

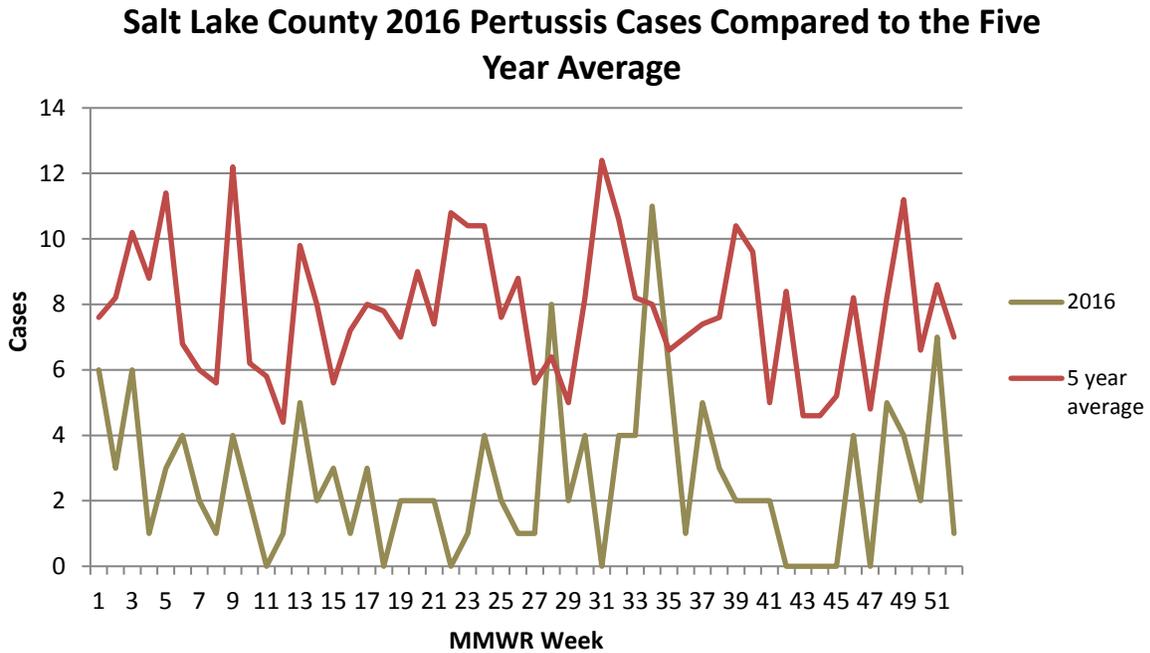


Pertussis: 2016 Year End Report

This report characterizes primary surveillance data collected by the Salt Lake County Health Department from questions on the Utah Pertussis Investigation Form and incorporates secondary data from the state of Utah (same form) and the United States (Centers for Disease Control and Prevention).

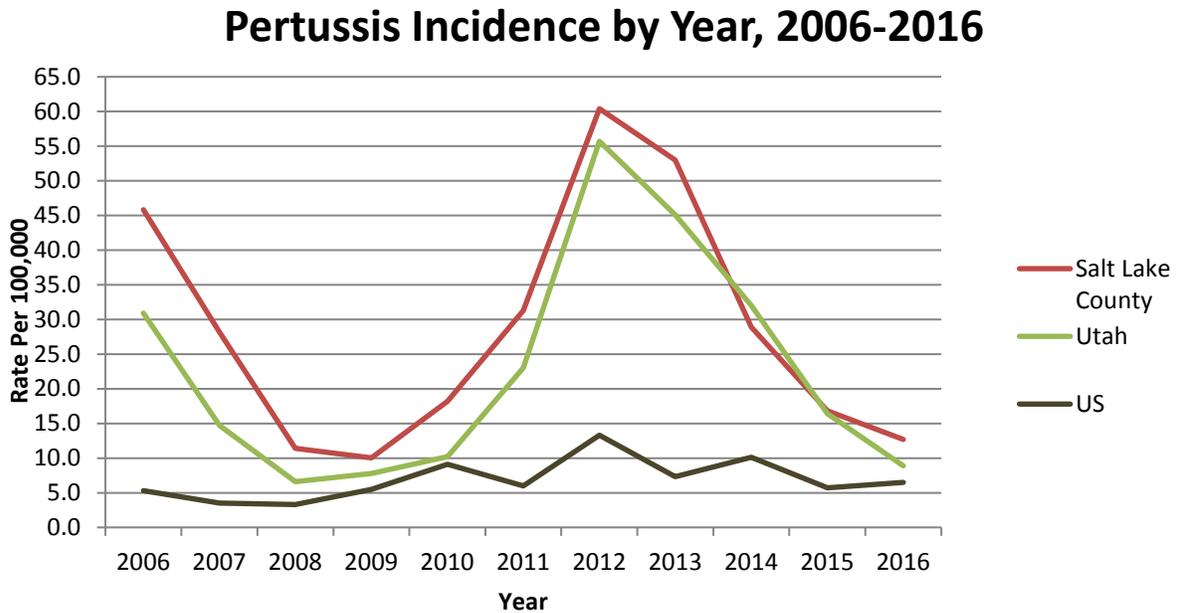
There were 141 confirmed and probable pertussis cases in Salt Lake County in 2016. Compared to the five-year average, case counts typically fell below the five-year average for all of 2016 (Figure 1).

