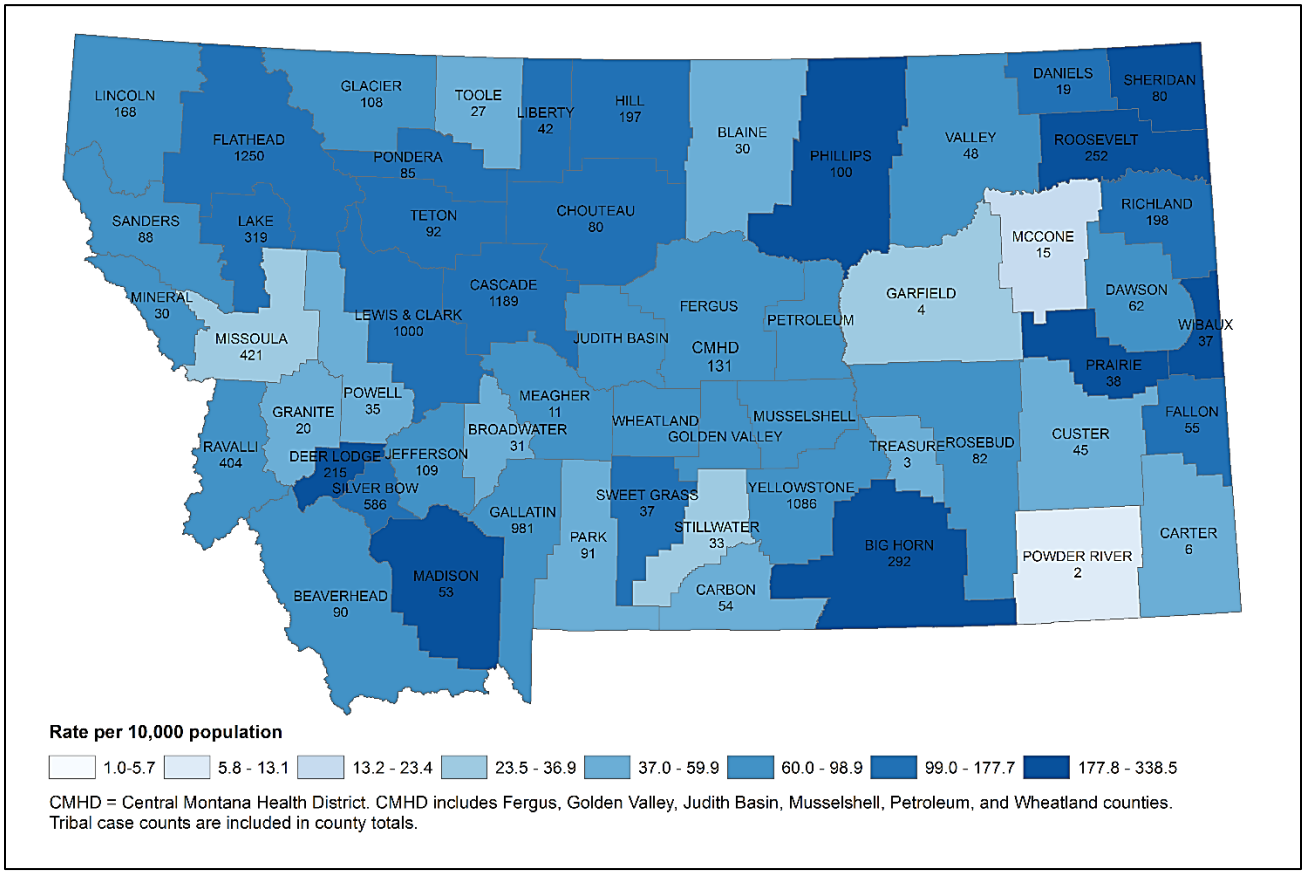
Montana Influenza Summary: 2017–2018 Final Report

The Montana Department of Health and Human Services (DPHHS) provides a weekly report throughout the influenza season that coordinates data from a variety of sources to give the most complete and up to date view of influenza activity in the state of Montana. This is the final report for the 2017-2018 influenza season.

Summary of Influenza Activity:

Reports of influenza activity began in September of 2017. By November 2017 activity had increased to concerning levels across the state as well as nationwide. Peak activity occurred during MMWR weeks 5–6 (January 28 – February 10). Season totals include 10,431 cases, 979 hospitalizations, and 79 deaths attributed to influenza. Thirty-three influenza outbreaks were reported; long term care facilities were the most common setting. Cases were reported from all counties in Montana, and only three counties reported fewer than five influenza cases for the entire season (range: 2–1,250). Figure 1 displays the 2017–2018 activity as case counts by county shaded by incidence rates per 10,000 persons.

