Summit County Public Health
Influenza Surveillance Report
2018 – 2019 Season
Report #10
Flu Surveillance Week 11 (12/16/2018 to 12/22/2018)
Centers for Disease Control and Prevention MMWR Week 51

Summit County Surveillance Data:

During **Week 11**, influenza-related activity continued to increase, but remained low overall.

Table 1: Overall Influenza Activity Indicators in Summit County by Week

	Week 10 MMWR 50 N (%)[1]	Week 11 MMWR 51 N (%)[1]	Percent change from previous week	Number of weeks increasing or decreasing
Lab Reports				
Test Performed	610	714	**+ 17.1%**	**↑2**
Positive Tests (Number and %)	23 (3.8)	68 (9.5)	**+ 150%**	**↑2**
Influenza A (Number and %)	22 (3.6)	68 (9.5)	**+ 164%**	**↑2**
Influenza B (Number and %)	1 (0.2)	0 (0.0)	**- 100%**	**↓1**
Influenza hospitalizations:	11	17	**+ 54.6%**	**↑2**
Influenza ILI Community Report:				
Long-term Care Facilities	0	0	--	--
Correctional & Addiction Facilities	1	0	**- 100%**	**↓1**
Physician Offices & Clinics	0	2	**+ 200%**	**↑1**
Pharmacy Prescriptions				
Amantidine	1	3	**+ 200%**	**↑1**
Rimantidine Flumadine	0	0	--	--
Relenza	0	0	--	--
Oseltamivir Tamiflu	2	6	**+ 200%**	**↑1**
Total antiviral prescriptions	3	9	**+ 200%**	**↑1**
Schools absenteeism daily rate[2]	5.8	6.7	**+ 15.7%**	**↑1**
Deaths				
Pneumonia associated	2 (2.2)	11 (8.7)	**+ 296%**	**↑1**
Influenza associated	0	0	--	--
Emergency room visits (EpiCenter)[3]				
Constitutional Complaints	509 (8.6)	576 (9.6)	**+ 11.6%**	**↑3**
Fever and ILI	101 (1.7)	106 (1.8)	**+ 5.9%**	**↑3**

1) N and % are reported when available; NC = no change

2) Absence is for any reason. Percent is from total number of students enrolled. Data was collected from 8 schools or school districts throughout Summit County (n = ~37,000 students)

3) Percent is from total number of emergency room interactions

Note: *Data is provisional and may be updated as more information is received.* Percentages should be interpreted with caution. Small changes in number can result in large changes in percent. When a percentage , or prevalence, is available in this table, the percent change will be calculated from those values

Zero deaths related to influenza were reported during Week 11, and there were 11 reported deaths associated with pneumonia. **Figure 1** displays weekly Summit County death counts associated with pneumonia and influenza.

Acute Care Hospitalizations: There were 17 flu-related hospitalizations reported during Week 11. (**Figure 2**)

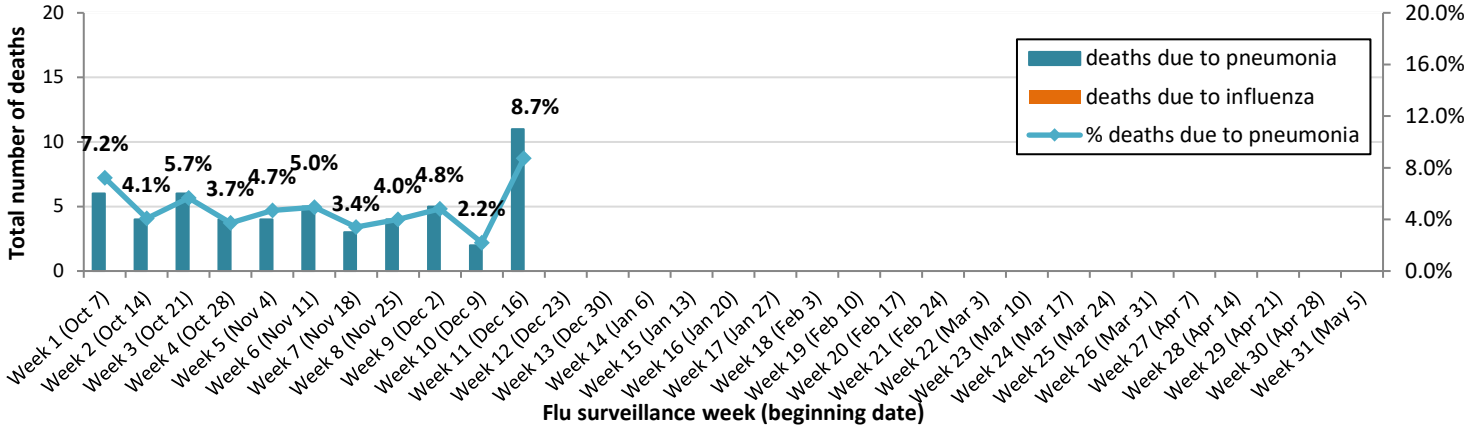
COMMUNITY ILI REPORTS:
Influenza like Illness (ILI) as defined by the CDC is fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza.
Long Term Care Facilities: There were 0 cases of ILI reported.
Correctional and Inpatient Addiction facilities: There were 0 cases of ILI reported.
Physician offices and clinics: During Week 11, there were 2 cases of ILI reported.