Figure 1



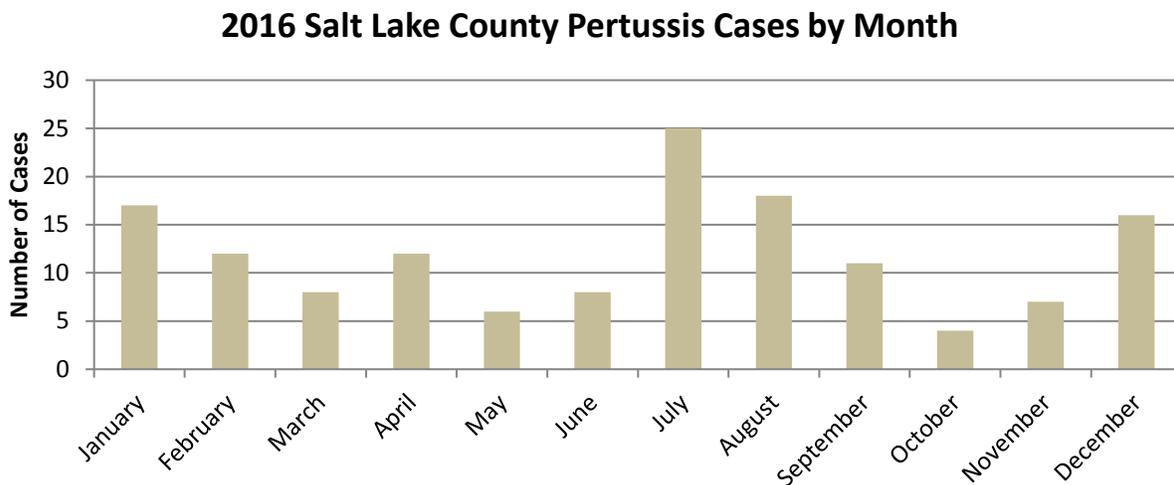
The incidence rate for Salt Lake County was 12.7 per 100,000 population. Over a ten-year period, Salt Lake County has had higher incidence rates than the US; however, Salt Lake County and Utah follow a similar trend (Figure 2).

Figure 2



During 2016, monthly trends show that the pertussis cases peaked in July, and later saw a smaller peak in December (Figure 3).