Figure 1. Number and incidence rate of reported influenza cases by county of residence Montana, 2017–2018 season

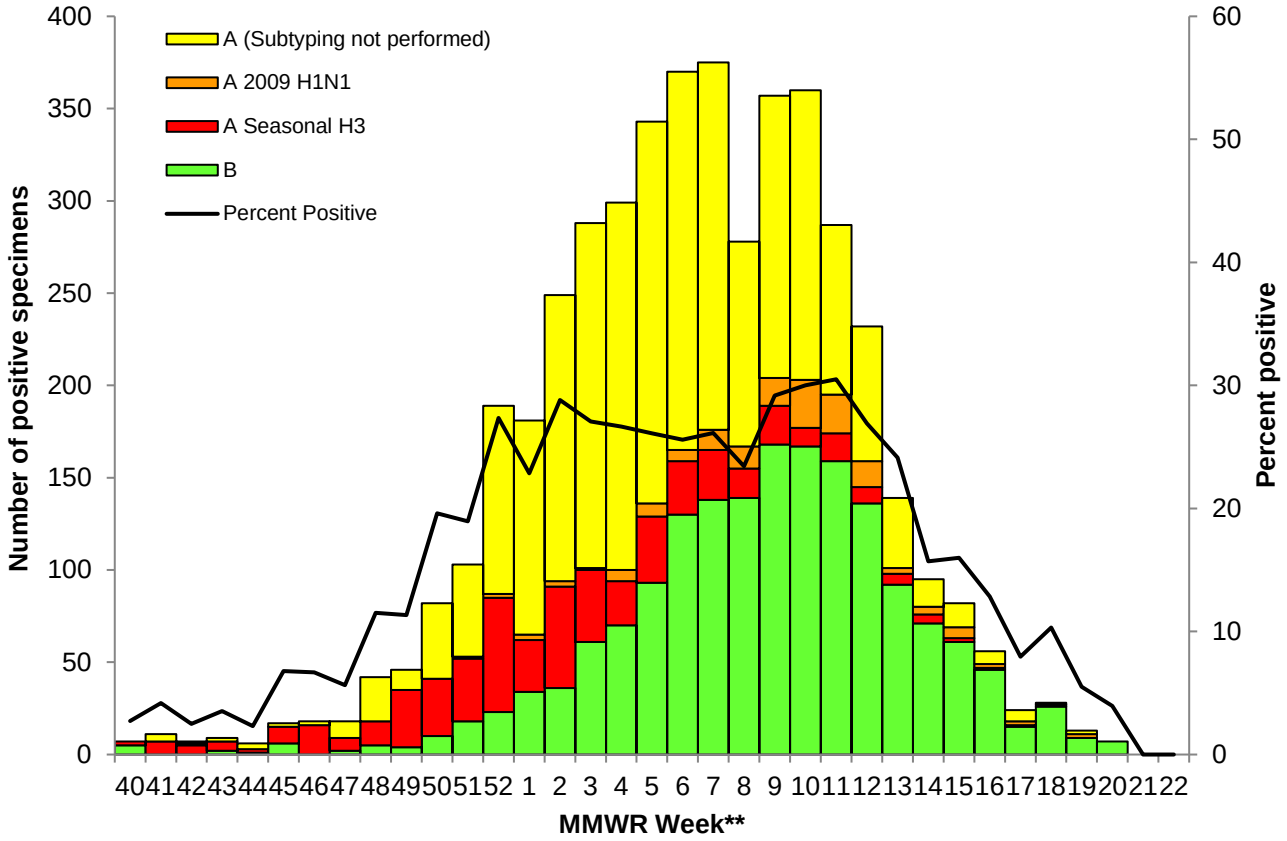


Laboratory Surveillance

The Montana Public Health Laboratory (MTPHL) and partners report the number of specimens tested for influenza by Polymerase Chain Reaction (PCR) as well as the number of positives by influenza virus type and influenza A virus subtype. Table 1 presented below contains testing data for the 2017–2018 season. The most common subtype identified during this season was influenza A H3; however, 37% of isolates were identified as influenza B, which was greater than what is typically observed during an average influenza season (15%). Figure 2 demonstrates influenza type and subtype identified as well as the positivity rate over the course of the season.

Table 1. Influenza type confirmed by MTPHL and partners[2]	
Number of specimens tested	21,257
Number of positive specimens (%)	4605(21.7)
Positive specimens by type/subtype	
Influenza A (%)	2871(62.3)
2009 H1N1	149
Subtyping not performed	2187
H3	548
Influenza B (%)	1734(37.7)

Figure 2. Influenza positive tests reported by the Montana Public Health Laboratory and partners[2], 2017-2018 season



**The MMWR week is the week of the epidemiologic year for which the National Notifiable Diseases Surveillance System (NNDSS) disease report is assigned by the reporting local or state health department for the purposes of MMWR disease incidence reporting and publishing. Values for MMWR week range from 1 to 53, although most years consist of 52 weeks.