Pharmacies: Nine prescriptions for antiviral medications were reported during Week 11.

School absenteeism includes absences regardless of reason. In Week 11, the absence rate was 6.7%, which was a 15.7% increase from the rate in Week 10.

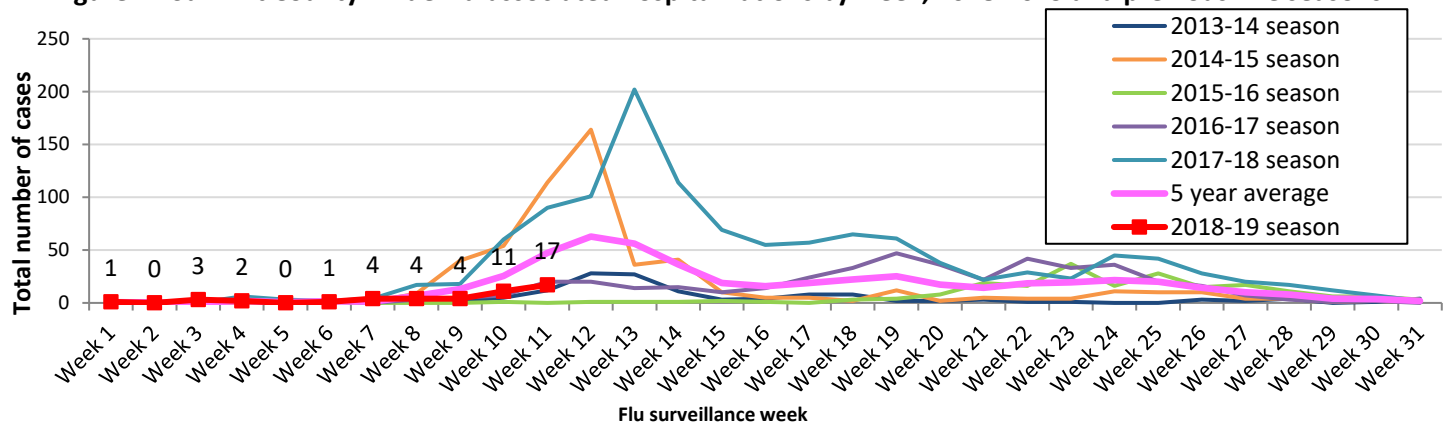
Lab reports: During Week 11, Summit County labs performed 714 tests, of which 68 tested positive (all were Type A). **(Figure 4)** The flu tests ordered increased by 17% and positive test results increased by 150%.

Figure 1. Weekly Summit County death counts associated with pneumonia and influenza during 2018-2019 season



Influenza-associated hospitalizations: Summit County hospitals reported 17 influenza-associated hospitalizations in Week 11. **Figure 2** displays weekly confirmed hospitalization counts for Summit County **(season count to date = 47).**

Figure 2. Summit County influenza-associated hospitalizations by week, 2018-2019 and previous five seasons



EpiCenter collects and analyzes health related data in real time to provide information about the health of the community. This system tracks ER visits related to constitutional complaints and fever and ILI. **Figure 3** displays the weekly number of ER visits related to ILI and flu symptoms in Summit County. There were 106 ILI-related visits reported during Week 11, which was 1.8% of total ED visits (n = 5992). This percentage was a 5.9% increase from Week 10.

Figure 3. Weekly ER visits in Summit County related to Fever + ILI stratified by age groups, 2018 to 2019 season

