



Salt Lake County Annual Influenza Report

2019-20 Season

Epidemiology Bureau

Introduction

The 2019-20 influenza season saw 560 confirmed influenza-associated hospitalizations reported from October 1, 2019 to April 30, 2020. The 2019-20 season was interesting for a variety of reasons. As shown in Figure 1, influenza cases did not have a distinct peak, rather multiple increases and decreases in case counts throughout the season. Additionally, AH1N1 and B(Victoria) circulated simultaneously. Typically as one strain wanes another may increase, yet this was not the case with the 2019-20 season.

Lastly, our case counts were relatively low compared to past seasons, yet our influenza-like-illness (ILI) surveillance indicator was very high. Typically if ILI is high, hospitalization counts follow a similar pattern.

Figure 1

Hospitalized Case Comparison to the Five Year Average, Salt Lake County, 2019-2020 Season

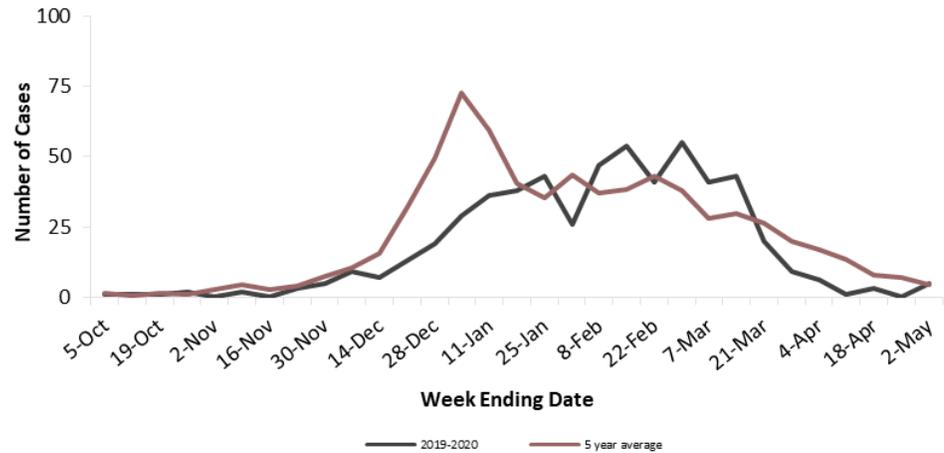
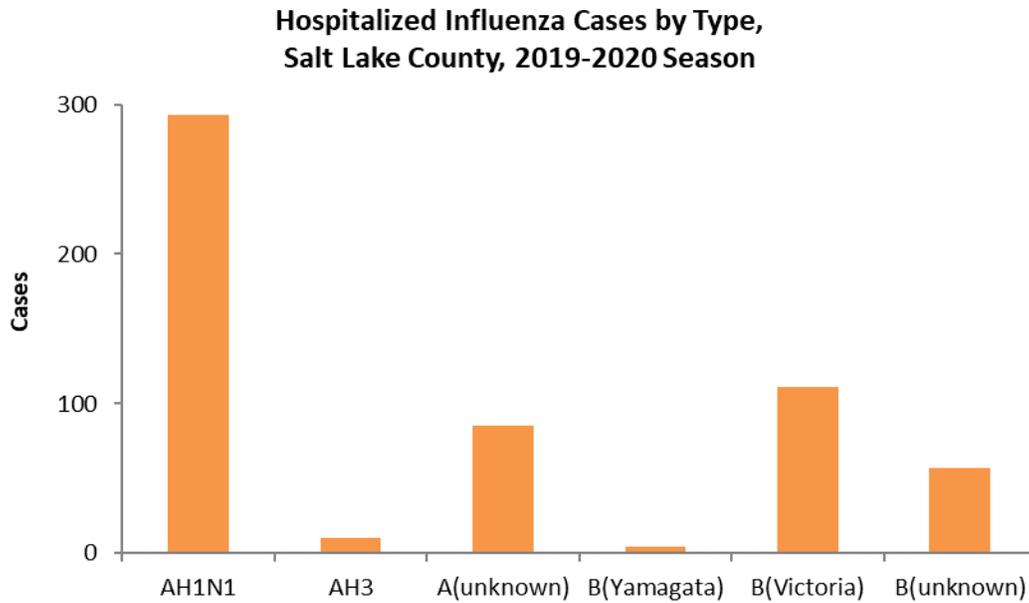


