

Montana Influenza Summary

Cases reported as of Nov 26, 2022 – MMWR Week 47
Montana DPHHS, Communicable Disease Epidemiology



The Montana Department of Health and Human Services (DPHHS) provides a weekly report throughout the influenza season that compiles data from a variety of sources to give the most complete and up-to-date view of influenza activity in the state of Montana. All data are preliminary and may change as more complete information is received.

State Summary: Flu Activity is WIDESPREAD¹

- Influenza activity **increased** statewide from Nov 20th – Nov 26th, 2022, with 713 new cases, 31 hospitalizations, and 2 deaths reported.
 - Cases and hospitalizations have increased rapidly over the past few weeks, and both measures are higher than historically seen during this time of year. Weekly reported case counts for week 47 also exceeded the peak case count from the previous 2021-2022 influenza season.
 - Week 47 also marks the first reported influenza-associated deaths for the 2022-2023 season.
- Season to date, 1716 cases, 58 hospitalizations, and 2 deaths have been associated with influenza.
- Influenza A is currently the dominant influenza type circulating in Montana – seasonal subtypes H1N1 (n=45) and H3N2 (n=82) have both been detected.
- Influenza-like illness (ILI) in Montana **increased sharply** to 5.08% from 2.73% the week prior.
- During week 47, RSV percent positivity increased to 18.18%

Figure 1: Total Influenza Cases Reported by Week, Montana, 2022–2023 (n=1,716)

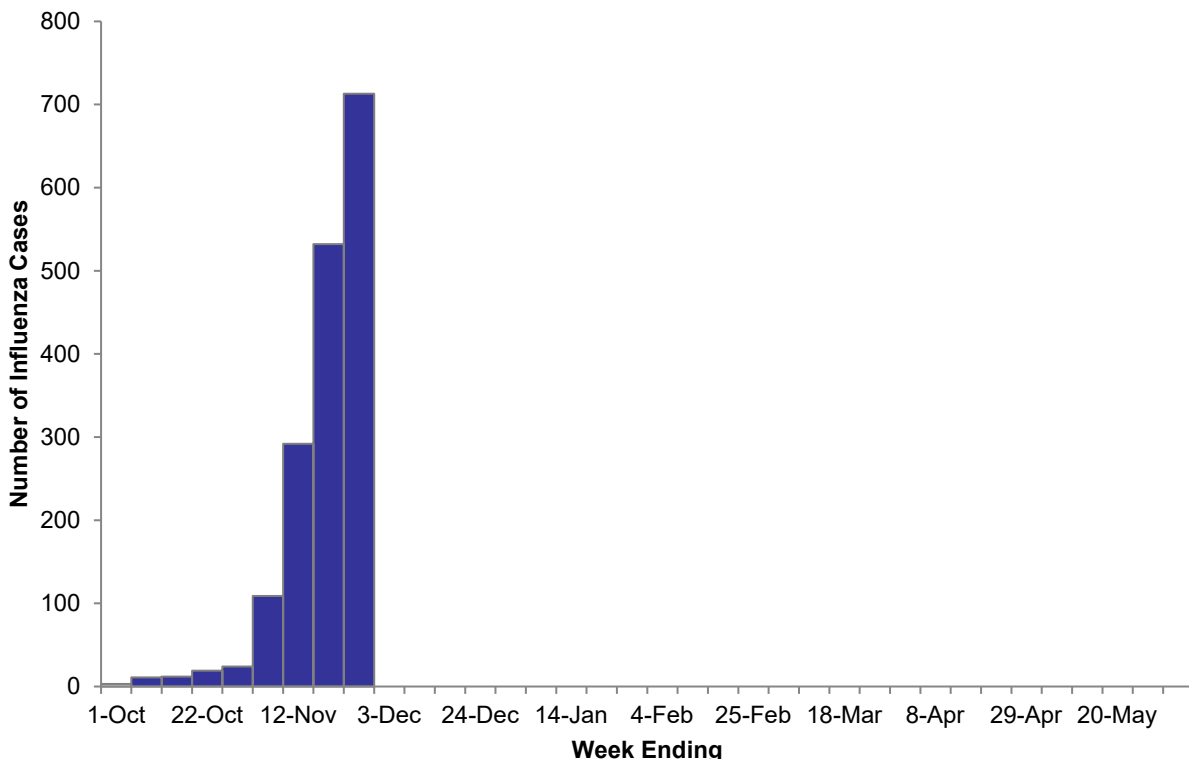


Figure 1: A bar chart displaying total influenza cases reported in Montana as of 11/26/2022, separated based on the week reported.