Hospitalizations and Deaths

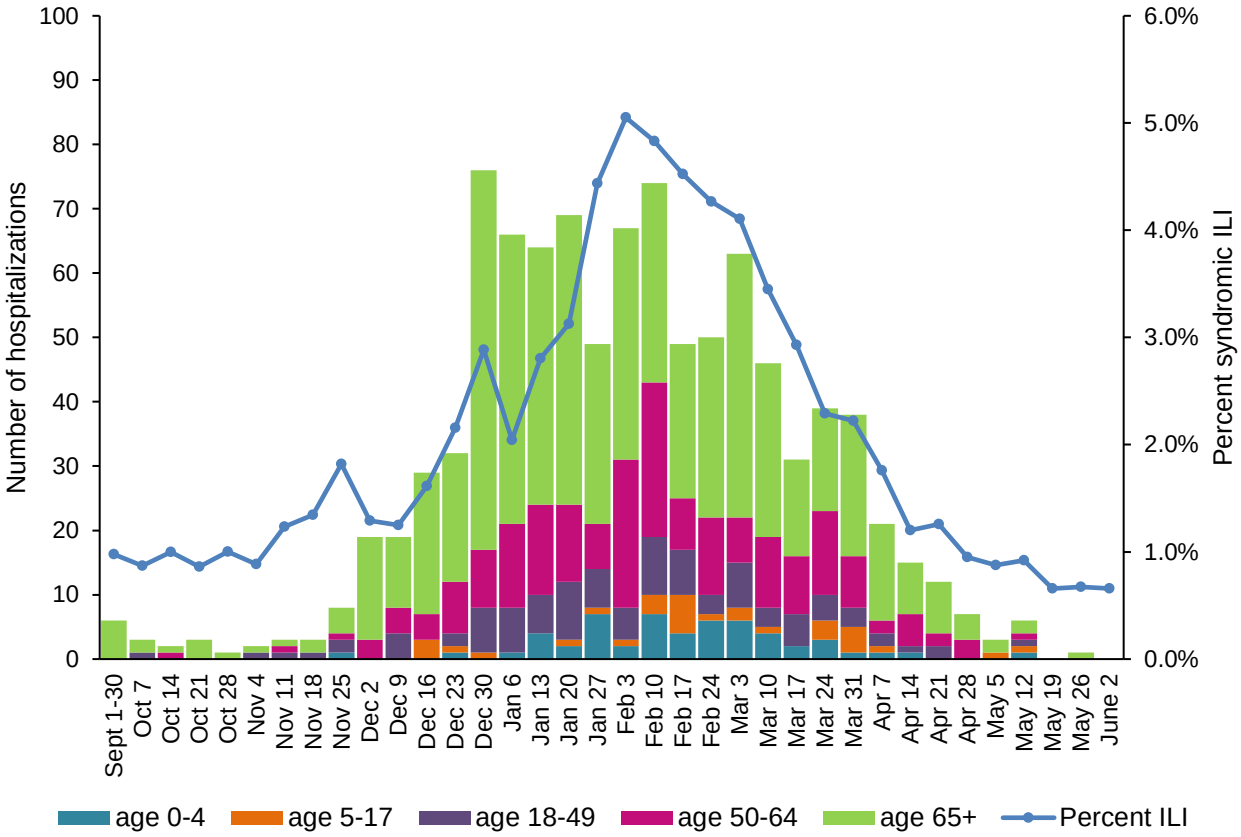
Influenza cases, including hospitalizations and deaths, are reportable to local public health in Montana[3]. During the 2017–2018 season, 979 (93.9 per 100,000 population) influenza-associated hospitalizations were reported to public health. The highest rate of hospitalization was among adults aged ≥65 years (Figure 3).

An influenza related death is included in season totals when it is reported to DPHHS or if influenza is indicated on a death record. There were 79 reported deaths attributed to influenza this season, including one pediatric death (age 0–17 years). Table 2 presents influenza hospitalizations and deaths for the 2017–2018 influenza season.

Table 2. Influenza Hospitalizations and deaths – Montana, 2017–2018 season

Hospitalizations	Deaths		
	Pediatric	Adult <65 years	Adult >65 years
979	1	11	67

Figure 3. Influenza-associated hospitalizations by age group and percentage of emergency room outpatient visits due to ILI – Montana, 2017-18 season*



Influenza type A was the predominant virus identified in individuals hospitalized for influenza (70%). The majority of Montanans who were hospitalized due to influenza were aged ≥65 years with a median age of 70 years. This is similar to the characterization of influenza-associated hospitalizations in the United States during the 2017–2018 season (Figure 4). In addition, over the past five influenza seasons the age group proportions have varied from one season to another (Figure 5).

