

2021-2022 Influenza Surveillance Seasonal Summary Report

Division of Epidemiology & Public Health Preparedness (EHPH) 775-328-2447

Influenza Surveillance Coordinators:

Christabell Sotelo, MPH, Epidemiologist csotelo@washoecounty.gov

Danika Williams, MPH, Epidemiologist dmwilliams@washoecounty.gov

Weekly Summary*

- Influenza-like-illness (ILI) activity: 3.4%
- Hospitalizations: 30.7 per 100,000 population
- Deaths: 0 reported
- Pneumonia, Influenza, and COVID-19 (PIC) Mortality: 6.0%
- Syndromic surveillance: An unusual number of ILI visits to UCs and EDs was observed on May 15th, 16th, 18th, and 19th
- Respiratory Syncytial Virus: 9 cases

*For definition and specifics on metrics summarized, please refer to corresponding sections.

Key message(s)

- This report also serves as the end of season summary report and includes additional text summarizing the seasonal trends.
- Due to uncharacteristic increase in reported influenza towards the final weeks of the season, the Influenza Surveillance Program will continue to send a modified off-season report on a monthly basis until the 2022-2023 season officially begins.
- High level of influenza activity continued during week 20.
- Week 20 had the highest ILI proportion recorded for the 2021-2022 season.
- The influenza hospitalization rate increased for week 20.
- Case definition change for ILI – see Surveillance Changes at the end of report.
- Routine annual influenza vaccination is recommended for ALL persons aged 6 months or older, as long as there are no contraindications.

2021-2022 Influenza Surveillance Season Summary

ILI activity in the United States peaked in week 52 (4.8%), while ILI activity in Washoe County peaked during week 20 (3.4%). As of MMWR week 6, ILI activity increased nationally, statewide, and locally through MMWR week 20 [Figure 1]. The 0-4 year old age group represented the highest proportion of patients presenting with ILI in Washoe County throughout the 2021-2022 influenza season [Figure 3].

The increase in ILI activity starting in MMWR week 6 through the end of the season is uncharacteristic of ILI trends in pre-pandemic influenza seasons, however due to a definition change in ILI, comparison between this season and previous seasons is not recommended.

In Washoe County, the Nevada State Public Health laboratory (NSPHL) performs influenza subtyping of specimens submitted for surveillance purposes. Specimens are primarily submitted by sentinel provider sites, however all typed specimens regardless of submitting site are included in this report. There were 155 total specimens sent to NSPHL for subtyping during the 2021-2022 season. Among the 155 typed specimens, 99% (n = 154) were subtyped as Influenza A H3N2, while 1% (n = 1) tested negative for influenza [Table 1, Figure 5].

There were 146 influenza related hospitalizations reported during the 2021-2022 influenza season in Washoe County [Table 2]. Among hospitalized cases, 93.8% were identified as influenza type A and 6.2% were identified as influenza type B. Only 35.6% of hospitalized cases were vaccinated with a seasonal flu vaccine [Table 2].

By the end of the 2021-2022 influenza season in Washoe County there were a total of 644 pneumonia, influenza, and COVID-19 (PIC) deaths reported, representing 14.8% of all deaths occurring during this time period. PIC deaths peaked in week 3, representing 22.7% of total reported deaths for that week. Of note, 77.7% of the total PIC deaths reported listed COVID-19 as a contributing factor. There were two influenza related death reported this season.

The total number of respiratory syncytial virus (RSV) cases reported during the 2021-2022 influenza season was 1,043 [Figure 9].

Discussion

The 2021-2022 influenza season again illustrated uncharacteristic trends relative to seasons prior to the COVID-19 pandemic. There have been noted unusual trends for other viral respiratory pathogens including an off-season increase in RSV cases summer of 2021, and lower than usual occurrence of parainfluenza, seasonal coronavirus, adenovirus, and human metapneumovirus among others.^{1,2} There are several factors which are likely driving these atypical patterns, including the use of non-pharmaceutical interventions, lowered population immunity due to the extremely low ILI activities during the 2020-2021 season, and viral interference, however continued surveillance and additional studies are necessary to better understand the relationships between SARS-CoV-2 and other human viral respiratory pathogens at the population level.

Given the unusual increase in influenza activity at the end of the traditional influenza season, some jurisdictions nationwide will be extending the ILI surveillance reports into the summer months. Washoe County Health District's ILI Surveillance Program will be producing a modified ILI surveillance report once a month during the off-season, until the 2022-2023 weekly reporting begins.