Figure 2: Influenza Cases Reported in Montana during MMWR Week 47, 2022–2023

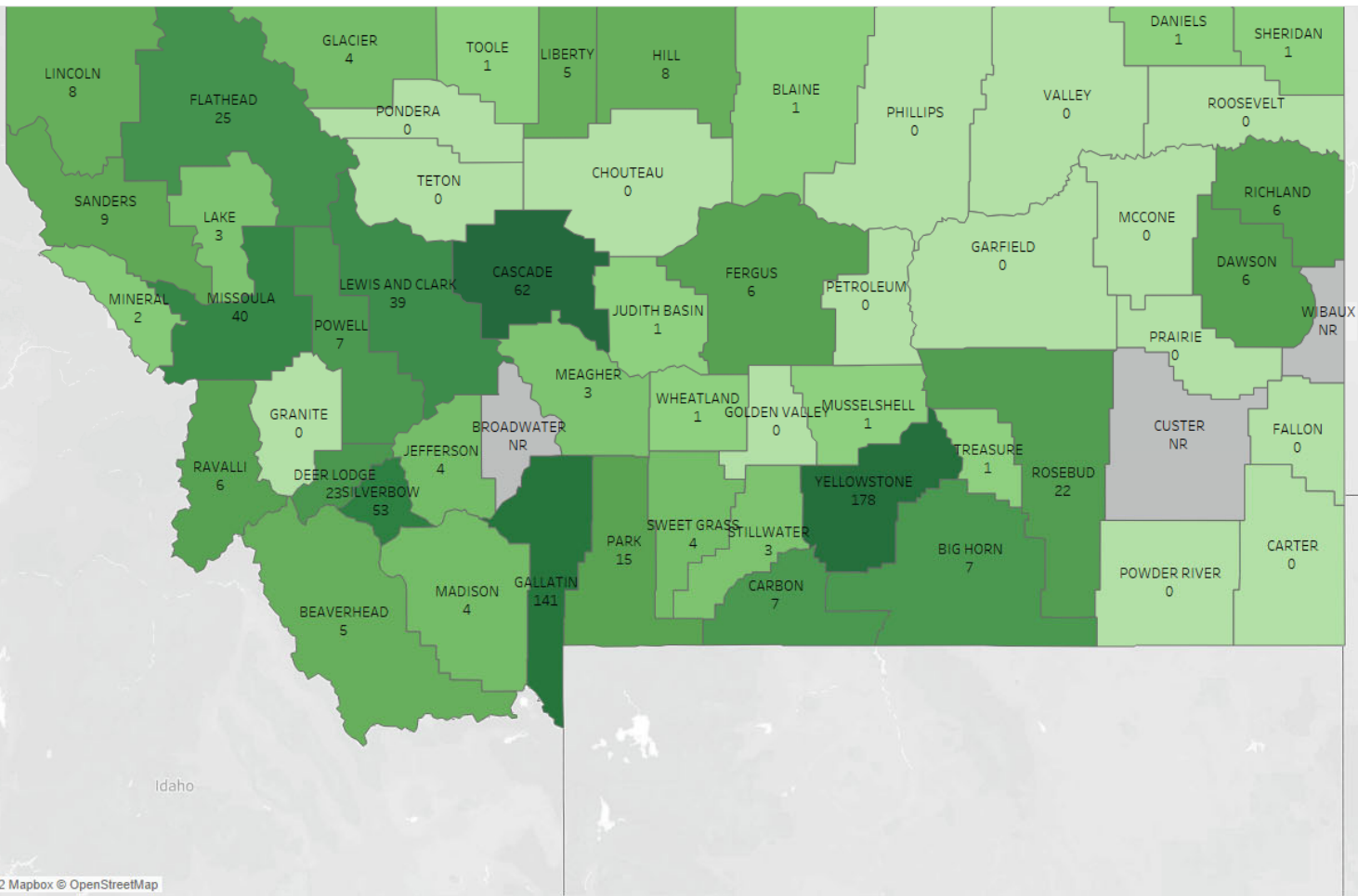


Figure 2: A map of newly reported influenza cases in Montana during MMWR Week 47 (week ending 11/26/22). Cases are reported by county of residence. Counties with no reported data are shaded grey. For mapping purposes, new influenza case counts from tribal jurisdictions have been included with the primary overlapping county: Crow is included with Big Horn, Blackfoot with Glacier, Rocky Boy with Hill, CSKT with Lake, Fort Peck with Roosevelt, Northern Cheyenne with Rosebud, and Fort Belknap with Blaine.