Figure 4. Influenza Hospitalizations by Age Group — U.S. and Montana, 2017–2018 Season

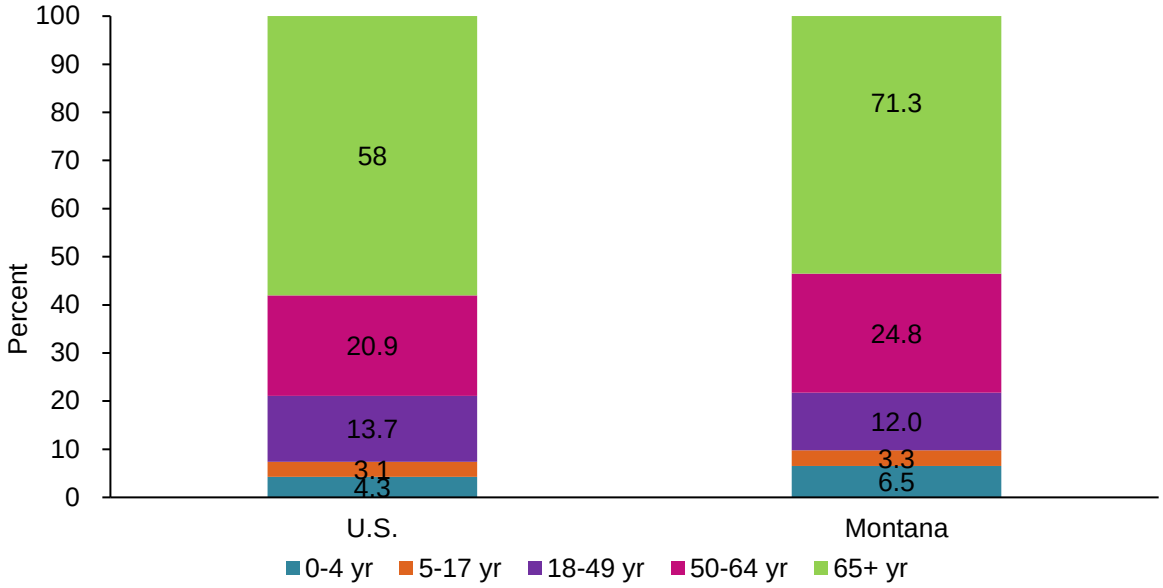
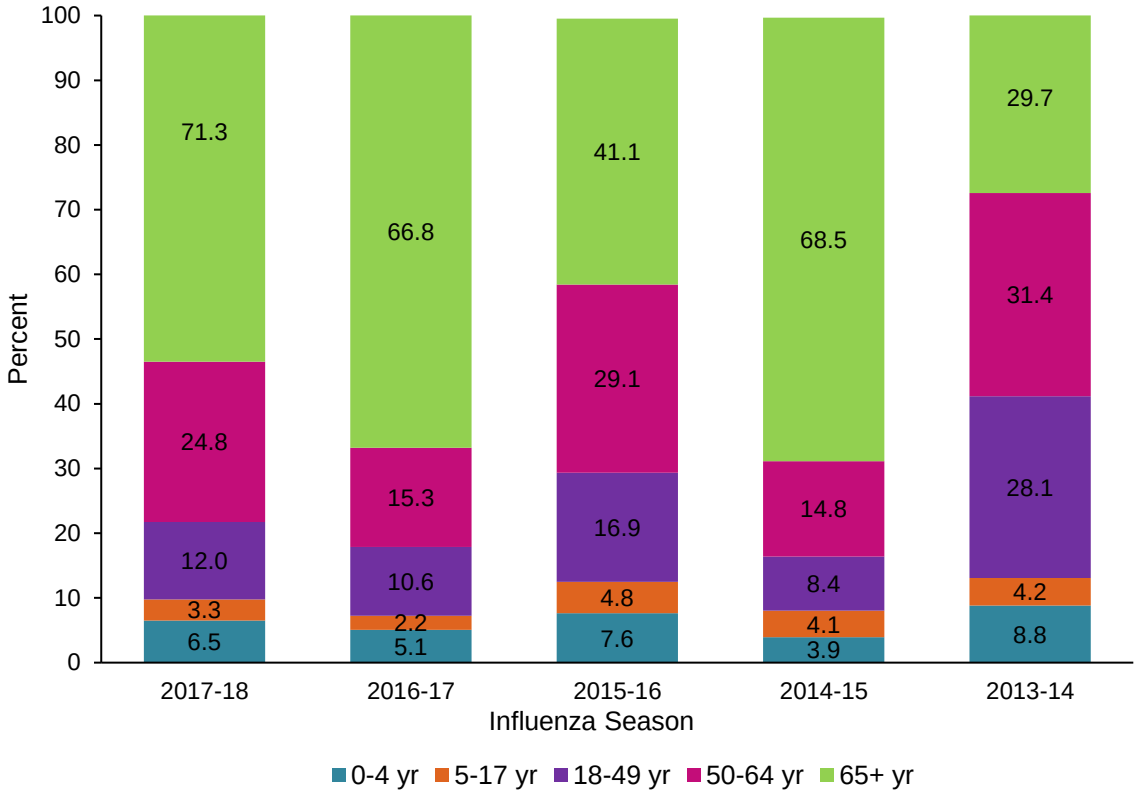


Figure 5. Influenza hospitalizations by age group — Montana, current and previous four seasons



Hospitalized individuals were assessed for comorbidities present at the time of admit (Figure 5). Of those with documented comorbidity status (n children=83, n adults = 895), 82% of children <18 years and 96% of adults presented with at least one comorbidity at the time of hospitalization. Age (<5 years or ≥65 years) was the most common comorbidity followed by cardiovascular disease for both children and adults. Thirty-four percent of females aged 15–44 years were pregnant at the time of hospitalization.