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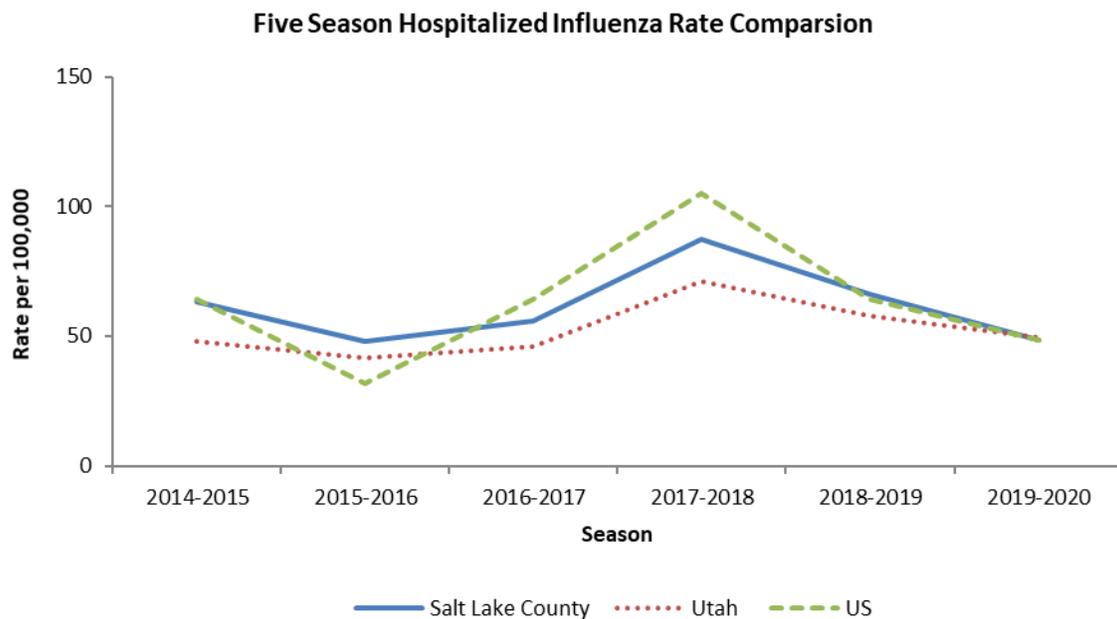
Figure 2 displays the number of hospitalized cases by influenza type, with AH1N1 having the highest case count at 293 cases.

Figure 2



When compared to influenza rates for Utah and the United States, Salt Lake County was slightly higher than the national rate and lower than the rate statewide for the 2019-20 season. Salt Lake County’s hospitalized influenza rate was 49 per 100,000 population, compared with Utah at 50 and the national rate of 48 per 100,000 population. Figure 3 displays a five season comparison between Salt Lake County, Utah and the United States.

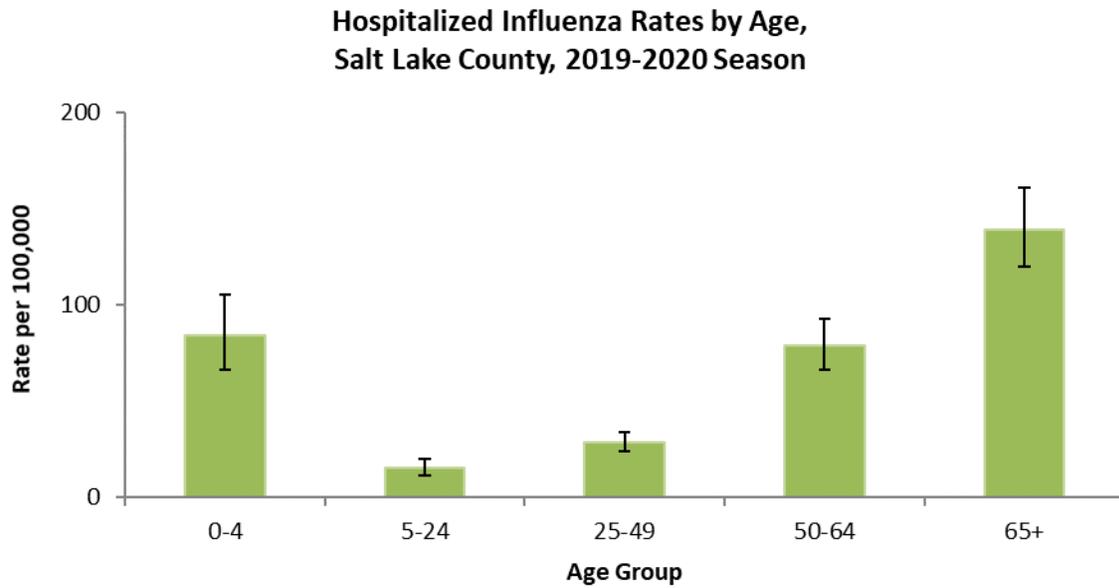
Figure 3



Demographic Profile

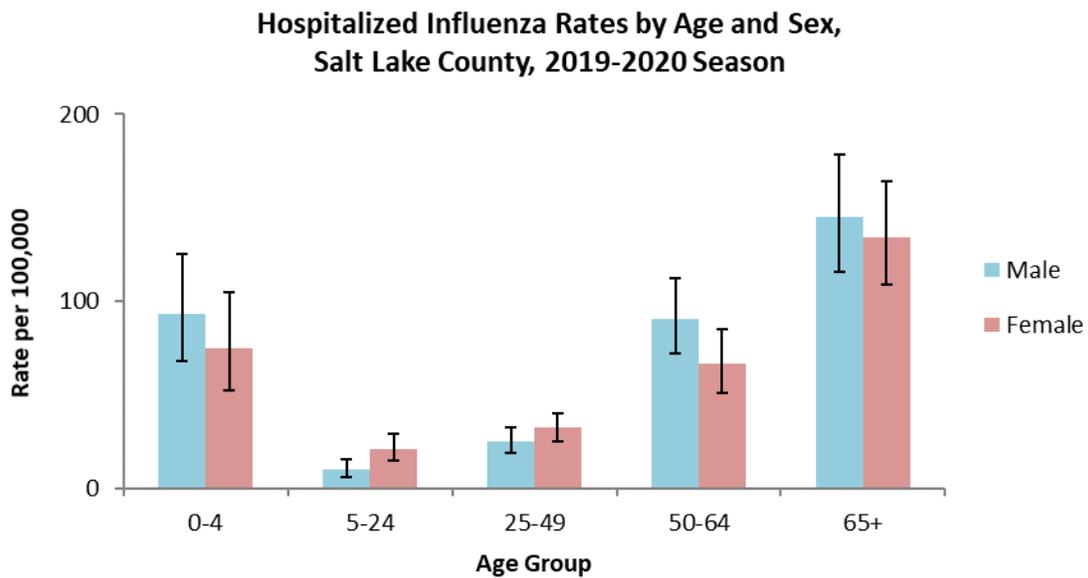
The 65+ age group was disproportionately affected by influenza compared to all other age groups, with a rate of 139 per 100,000 population. The lowest rate was among the 5-24 age group at 16 per 100,000 population. See figure 4.