¹ Hu, W. et al. (2022). Circulating trends of Influenza and other seasonal respiratory viruses among the US Department of Defense Personnel in the United States: Impact of the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 19, 5942. <https://doi.org/10.3390/ijerph19105942>

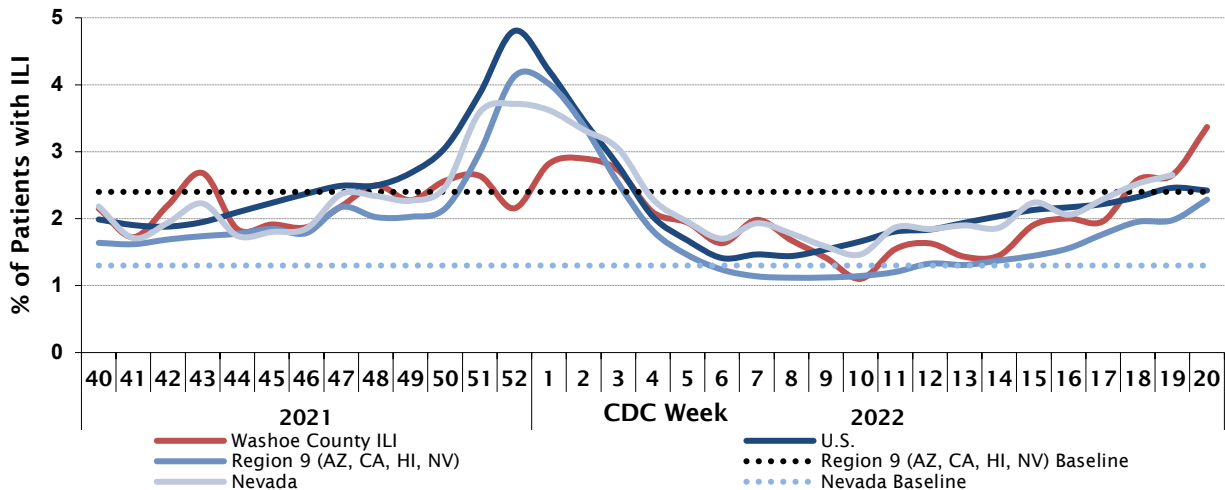
² Olsen SJ, Winn AK, Budd AP, et al. Changes in Influenza and Other Respiratory Virus Activity During the COVID-19 Pandemic — United States, 2020–2021. *MMWR Morb Mortal Wkly Rep* 2021;70:1013–1019. <http://dx.doi.org/10.15585/mmwr.mm7029a1>

Influenza-like-Illness

Influenza-like-illness (ILI) is defined as fever ($\geq 100^{\circ}\text{F}$ [37.8°C]) and cough and/or sore throat. ILI data is submitted weekly by inpatient and outpatient health services who have completed the onboarding process to be a sentinel surveillance provider.

- Out of 11 sentinel providers, 11 reported ILI activity.

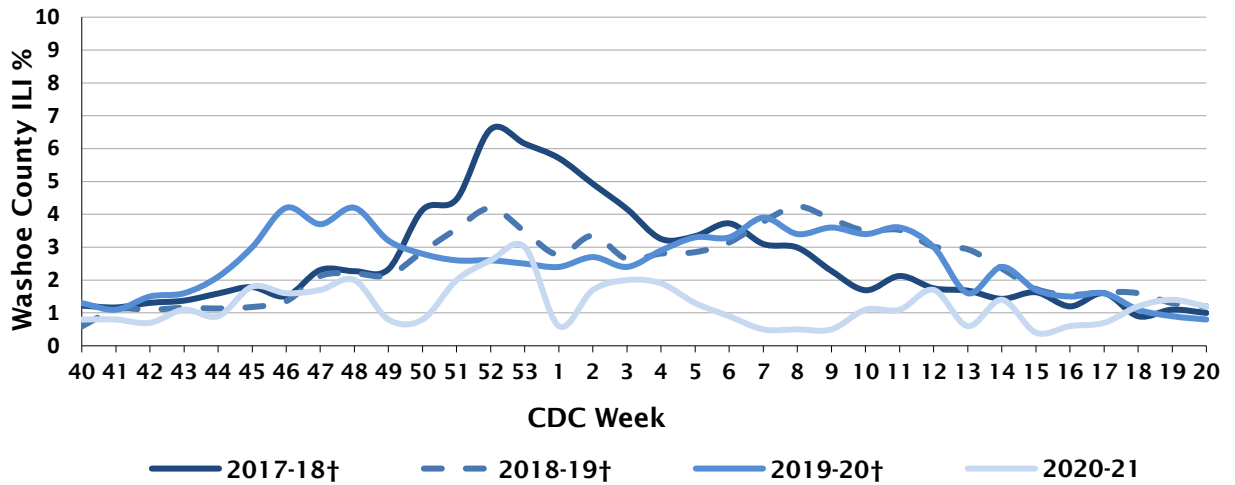
Figure 1. Comparison of ILI Activity at the Local, State, Regional, and National Level, Washoe County, 2021-2022



Data source for U.S., Region 9, and Nevada ILI activity and baselines: CDC Flu View Interactive, <https://www.cdc.gov/flu/weekly/fluviewinteractive.htm>. Current week reported data are unavailable for U.S., Nevada, and Region at time of report.