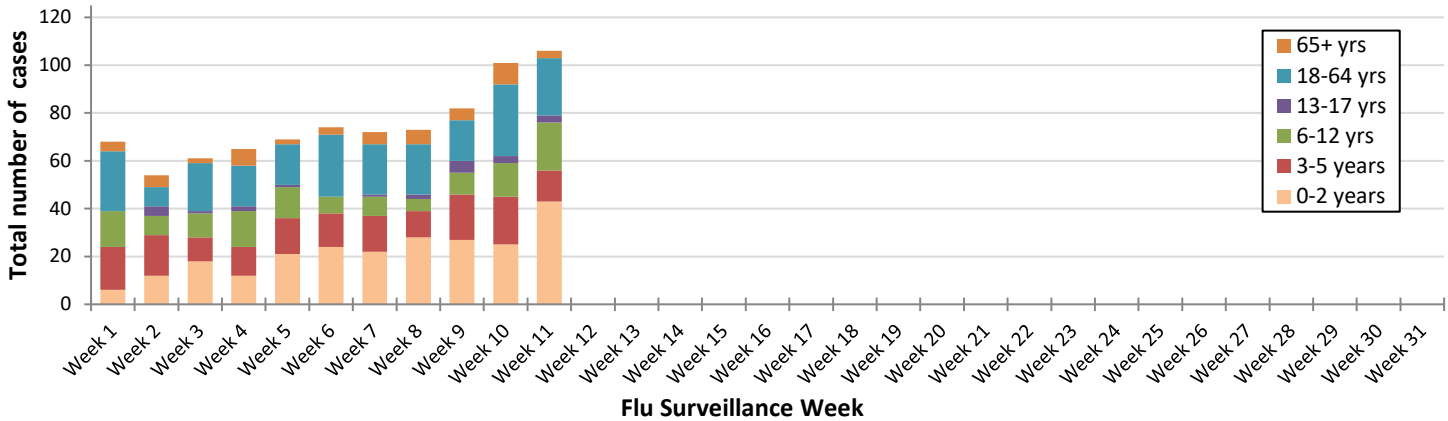
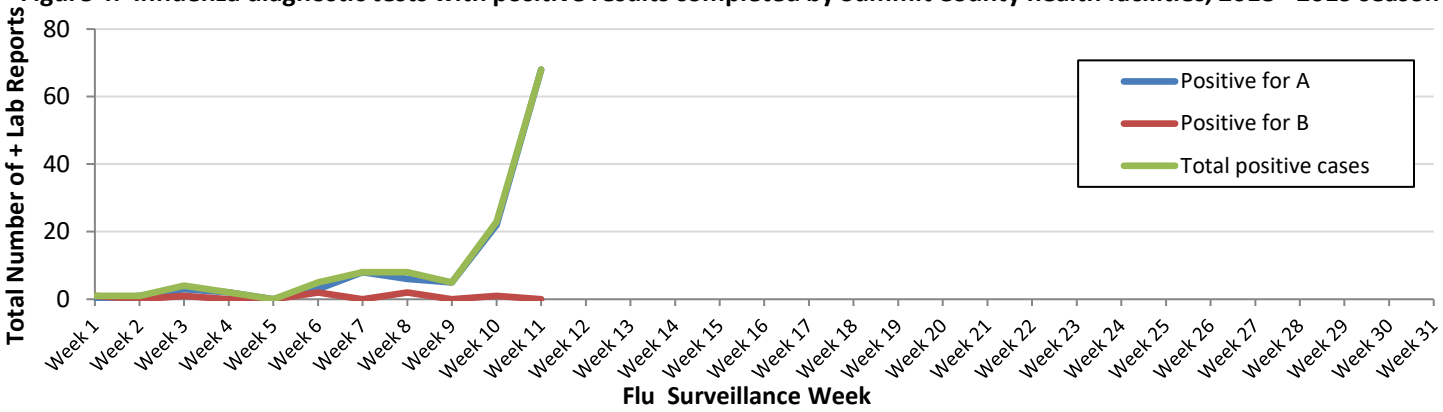


Figure 4. Influenza diagnostic tests with positive results completed by Summit County health facilities, 2018 - 2019 season



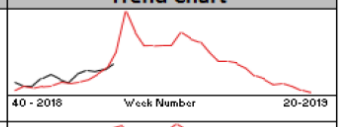
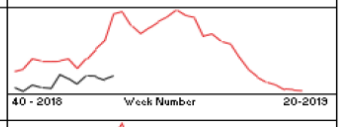
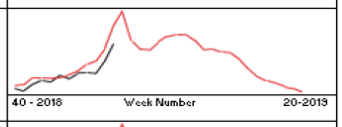
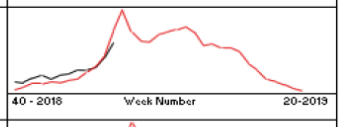
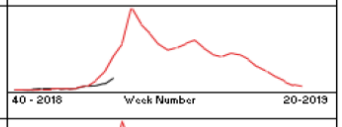
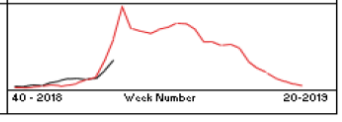
Ohio Influenza Activity:

Current Ohio Activity Level (Geographic Spread) – *Regional*

Definition: Increased ILI in > 2 but less than half of the regions AND recent (within the past 3 weeks) lab confirmed influenza in the affected regions, OR institutional outbreaks (ILI or lab confirmed) in > 2 but less than half of the regions AND recent (within the past 3 weeks) lab confirmed influenza in the affected regions.

During MMWR Week 51, public health surveillance data sources indicate minimal intensity for influenza-like illness (ILI) in outpatient settings reported by Ohio's sentinel providers. The percentage of emergency department visits with patients exhibiting constitutional symptoms and fever and ILI specified ED visits are below baseline levels. Reported cases of influenza-associated hospitalizations are above the seasonal threshold*. There were 125 influenza-associated hospitalizations reported during MMWR Week 51.