Figure 4



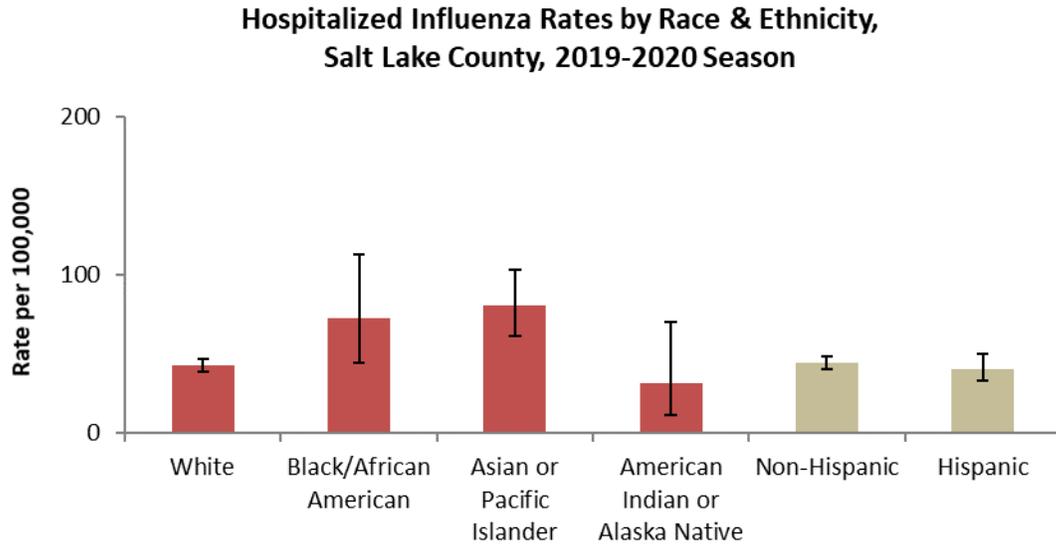
When looking at age and sex, there were no significant differences between males and females in any age group. The highest rates were among both males and females over the age of 65. Male rates for the 65+ age group were 149 per 100,000 population and female rates were 134 per 100,000 population. See figure 5.

Figure 5



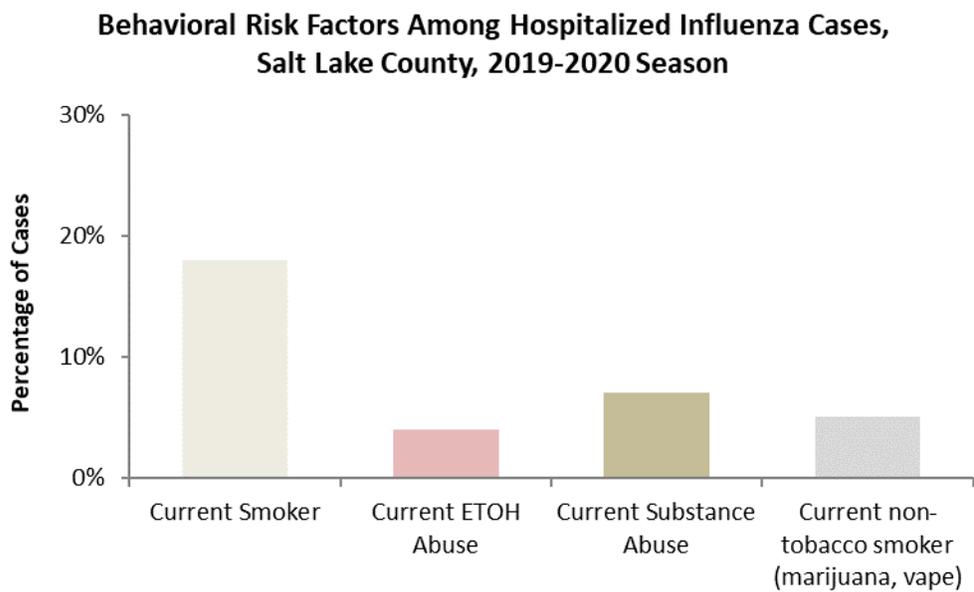
Statistically significant differences were identified between the white and Asian or Pacific Islander populations. This means that Asian or Pacific Islanders were disproportionately hospitalized for influenza compared to whites. The Asian or Pacific Islander population saw a rate of 80 per 100,000, where the white population had a rate of 43 per 100,000 population. There was not a significant difference between Hispanic and non-Hispanic populations. See figure 6.