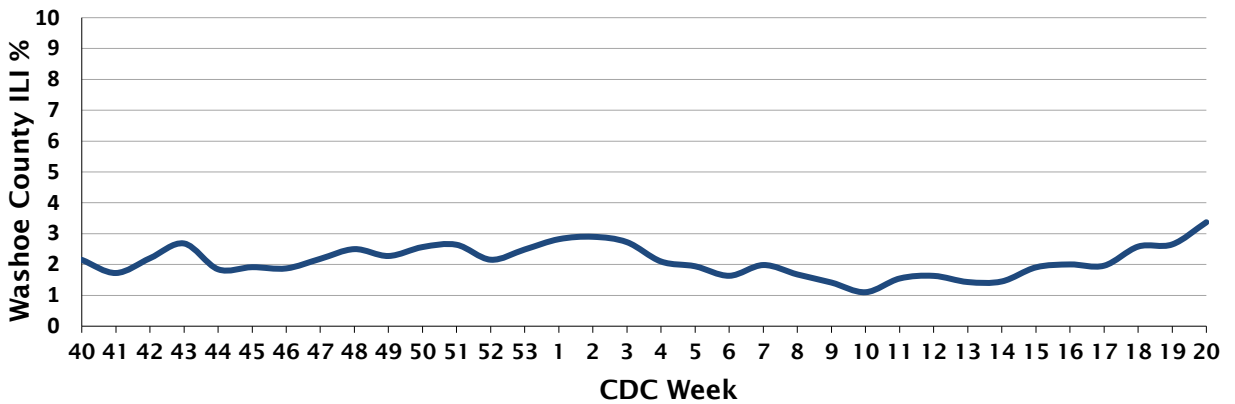
- U.S. percentage of patients presenting with ILI was 2.4%.
- Region 9 percentage of patients presenting with ILI was 2.3%, which is BELOW the regional baseline of 2.4%.
- Nevada percentage of patients presenting with ILI was 2.9%, which is ABOVE the state baseline of 1.3%.
- Washoe County percentage of patients presenting with ILI reported by sentinel providers was 3.4%.

Figure 2. ILI Activity Reported by Sentinel Providers Under Previous Case Definition, Washoe County, 2017-2021 Seasons†



† Does not have a week 53, so the week 53 value is an average of week 52 and week 1.

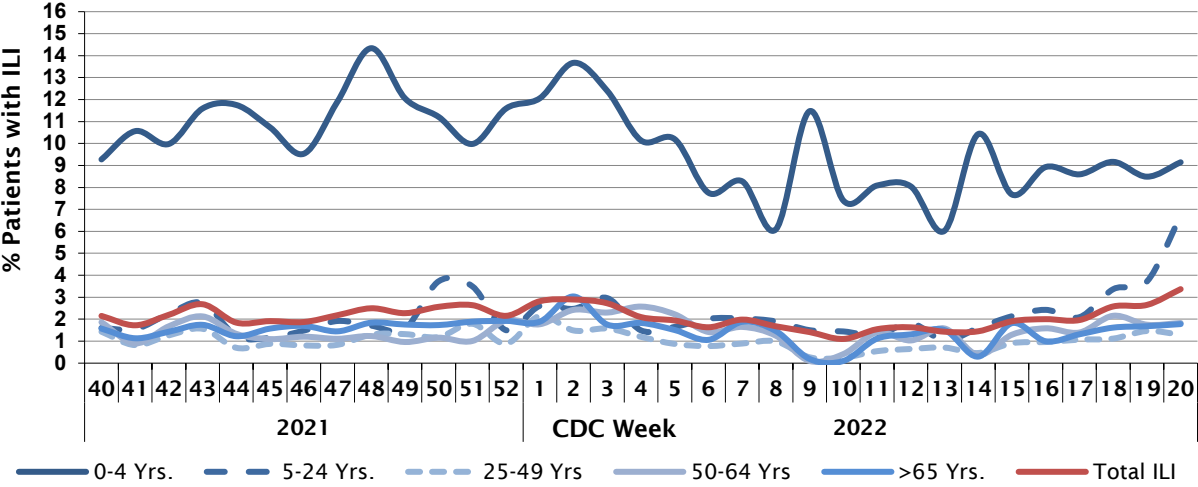
Figure 3. ILI Activity Reported by Sentinel Providers, Washoe County, 2021-2022 Season†



† Does not have a week 53, so the week 53 value is an average of week 52 and week 1.

- ILI activity level for week 20 was 3.4%.

Figure 4. ILI Activity Reported by Sentinel Providers by Age Group, Washoe County, 2021-2022



- The highest proportion of patients presenting with ILI was among the 0–4-year age group (9.1%).
- The lowest proportion of patients presenting with ILI was among the 25–49-year age group (1.3%).