Ohio Influenza Activity Summary Dashboard (December 16 – December 22, 2018):

Data Source	Current week value	Percent Change from last week[1]	# of weeks[2]	Trend Chart[3]
Influenza-like Illness (ILI) Outpatient Data (ILINet Sentinel Provider Visits)	1.44%	17.07%	↑ 2	
Thermometer Sales (National Retail Data Monitor)	1050	-4.46%	↑ 1	
Fever and ILI Specified ED Visits (EpiCenter)	2.57%	20.09%	↑ 2	
Constitutional ED Visits (EpiCenter)	10.65%	9.79%	↑ 3	
Confirmed Influenza-associated Hospitalizations (Ohio Disease Reporting System)	125	86.57%	↑ 7	
Outpatient Medical Claims Data[4]	0.70%	37.25%	↑ 3	

[1]Interpret percent changes with caution. Large variability may be exhibited in data sources with low weekly values.
[2]Number of weeks that the % change is increasing or decreasing.
[3]Black lines represent current week's data; red lines represent baseline averages
[4]Medical Claims Data provided by athenahealth®

Source: https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/seasonal-influenza/ohio-flu-activity/

National Influenza Activity:

Influenza activity in the United States is increasing. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B viruses continue to co-circulate. Below is a summary of the key influenza indicators for the week ending Dec. 22, 2018:

- **Viral Surveillance:** Influenza A viruses have predominated in the United States since the beginning of October. Influenza A(H1N1)pdm09 viruses have predominated in most areas of the country, however influenza A(H3) viruses predominated in the southeastern United States (HHS Region 4). The percentage of respiratory specimens testing positive for influenza viruses in clinical laboratories is increasing.
    - **Virus Characterization:** The majority of influenza viruses characterized antigenically and genetically are similar to the cell-grown reference viruses representing the 2018–2019 Northern Hemisphere influenza vaccine viruses. A comparison of gene sequences of recent influenza A(H1N1)pdm09 viruses from the U.S. and Mexico/Central America showed them to be similar.
    - **Antiviral Resistance:** All viruses tested show susceptibility to the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir).
- **Influenza-like Illness Surveillance (Figure 5):** The proportion of outpatient visits for influenza-like illness (ILI) increased to 3.3%, which is above the national baseline of 2.2%. Nine of 10 regions reported ILI at or above their region-specific baseline level.
    - **ILI State Activity Indictor Map (Figure 6):** New York City and nine states experienced high ILI activity; Puerto Rico and seven states experienced moderate ILI activity; 11 states experienced low ILI activity; the District of Columbia and 22 states experienced minimal ILI activity; and one state had insufficient data. Among the four states along the southern U.S. border, ILI activity increased to moderate in Arizona and high in New Mexico.
- **Geographic Spread of Influenza (Figure 7):** The geographic spread of influenza in Guam and 11 states was reported as widespread; Puerto Rico and 19 states reported regional activity; 15 states reported local activity; the District of Columbia, the U.S. Virgin Islands and three states reported sporadic activity; and two states did not report.
- **Influenza-associated Hospitalizations:** A cumulative rate of 3.6 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The highest hospitalization rate is among children younger than 5 years (10.0 hospitalizations per 100,000 population).
- **Pneumonia and Influenza Mortality:** The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic threshold in the National Center for Health Statistics (NCHS) Mortality Surveillance System.
- **Influenza-associated Pediatric Deaths:** 4 flu-associated pediatric deaths were reported to CDC during week 51.

Figure 5. Percentage of visits for influenza-like illness (ILI) reported by the U.S. Outpatient Influenza-like Surveillance Network (ILINet), weekly national summary, 2018-2019 and selected previous seasons

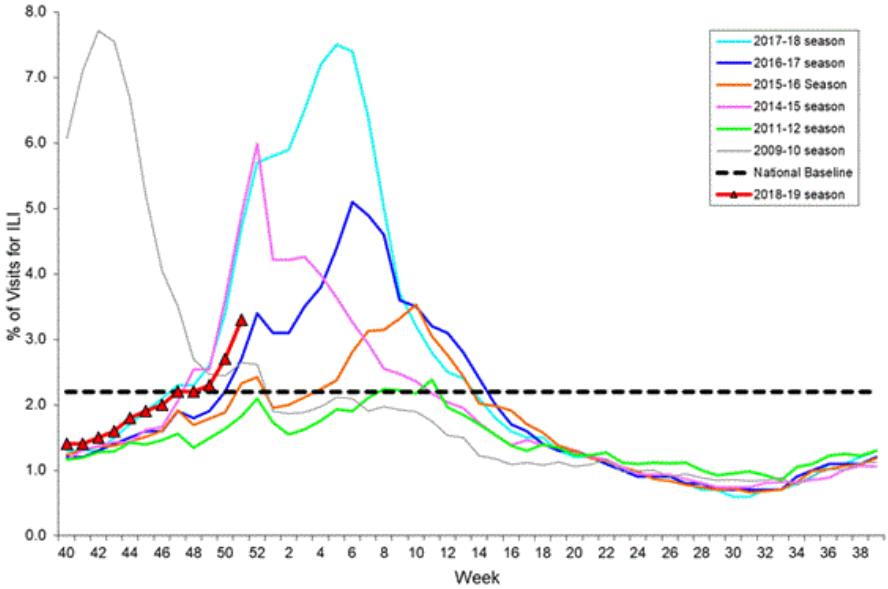


Figure 6. Influenza-like illness (ILI) activity level indicator determined by data reported to ILINet