Figure 3: Total Influenza Cases Reported in Montana, 2022–2023

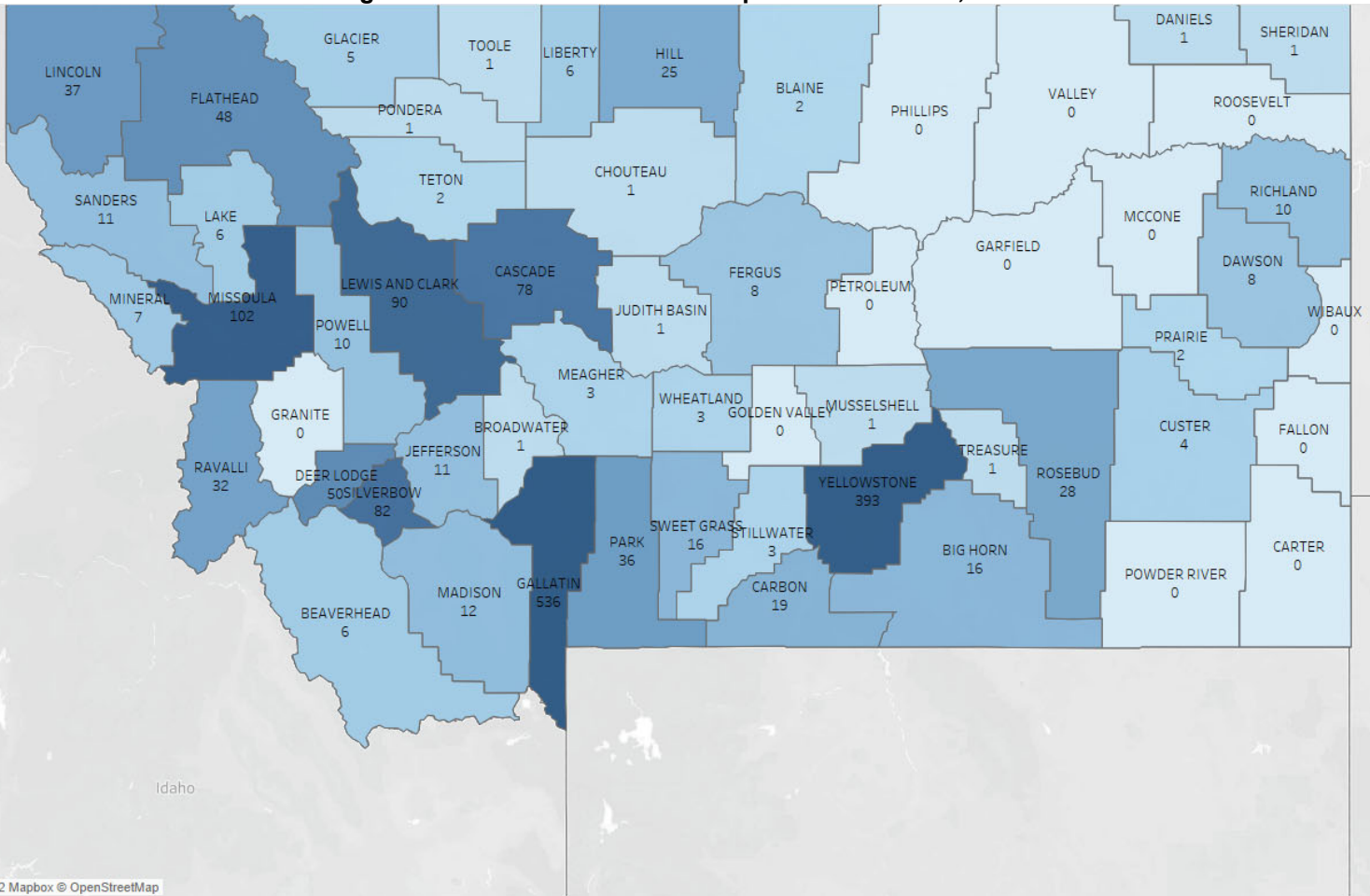


Figure 3: A map of total reported influenza cases in Montana for the entire 2022-2023 respiratory season, through 11/26/22. Cases are reported by county of residence. For mapping purposes, new influenza case counts from tribal jurisdictions have been included with the primary overlapping county: Crow is included with Big Horn, Blackfoot with Glacier, Rocky Boy with Hill, CSKT with Lake, Fort Peck with Roosevelt, Northern Cheyenne with Rosebud, and Fort Belknap with Blaine.

Historical Influenza Case Reports

In Montana, influenza cases are reported in aggregate on a weekly basis. For the purpose of weekly case reporting, all influenza cases must have laboratory confirmation of infection. Based on the current level of influenza circulation, both polymerase chain reaction (PCR) and antigen tests are counted in weekly case reports.

Healthcare visits for influenza-like illness and individuals with a physician diagnosed case of influenza, but no confirmatory testing, are included in ILINet surveillance as seen in *Figure 5*. Because many individuals with influenza-like illness don't seek testing and won't receive laboratory confirmation of diagnosis, influenza cases are underreported. As such, case counts as seen in *Figures 1 – 4* should be considered the “tip of the iceberg” in terms of true levels of influenza burden in the community.

Figure 4 shows an overlapping comparison of case counts from the last 4 influenza seasons in Montana. The figure shows how each influenza season is different and has a unique season progression, but on average cases start in October, peak around February, and started to abate by May.

During MMWR week 47, the number of reported influenza cases during a single week exceeded the peak number of influenza cases reported during a single week from the previous 2021-2022 season. The 2021-2022 season started late and was considered mild. In contrast, the current 2022-2023 season started early and cases have increased rapidly since that early start.