Figure 6



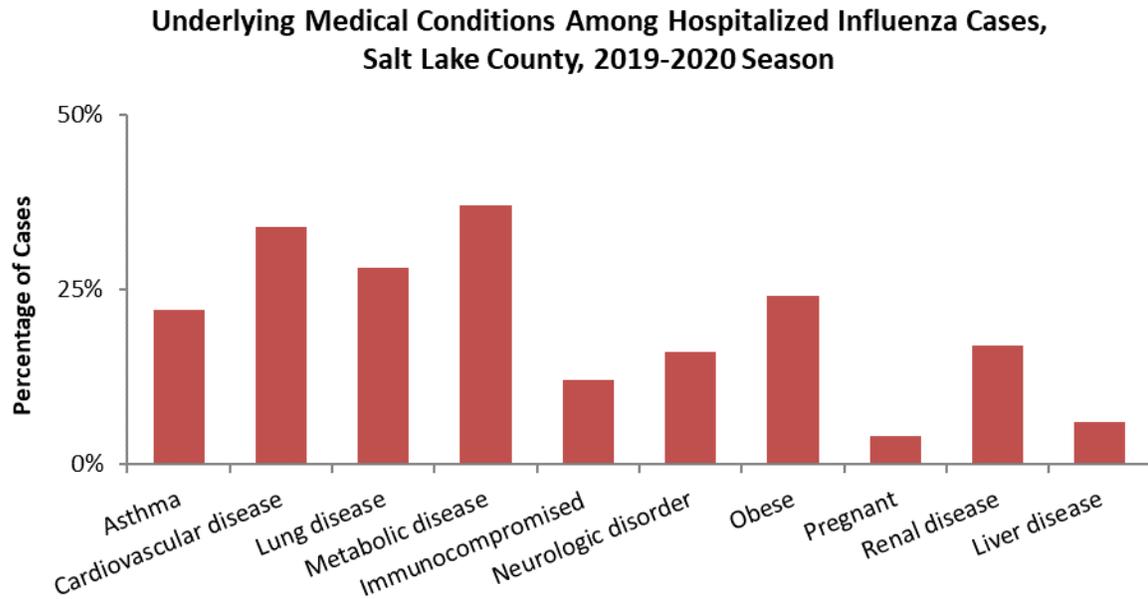
Behavioral risk factors were analyzed to identify additional conditions that may contribute to hospitalization due to influenza. Smoking was the highest risk factor, with 18% of hospitalized cases reporting current smoking habits. See figure 7.

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.

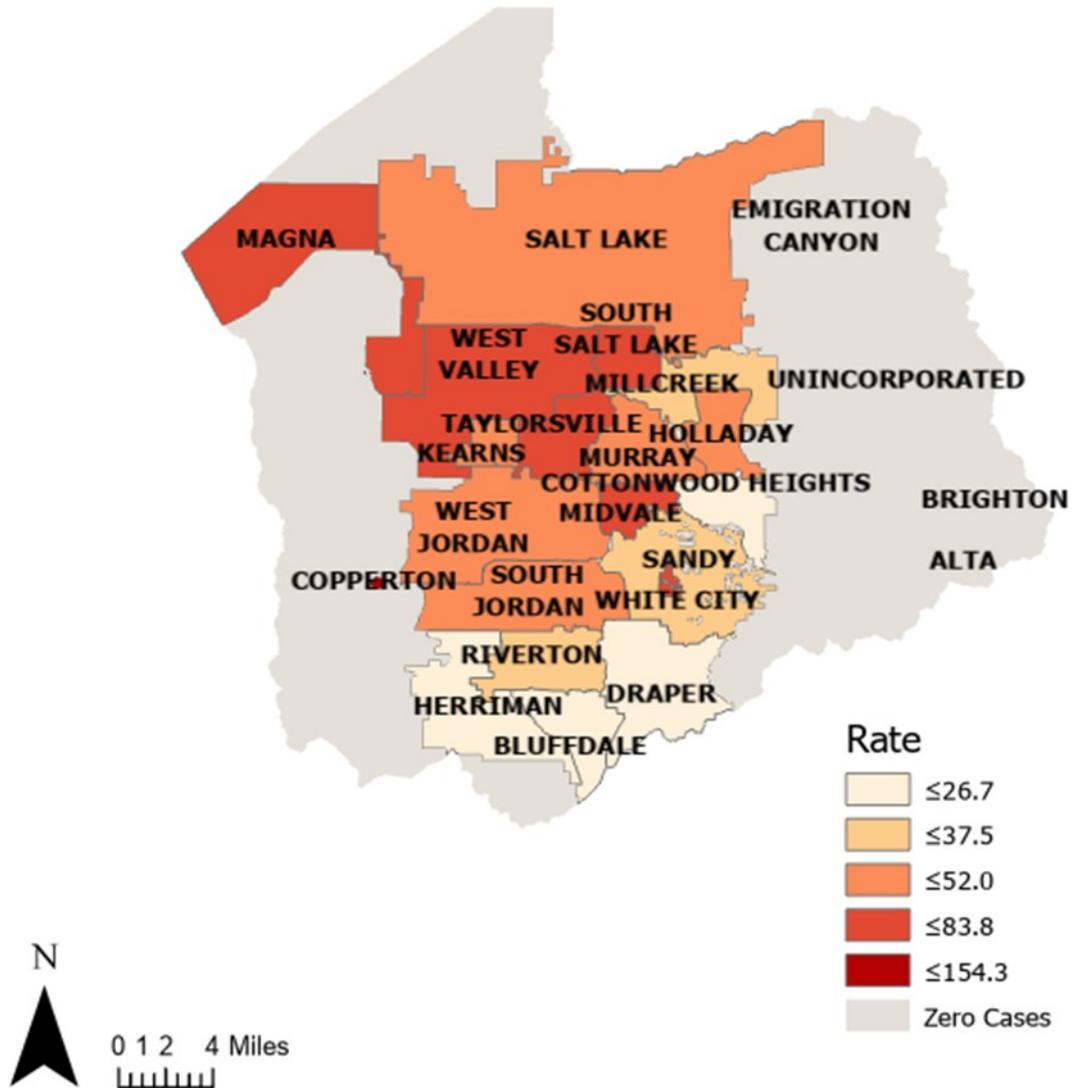
Figure 8



2019-2020 Influenza Season: Influenza-associated Hospitalizations in Salt Lake County (per 100,000)

