



Holdrege Urban Area - COVID-19 Status Report 22 Oct 2020

Background

The Two Rivers Public Health Department (TRPHD) covers 7 counties in central Nebraska, reaching 97,132 people who live and work in the health district spread across roughly 4663 square miles. Over three quarters of residents live in Buffalo and Dawson county, a tenth live in Phelps county, and the remaining 15% is spread somewhat comparably among the four counties of Kearney, Harlan, Franklin and Gosper in decreasing order of population. The largest urban areas are Holdrege (~5439 people), Lexington (~10,024 people), and Kearney (~33,835 people), meaning that over half of the residents of TRPHD live in three urban areas, and over a third live in Kearney city alone.

Methods & Definitions

To better understand the course of the COVID-19 pandemic in Kearney, Lexington and Holdrege, we created 'urban areas' that included both the city and its surrounding towns. We included all towns within 20 miles of Kearney city, 15 miles of Lexington and 10 miles of Holdrege within each city's urban area.

Thus "Kearney area" includes Kearney city as well as Elm Creek, Pleasanton, Amherst, Riverdale, Gibbon, Shelton and Axtell.

"Lexington area" includes Lexington city as well as Overton, Johnson Lake and Cozad.

"Holdrege area" includes Holdrege city, Loomis and Funk.

For presenting data, we selected 3 time frames:

- a) April 1 - Oct 20 (From the beginning of the pandemic to current)
- b) July 01 - Oct 20 (From the beginning of second sustained period of increase in daily case counts to current)
- c) Sep 23 - Oct 20 (Previous 4 weeks)

Data is presented as 7-day rolling averages for daily numbers and absolute counts for cumulative cases



In the third edition of this document, we will

- a) Look at the overall course of the COVID-19 pandemic in TRPHD from April - October (**33 weeks**) and identify the outbreaks in each of the three urban areas.
- b) Analyze data from July 01 - October 20 (**16 weeks**) to see daily cases across urban regions in TRPHD, depicting cases across Holdrege area by age and city of residence. We will also describe average daily positivity rates and cumulative cases. The curve is fitted with a third degree polynomial regression model, Pearson's coefficient (R^2) is displayed.
- c) Describe the progress of COVID-19 cases from Sep 23 - Oct 20 (**4 weeks**) across the three urban areas, presenting 7-day rolling averages in Holdrege by age and city of residence.

Overview

- **Fig 1** describes the COVID-19 pandemic in TRPHD from Mar 19 to Oct 20. **Fig 2** describes the cases in Lexington, Holdrege and Kearney areas from Apr 1 - Oct 20. It is apparent that the relative contribution by Holdrege and Kearney areas to the caseloads has steadily increased over the past 16 weeks.
- **Fig 3** describes 7-day rolling average of cases across all urban areas from Jul 1 - Oct 20 (16 weeks).
- **Fig 4** shows the average daily positivity rate in Holdrege area from Jul 1- Oct 20. Also shown are the cumulative cases across the area, fitted with a third degree polynomial regression model trendline.
- **Figs 5&6** describe 7-day rolling averages in Holdrege area during the same period, further divided by age and city of residence.
- **Fig 7** describes 7-day rolling average of cases in TRPHD by urban area from Sep 23 to Oct 20 (4 weeks). The continually rising cases in Holdrege over the past 4 weeks are cause for concern.
- **Figs 8&9** describe 7-day rolling averages in Holdrege area during the same period, further divided by age and city of residence.