Figure 4: Comparison of Influenza Seasons, Montana 2018–2023

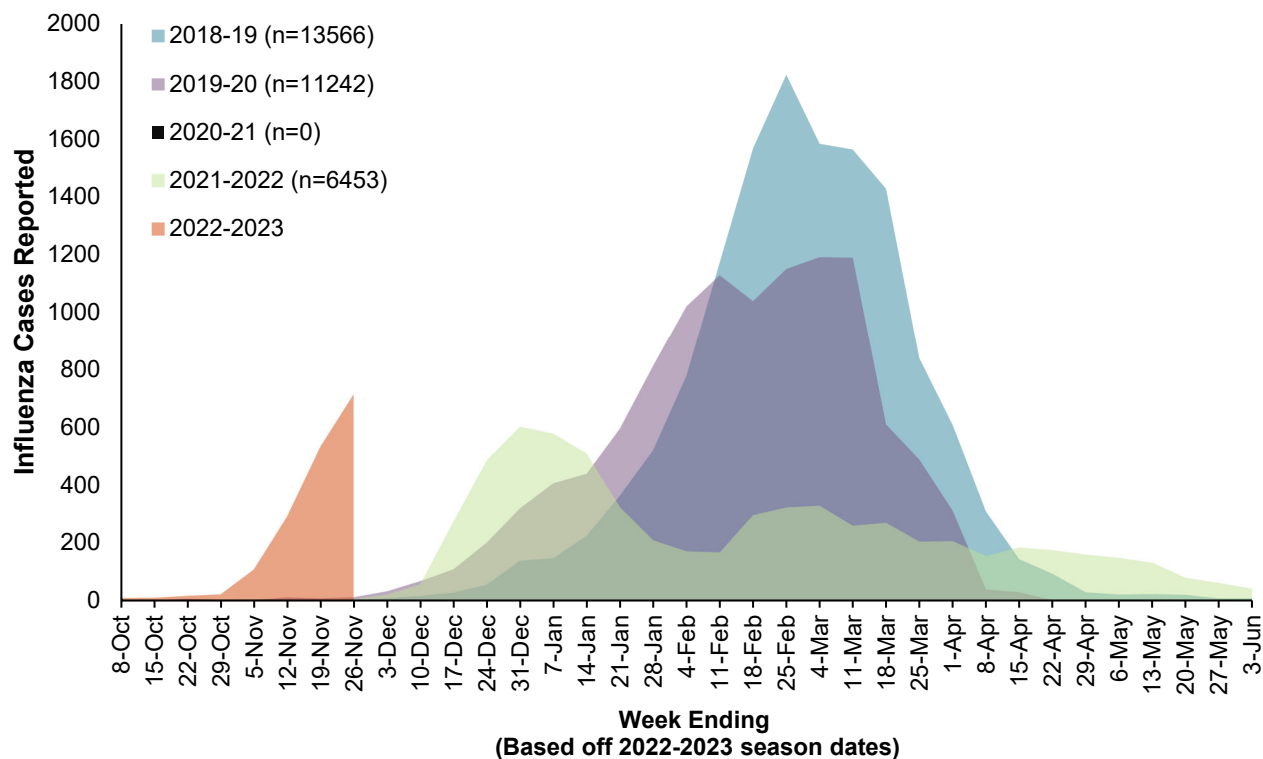


Figure 4: A filled area chart of influenza case counts for the previous 4 seasons, compared to the ongoing 2022-2023 season in orange. The 2022-2023 influenza case count curve starts very early compared to the historical comparison, and weekly aggregate cases started to exceed the peak number of cases reported for the previous 2021-2022 influenza season in green. While the 2020-2021 season is included in the comparison, no confirmed influenza cases were reported during that season. Week-ending dates will vary between different years, but dates for the current 2022-2023 season are used for comparison. Data are reported through 11/26/2022.

Laboratory Surveillance

The Montana Public Health Laboratory (MTPHL) and designated molecular surveillance partner facilities² report the number of specimens tested for influenza by polymerase chain reaction (PCR) assay, the number of positive influenza types (A or B), as well as the influenza A subtype (2009 H1N1 or H3). These data represent a subset of positive influenza PCR tests from around the state, as reported by participating facilities. Molecular surveillance results will not always be reflective of total tests reported in Montana each week.

Table 1 presents these data reported through week 47 in addition to testing performed prior to the official start of influenza season in October. In Montana, Influenza was first confirmed during week 38 (September 18 – 24, 2022). Based on surveillance reports, Influenza A(H3) and Influenza A(H1N1) are both currently circulating.

Table 1: Influenza Type/Subtyping Surveillance Reports, Montana, 2022–2023

	Week 47	Season Totals
Number of specimens tested	2,014	12,712
Number of positive specimens	440 (21.85%)	1,147 (9.02%)
Positive Specimens by Type/Subtype		
Influenza A	440 (100%)	1,138 (99.22%)
H1N1	3	45
H3	16	82
Subtyping not performed	421	1,011
Influenza B	2 (0%)	9 (0.07%)

Table 1: Influenza type and subtyping reports from the MTPHL and surveillance partners for the 2022-2023 influenza season, data reported through 11/26/2022.

Hospitalizations and Deaths

In Montana, influenza hospitalizations and deaths are reportable to local public health³. Since the week of September 25, 2022, 58 influenza-associated hospitalizations and 2 influenza-associated deaths have been reported to DPHHS. Over the past couple of weeks, influenza-associated infections have climbed to well above the seasonal average for this time of year, displayed by *Figure 6*. Adults over the age of 65 years are at higher risk for hospitalization, and currently make up the largest portion of hospitalized Montanans.

MMWR week 47 also marked the first reported influenza-associated deaths for the 2022-2023 influenza season. Both deaths occurred in unvaccinated individuals over the age of 65 years.

Flu hospitalizations are reported following laboratory confirmation of infection and when the case is hospitalized for complications related to their influenza illness. Flu deaths are deaths where influenza is listed as a factor contributing to death or indicated on a death record following a laboratory confirmed influenza infection.

Table 2: Influenza-associated Hospitalization and Death Reports in Montana, 2022–2023

Hospitalizations		Season Deaths		
Week 47	Season	Pediatric 0-17 years	Adult 18 - 65 years	Adult ≥ 65 years
31	58	0	0	2

Table 2: Influenza-associated hospitalizations and deaths, reported through 11/26/2022.