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

Figure 9

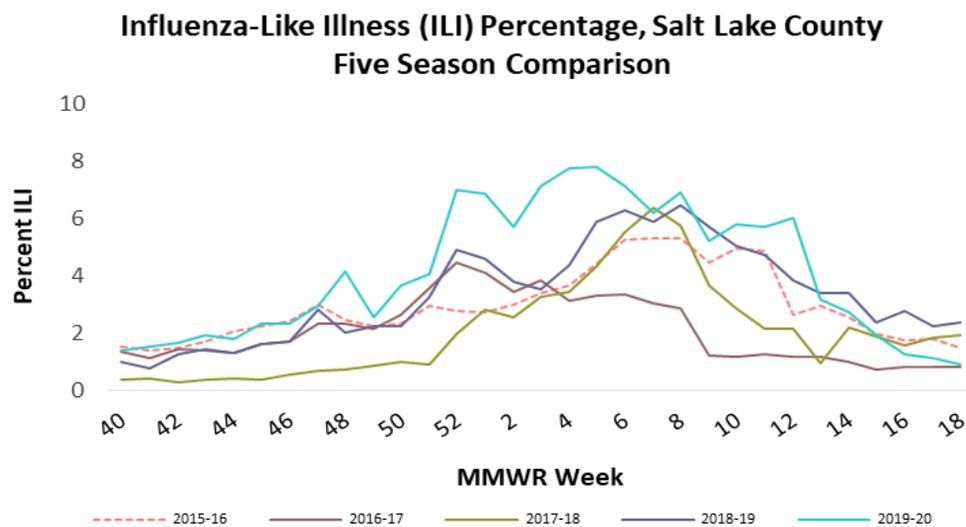


*Rate for Unincorporated areas of Salt Lake County is 8.1 – not shown on map
 *Rates calculated using American Community Survey (ACS) 2018 5-year population estimates, except Census Designated Places (Alta, Brighton, Copperton, Emigration Canyon, Kearns, Magna, Millcreek, White City; ACS 2015) and unincorporated Salt Lake County (Census 2010), U.S. Census Bureau.

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 2019-20 season following a similar trend as hospitalizations, with no profound peak. Yet the highest ILI percentages are seen in January and February, where the highest hospitalization counts are seen in February and March.

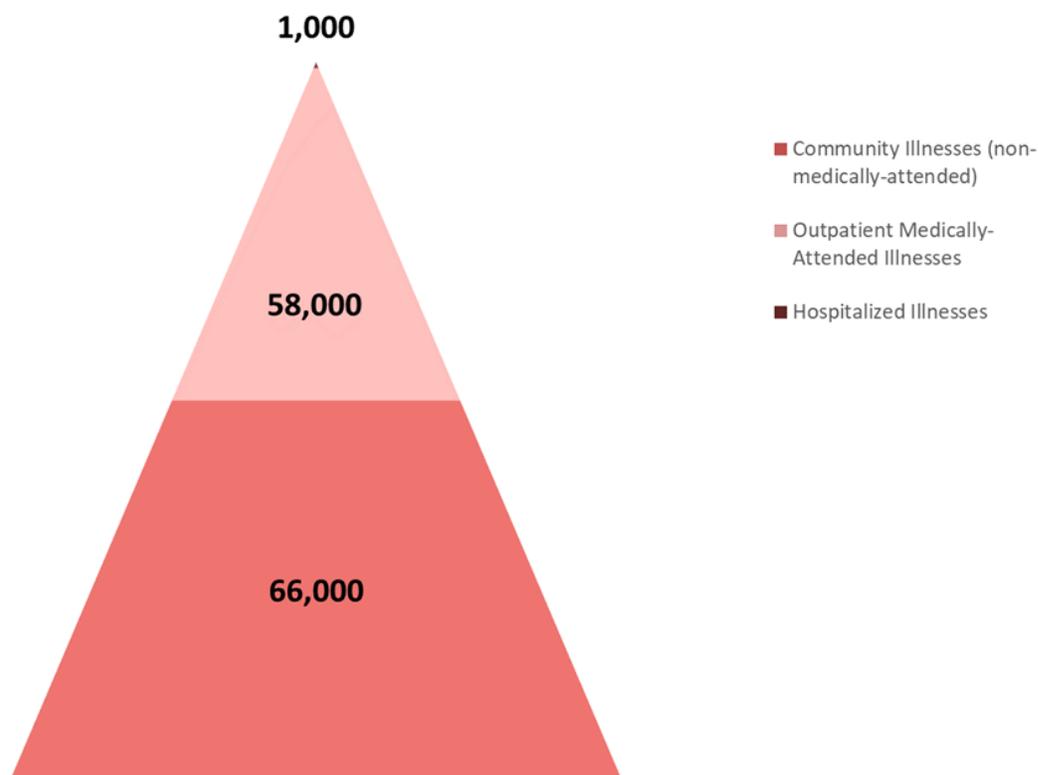
Figure 10



School absenteeism is another outpatient indicator that can help track influenza trends. Unfortunately, the school absenteeism data feed was down for the majority of the season. Therefore, school absenteeism data for the 2019-20 season is unavailable.

