



# Salt Lake County Annual Influenza Report

## 2018-19 Season

### Epidemiology Bureau

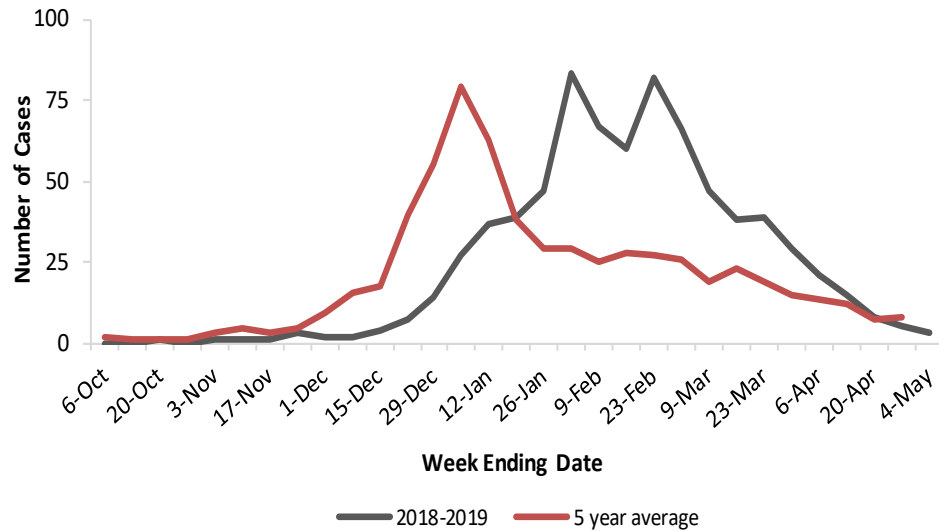
### Introduction

The 2018-19 influenza season saw 749 confirmed influenza-associated hospitalizations reported from October 1, 2018 to April 30, 2019. As shown in Figure 1, influenza cases peaked twice during the season. Peaks occurred on MMWR week 5 (week ending February 2, 2019) with 83 cases and MMWR week 8 (week ending February 23, 2019) with 82 cases.

Compared to the five year average, the 2018-19 season followed a different trend, with two peaks occurring later in the season.

Figure 1

**Hospitalized Case Comparison to the Five Year Average, Salt Lake County, 2018-2019 Season**

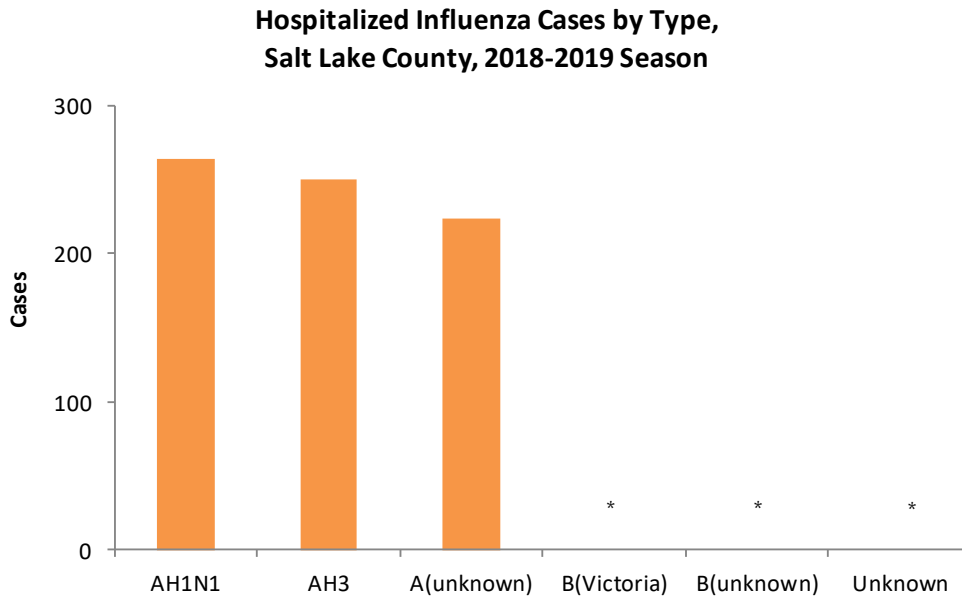


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Figure 2 displays the number of hospitalized cases by influenza type, with AH1N1 having the highest case count.