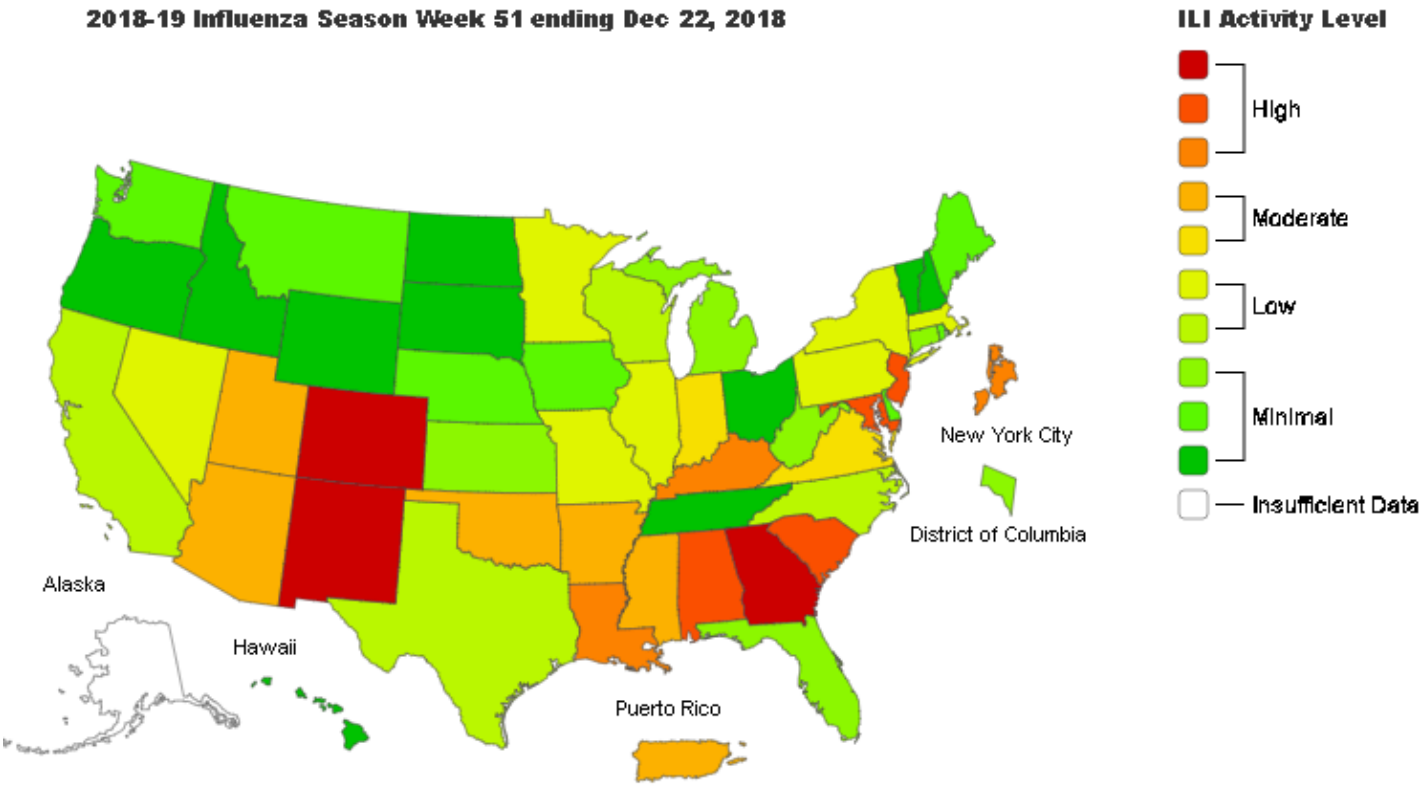
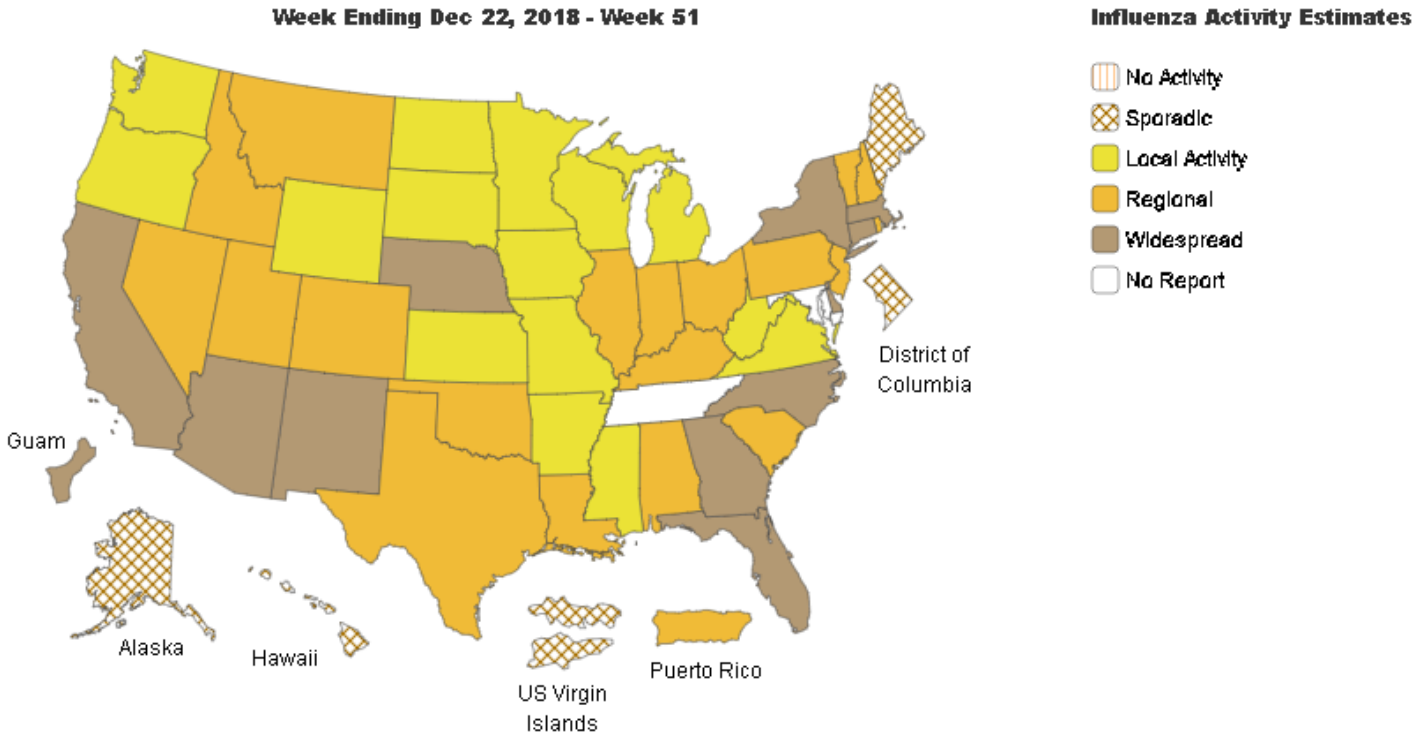