Below is a model that assesses influenza burden throughout Salt Lake County by accounting for the underreporting of hospitalized influenza cases. 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 2019-20 season in Salt Lake County, it is projected that 1,000 cases may have been hospitalized, 58,000 residents may have been sick with influenza and sought medical care and 66,000 residents may have been sick with influenza and did not seek care. See figure 11.

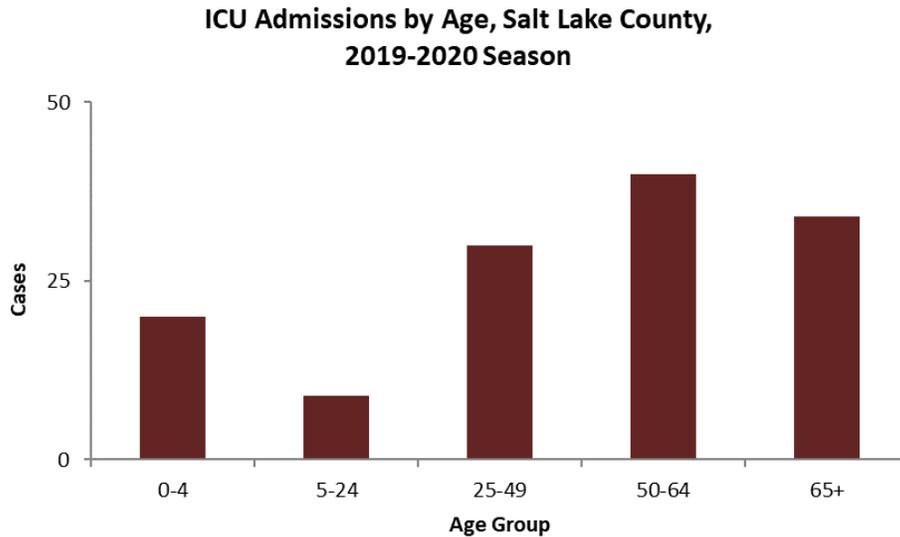
Figure 11



Severity

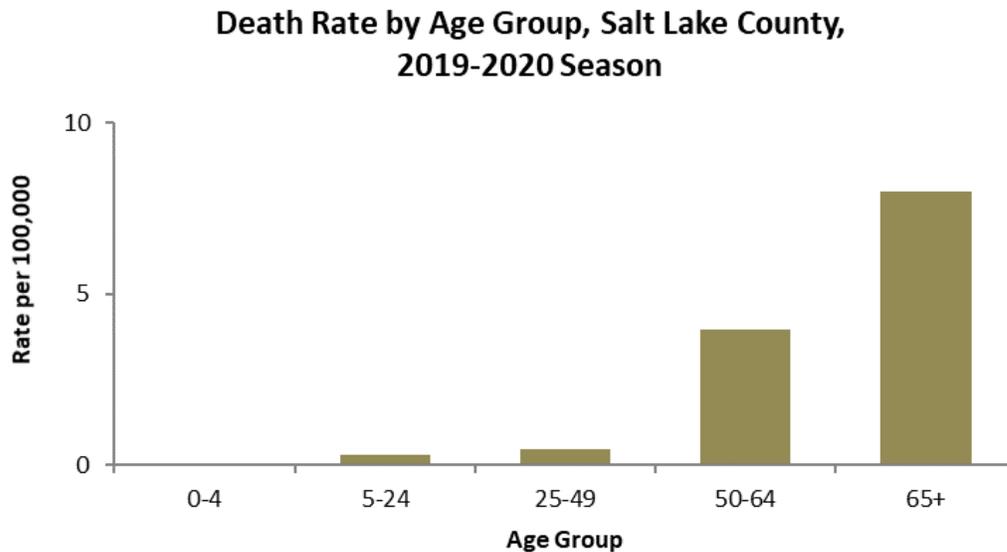
Twenty-four percent of hospitalized influenza cases during the 2019-20 season were admitted to an intensive care unit (ICU), compared to 21% during the 2018-19 season. The 50-64 age group had the highest number of cases admitted to an ICU. Figure 12 shows the ICU distribution by age among all hospitalized cases.