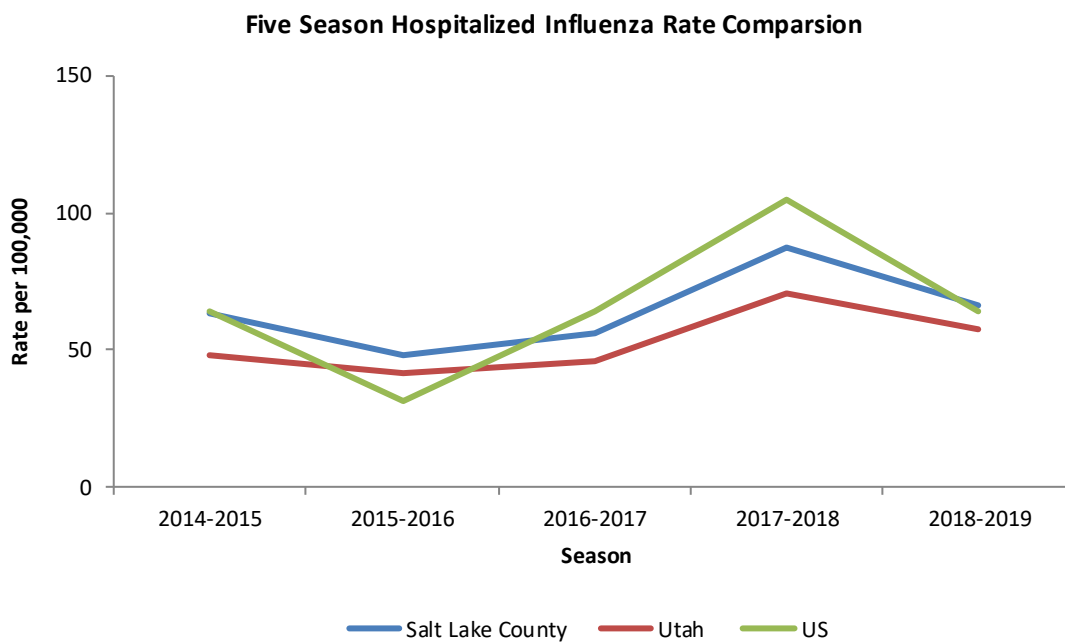
Figure 2



\*Data suppressed due to low counts

When compared to influenza rates for Utah and the United States, Salt Lake County was slightly higher than the national rate and higher than the rate statewide for the 2018-19 season. Salt Lake County’s hospitalized influenza rate was 66 per 100,000 population, compared with Utah at 58 and the national rate of 64 per 100,000 population. Figure 3 displays a five season comparison between Salt Lake County, Utah and the United States.

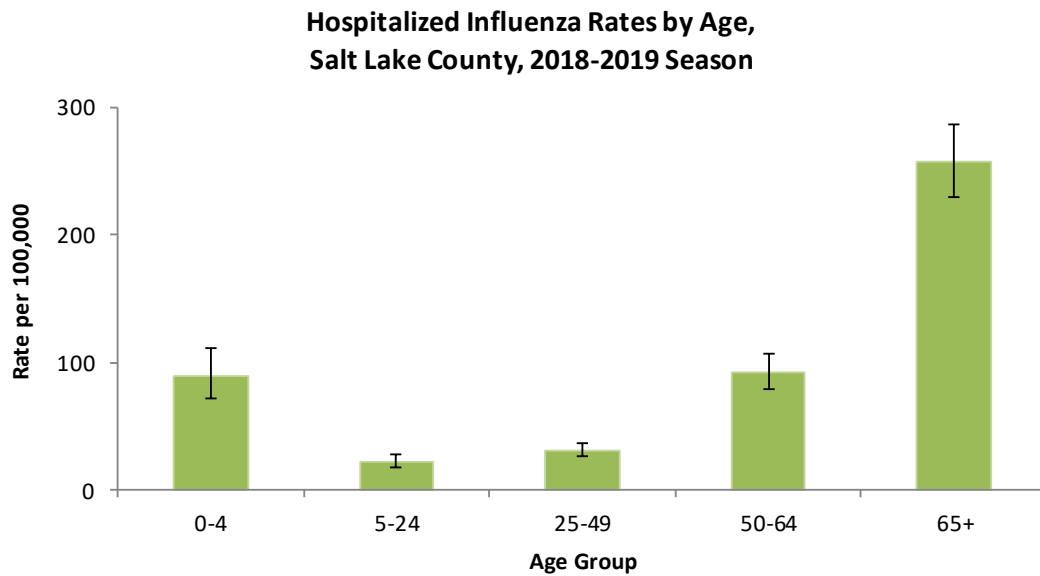
Figure 3



## Demographic Profile

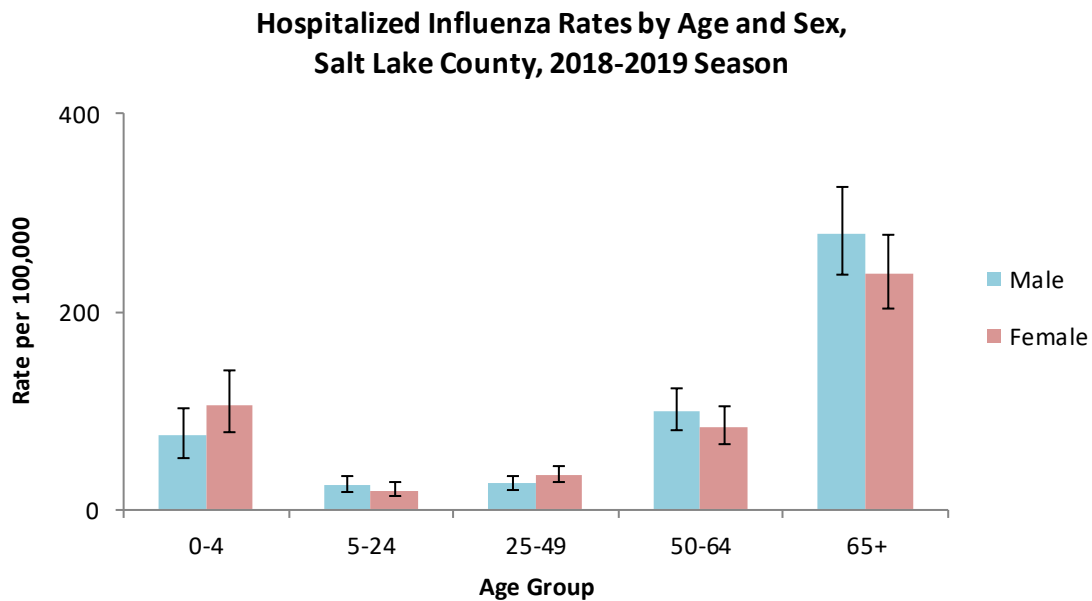
The 65+ age group was disproportionately affected by influenza compared to all other age groups, with a rate of 257 per 100,000 population. The lowest rate was among the 5-24 age group at 22 per 100,000 population. See figure 4.