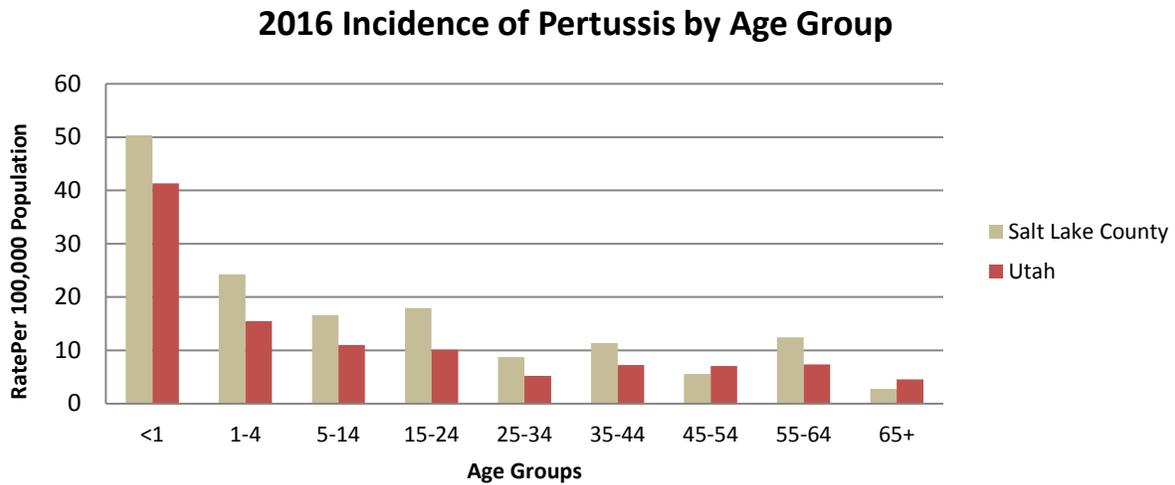
Figure 3



Demographics

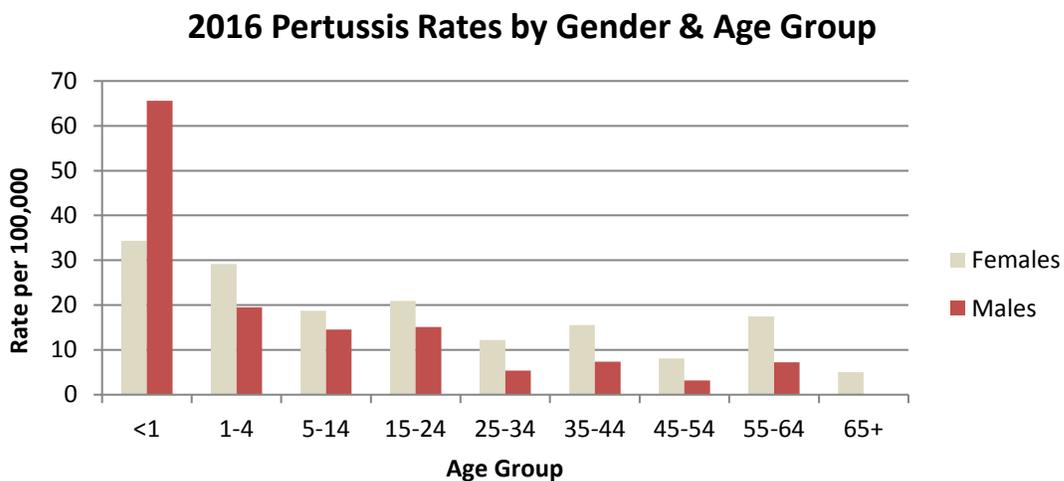
Pertussis surveillance for age is broken into nine standard age categories as shown in Figure 4. Incidence for pertussis in Salt Lake County is highest among the less than one age group at 50 per 100,000 population. Utah follows the same trend.

Figure 4



In 2016 females had a higher rate than males among total cases (16 per 100,000 population compared to 10). The only age group in which the rate for males was higher than females was the <1 age group. This was considerably higher than the female rate at 66 per 100,000 population compared to 34 (Figure 5).

Figure 5



As shown in Figures 6 and 7, pertussis rates are highest among the Pacific Islander and non-Hispanic populations of Salt Lake County.