Figure 7. Weekly influenza activity (geographic spread) estimates reported by state and territorial epidemiologists



Source: https://www.cdc.gov/flu/weekly/

Global Surveillance:

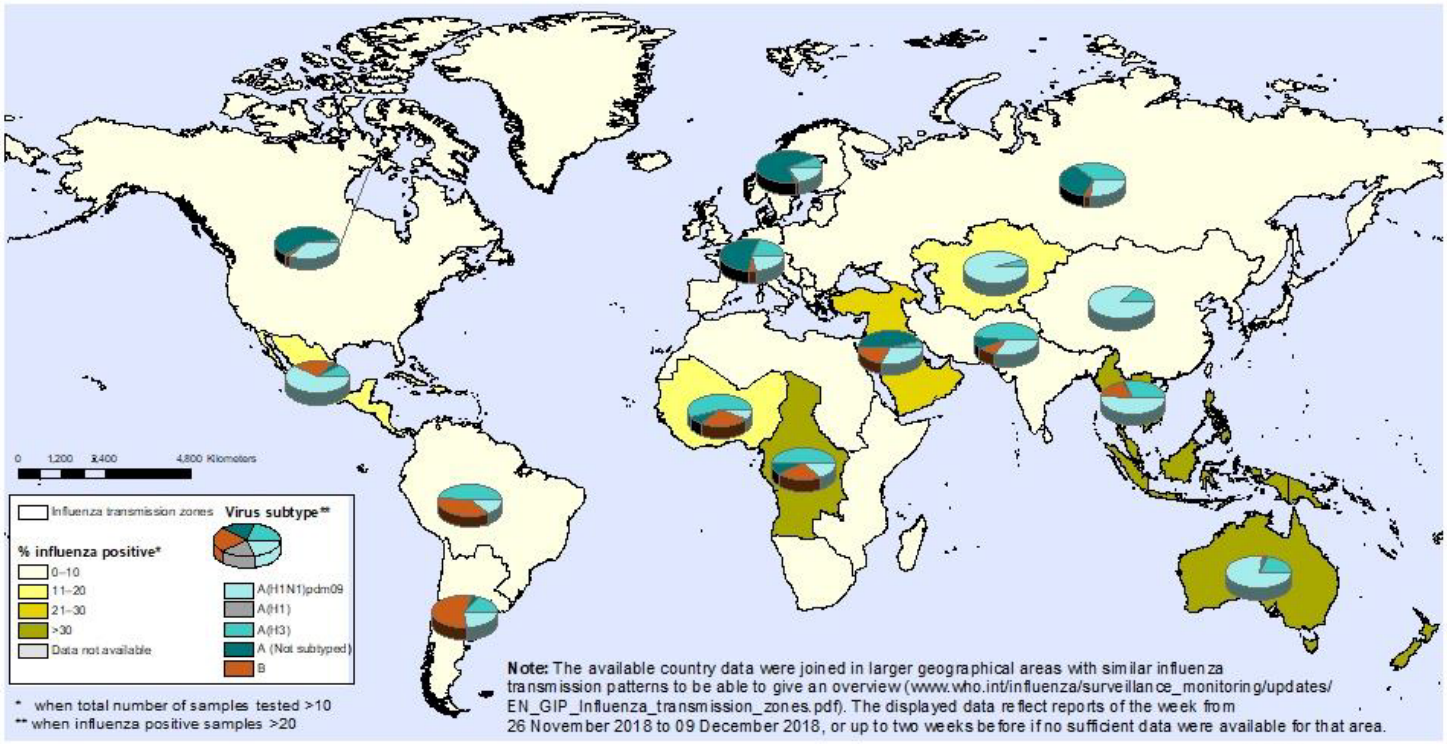
Influenza Update Nº 331, World Health Organization (WHO), published 24 December 2018, based on data up to 09 December 2018. The Update is published every two weeks.