Figure 4



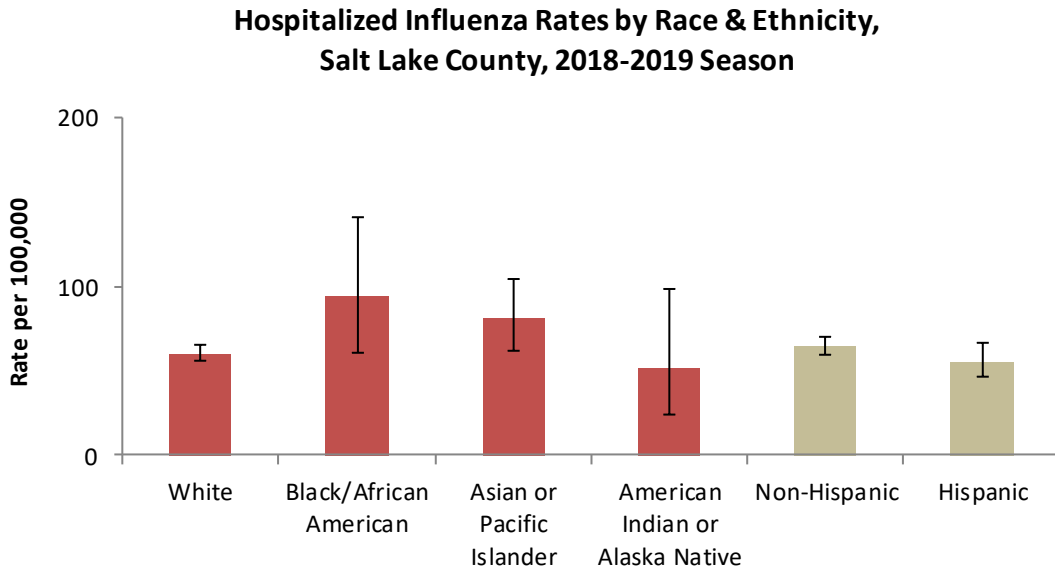
When looking at age and sex, there were no significant differences between males and females in any age group. The highest rates were among both males and females over the age of 65. Male rates for the 65+ age group were 279 per 100,000 population and female rates were 239 per 100,000 population. See figure 5.

Figure 5



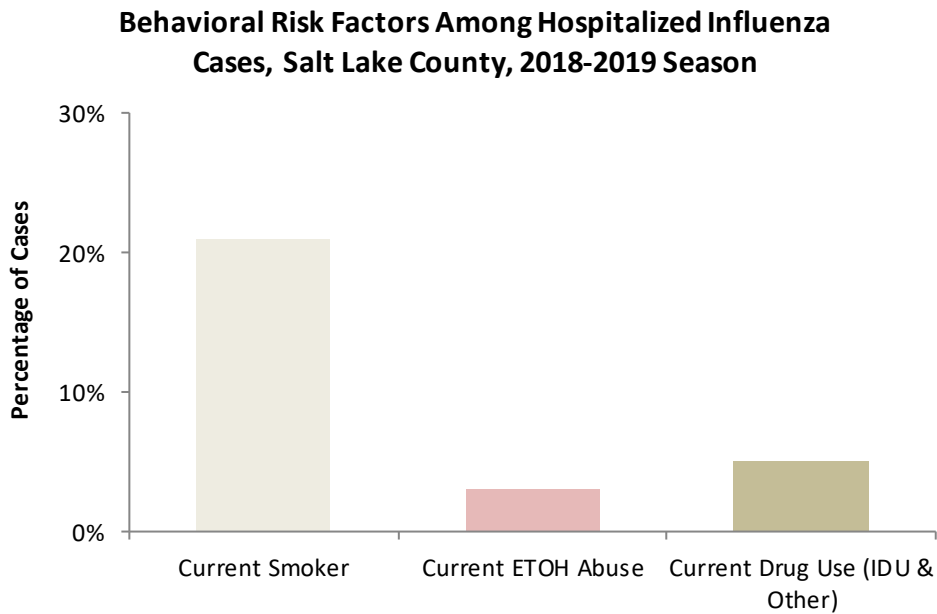
There were no significant differences found between race and ethnicity. This means that not one racial or ethnic group was found to be disproportionately hospitalized for influenza when compared to each other. See figure 6.

Figure 6



Behavioral risk factors were analyzed to identify additional conditions that may contribute to hospitalization due to influenza. Smoking was the highest risk factor, with 21% of hospitalized cases reporting current smoking habits. See figure 7.