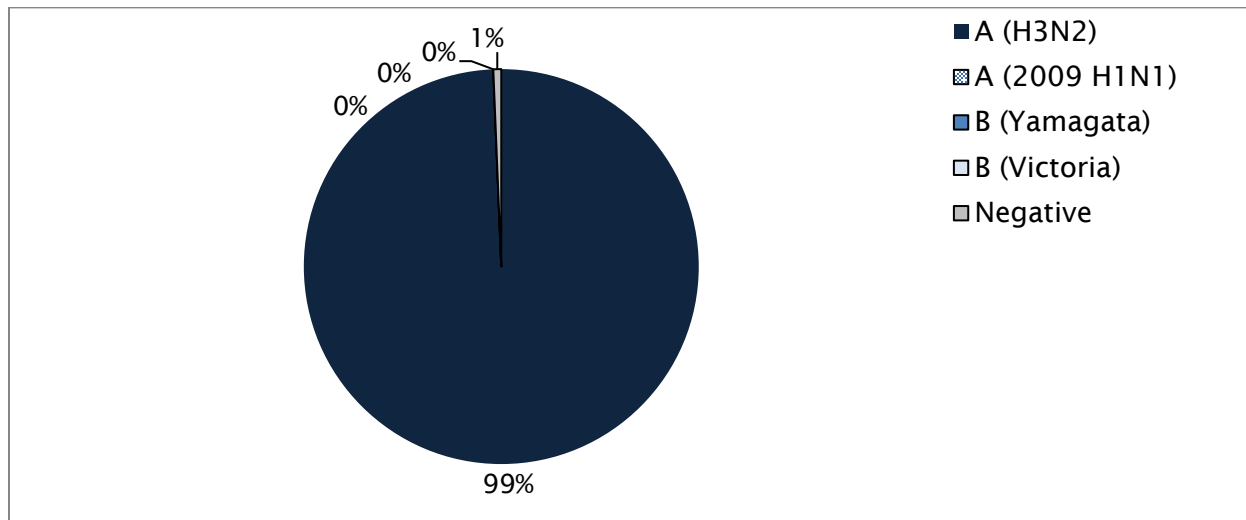
Nevada State Public Health Laboratory (NSPHL) Test Results

The NSPHL performs influenza subtyping of specimens submitted for surveillance purposes. Specimens are primarily submitted to the NSPHL by sentinel provider sites, however all typed specimens are included even those not submitted by sentinel providers.

Table 1. Specimens Submitted to NSPHL for Subtyping to Date, Washoe County, 2021-2022

Influenza Subtype	# of Specimens	% of Total Specimens
A (H3N2)	154	99%
A (2009 H1N1)	0	0%
B (Yamagata)	0	0%
B (Victoria)	0	0%
Negative	1	1%
Total (All Subtypes)	155	100%

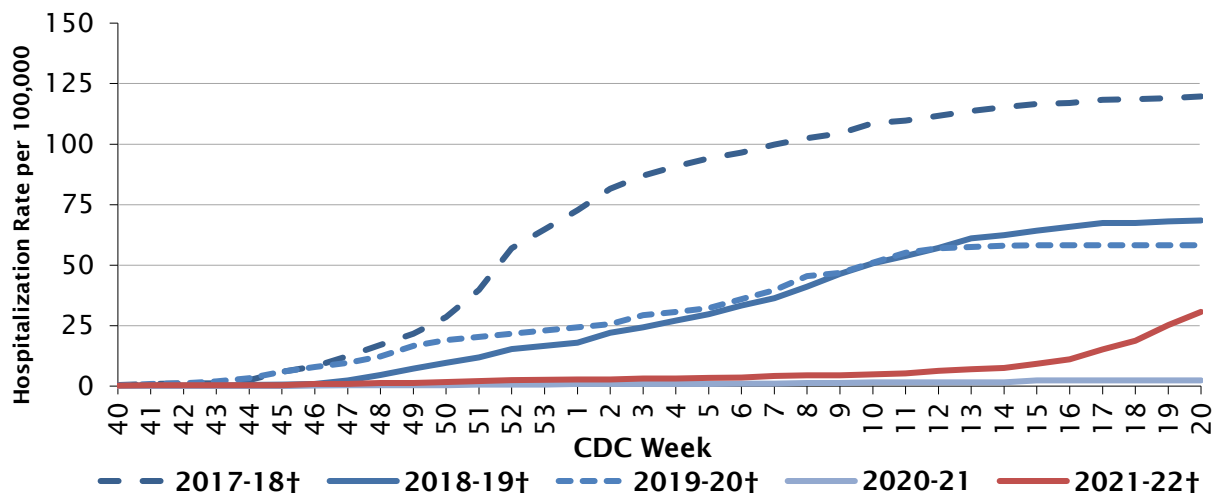
Figure 5. Percentage of Influenza Subtypes to Date, Washoe County, 2021-2022



Hospitalizations

Medical records are reviewed for cases hospitalized for greater than or equal to 24 hours. Information on the number of hospitalized cases, the number of hospitalized cases vaccinated at least 2 weeks prior to symptom onset, number of intensive care unit (ICU) admissions, and number of deaths among hospitalized cases are reported in Table 2. The seasonal cumulative hospitalization rate per 100,000 population is presented in Figure 6.