Figure 5: Influenza-like illness (ILI) Trends and Influenza Hospitalizations in Montana by Age Group, Montana, 2022–2023

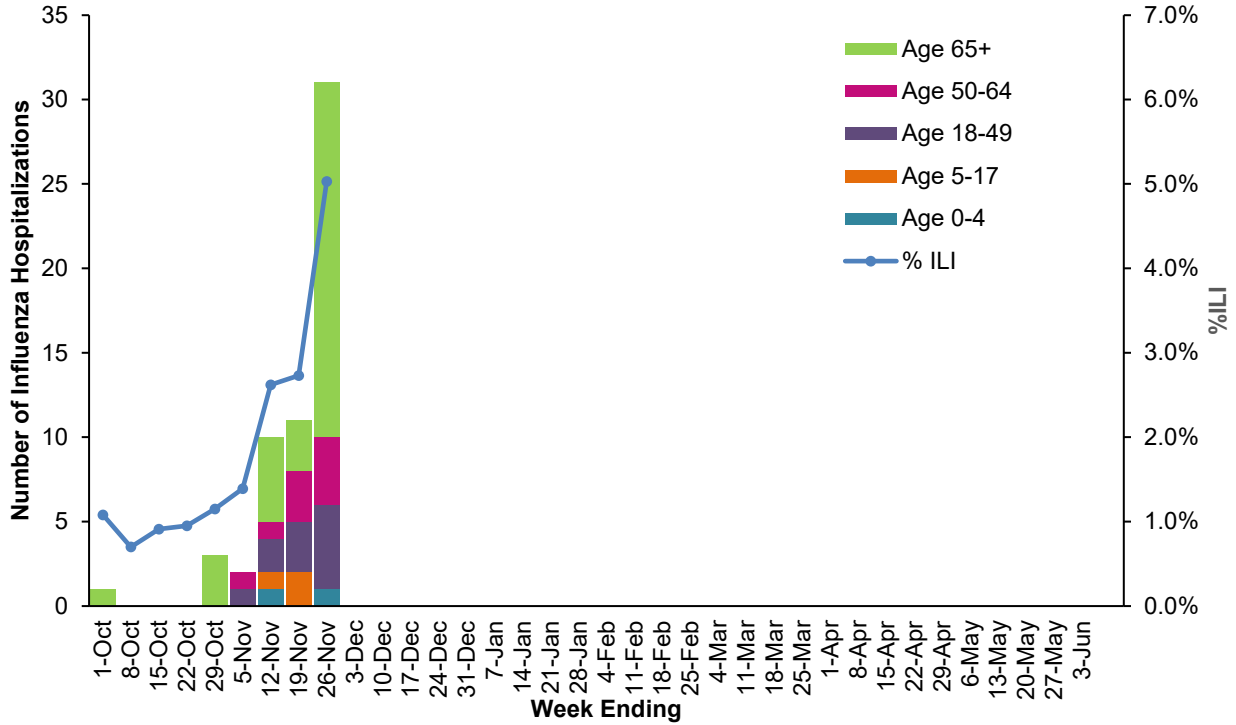


Figure 5: Influenza-associated hospitalizations reported through 11/26/2022, graphed by the week the hospitalization occurred and by age group. Influenza-like illnesses (ILI) are graphed on the secondary (y) axis and display the percentage of healthcare visits in the state due to ILI by week, as reported by participating facilities through ILINet reporting. ILINet data collection typically starts during MMWR Week 40 (October 2 – 8, 2022), but due to the early influenza activity reported this season, data collection began the week ending October 1, 2022 using ILI data in ESSENCE, a surveillance program utilizing data from emergency department visits.

Figure 6: Influenza Hospitalizations for 2022–2023 Season vs Previous Season Averages, Montana