Figure 6

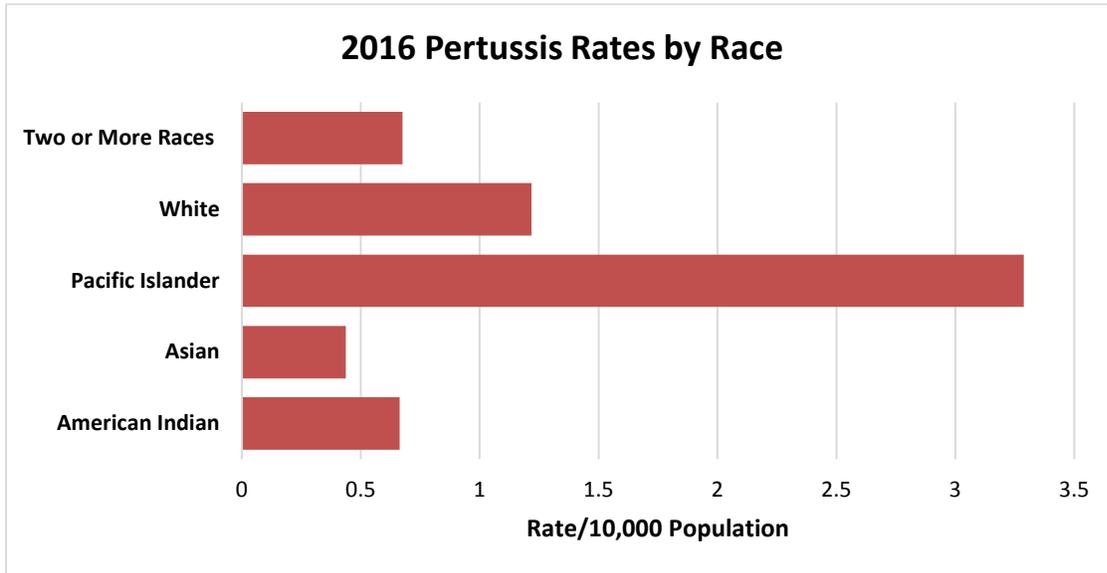
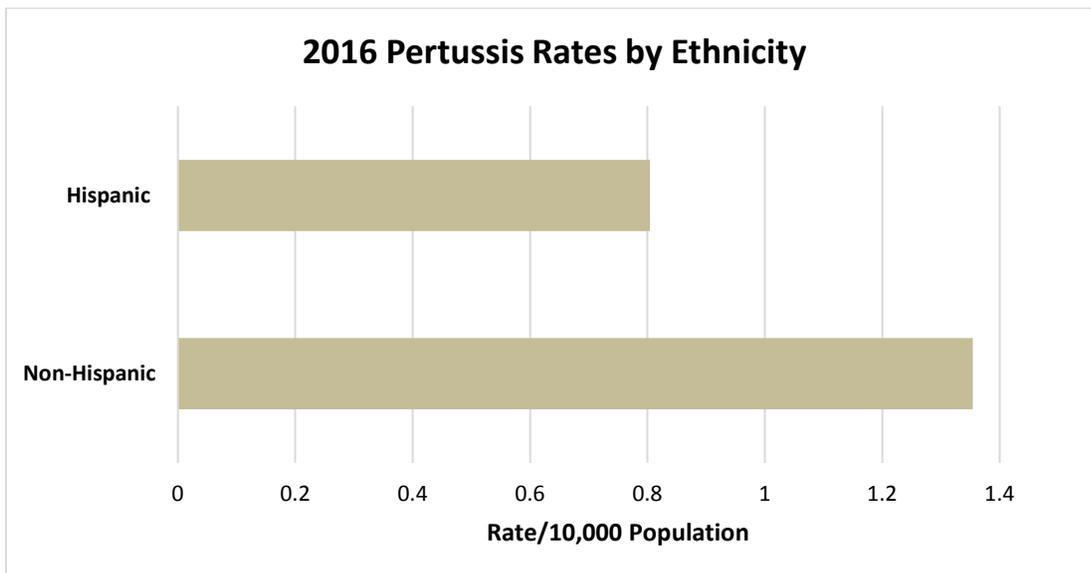
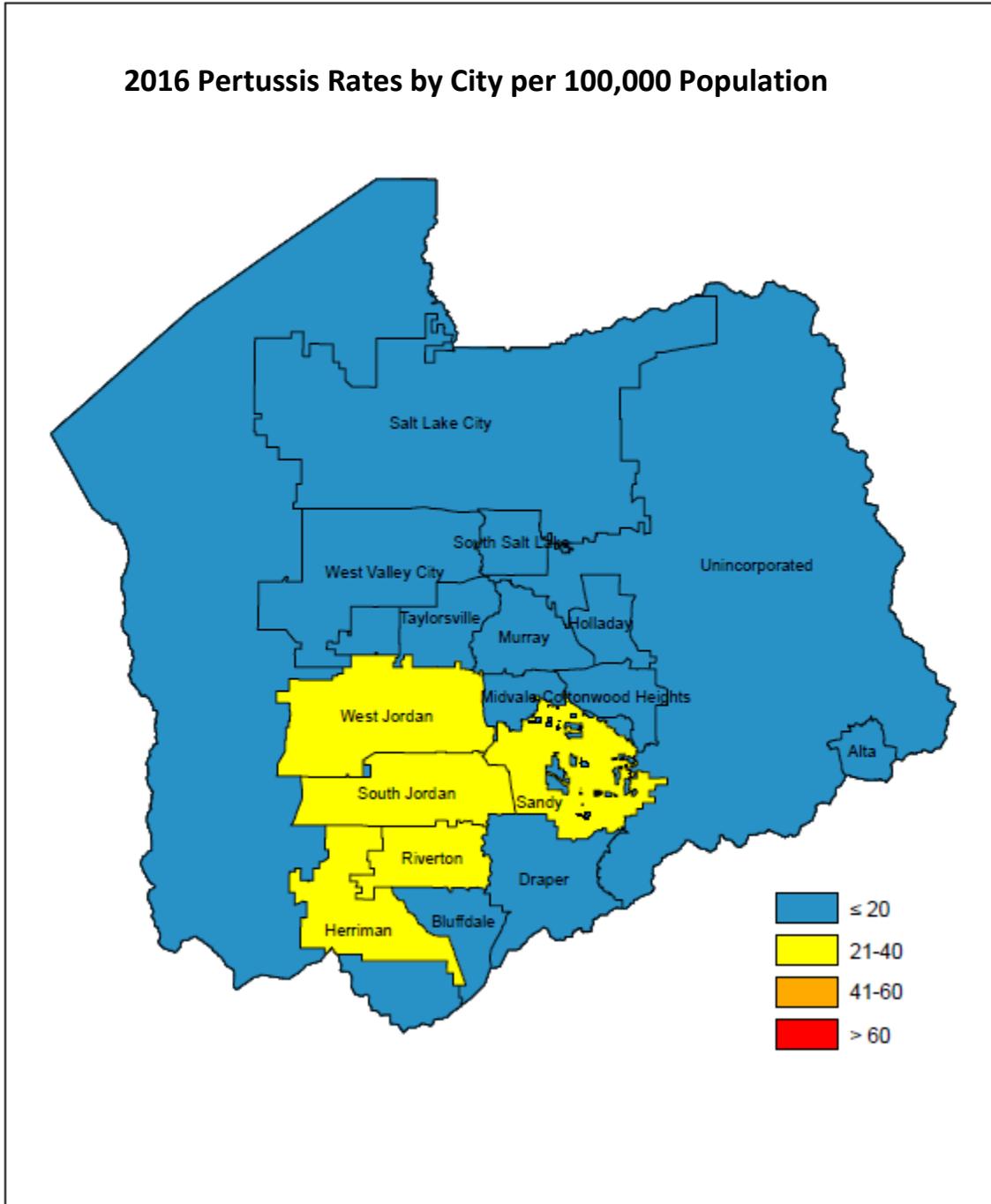