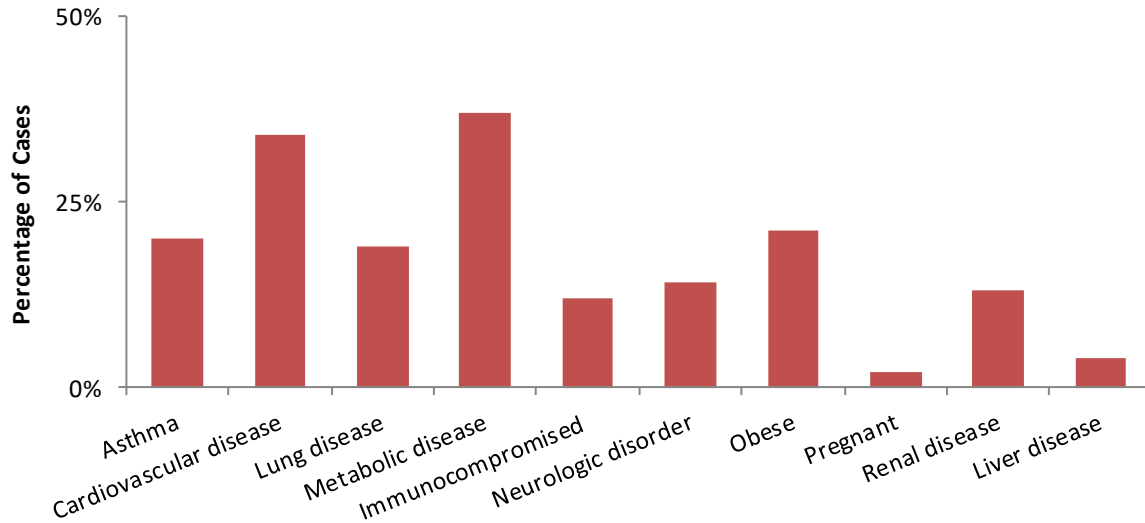
Figure 7



Salt Lake County influenza cases had a variety of underlying conditions upon hospitalization. The two most common conditions among cases were metabolic disease and cardiovascular disease, with 37% of cases having some form of metabolic disease and 34% of cases having some form of cardiovascular disease . Figure 8 displays the percent of cases affected by a range of underlying conditions.

Figure 8

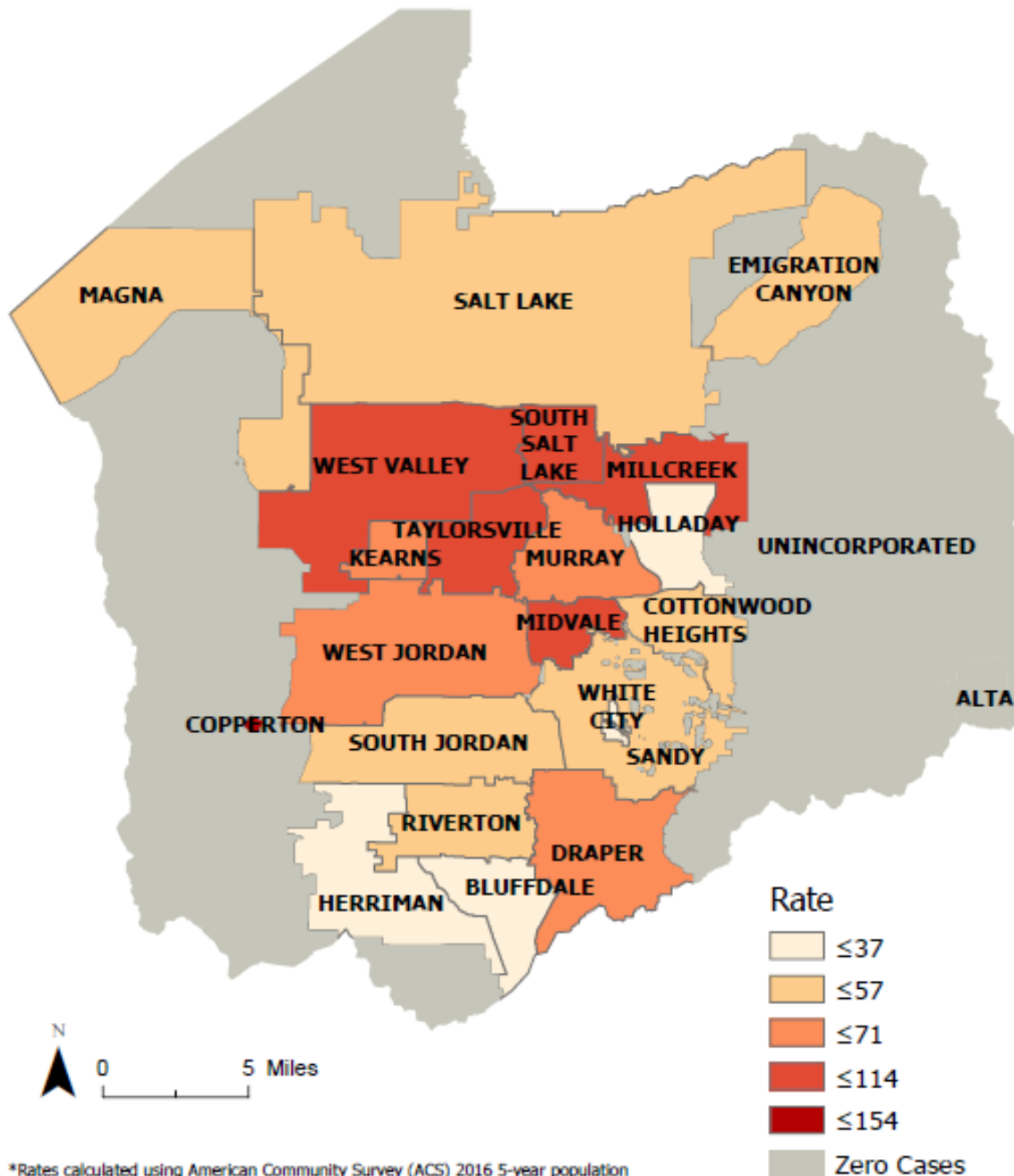
### Underlying Medical Conditions Among Hospitalized Influenza Cases, Salt Lake County, 2018-2019 Season



## 2018-2019 Influenza Season: Influenza-associated Hospitalizations in Salt Lake County (per 100,000)

Figure 9 shows the rate of influenza cases per 100,000 population by city within Salt Lake County. West Valley City, Taylorsville, South Salt Lake, Millcreek, Copperton and Midvale saw the greatest burden of influenza.