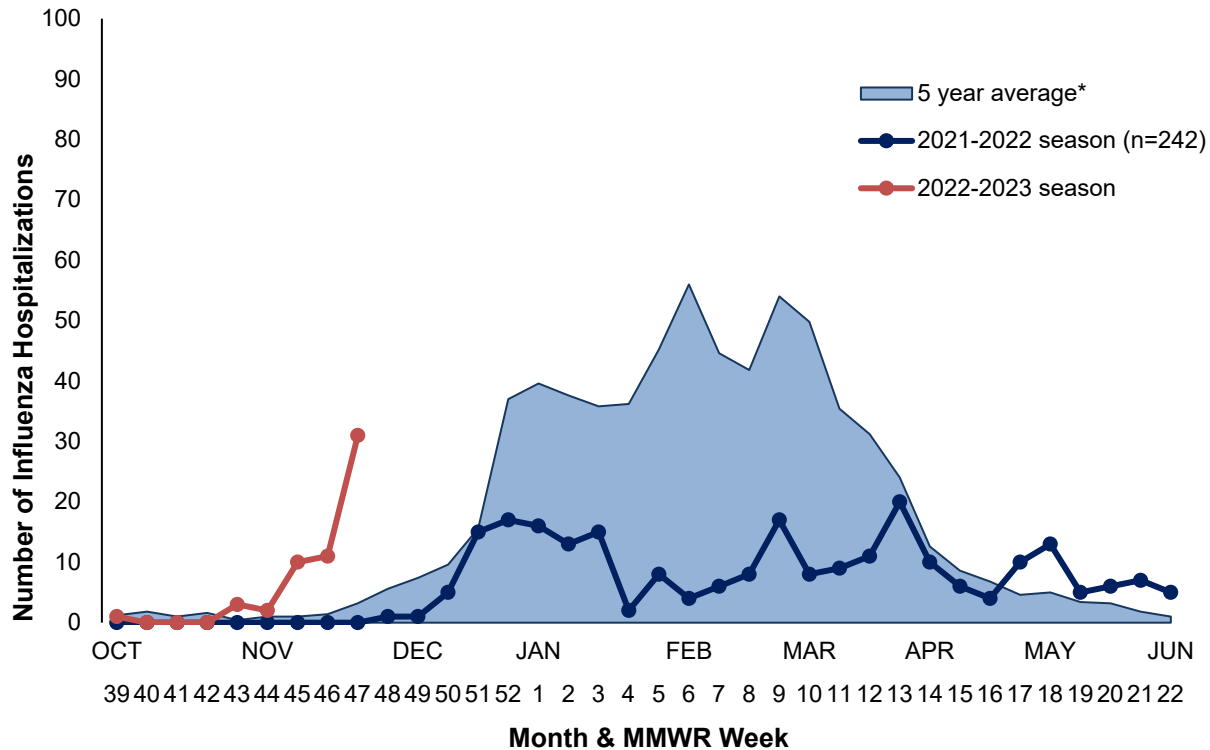


Figure 6: A comparison of the 5-year average of influenza hospitalizations by MMWR week, with the dark blue series representing hospitalizations in the 2021-2022 season (242 hospitalizations total). The orange line represents hospitalizations for the 2022-2023 season, reported through 11/26/2022. *Data from the 2020-2021 influenza season was not included in the 5-year average, since there were 0 confirmed influenza cases in Montana.

Influenza-like Illness Network (ILINet) and Syndromic Surveillance

The U.S. Outpatient ILI Surveillance Network (ILINet) is a national database that conducts surveillance for influenza-like illness (ILI) in outpatient healthcare facilities. ILI has a standardized definition including fever (100°F or higher), cough, and/or sore throat. This season, Montana has over 30 facilities participating in ILINet reporting through manual data entry or automatic syndromic surveillance data feeds. Information gathered from ILINet both nationally and from other states can be found on the [CDC's FluView Webpage](#). *Figure 5* (above) includes data reported through ILINet each week.

ESSENCE is the syndromic surveillance system in Montana which collects real-time emergency department (ED) data from facilities throughout Montana. *Figure 7* shows current and historical ESSENCE data, displaying the proportion of ED visits with a chief complaint of ILI each week.

The percentage of ILI-related ED visits in Montana markedly increased for Week 47, with ESSENCE measuring that 4.71% of outpatient visits in Montana were due to ILI. For the first time in the 2022-2023 flu season, this put Montana above the 2.8% baseline. The baseline represents the average ILI that is expected during seasonal influenza circulation in the state, and crossing the baseline is indicative of an above-average number of patients being seen for ILI in emergency departments.

Figure 6: Percentage of ED and Healthcare Visits for ILI, Montana

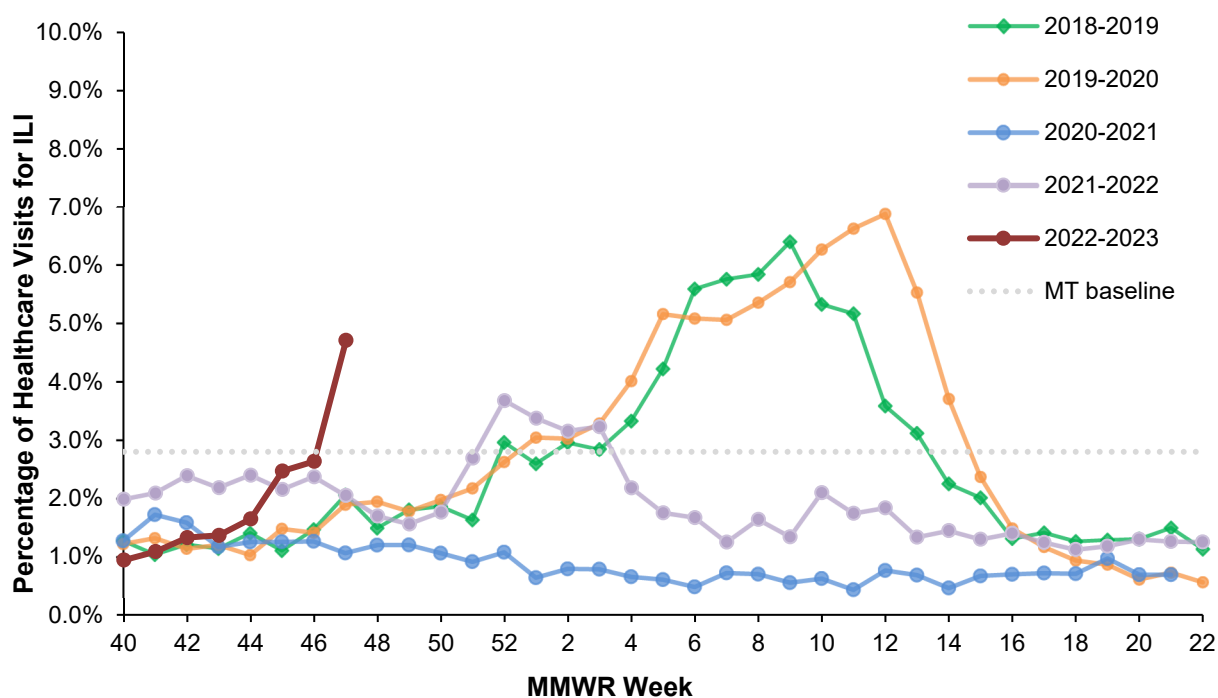


Figure 7: Data displays ILI surveillance reported through ESSENCE, showing the proportion of emergency department (ED) visits in Montana due to ILI through 11/26/2022. ESSENCE data are also displayed historically, back to the 2018-2019 season in green, with the current 2022-2023 season in dark red. The Montana ILI baseline of 2.8% is also shown in dotted grey.