Fig 1 (below) describes the 7-day rolling average of all COVID-19 cases in TRPHD from March 1- Oct 20, 2020

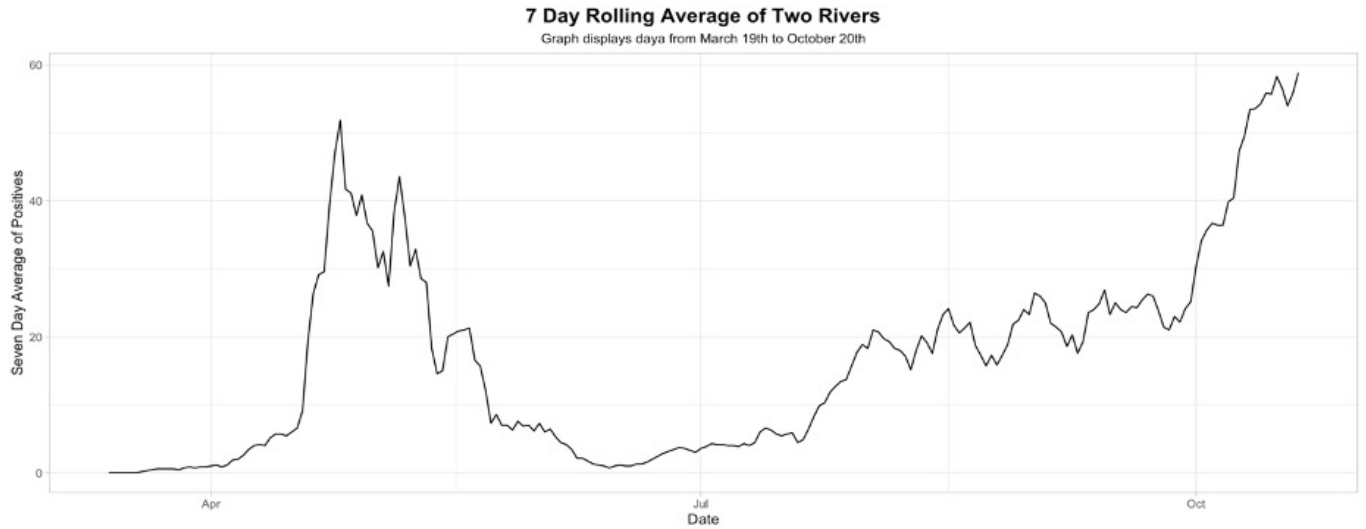


Fig 2 (below) describes the 7-day rolling average of all COVID-19 cases in Lexington, Kearney and Holdrege areas from April 1- Oct 20, 2020

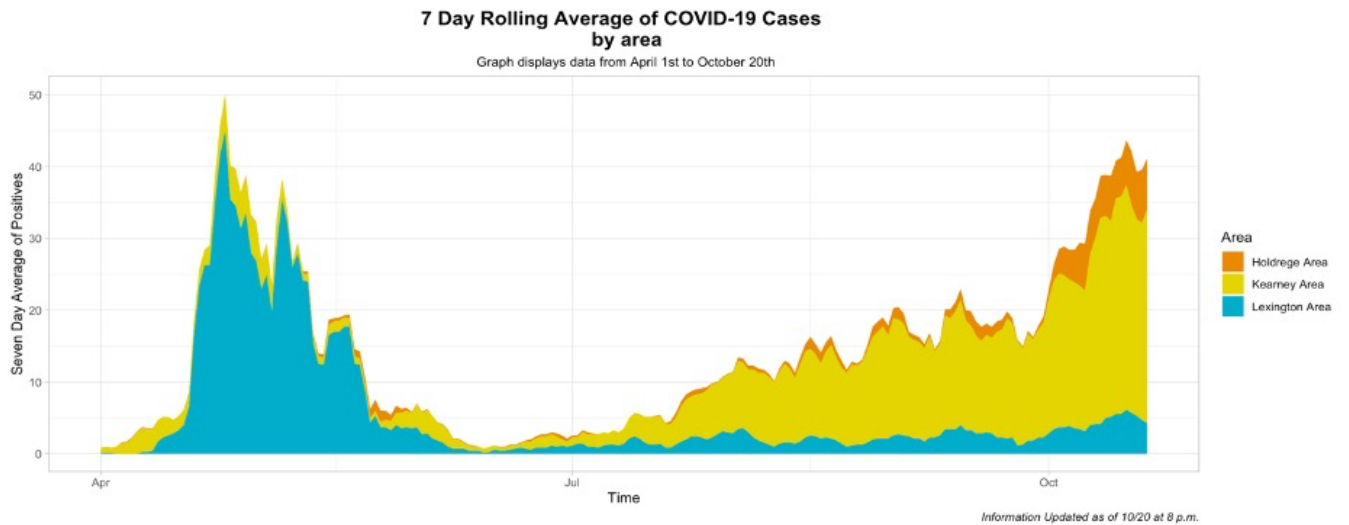




Fig 3 (below) describes the 7-day rolling average of COVID-19 cases in Kearney, Lexington and Holdrege areas from July 1 - Oct 20, 2020