Figure 7



In 2016 the cities of Murray, Holladay, and Draper saw a decrease in rate when compared to 2015. On the contrary, South Jordan, Riverton, and Sandy all saw an increase. West Jordan and Herriman had rates similar to those seen in 2015.

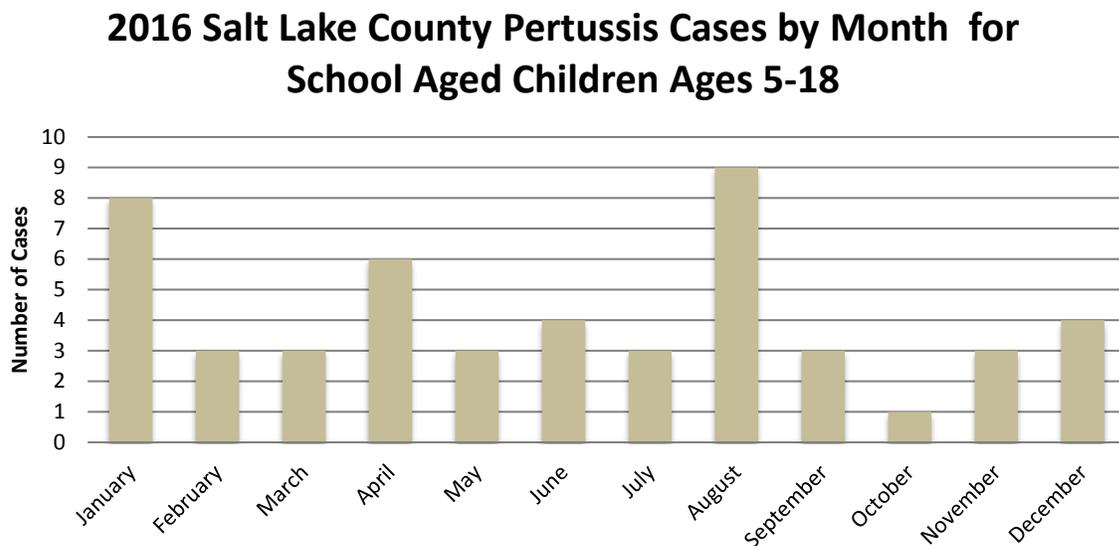
Figure 8



Outbreaks

There were four pertussis outbreaks identified in Salt Lake County in 2016. Outbreaks occurred at a charter school, preschool, church and credit union. The exemption rate at the charter school was 11%, which is high for a school within Salt Lake County (average rate is 3%). Even though there was only one outbreak in schools this year, school aged children had high case counts throughout the year. Figure 9 shows the number of cases reported each month in school aged children ages 5-18.