Respiratory Syncytial Virus (RSV)

RSV is a respiratory virus with a seasonal circulation pattern that tends to closely mirror influenza. RSV remains one of the most common causes of childhood illnesses, and in children less than one year of age, it is the most common cause of bronchiolitis and pneumonia. RSV infections can also be severe in individuals over 65 years old, but symptoms for healthy adults are typically mild.

RSV is not a reportable condition in Montana. Surveillance for RSV in Montana is compiled from voluntary sentinel laboratories⁴, which report testing information weekly. *Figure 8* and *Figure 9* show the current results of RSV surveillance in the state for this season and historical circulation. Percent positivity for RSV is determined by the number of positive RSV tests resulting from the total number of RSV tests run.

2022-2023 is the first season with an updated RSV seasonal baseline: the 10% positivity rate threshold previously used to determine the onset of RSV season has been lowered to a 3% positivity threshold (over two consecutive weeks). This update reflects new CDC guidance based on the transition to PCR testing for RSV by Montana surveillance partners. The previous 10% baseline was developed based on data from antigen testing; the updated 3% threshold accounts for the increased sensitivity of PCR testing and has been found to better capture RSV seasonality, with a 3% positivity threshold marking a take-off point for RSV circulation (Midgley et al., 2017; Rose et al., 2018).

RSV season onset during MMWR week 42, Oct 16th – 22nd, 2022. During week 47, RSV percent positivity increased to 18.18%. Based on the molecular surveillance sites with high positivity rates, RSV circulation is increasing statewide.

Figure 8: RSV Percent Positivity and Number of Tests Run by Week, Montana, 2022–2023

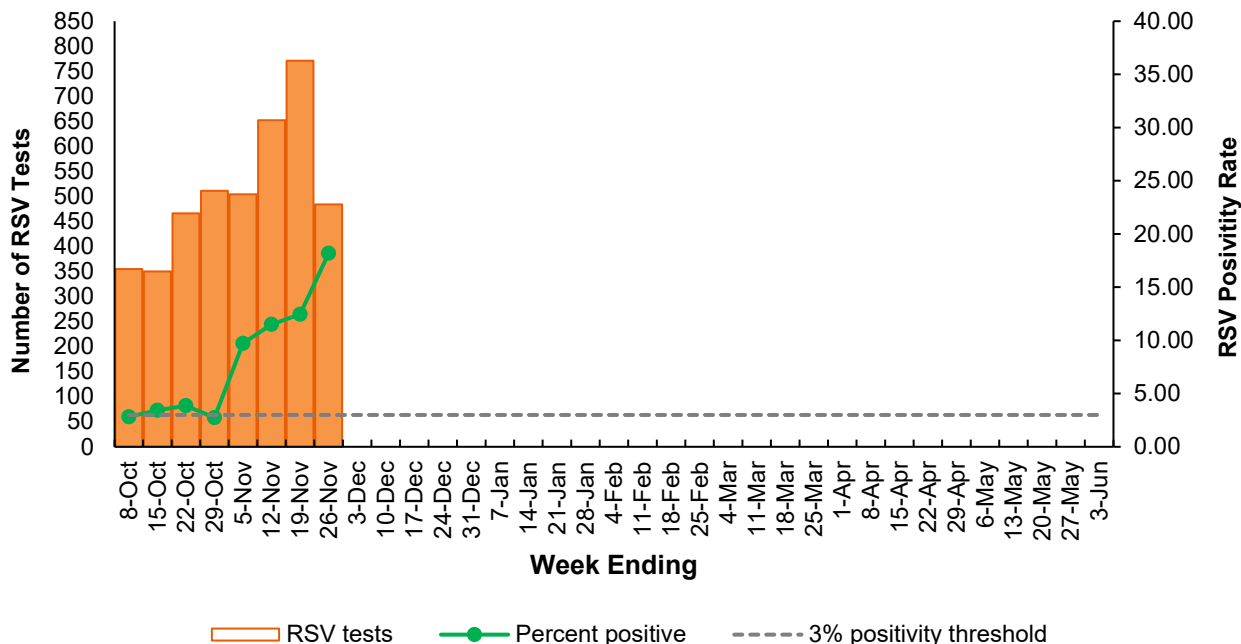


Figure 8: The number of RSV tests run (orange bars) compared to the percentage of the tests that were positive (green line), also known as the percent positivity or positivity rate, reported through 11/26/2022.