Summary

In the temperate zone of the northern hemisphere influenza activity continued to increase, although overall influenza activity remained low. Increased influenza detections were reported in some countries of Southern and South-East Asia. In the temperate zones of the southern hemisphere, influenza activity returned to inter-seasonal levels. Worldwide, seasonal influenza A viruses accounted for the majority of detections.

National Influenza Centres (NICs) and other national influenza laboratories from 115 countries, areas or territories reported data to FluNet for the time period from 26 November 2018 to 09 December 2018 (data as of 2018-12-20 14:17:33 UTC). The WHO GISRS laboratories tested more than 139511 specimens during that time period. 10520 were positive for influenza viruses, of which 9970 (94.8%) were typed as influenza A and 550 (5.2%) as influenza B. Of the sub-typed influenza A viruses, 4961 (84.1%) were influenza A(H1N1)pdm09 and 936 (15.9%) were influenza A(H3N2). Of the characterized B viruses, 85 (63%) belonged to the B-Yamagata lineage and 50 (37%) to the B-Victoria lineage.

Figure 8. Percentage of respiratoty specimens that tested positive for influenza, by influenza transmission zone (status as of 20 December 2018)



Source: https://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/

Influenza News from the CDC:

Influenza Pandemic Basics

An influenza pandemic is a ***global outbreak of a new influenza A virus that is very different from current and recently circulating human seasonal influenza A viruses***. Pandemics happen when new (novel) influenza A viruses emerge which are able to infect people easily and spread from person to person in an efficient and sustained way. Because the virus is new to humans, very few people will have immunity against the pandemic virus, and a vaccine might not be widely available. The new virus will make a lot of people sick. How sick people get will depend on the characteristics of the virus, whether or not people have any immunity to that virus, and the health and age of the person being infected. With seasonal flu, for example, certain chronic health conditions are known to make those people more susceptible to serious flu infections.

2018 marks the 100th anniversary of the most severe influenza pandemic in recent history, but were you aware that there were three additional flu pandemics in the past 100 years? Each of these pandemics are summarized below:

1918 Pandemic (H1N1 virus)

The 1918 influenza pandemic was the most severe pandemic in recent history. It was caused by an H1N1 virus with genes of avian origin. Although there is not universal consensus regarding where the virus originated, it spread worldwide during 1918-1919. In the United States, it was first identified in military personnel in spring 1918. *It is estimated that about 500 million people or one-third of the world's population became infected with this virus. The number of deaths was estimated to be at least 50 million worldwide with about 675,000 occurring in the United States.* Mortality was high in people younger than 5 years old, 20-40 years old, and 65 years and older. *The high mortality in healthy people, including those in the 20-40 year age group, was a unique feature of this pandemic.* While the 1918 H1N1 virus has been synthesized and evaluated, the properties that made it so devastating are not well understood. With no vaccine to protect against influenza infection and no antibiotics to treat secondary bacterial infections that can be associated with influenza infections, control efforts worldwide were limited to non-pharmaceutical interventions such as isolation, quarantine, good personal hygiene, use of disinfectants, and limitations of public gatherings, which were applied unevenly.

1957-1958 Pandemic (H2N2 virus)

In February 1957, a new influenza A (H2N2) virus emerged in East Asia, triggering a pandemic ("Asian Flu"). This H2N2 virus was comprised of three different genes from an H2N2 virus that originated from an avian influenza A virus, including the H2 hemagglutinin and the N2 neuraminidase genes. It was first reported in Singapore in February 1957, Hong Kong in April 1957, and in coastal cities in the United States in summer 1957. *The estimated number of deaths was 1.1 million worldwide and 116,000 in the United States.*