Figure 6. Influenza Hospitalization Rate per 100,000 Population, Washoe County, 2021-2022



† Does not have a week 53, so the week 53 value is an average of week 52 and week 1.

Figure 7. Influenza Positive Tests Among Hospitalized Cases by Week Reported, Washoe County, 2021-2022

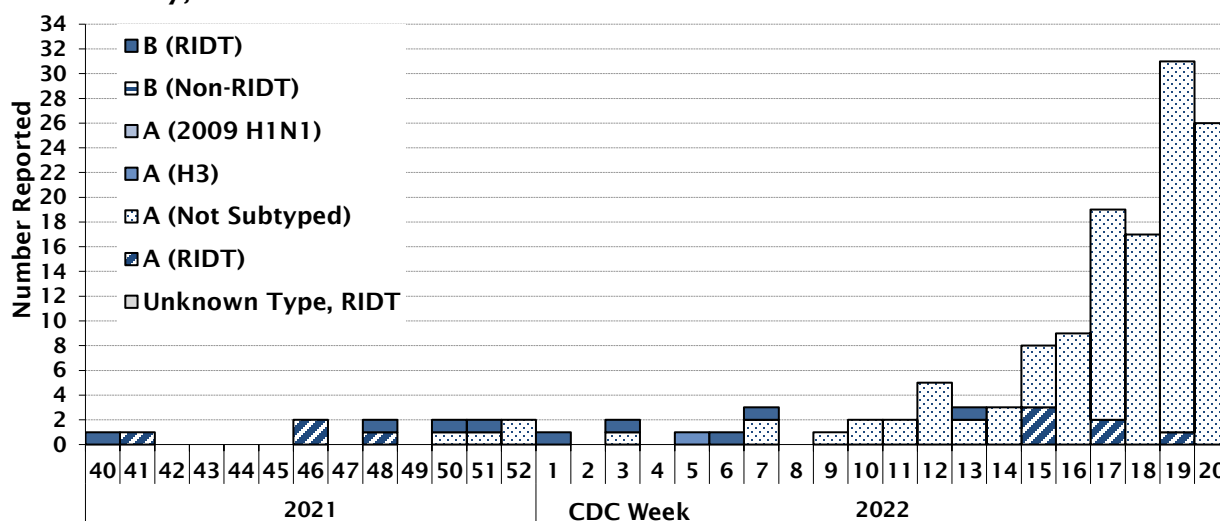


Table 2. Number of Hospitalized Cases with Lab-Confirmed Influenza by Vaccination, ICU, and Death Status, Washoe County, 2021-2022

	Current Week (Week 20) May 15, 2022 - May 21, 2022								Cumulative for 2021-2022 Influenza Season October 3, 2021 - May 21, 2022							
	Hospitalized		Vax [§]		ICU		Death		Hospitalized		Vax [§]		ICU		Death	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total # of cases reported	26	N/A	9	34.6	4	15.4	0	0.0	146	N/A	52	35.6	26	17.8	2	1.4
Influenza A (2009 H1N1)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Influenza A (seasonal H3)	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0
Influenza A (not subtyped)	26	100.0	9	100.0	4	100.0	0	0.0	126	86.3	41	78.8	21	80.8	1	50.0
Influenza A (RIDT*)	0	0.0	0	0.0	0	0.0	0	0.0	10	6.8	5	9.6	1	3.8	1	50.0
Influenza B (RIDT*)	0	0.0	0	0.0	0	0.0	0	0.0	9	6.2	6	11.5	4	15.4	0	0.0
Influenza B (non-RIDT**)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Influenza (unknown type, RIDT*)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

*RIDT: *Rapid Influenza Diagnostic Test

**Confirmatory tests other than RIDT may include culture, PCR, immunofluorescence, DFA/IFRA antibody staining, or rapid molecular assay.

§Vaccination status determined among hospitalized cases only. Patient is considered vaccinated if they received a flu vaccine ≥ 2 weeks prior to illness onset.