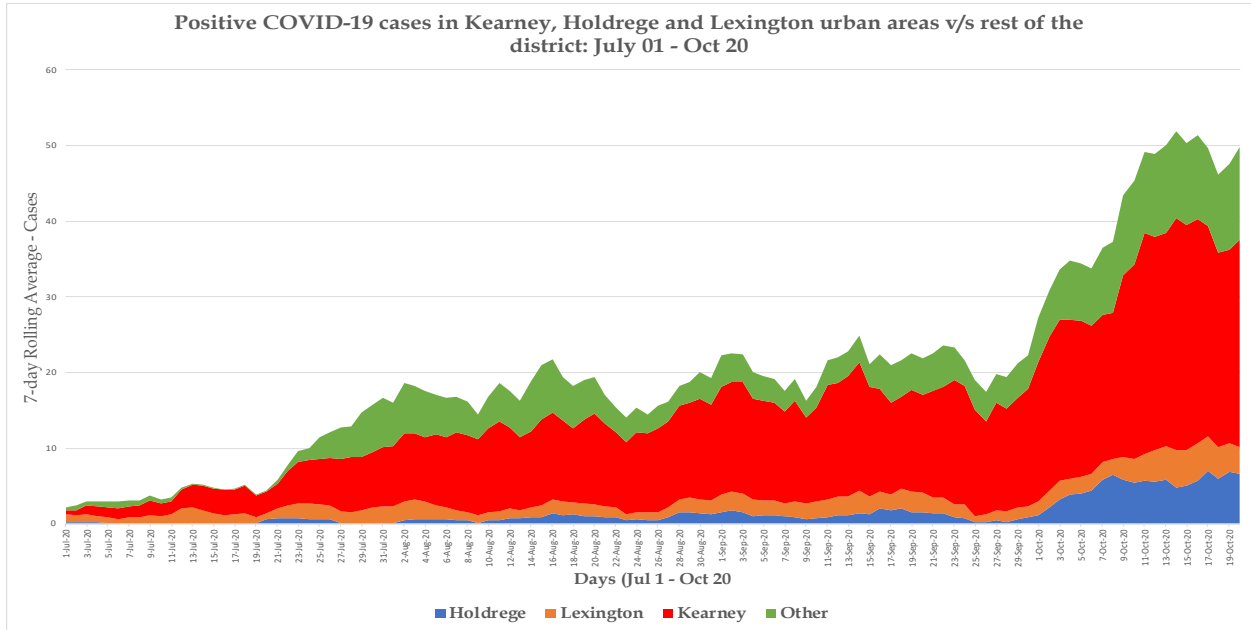


Fig 4 (below) describes the cumulative case totals and 7-day rolling average of COVID-19 cases in Holdrege area from July 1 - Oct 20, 2020