Figure 9

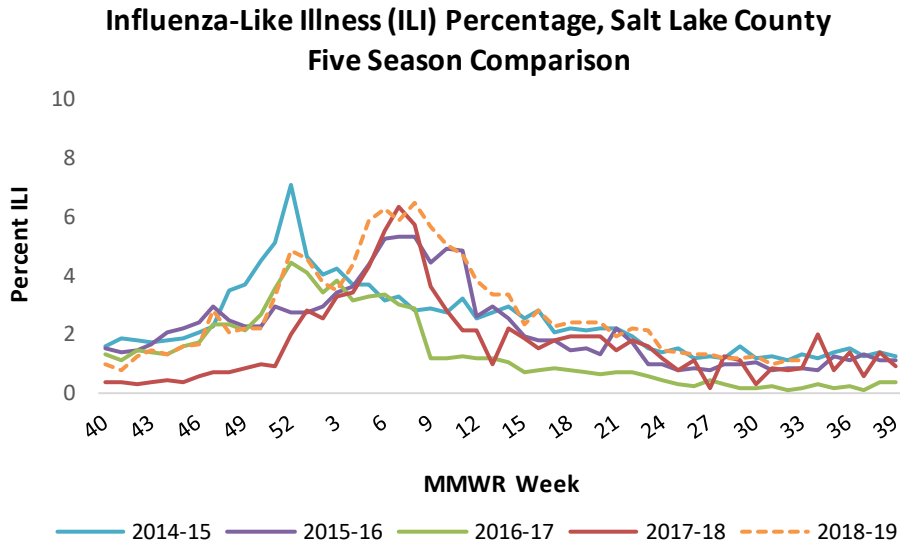


\*Rates calculated using American Community Survey (ACS) 2016 5-year population estimates, except Census Designated Places (Copperton, Emigration Canyon, Kearns, Magna, Millcreek, White City; ACS 2015) and unincorporated Salt Lake County

## Outpatient Surveillance

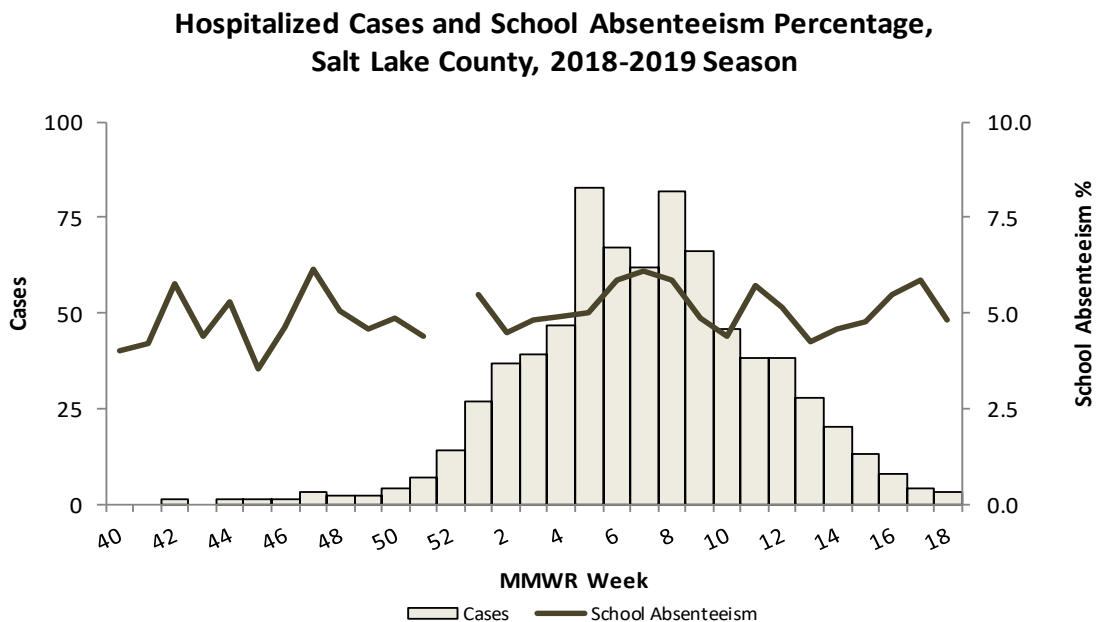
Outpatient influenza surveillance is an integral component to tracking influenza trends in Salt Lake County. Influenza-like illness (ILI) surveillance is one such tool used to monitor influenza patterns. Figure 10 shows a five season comparison of ILI trends, with the 2018-19 season peaking twice, displaying a slightly different trend than previous seasons.

Figure 10



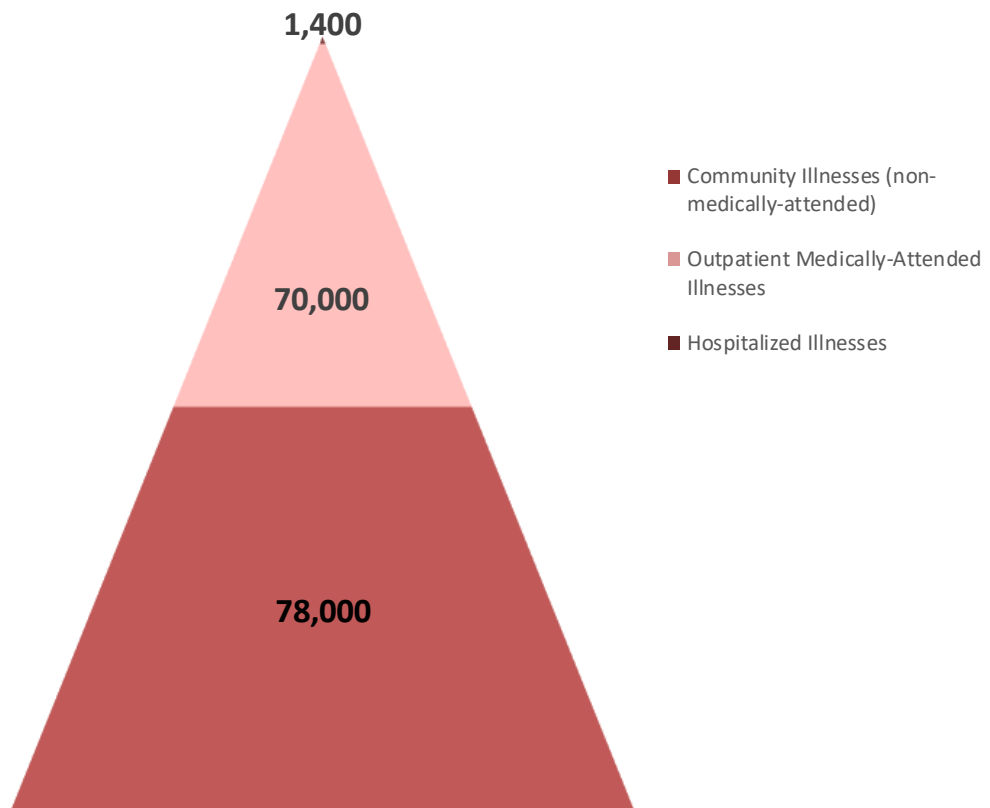
School absenteeism did not follow a similar pattern seen among hospitalized influenza cases. There were two distinct peaks in February among hospitalized cases, however the school absenteeism trend had multiple increases throughout the season, without a distinct peak seen. See figure 11.