Figure 5. Selected underlying conditions of hospitalized individuals — Montana, 2017–2018 season[4]

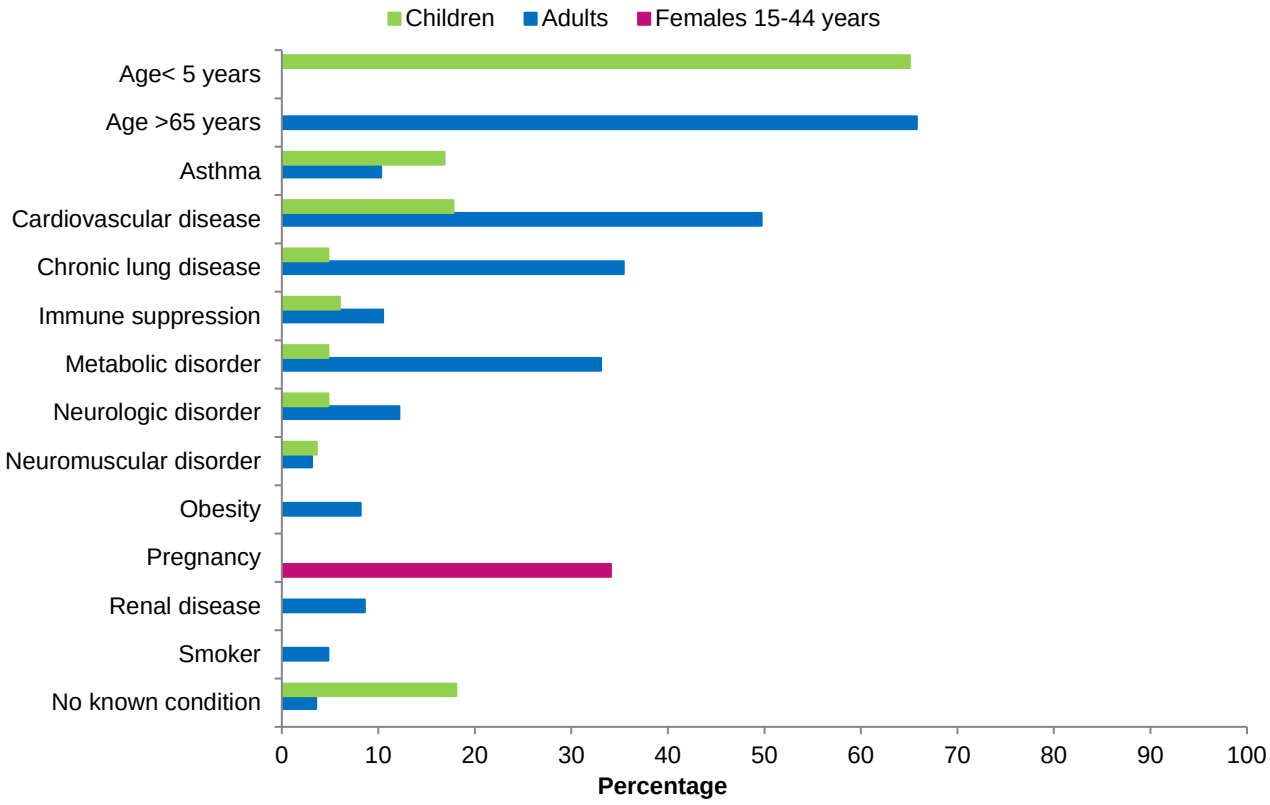
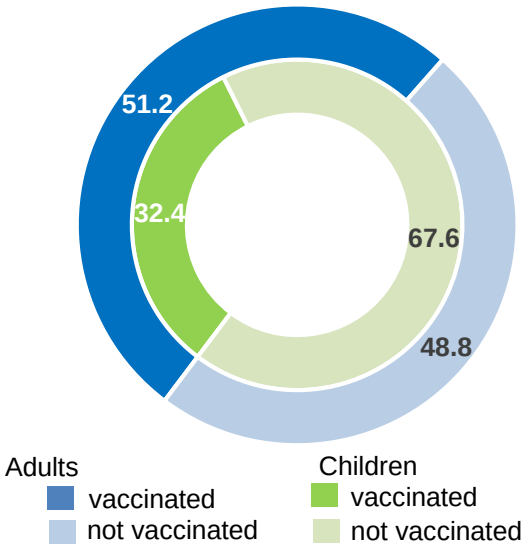


Figure 6. Influenza vaccination status of hospitalized children and adults with at least one comorbidity — Montana, 2017–2018 season

Of all ages hospitalized for influenza with documented immunization status (n=881), 46% had not received seasonal influenza vaccine. However, only a third of children and half of adults with at least one identified comorbidity did not receive a vaccine (Figure 6).