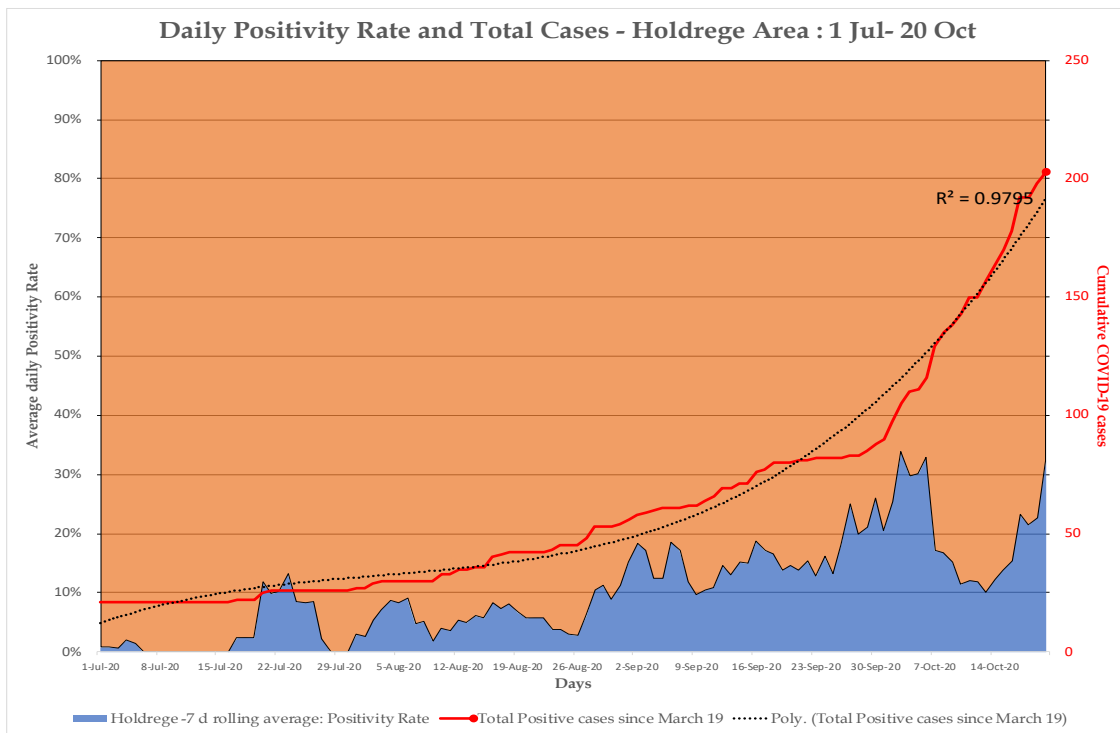


Fig 5 (below) describes the 7-day rolling average of COVID-19 cases by age in Holdrege area from July 1 - Oct 20, 2020