Deaths

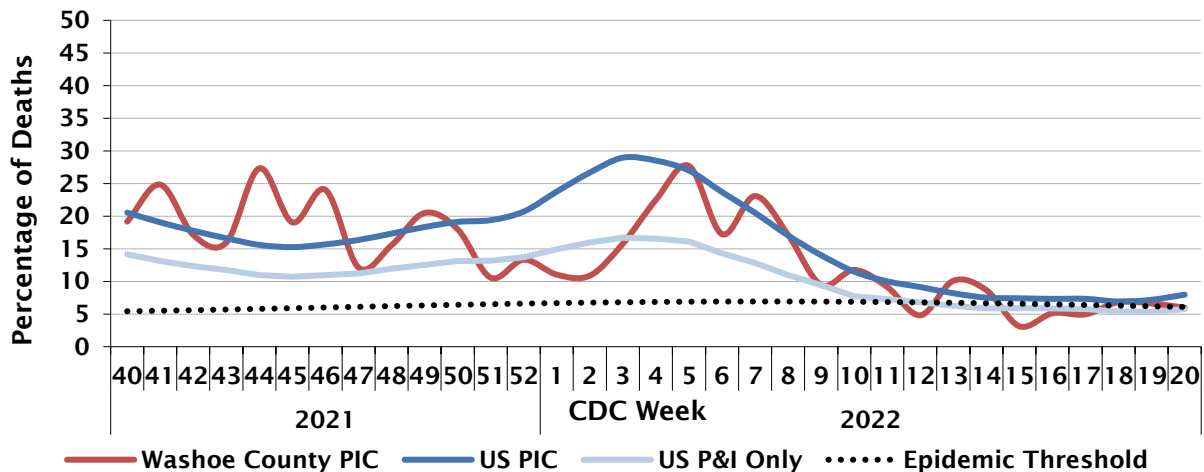
For surveillance purposes, an influenza-associated death is defined as a death resulting from a clinically compatible illness that was confirmed to be influenza by an appropriate laboratory or rapid diagnostic test with no period of complete recovery between the illness and death. Note, as of the 2018-19 season, only pediatric deaths are considered reportable.

- To date, 2 influenza-associated deaths have been reported.

Pneumonia, Influenza, and COVID-19 Mortality

Data from the National Center for Health Statistics Mortality Surveillance are used to determine the percentage of deaths that occurred each week due to pneumonia, influenza, and/or COVID-19 (PIC). Washoe County vital statistic records are reviewed to calculate the percentage of deaths attributed to PIC. Records are pulled based on the CDC week deaths are registered and not date of death.

Figure 8. Pneumonia, Influenza, and COVID-19 Mortality, Washoe County and the United States, 2021-2022



Data sources: National Center for Health Statistics (NCHS) Mortality Surveillance available at <https://www.cdc.gov/flu/weekly/#S2> and Nevada Vital Records. National data for current report week is unavailable.

Nationally, for the current reporting week:

- The percentage of deaths due to PIC was 8.0%, which is ABOVE the epidemic threshold of 6.1%.
- The percentage of deaths due to pneumonia and influenza (P&I) was 5.7%.

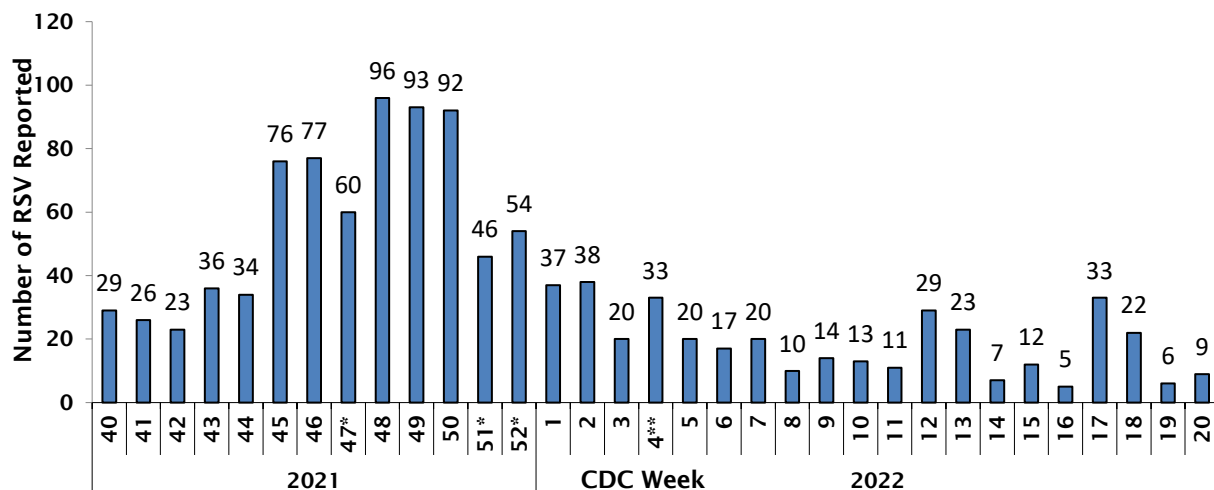
In Washoe County, for the current reporting week:

- 117 total deaths were registered (includes all deaths).
- Among these, 7 PIC death certificates were registered.
- The percentage of deaths due to PIC was 6.0% (7/117).
- Among the 7 PIC deaths reported, 3 (42.9%) had COVID-19 as a contributing cause of death. The majority of PIC deaths recorded for this week were NOT due to COVID-19.