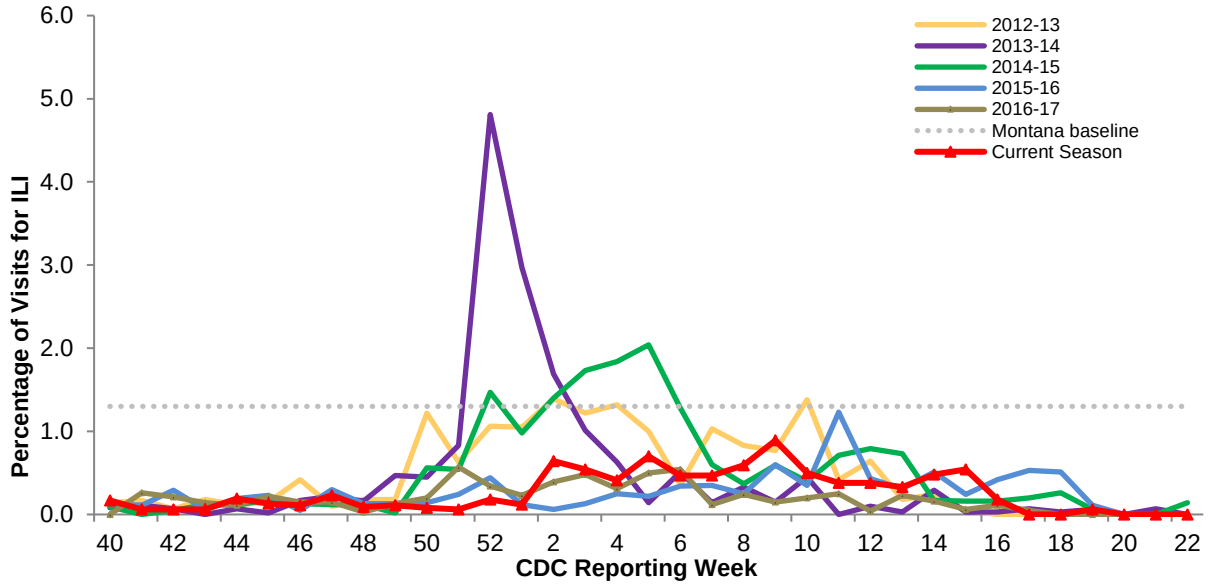
Outbreaks

Thirty-three influenza outbreaks were reported from fourteen jurisdictions during the 2017-2018 influenza season with 414 cases, 44 hospitalizations, and twelve deaths identified. The majority of outbreaks (70%) were confirmed as influenza A. The most common settings were assisted living and long-term care facilities (85%). Control measures were implemented within two days in 91% of identified outbreaks.

Influenza like Illness Surveillance Network (ILINet)

The U.S. Outpatient ILI Surveillance Network (ILINet) is a national system that conducts surveillance for Influenza-like illness (ILI) in outpatient healthcare facilities. ILI is defined as a fever (temperature of 100° F or greater) and cough and/or sore throat. During the 2017-2018 season, nine facilities participate in ILINet in Montana. ILI activity remained below baseline, which did not compare with a number of other indicators this season. Additional studies to determine issues associated with ILINet reporting will be conducted during the off season.

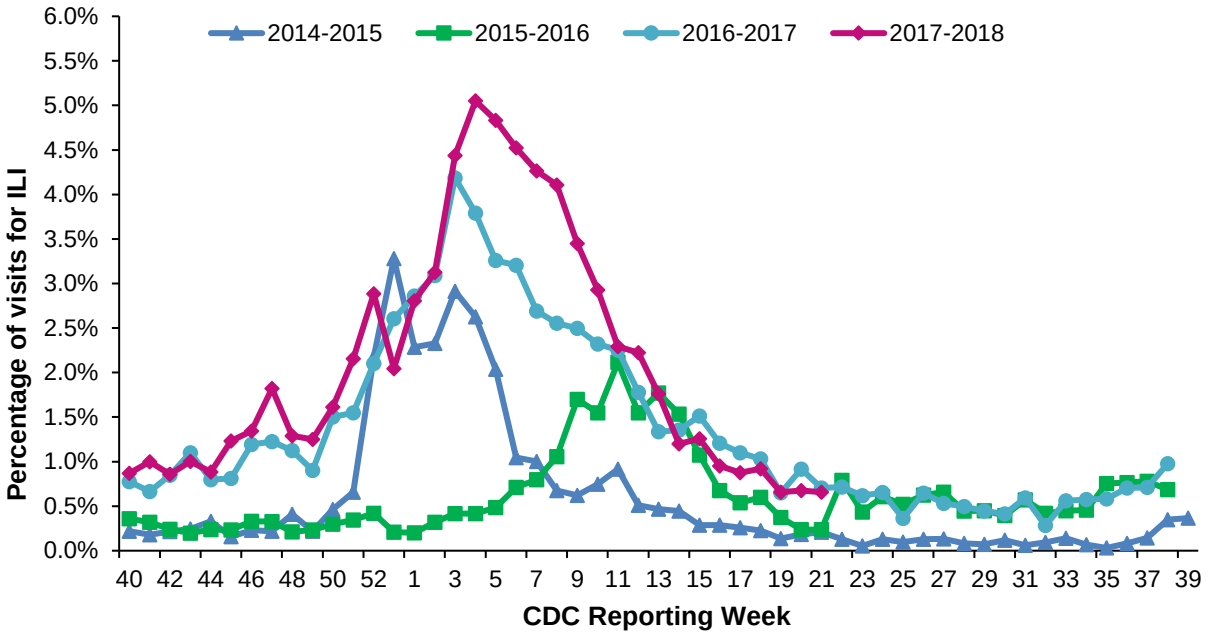
Figure 6. Percentage of ILI reported by sentinel provider – Montana, selected seasons