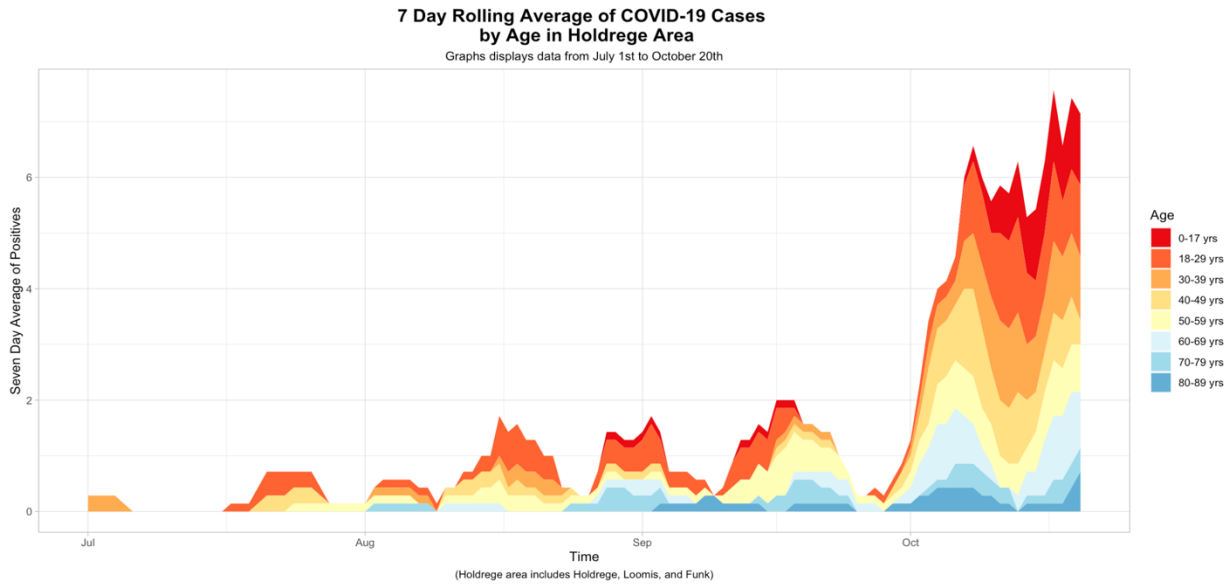


Fig 6 (below) describes the 7-day rolling average of COVID-19 cases across different cities in Holdrege area from July 1 - Oct 20, 2020

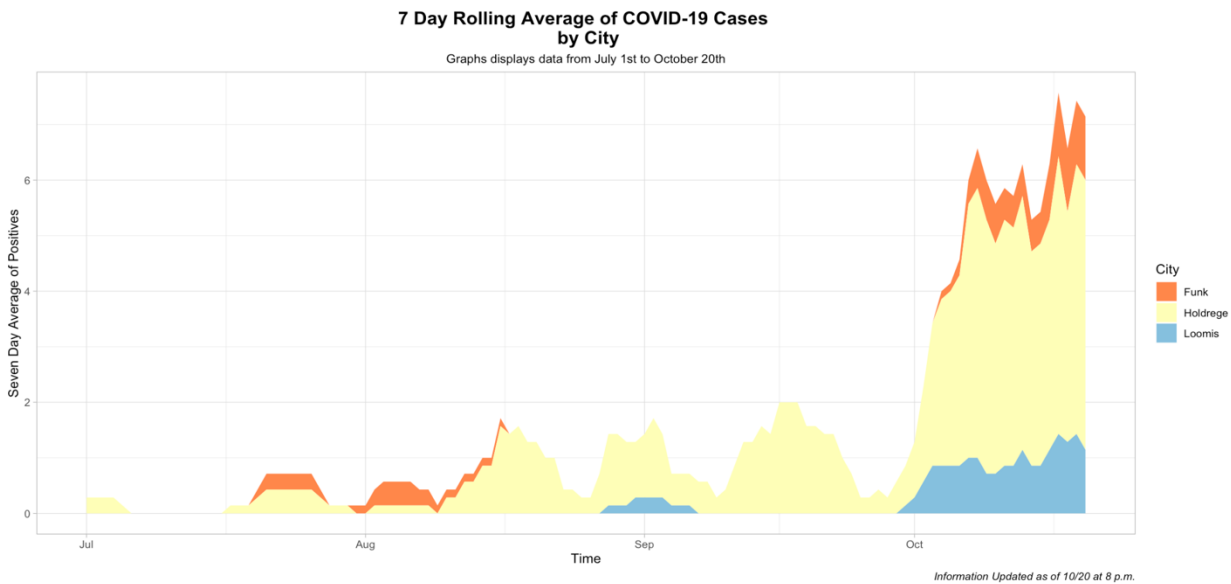




Fig 7 (below) describes the 7-day rolling average of COVID cases in Kearney, Holdrege and Lexington areas from Sep 23 - Oct 20, 2020