Respiratory Syncytial Virus

Respiratory Syncytial Virus (RSV) is a common respiratory virus that can present with flu-like signs and symptoms (e.g., fever, coughing, runny nose). RSV, while usually presented with mild symptoms, can be serious, especially for infants and older adults. It is the most common cause of bronchiolitis and pneumonia in children younger than 1 year of age. RSV is a reportable condition in Nevada.

Figure 9. Number of RSV Cases Reported by Week, Washoe County, 2021-2022



*Numbers may have been affected by holidays and school breaks as people may not have sought medical care, and schools/childcare facilities may have closed during this time.

**During CDC week 4, WCHD received 159 positive RSV labs with specimen collection dates between 11/07/2021-01/03/2022. A proxy report date (+2 days to specimen collection date) was used to represent these labs closer to a date of diagnoses and prevent the misrepresentation of a surge in RSV cases on the date the backlog of labs were reported.

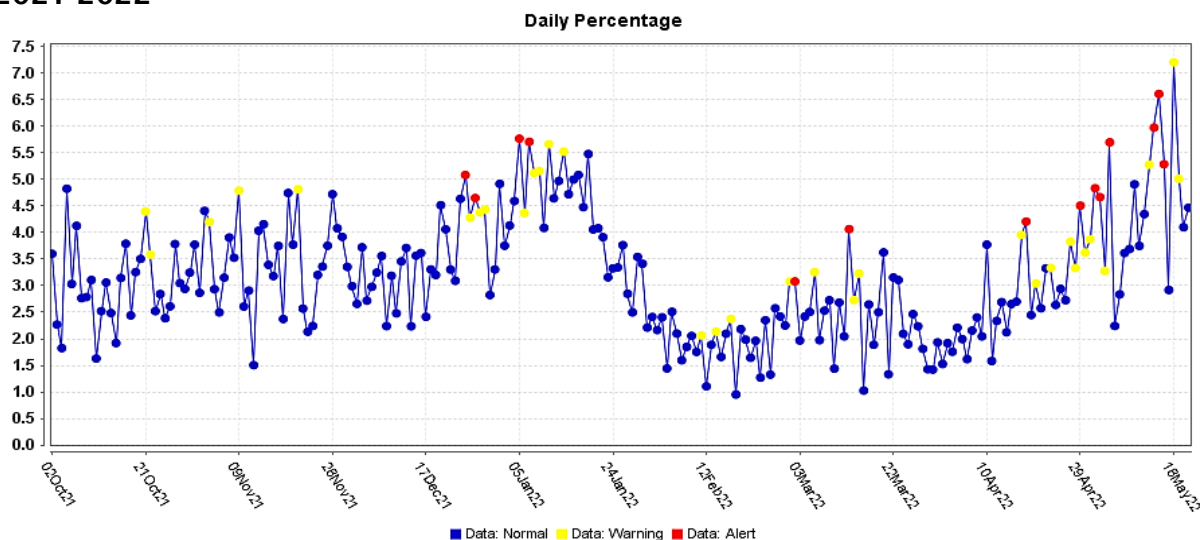
- 9 cases were reported for the current week

Syndromic Surveillance

Emergency Department (ED) Visits and Urgent Care (UC) Visits

Percentage of patients seen for ILI in ED and UC is presented in Figure 10. ILI is defined as influenza or fever and a cough and/or a sore throat. The overlay below depicts ILI syndrome in blue. Alerts appear as yellow and/or red dots, they indicate an unusually high percentage of ILI visits according to ESSENCE algorithms.

Figure 10. Percentage of ED and UC* Visits for ILI for Weeks 40-20, Washoe County, 2021-2022

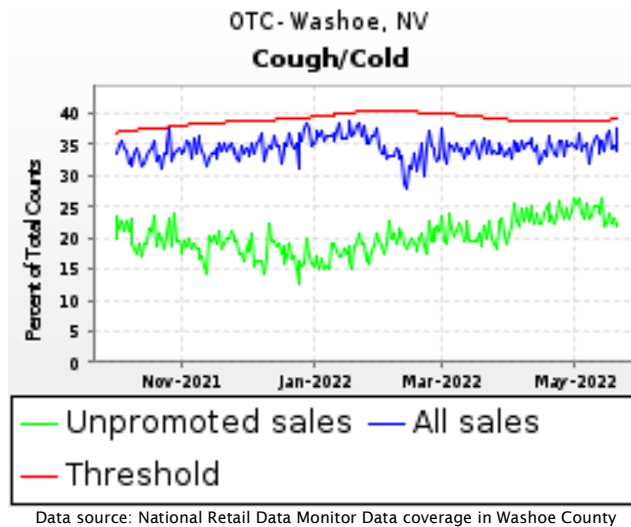


Data source: ESSENCE

*31 Urgent Cares reporting to ESSENCE.