Figure 11



During the 2018-19 season, Salt Lake County Health Department began to utilize a tool that projects the current burden from influenza throughout Salt Lake County. This model accounts for the underreporting of hospitalized influenza cases and by accounting for this underreporting, the model allows for the projection of how many cases of influenza were attended to in an outpatient clinic and how many individuals were sick with influenza in Salt Lake County but never received medical care. During the 2018-19 season in Salt Lake County, it is projected that 1,400 cases may have been hospitalized, 70,000 residents may have been sick with influenza and sought medical care and 78,000 residents may have been sick with influenza and did not seek care. See figure 12.

Figure 12

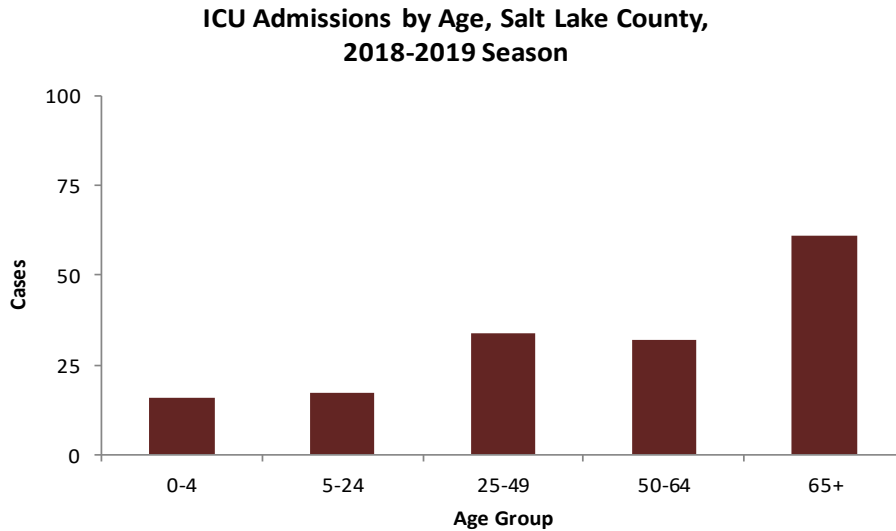




## Severity

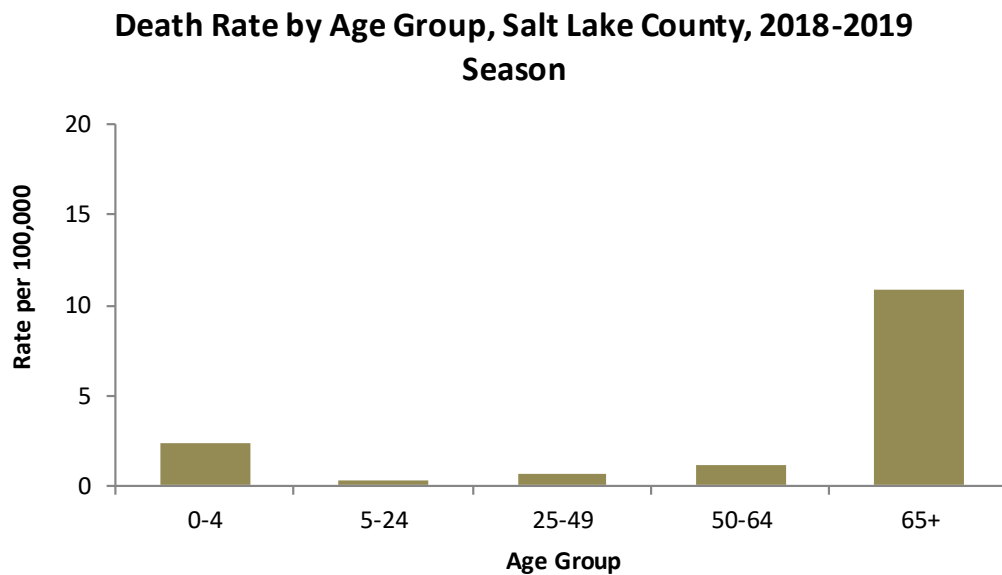
Twenty-one percent of hospitalized influenza cases during the 2018-19 season were admitted to an intensive care unit (ICU), compared to 18% during the 2017-18 season. The 65+ age group had the highest number of cases admitted to an ICU. Figure 13 shows the ICU distribution by age among all hospitalized cases.