Figure 12



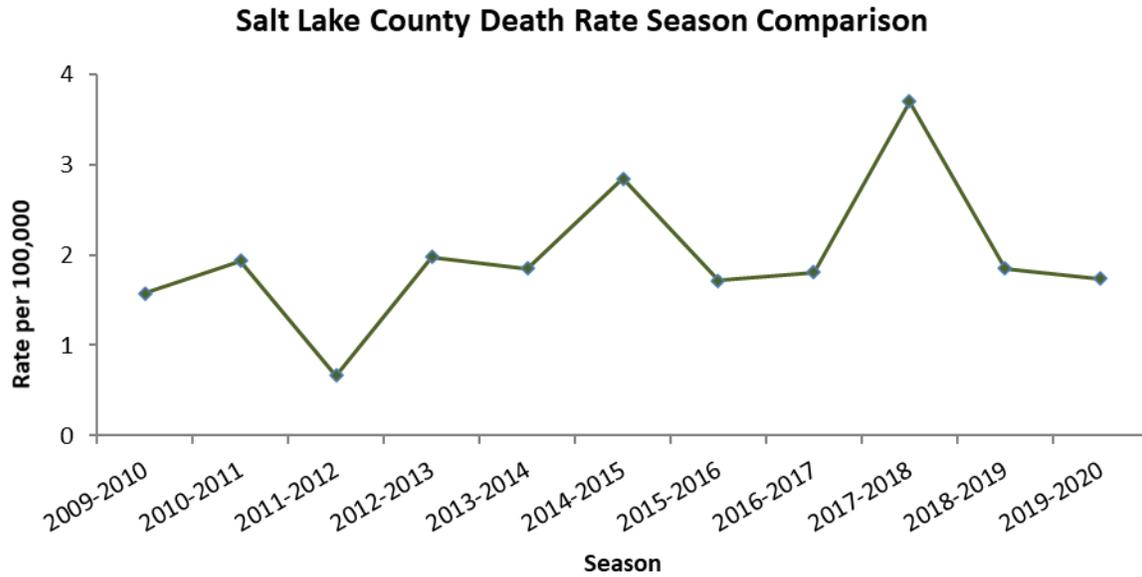
There were 20 influenza-related deaths during the 2019-20 season, compared to 21 deaths during the 2018-19 season. The highest death rate was among the 65+ age group with 8 per 100,000 population. Figure 13 displays the death rates that occurred by age.

Figure 13



When looking at a multi-season comparison, the 2019-20 season death rate decreased slightly in comparison with the 2018-19 season. See figure 14.

Figure 14



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 the Salt Lake County Health Department to communicate with community partners in order to assist in planning and allocating resources in the midst of the season.

According to the Salt Lake County severity thresholds, the 2019-20 season was categorized as a **moderately** severe season. (Utah and the U.S. assessments are not available yet for the 2019-20 season). Table 1 displays a comparison of the overall severity for the past six seasons in Salt Lake County, Utah and the United States. See table 1.

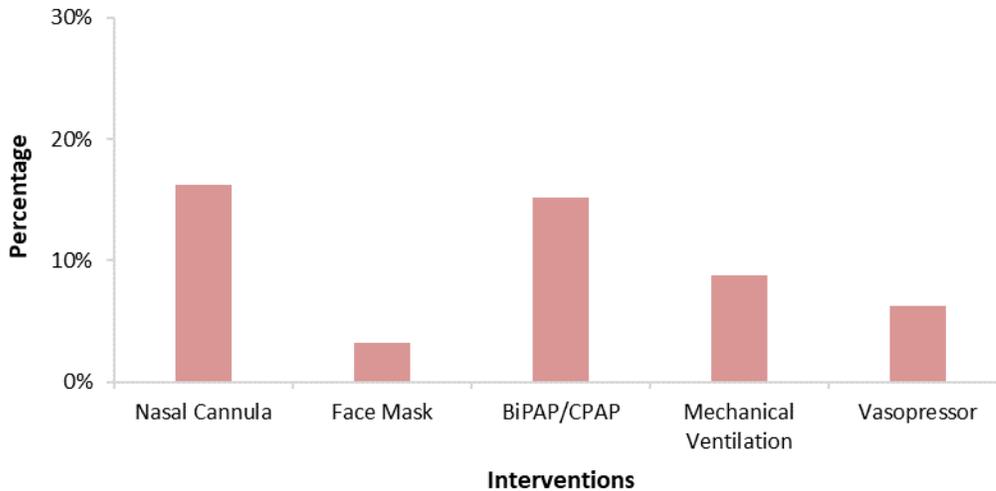
Table 1

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Salt Lake County	Moderate	Very High	Moderate	Moderate	High	Moderate
Utah	Moderate	Moderate	Moderate	Moderate	High	High
United States	Moderate	Moderate	Moderate	Moderate	High	Moderate

Figure 15 displays a variety of interventions that occurred during hospitalization that indicate disease severity. The most frequent intervention was receiving supplemental oxygen by nasal cannula, with 16% of hospitalized influenza patients receiving nasal cannula in the emergency department or upon admission.

Figure 15

Interventions Received by Hospitalized Influenza Patients During Admission, Salt Lake County, 2019-2020 Season



Fourteen influenza outbreaks were identified during the 2019-20 season, compared to 27 throughout the 2018-19 season. Table 2 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.