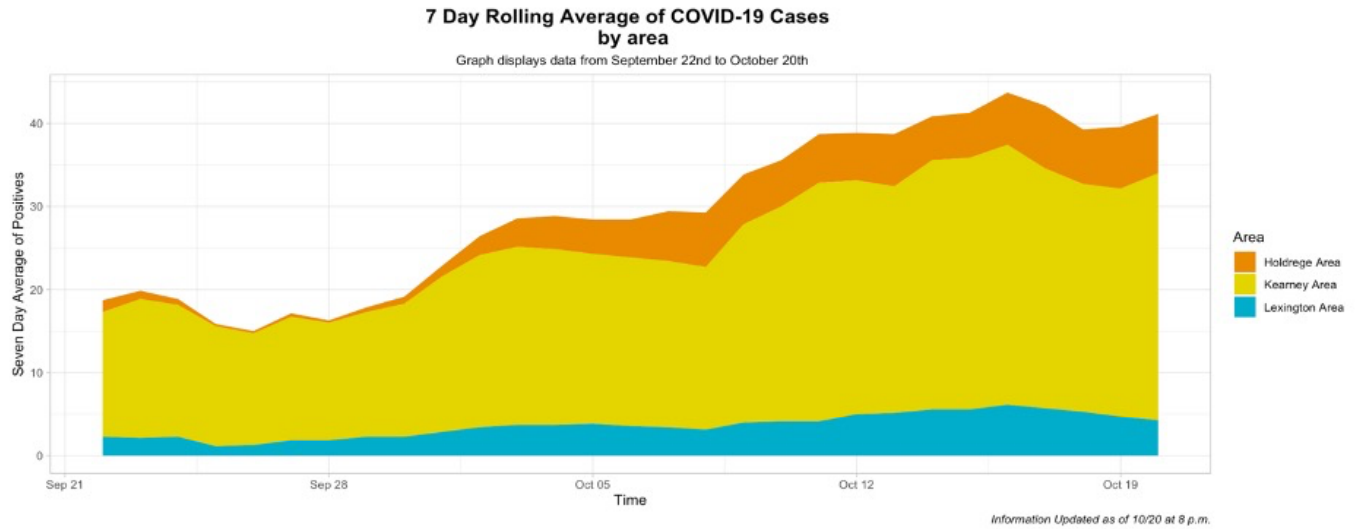


Fig 8 (below) describes the 7-day rolling average of COVID-19 cases by age in Holdrege area from Sep 23 - Oct 20, 2020

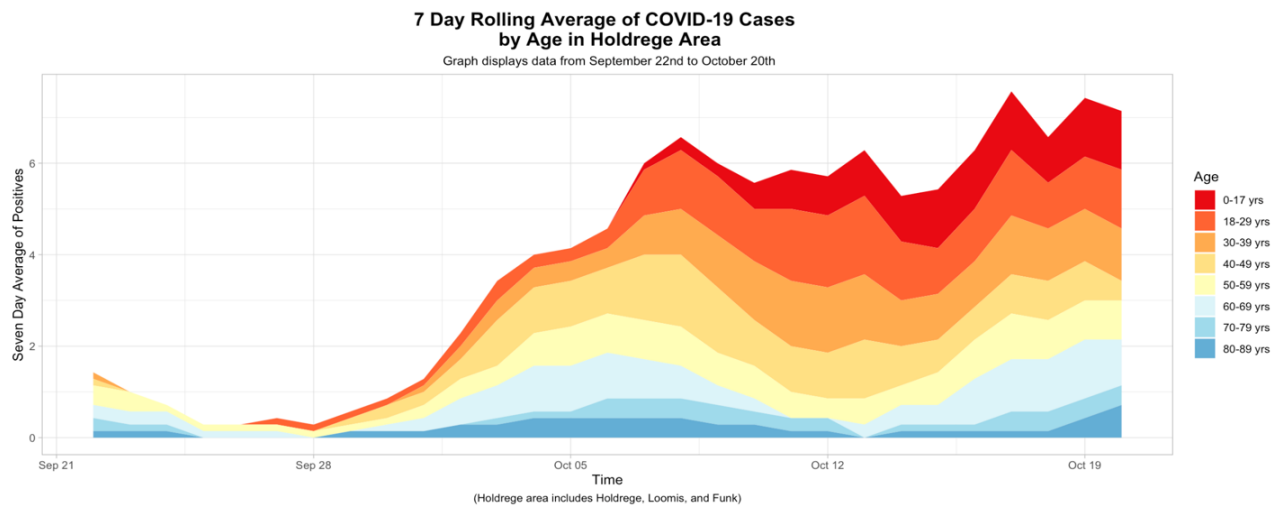
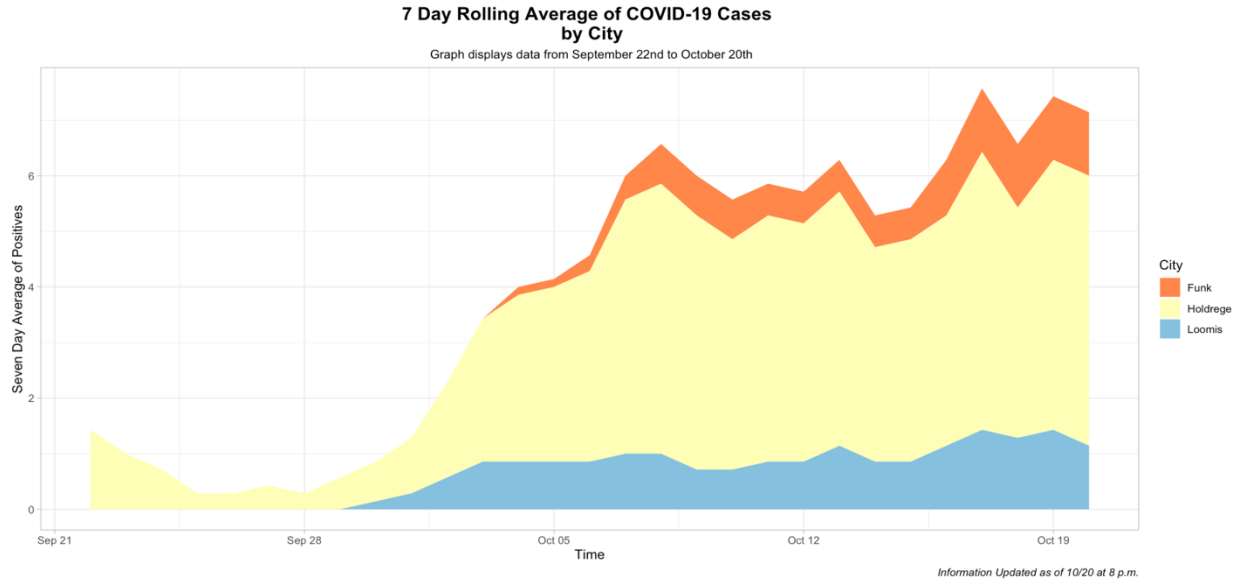