Figure 9: RSV Positivity Rates by Season, Montana

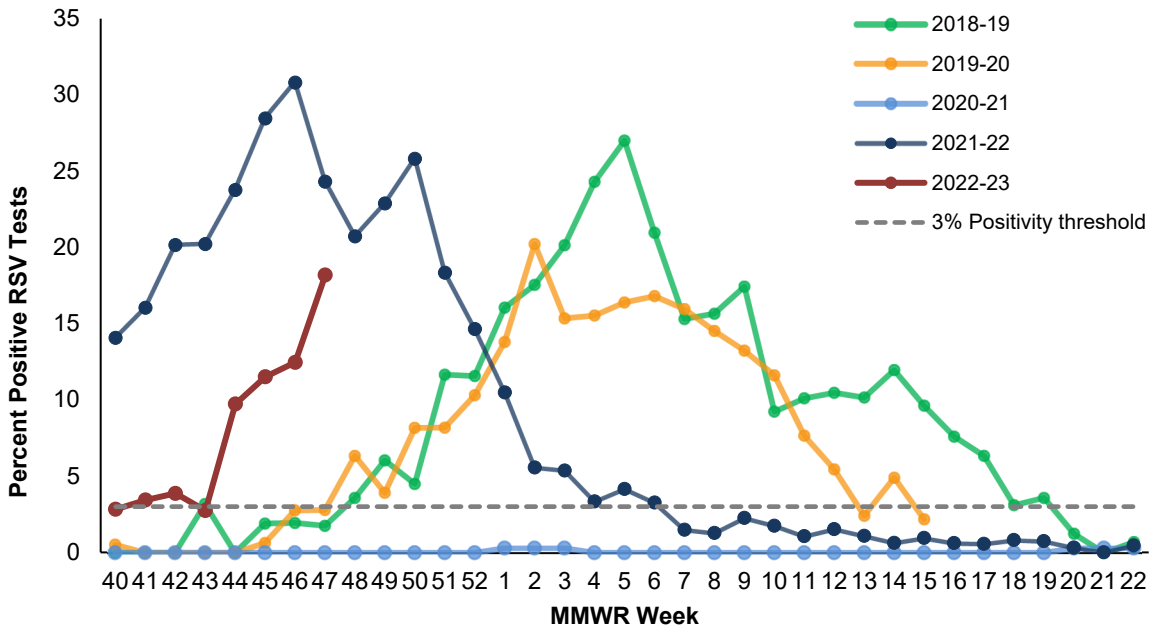


Figure 9: RSV positivity rate for the 2022-2023 season compared to previous RSV seasons. The 2022-2023 RSV season positivity rate is shown by the dark red line and represents data reported through 11/26/2022. This season, RSV appears to have begun circulating earlier than other seasons, but not as early as the 2021-2022 season.

Additional Resources

- Montana DPHHS Influenza Information: <http://dphhs.mt.gov/publichealth/cdepi/diseases/influenza>
- CDC Influenza Information: www.cdc.gov/flu
- National Influenza Surveillance Report (CDC Flu View): <https://www.cdc.gov/flu/weekly/>
- International Influenza Data (WHO): <http://www.who.int/influenza/en/>
- Influenza vaccine resources: visit <https://www.vaccines.gov/> to find a location near you

References

Claire M Midgley, Amber K Haynes, Jason L Baumgardner, Christina Chommanard, Sara W Demas, Mila M Prill, Glen R Abedi, Aaron T Curns, John T Watson, Susan I Gerber, Determining the Seasonality of Respiratory Syncytial Virus in the United States: The Impact of Increased Molecular Testing, *The Journal of Infectious Diseases*, Volume 216, Issue 3, 1 August 2017, Pages 345–355, <https://doi.org/10.1093/infdis/jix275>

Rose EB, Wheatley A, Langley G, Gerber S, Haynes A. Respiratory Syncytial Virus Seasonality — United States, 2014–2017. *MMWR Morb Mortal Wkly Rep* 2018; 67:71–76. <http://dx.doi.org/10.15585/mmwr.mm6702a4>

Notes

¹ Influenza Activity: State health departments may report geographic spread of influenza activity as no activity, sporadic, local, regional, or widespread. These levels are defined as follows:

- No Activity: No laboratory-confirmed cases of influenza and no reported increase in the number of cases of ILI.
- Sporadic: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.
- Local: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of the state.
- Regional: Outbreaks of influenza or increases in ILI and recent laboratory confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.
- Widespread: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

² Molecular influenza testing partner laboratories: Barrett Hospital and Healthcare, Big Sandy Medical Center, Bighorn County Hospital, Billings Clinic Hospital, Bozeman Deaconess Hospital, Cabinet Peaks Medical Center, Central Montana Medical Center, Community Medical Center, Deer Lodge Medical Center, Glacier Medical Associates, Grant Creek Family Practice, Great Falls Clinic, Holy Rosary Health Care, Liberty County Hospital, Livingston Healthcare, Logan Health, Madison Valley Hospital, North Valley Hospital, Phillips County Hospital, Pondera Medical Center, Rosebud Healthcare, Poplar Community Hospital, St. Joseph Hospital, St. Patrick's Hospital, St. Peter's Hospital, Sidney Health Center, Trinity Hospital, and VA Ft. Harrison.

³Per the Administrative Rules of Montana 37.114.203 and 37.114.316, influenza is a reportable condition for the following:

- Influenza hospitalizations and deaths
- Influenza outbreaks in congregate settings
- Other illnesses of public health significance (novel influenza A)

⁴RSV laboratory surveillance partners: Barrett Hospital and Healthcare, Big Sandy Medical Center, Bighorn County Hospital, Billings Clinic Hospital, Bozeman Deaconess Hospital, Cabinet Peaks Medical Center, Community Medical Center, Deer Lodge Medical Center, Great Falls Clinic, Holy Rosary Health Care, Liberty County Hospital, Livingston Health, Logan Health, Phillips County Hospital, Poplar Community Hospital, Madison Valley Medical Center, North Valley Hospital, St. Peter's Hospital, St. Vincent Hospital, Trinity Hospital, and VA Ft. Harrison.

For additional information on influenza activity in Montana, please contact your local health department or the Department of Public Health and Human Services' Communicable Disease Epidemiology Section at (406) 444-0273 or visit <https://dphhs.mt.gov/publichealth/cdepi/diseases/influenza>.