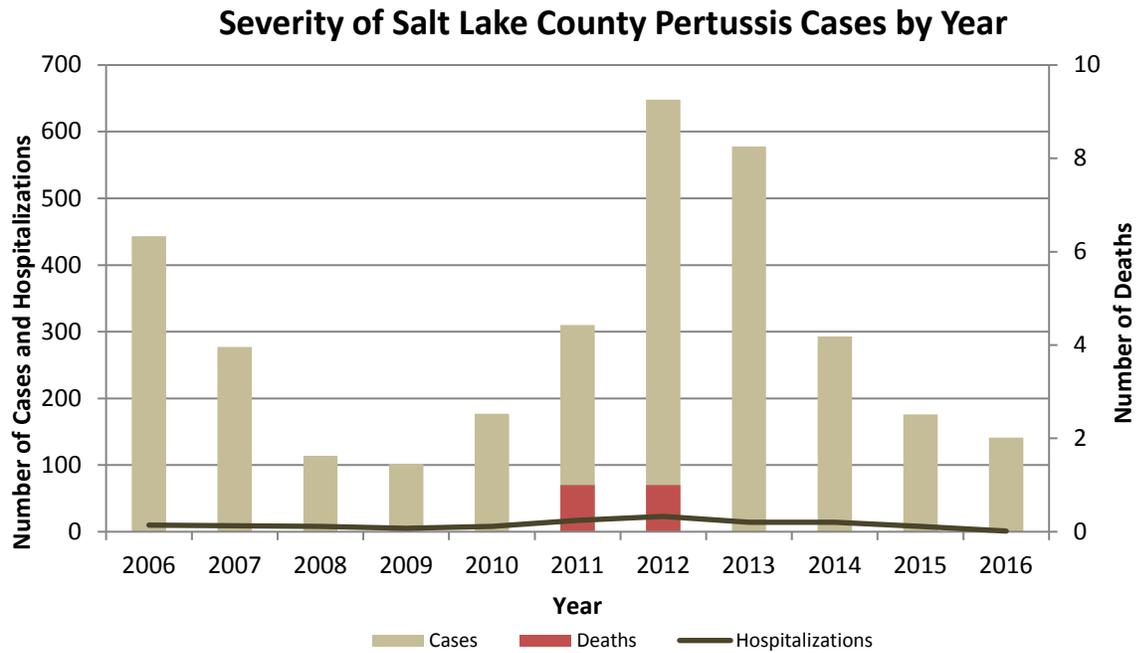
Figure 9



Severity

Severity remained low among 2016 pertussis cases (Figure 10). There were no deaths from pertussis in 2016 in Salt Lake County or in Utah.

Figure 10



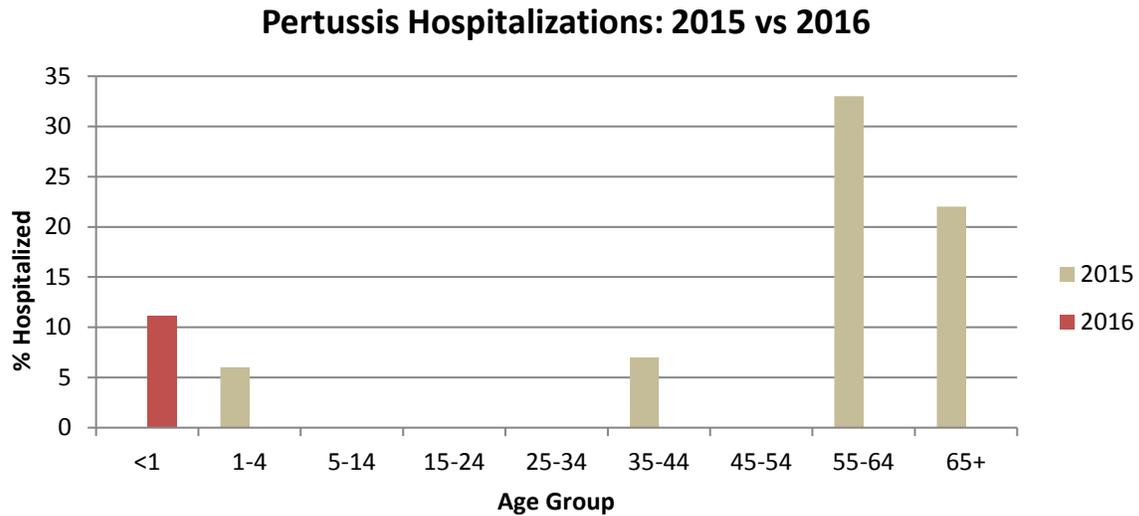
The percentage of hospitalizations has been similar for the state of Utah and Salt Lake County since 2006 and remains so in 2016 (Table 1).