Fig 8 (below) describes the 7-day rolling average of COVID-19 cases by age in Holdrege area from Sep 23 - Oct 20, 2020





Weekly Summary Report

From figures 1 and 2, some broad trends are noticeable:

- COVID-19 cases in Holdrege area have been rising since August. This was parallel to the outbreak in Kearney city over the same period.

From figures 3 & 4, it is clear that daily case counts in Holdrege area have remained steady for most of July - September, but have increased rapidly most recently in October.

- Although total persons tested per week in Holdrege area has more than doubled since July 1, positivity rates have risen far more rapidly - between a fifth and a third of all tests per week were positive in the past month.
- The cumulative case count in Holdrege has shown a clear increase, and looks poised to rapidly rise over the next few weeks

In figures 5& 6, we take a closer look at ages and cities of residence of positive persons in the Holdrege urban area from July 1 - Oct 20 (16 weeks), and figures 8&9 describe the same data from Sep 23 - Oct 20 (4 weeks)

- Holdrege city accounts for a bulk of the cases in Holdrege urban area, although case rate increases in Funk more recently is cause for concern.
- The shift of infection burden has shifted in recent years from 18-29, 30-39 and 40-49 year olds to 60-69 and 70-79 year olds, with rising frequency in this age group. This worrying trend mirrors that of Kearney city more recently, but has somewhat more serious implications for Holdrege considering older resident population in the city.
- *In summary, Holdrege city and Holdrege urban area are seeing rapidly rising numbers of COVID-19 cases since late September. The disease incidence seems to be shifting to persons over 60 years, combined with continued high infection rates among younger persons. The number of cumulative cases seems poised to increase dramatically, and the proportion of older persons testing positive seems likely to increase. Residents of the city of Holdrege and surrounding towns are strongly advised to be extra cautious and follow standard practices like masking and social distancing to avoid incident infection.*