Over the Counter (OTC) Sales for Cough and/or Cold Remedies

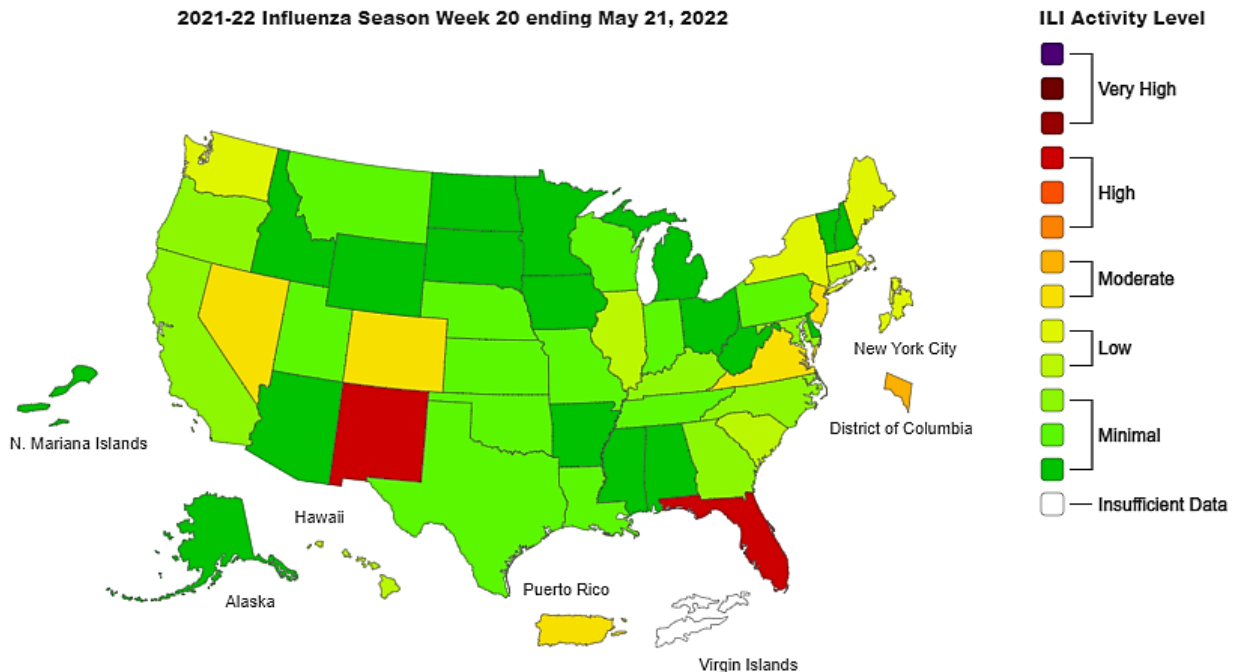
Figure 11. OTC Sales for Cough and/or Cold Remedies for Weeks 40-20, Washoe County, 2021-2022



ILI Activity Level

It is important to note the map uses the proportion of outpatient visits to healthcare providers to measure the ILI activity level within a state. It does not measure the extent of geographic spread of influenza within a state.

Figure 12. Geographic Spread of ILI Activity Level for Week 20, United States, 2021-2022



Data Source <https://www.cdc.gov/flu/weekly/index.htm#ILIActivityMap>

Surveillance Changes

2021-2022 Season

- The CDC revised the influenza like illness case definition from “fever ($\geq 100^{\circ}\text{F}$ [37.8°C]) and cough and/or sore throat in the absence of a known cause other than influenza” to “fever ($\geq 100^{\circ}\text{F}$ [37.8°C]) and cough and/or sore throat.” This change was made to capture additional respiratory illnesses and reduce the burden of reporting to multiple respiratory syndromic surveillance systems.
- Figure 3 was created to account for current and future seasons under the new ILI case definition. Figure 2 remains as a comparison for previous past seasons under the previous ILI case definition.
- The geographic spread of influenza is no longer published by CDC as of the 2019-20 season. WCHD will provide the geographic spread of ILI activity.
- All COVID-19 indicators, except PIC, were removed from this report as there will be an independent COVID-19 report.
- NSPHL performs a multiplex test on specimens submitted for COVID-19 and influenza testing. This multiplex test includes SARS-CoV-2, influenza A, and influenza B. Specimens which test positive for either influenza A or B are sequenced to identify the subtype. Although specimens for influenza testing are predominantly submitted by influenza sentinel surveillance providers, other medical facilities do submit specimens to NSPHL for SARS-CoV-2 and influenza testing and data are included for other sequenced positive influenza specimens even if not submitted by sentinel provider.