	5232	982	18.77	933	49
201901	9	92	1	31	13	0	0	0	2	24	4818	650	13.49	608	42
201902	8	170	0	60	15	0	1	0	1	23	4654	700	15.04	642	58
201903	7	92	0	14	11	0	0	0	1	19	4620	1003	21.71	965	38

U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) 2017-2018 Influenza Season
HHS Region 6 (AR, LA, NM, OK, and TX) (Baseline: 4.0%) Data as of Friday, January 25, 2019

CDC Week	# Sites Reporting	ILI 0-4 years	ILI 5-24 years	ILI 25-49 years	ILI 50-64 years	ILI 65 years and older	Total ILI	Total Patient Visits	% Unweighted ILI	% Weighted ILI
201851	275	1437	1429	1013	412	267	4558	103531	4.4	4.5
201852	273	1764	1500	1429	561	407	5661	96852	5.8	6.0
201901	283	1432	1127	1469	629	413	5070	102769	4.9	4.9
201902	280	1209	1208	1297	562	317	4593	107953	4.3	4.3
201903	276	1253	1768	1251	454	278	5004	106245	4.7	5.1

Antiviral Resistance:

Type/Subtype or Lineage	Inhibition of Neuraminidase Activity by Antiviral Drug								
	Oseltamivir			Peramivir			Zanamivir		
	Virus Tested (n)	Reduced, Number (%)	Highly Reduced, Number (%)	Virus Tested (n)	Reduced, Number (%)	Highly Reduced, Number (%)	Virus Tested (n)	Reduced, Number (%)	Highly Reduced, Number (%)
Total Viruses	501	2 (0.4%)	2 (0.4%)	501	0 (0%)	2 (0.4%)	501	0 (0%)	0 (0%)
A(H1N1)pdm09	307	2 (0.7%)	2 (0.7%)	307	0 (0%)	2 (0.7%)	307	0 (0%)	0 (0%)
A(H3N2)	141	0 (0%)	0 (0%)	141	0 (0%)	0 (0%)	141	0 (0%)	0 (0%)
B/Victoria	15	0 (0%)	0 (0%)	15	0 (0%)	0 (0%)	15	0 (0%)	0 (0%)
B/Yamagata	38	0 (0%)	0 (0%)	38	0 (0%)	0 (0%)	38	0 (0%)	0 (0%)

Antigenic & Genetic Charactization:

CDC has antigenically or genetically characterized 647 influenza viruses collected September 30, 2018 – January 19, 2019, and submitted by U.S. laboratories, including 391 influenza A(H1N1)pdm09 viruses, 188 influenza A(H3N2) viruses, and 68 influenza B viruses.

Influenza A Viruses

- **A (H1N1)pdm09:** Phylogenetic analysis of the HA genes from 391 A(H1N1)pdm09 viruses showed that all belonged to clade 6B.1. One hundred ninety-four A(H1N1)pdm09 viruses were antigenically characterized, and 191 (98.5%) were antigenically similar (analyzed using HI with ferret antisera) to A/Michigan/45/2015 (6B.1), a cell-propagated A/Michigan/45/2015-like reference virus representing the A(H1N1)pdm09 component for the 2018-19 Northern Hemisphere influenza vaccines.

- **A (H3N2):** Phylogenetic analysis of the HA genes from 188 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=50), subclade 3C.2a1 (n=88) or clade 3C.3a (n=50). Thirty-nine A(H3N2) viruses were antigenically characterized by FRA with ferret antisera, and 37 (95%) A(H3N2) viruses tested were well-inhibited (reacting at titers that were within 4-fold of the homologous virus titer) by ferret antisera raised against A/Singapore/INFIMH-16-0019/2016 (3C.2a1), a cell-propagated A/Singapore/INFIMH-16-0019/2016-like reference virus representing the A(H3N2) component of 2018-19 Northern Hemisphere influenza vaccines.

Influenza B Viruses

- **B/Victoria:** Phylogenetic analysis of 25 B/Victoria-lineage viruses indicate that all HA genes belonged to genetic clade V1A, however genetic subclades which are antigenically distinct have emerged. Genetic subclades which are antigenically distinct include viruses with a two amino acid deletion (162-163) in the HA protein (V1A.1, previously abbreviated as V1A-2Del) and viruses with a three amino acid deletion (162-164) in the HA protein (abbreviated as V1A-3Del). Twenty-two B/Victoria lineage viruses were antigenically characterized and 16 (73%) were antigenically similar with ferret antisera raised against cell-propagated B/Colorado/06/2017-like V1A.1 reference virus. Six (27%) reacted poorly (at titers that were 8-fold or greater reduced compared with the homologous virus titer) and belonged to clade V1A.

- **B/Yamagata:** Phylogenetic analysis of 43 influenza B/Yamagata-lineage viruses indicate that the HA genes belonged to clade Y3. A total of 33 influenza B/Yamagata-lineage viruses were antigenically characterized, and all were antigenically similar to cell-propagated B/Phuket/3073/2013 (Y3), the reference vaccine virus representing the influenza B/Yamagata-lineage component of the 2018-19 Northern Hemisphere quadrivalent vaccines.