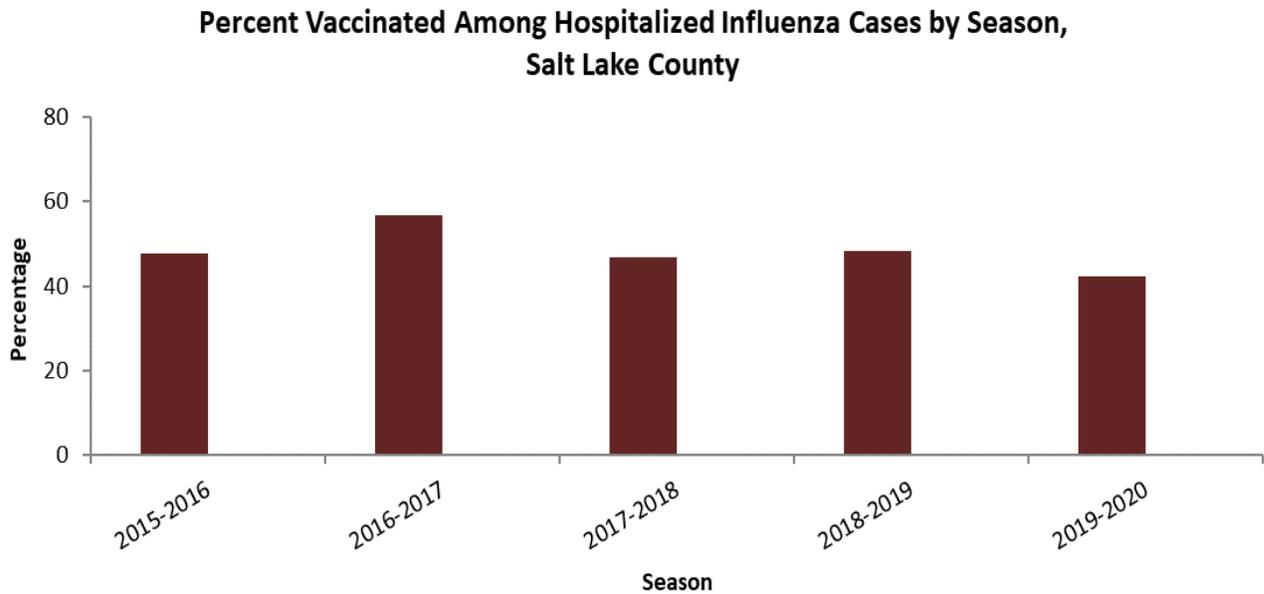
Table 2

Facility Type	Number of Facilities Affected	Number of Ill Cases	Number of Cases Tested Positive	Influenza Types	Number of Cases Vaccinated
Long Term Care Facility	6	63	42	Flu A(not typed), AH1N1	26
School	3	184	18	Flu A(not typed)	Unknown
Daycare	1	15	3	Unknown	Unknown
Homeless Shelter	3	12	12	Flu A(not typed), AH1N1, Flu B(not typed)	1
Private Business	1	45	4	AH1N1	Unknown

Vaccine

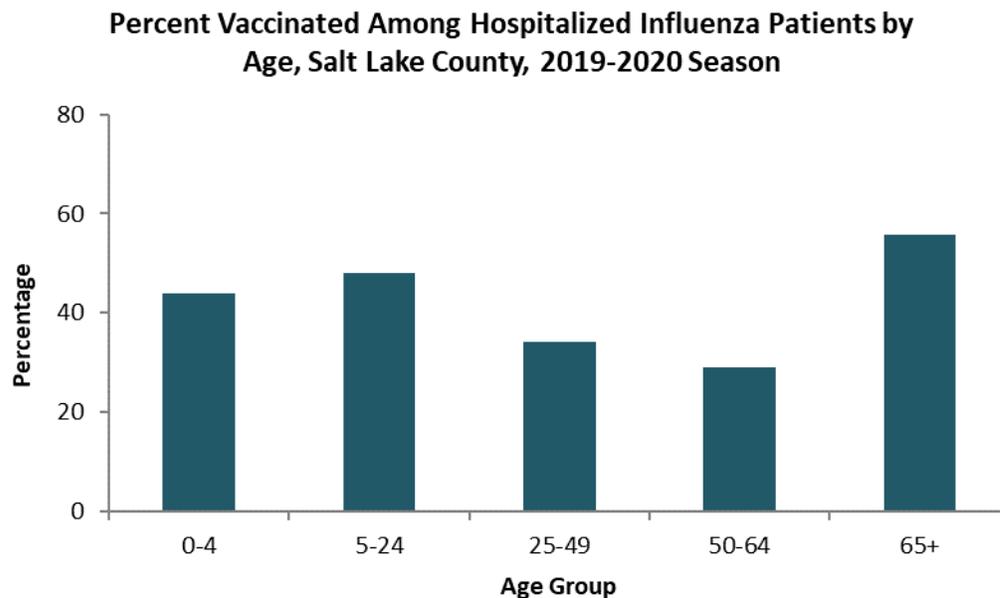
A five season comparison shows that the percent vaccinated for the 2019-20 season was lower than the 2018-19 season. Forty-two percent of cases were vaccinated during the 2019-20 season compared to 48% the season prior. See figure 16.

Figure 16



When divided by age, the 65+ age group had the highest percent vaccinated at 56%, with the 50-64 age group having the lowest percent vaccinated at 29%. See figure 17.

Figure 17



Conclusion

Compared to the 2018-19 season, the 2019-20 season had less case counts and was less burdensome, but the same severity assessment of a moderately severe season. The 2019-20 season also saw two influenza strains circulating, but unlike the 2018-19 season, they appeared to be circulating simultaneously. The two predominant strains seen were AH1N1 and B(Victoria). It is unclear how the introduction of COVID-19 in March may have also affected influenza counts since both AH1N1 and B(Victoria) tend to circulate more in late winter, early spring. Salt Lake County did see a very high ILI percentage, which could have been an indicator for increasing COVID-19 infection within the community.

Significant differences were found between the white and Asian or Pacific Islander communities, indicating that the Asian or Pacific Islander population was disproportionately hospitalized for influenza compared to whites. As for age, the 65+ age group was disproportionately affected by influenza compared to all other age groups. When broken down by age and sex, there were no significant differences between males and females in any age group.

The 2019-20 season saw a similar death rate when compared to the 2018-19 season and as is typical with influenza, the highest mortality rate was among the 65+ age group. Vaccination coverage among hospitalized cases was lower than the 2018-19 season, with only 42% of cases reported as vaccinated. As we enter the first full influenza season with the circulation of COVID-19, it will be interesting to see if influenza vaccination rates increase to help prevent coinfection. Furthermore it will be interesting to observe if an increase in vaccination will cause a decrease in influenza-associated hospitalizations.