Figure 13



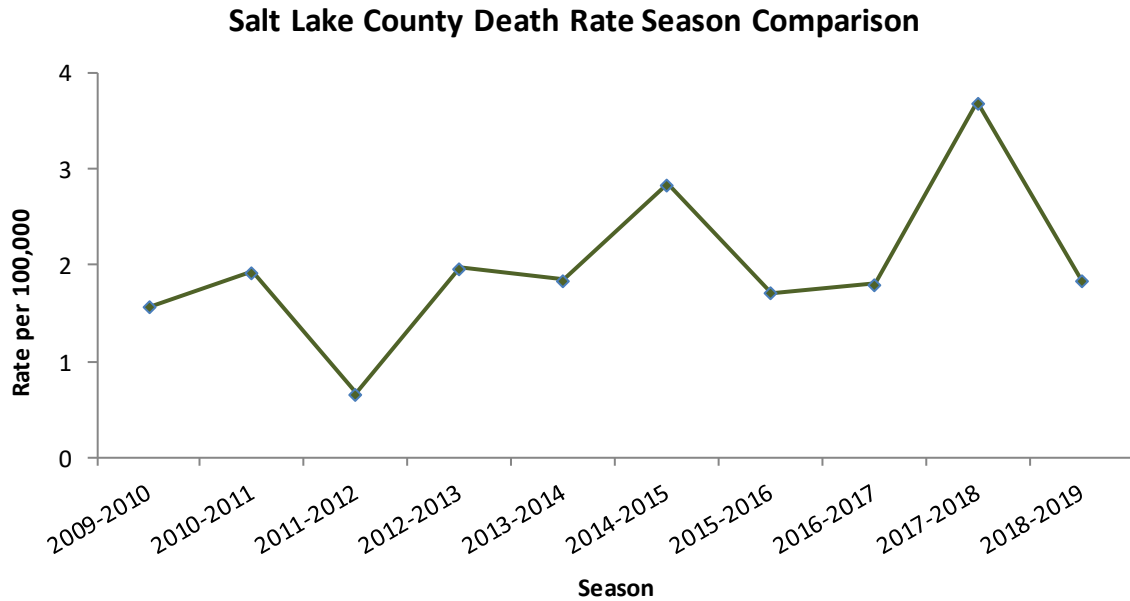
There were 21 influenza-related deaths during the 2018-19 season, compared to 42 deaths during the 2017-18 season. The highest death rate was among the 65+ age group with 11 per 100,000 population. Figure 14 displays the death rates that occurred by age.

Figure 14



When looking at a multi-season comparison, the 2018-19 season death rate decreased dramatically in comparison with the 2017-18 season. See figure 15.

Figure 15



Severity thresholds assess the severity of an influenza season, by categorizing a season as low, moderate, high and very high severity. Severity in Salt Lake County is assessed real-time and an overall seasonal assessment is provided at the end of the season. Immediate assessments allow for situational awareness and planning in real-time compared to other modalities of influenza reporting. This allows Salt Lake County Health Department to communicate with community partners to aid in planning and allocating resources for preparation of the current influenza season.

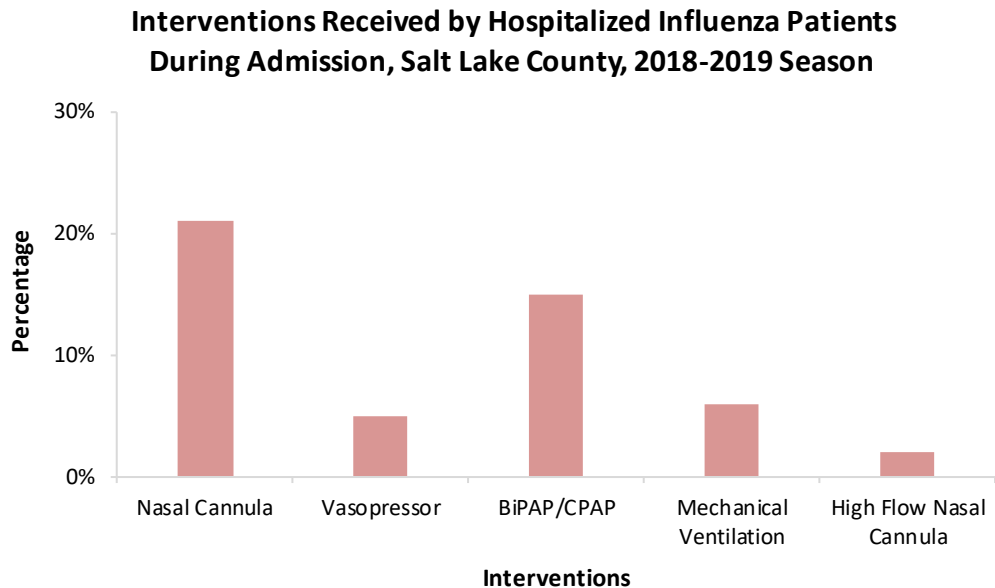
According to the Salt Lake County severity thresholds, the 2018-19 season was categorized as a **moderately** severe season. (Utah and the U.S. assessments are not available yet for the 2018-19 season). Figure 16 displays a comparison of the overall severity for the past six seasons in Salt Lake County, Utah and the United States. See figure 16.

Figure 16

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Salt Lake County	Moderate	Moderate	Very High	Moderate	Moderate	High
Utah	Moderate	Moderate	High	Moderate	Moderate	High
United States	Moderate	Moderate	High	Moderate	Moderate	High

Figure 17 displays a variety of interventions that occurred during hospitalization that indicate disease severity. The most frequent intervention was receiving nasal cannula, with 21% of hospitalized influenza patients receiving nasal cannula in the emergency department or upon admission.

Figure 17



Twenty-seven influenza outbreaks were identified during the 2018-19 season, compared to 18 throughout the 2017-18 season. Table 1 shows what type of facilities the outbreaks occurred in and the influenza type that was circulating. All facilities were educated about proper hygiene, disinfection and the importance of vaccination.