Table 1

Year	% Hospitalized SLCO	% Hospitalized Utah
2006	2	3
2007	3	5
2008	7	7
2009	5	5
2010	5	5
2011	5	4
2012	4	3
2013	2	2
2014	5	4
2015	5	3
2016	1	5

Contrary to 2015, where the percentage of hospitalizations was highest among the 55-64 and 65+ age groups, in 2016 the only hospitalizations occurred in the less than one age group (Figure 11).

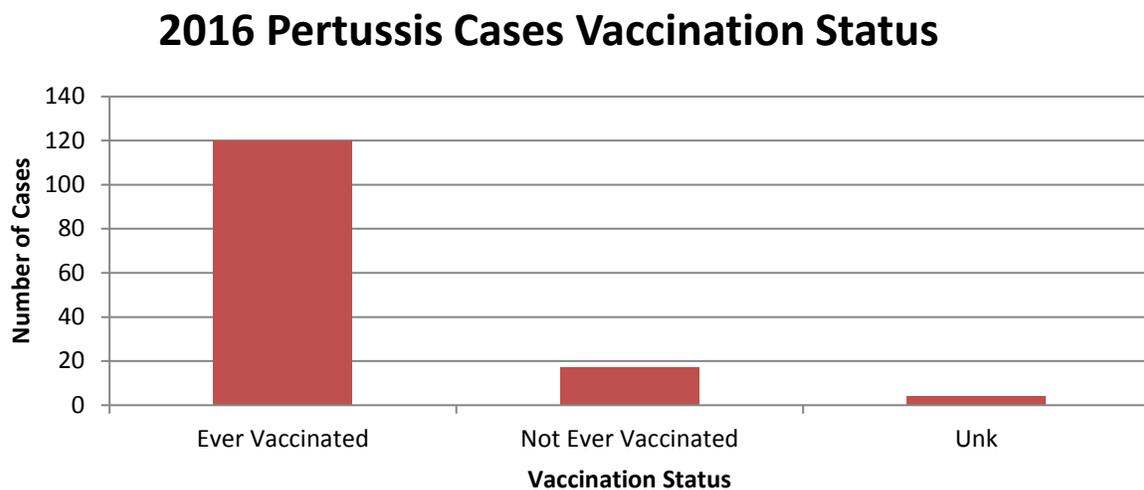
Figure 11



Vaccination

The percentage of cases that were vaccinated in 2016 was 85%. Of those cases, 54% were considered up to date. Out of the 141 pertussis cases in Salt Lake County, 12% of cases had never been vaccinated (Figure 12).

Figure 12



The most common reasons for never having received a vaccine were philosophical objections and other/refused, such as family members having adverse reactions (Figure 13). The percent of cases that have never been vaccinated increased slightly in 2016 to 12 percent (Figure 14).

Figure 13

Salt Lake County 2016 Pertussis Cases Reasons for Not Receiving Vaccine

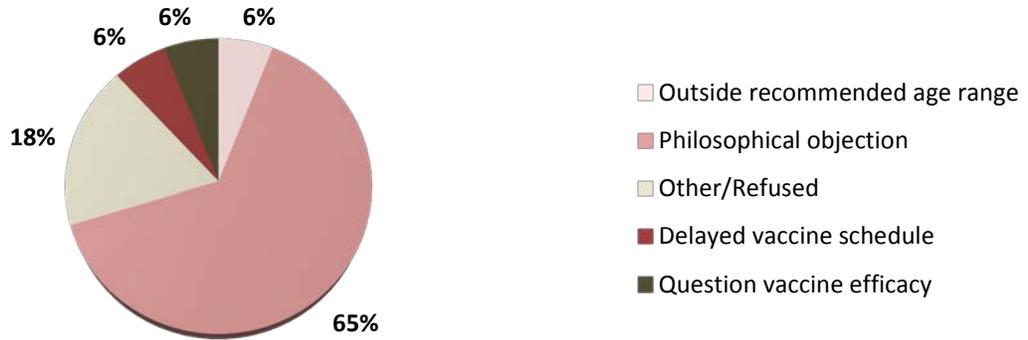
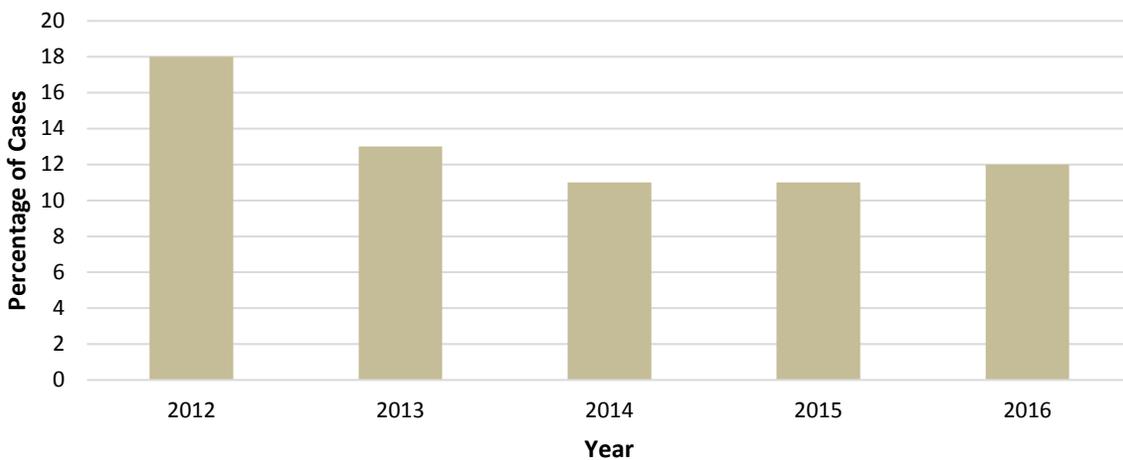