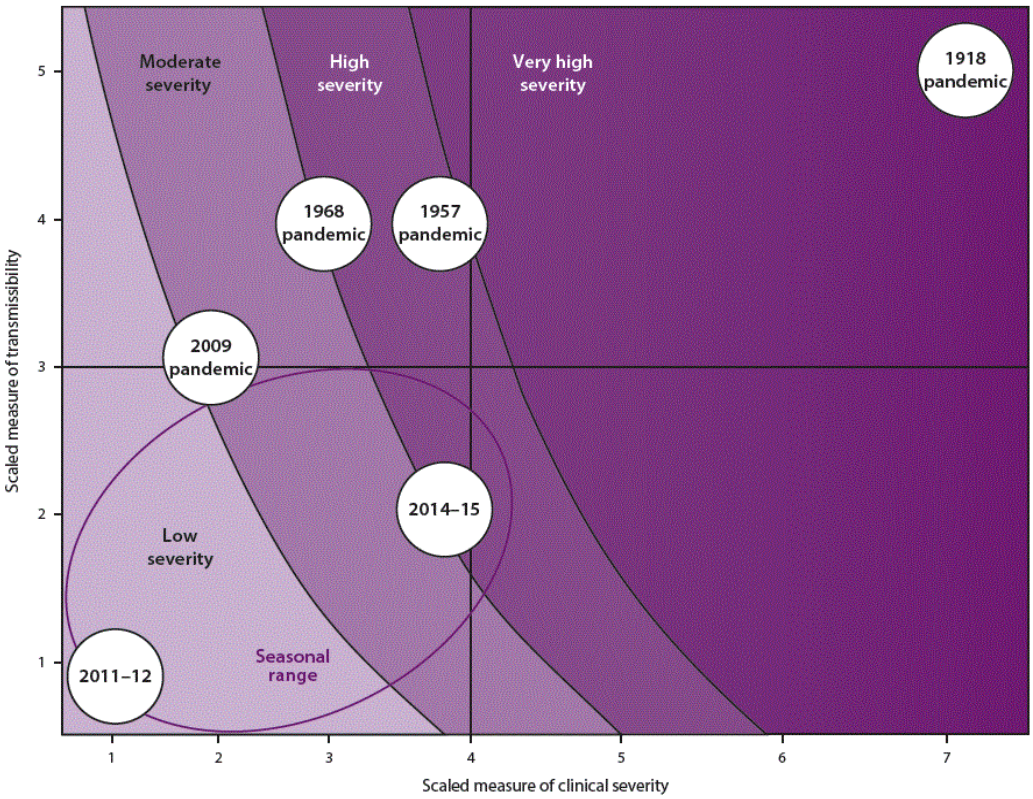
1968 Pandemic (H3N2 virus)

The 1968 pandemic was caused by an influenza A (H3N2) virus comprised of two genes from an avian influenza A virus, including a new H3 hemagglutinin, but also contained the N2 neuraminidase from the 1957 H2N2 virus. It was first noted in the United States in September 1968. *The estimated number of deaths was 1 million worldwide and about 100,000 in the United States.* Most excess deaths were in people 65 years and older. The H3N2 virus continues to circulate worldwide as a seasonal influenza A virus. Seasonal H3N2 viruses, which are associated with severe illness in older people, undergo regular antigenic drift.

2009 H1N1 Pandemic (H1N1pdm09 virus)

In the spring of 2009, a novel influenza A (H1N1) virus emerged. It was detected first in the United States and spread quickly across the United States and the world. This new H1N1 virus contained a unique combination of influenza genes not previously identified in animals or people. This virus was designated as influenza A (H1N1)pdm09 virus. Few young people had any existing immunity (as detected by antibody response) to the (H1N1)pdm09 virus, but nearly one-third of people over the age of 60 years had antibodies against this virus, likely from an exposure to an older H1N1 virus earlier in their lives. The (H1N1)pdm09 virus was very different from H1N1 viruses that were circulating at that time; vaccination with seasonal flu vaccines thus offered little cross-protection against (H1N1)pdm09 virus infection. While a monovalent (H1N1)pdm09 vaccine was produced, it was not available in large quantities until late November, which was after the peak of illness during the second wave had come and gone in the United States. *From April 12, 2009 to April 10, 2010, CDC estimated that there were 60.8 million cases (range: 43.3-89.3 million), 274,304 hospitalizations (195,086-402,719), and 12,469 deaths (8868-18,306) in the United States due to the (H1N1)pdm09 virus.* CDC estimated that between 151,700 and 575,400 people worldwide died from 2009 H1N1 virus infection during the first year the virus circulated. Globally, CDC estimated that 80 percent of (H1N1)pdm09 virus-associated deaths were in people younger than 65 years of age, which differs from typical seasonal influenza epidemics during which about 70 percent to 90 percent of deaths are estimated to occur in people 65 years of age and older.

Figure 9. Assessment plot of previous pandemics and selected recent flu seasons using the Pandemic Severity Assessment Framework (PSAF)



Source web page:
https://www.cdc.gov/flu/pandemic-resources/basics/past-pandemics.html

Image source (Figure 9): https://www.cdc.gov/mmwr/volumes/66/rr/rr6601a1.htm?s_cid=rr6601a1_w

About this report: *Reporting agencies include labs, hospitals, long-term care and community-based care providers, physician offices, university clinic, pharmacies, and schools. Agencies are distributed throughout Summit County and report different indicators of flu activity including total lab tests, numbers of positive tests and type, antiviral prescriptions filled, school absences, and influenza like illness (ILI). Hospitalizations are lab confirmed for influenza and are obtained from the Ohio Disease Reporting System. Number of deaths associated with influenza and pneumonia are gathered from the Summit County Office of Vital Records death listings. Emergency room visits for complaints related to influenza are obtained by syndromic surveillance system (Epicenter).*
Special thanks to all agencies who report Influenza related data weekly.

Reporting from participants may not be complete each week. Numbers may change as updated reports are received. For questions, please contact Joan Hall or Tracy Rodriguez at the Summit County Public Health Communicable Disease Unit (330-375-2662 or cdu@schd.org). Report was issued on December 28, 2018.