Syndromic Surveillance

Syndromic surveillance data in Montana is analyzed in ESSENCE, which collects real-time emergency department (ED) data from 35 facilities across Montana. Figure 7 shows the proportion of visits with a chief complaint of influenza-like illness each week for the current as well as the previous three seasons.

Figure 7. Percentage of ER visits for chief complaint of ILI – Montana, selected seasons



Respiratory Syncytial Virus (RSV)

RSV is a respiratory virus and is the most common cause of bronchiolitis and pneumonia in children less than one year of age. Typically, the RSV season tends to mirror that of influenza. RSV surveillance is compiled from 15 sentinel laboratories in Montana that report weekly testing data[5]. The 2017-2018 RSV season onset occurred during the week ending February 3 and offset week ending April 28. Figures 8 and 9 describe RSV testing for the current season and a comparison of the percent positivity over the current and last three seasons, respectively.

Figure 8. Number and percent positive RSV tests – Montana, 2017-2018

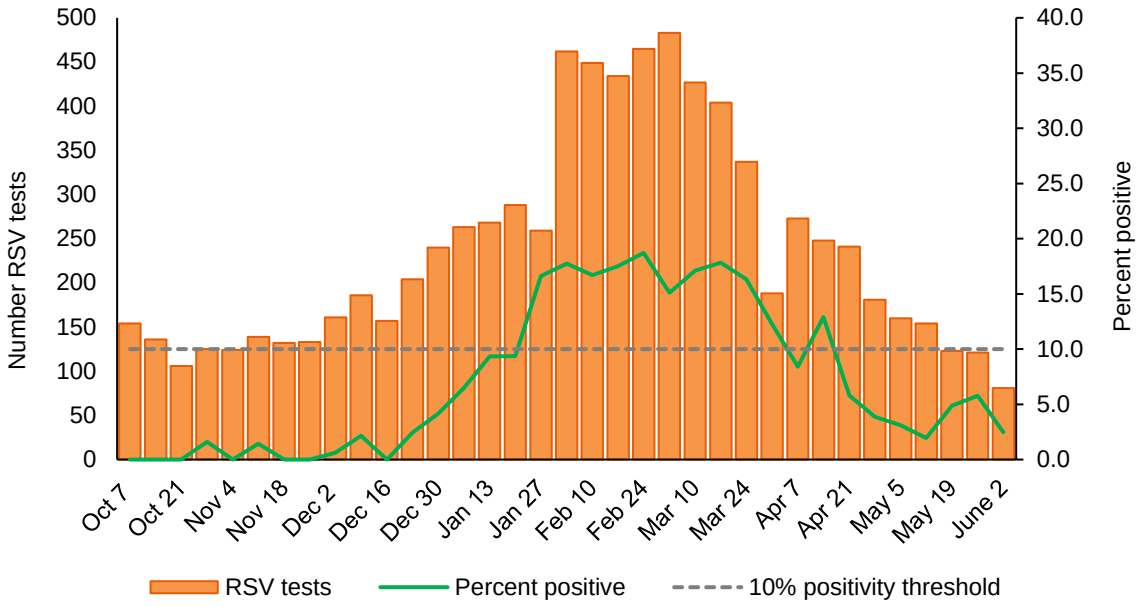
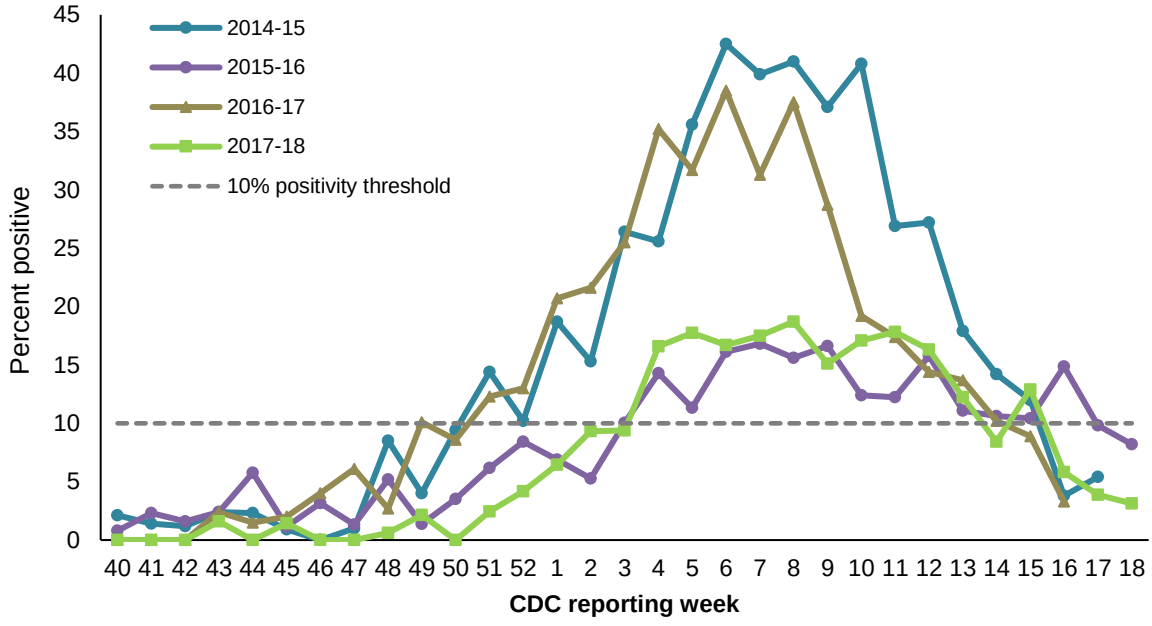