Table 1

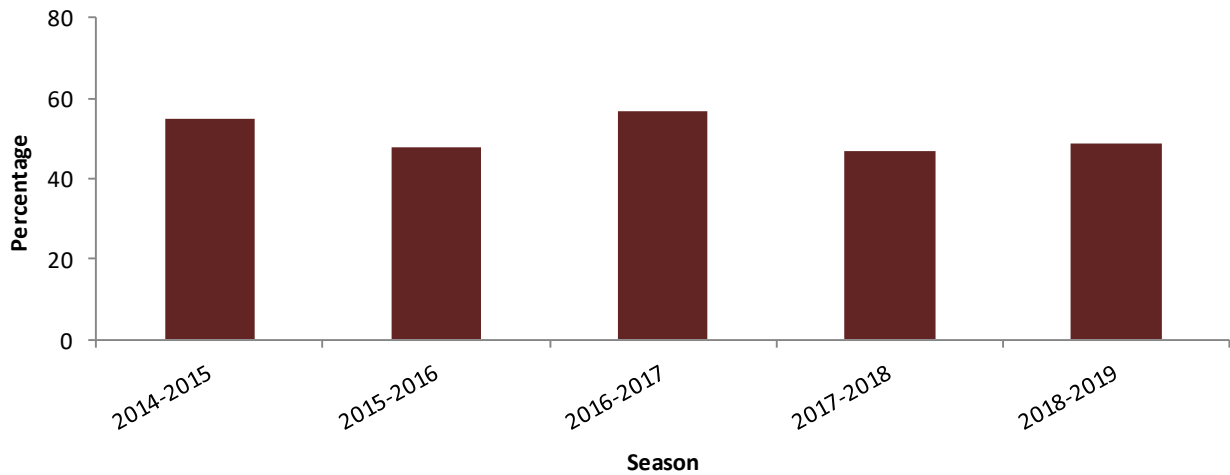
Facility Type	Number of Facilities Affected	Number of Ill Cases	Number of Cases Tested Positive	Influenza Types	Number of Cases Vaccinated
Long Term Care	17	119	84	Flu A(not typed), Flu B(not typed)	45
School	8	509	7	Unknown	Unknown
Homeless Shelter	1	6	6	Flu A(not typed), Flu AH1N1	1
Corrections	1	29	15	Flu A(not typed),	1

## Vaccine

A five season comparison shows that the percent vaccinated for the 2018-19 season was roughly the same as the 2017-18 season. Forty-eight percent of cases were vaccinated during the 2018-19 season compared to 47% the season prior. See figure 18.

Figure 18

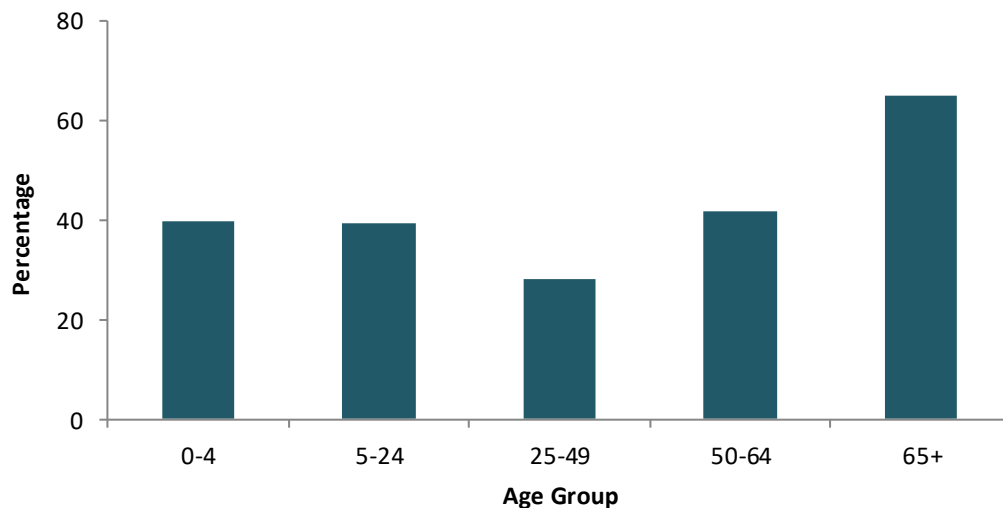
### Percent Vaccinated Among Hospitalized Influenza Cases by Season, Salt Lake County



When divided by age, the 65+ age group had the highest percent vaccinated at 65%, with the 25-49 age group having the lowest percent vaccinated at 28%. See figure 19.

Figure 19

### Percent Vaccinated Among Hospitalized Influenza Patients by Age, Salt Lake County, 2018-2019 Season



## Conclusion

Compared to the 2017-18 season, the 2018-19 season was less severe and burdensome, however an elevated number of cases seemed to last over a longer period of time. The 2018-19 season was unusual because it had two distinct peaks, one at the beginning of February and one at the end of February. This may be due to the season seeing two waves of different influenza strains, with the season starting with a predominant AH1N1 strain and then transitioning to a predominant AH3 strain.

No significant differences were found between race and ethnicity regarding the likelihood of being hospitalized for influenza. As for age, the 65+ age group was disproportionately affected by influenza compared to all other age groups.

The 2018-19 season saw 50% less deaths from influenza than the 2017-18 season, yet like prior seasons, the 65+ age group had the highest number of deaths. When looking at a ten season comparison, the 2018-19 season had a similar death rate to many of the prior seasons. Among hospitalized cases for the 2018-19 season, 48% of cases were vaccinated compared to hospitalized cases for the 2017-18 season at 47%. Although influenza vaccines are not 100% effective in preventing the contraction of influenza, it is still the most effective method to fight against infection.