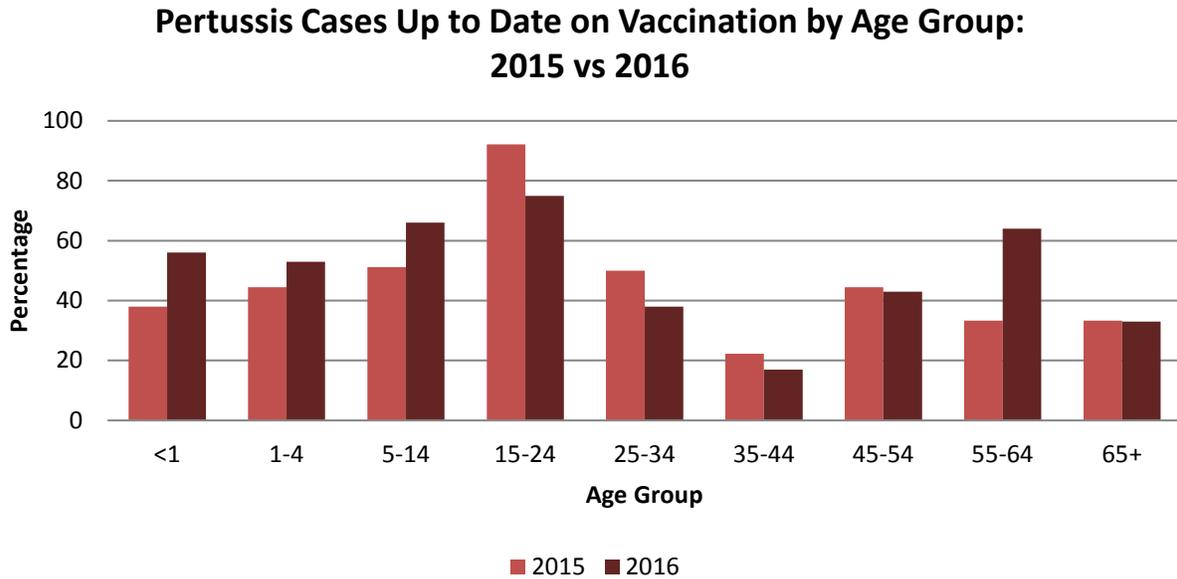
Figure 14

Percent of Unvaccinated Pertussis Cases Salt Lake County 2012-2016



Vaccination rates were highest for those 15-24 years of age in 2016 (Figure 15). Considerable improvement was made in both the <1 and 55-64 age groups regarding up to date status.

Figure 15



Conclusion

The incidence of pertussis cases in Salt Lake County has continued to decrease dramatically from 2012 to 2016. The percentage of cases that were vaccinated dropped slightly in 2016 from 86% to 85%. The percentage of cases that had never been vaccinated increased slightly in 2016 to 12%, up from 11% in 2015. However, the number of cases that were considered up to date increased from 52% in 2015 to 54% in 2016. The cities of Murray, Holladay, and Draper all saw a decrease in rate when compared to 2015, while South Jordan, Riverton, and Sandy all saw an increase. The rates for West Jordan and Herriman remained the same from 2015 to 2016.