Figure 9. RSV positivity rates – Montana, select seasons



Additional Resources

Montana DPHHS Influenza: http://dphhs.mt.gov/publichealth/cdepi/diseases/influenza

National Influenza Surveillance Report (CDC Flu View): https://www.cdc.gov/flu/weekly/

International Influenza Data: http://www.who.int/influenza/en/

Influenza vaccine resources: visit https://vaccinefinder.org or www.cdc.gov/flu to find a location near you where you can get vaccinated.

Notes

[1]**Influenza Activity:** State health departments report the estimated level of geographic spread of influenza activity in their states each week through the **State and Territorial Epidemiologists Reports**. States 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, Benefis Healthcare System, Big Sandy Medical Center, Bighorn County Hospital, Billings Clinic Hospital, Bozeman Deaconess Hospital, Community Medical Center, Deer Lodge Medical Center, Glacier Medical Associates, Grant Creek Family Practice, Great Falls Clinic, Holy Rosary Health Care, Kalispell Regional Medical Center, Liberty County Hospital, Phillips County Hospital, Poplar Community Hospital, Rosebud Healthcare, St. Joseph Hospital, St. Patrick's Hospital, St. Peter's Hospital, St. Vincent Hospital, Sidney Health Center, Trinity Hospital, and VA Ft. Harrison**.**

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

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

[4]**Comorbidity** categories are defined as:
Cardiovascular diseases include conditions such as coronary heart disease, cardiac valve disorders, congestive heart failure, and pulmonary hypertension; does not include isolated hypertension.
Chronic lung diseases include conditions such as asthma, chronic obstructive pulmonary disease (COPD), bronchiolitis obliterans, chronic aspiration pneumonia, and interstitial lung disease.
Immune suppression includes conditions such as immunoglobulin deficiency, leukemia, lymphoma, HIV/AIDS, and individuals taking immunosuppressive medications.
Metabolic disorders include conditions such as diabetes mellitus, thyroid dysfunction, adrenal insufficiency, and liver disease.
Neurologic diseases include conditions such as seizure disorders, cerebral palsy, and cognitive dysfunction.
Neuromuscular diseases include conditions such as multiple sclerosis and muscular dystrophy.
Obesity was assigned if indicated in the hospitalization report.

Pregnancy percentage calculated using number of female cases aged between 15 and 44 years of age as the denominator.
Renal diseases include conditions such as acute or chronic renal failure, nephrotic syndrome, glomerulonephritis, and impaired creatinine clearance.
Smoker was assigned if current smoking status was indicated in the hospitalization report.
No known condition indicates that the case did not have any known underlying medical condition indicated at the time of hospitalization.

[5]**RSV laboratory surveillance partners:** Barrett Hospital and Healthcare, Benefis Healthcare System, Bighorn County Hospital, Billings Clinic Hospital, Bozeman Deaconess Hospital, Community Medical Center, Deer Lodge Medical Center, Great Falls Clinic, Holy Rosary Health Care, Kalispell Regional Medical Center, Liberty County Hospital, Phillips County Hospital, Poplar Community Hospital, Rosebud Healthcare, St. Peter's Hospital, St. Vincent Hospital, and Trinity Hospital**.**

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 DPHHS Influenza.