



Kearney 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 Kearney area by age and city of residence. We will also describe average daily positivity rates and cumulative cases. The curve is fitted with a second degree polynomial regression model, Pearson's coefficient (R^2) is displayed.
- c) Describe the progress of COVID-19 cases in TRPHD from Sep 23 - Oct 20 (**4 weeks**) across the three urban areas, then presenting 7-day rolling averages by age and city of residence of persons in Kearney area.

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 Kearney area from Jul 1- Oct 20. Also shown are the cumulative cases, fitted with a second degree polynomial regression model trendline. The continually rising cases in Kearney area over the past 16 weeks are cause for concern.
- **Figs 5&6** describe 7-day rolling averages in Kearney 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).
- **Figs 8&9** describe 7-day rolling averages in Kearney 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

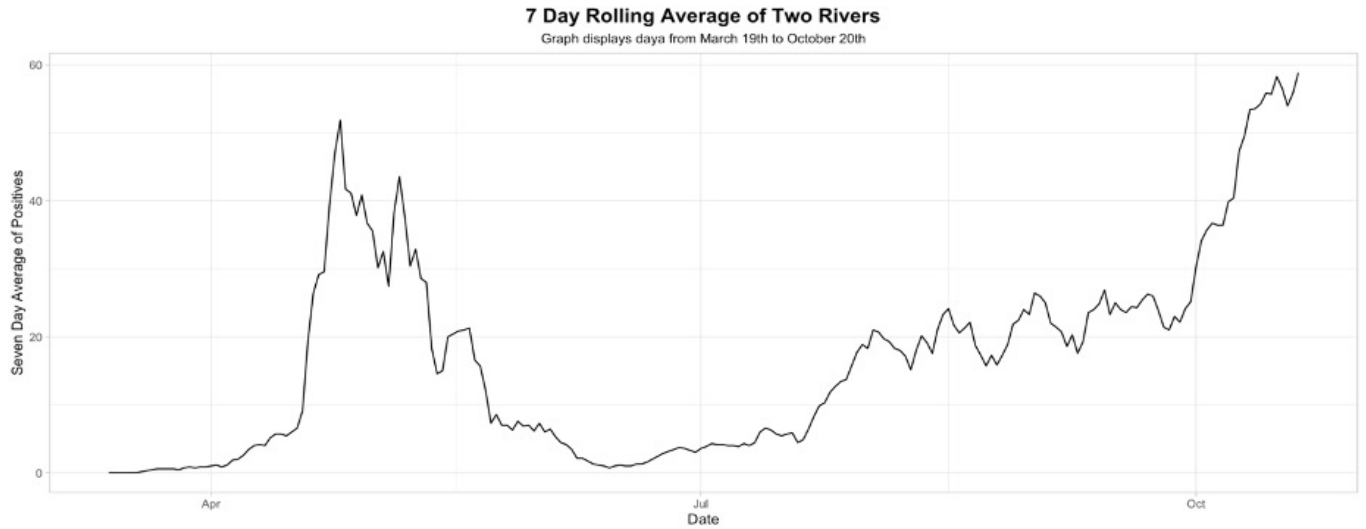


Fig 2 (below) describes the 7-day rolling average of all COVID-19 cases in Lexington, Kearney and Holdrege areas from April 1- Oct 20, 2020

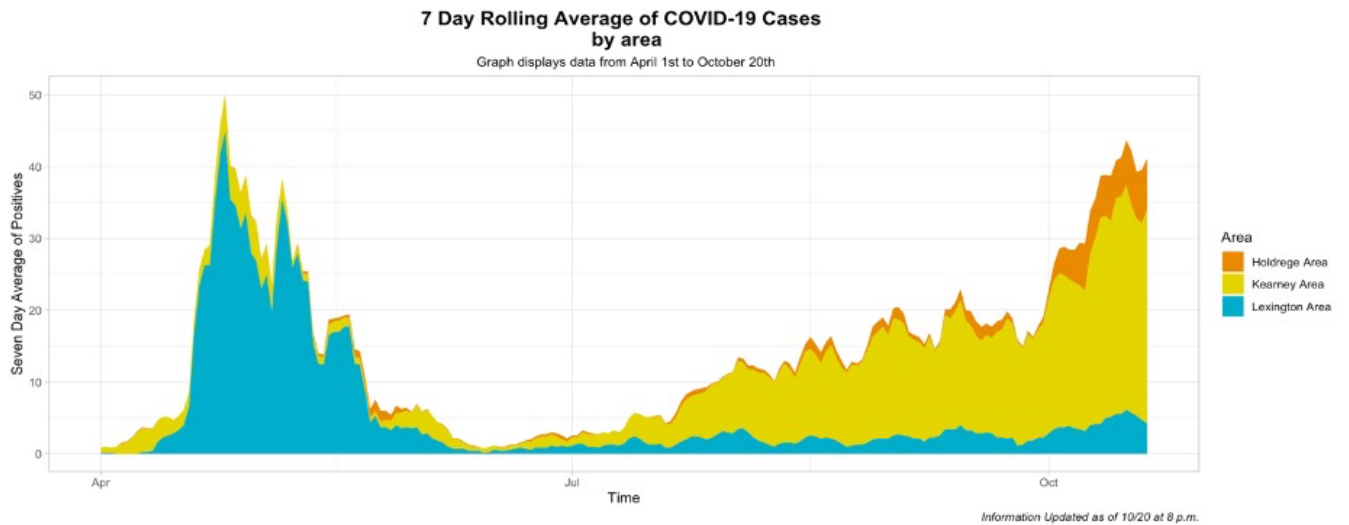




Fig 3 (below) describes the 7-day rolling average of COVID-19 cases in Kearney, Lexington and Holdrege areas from July 1 - Oct 20, 2020

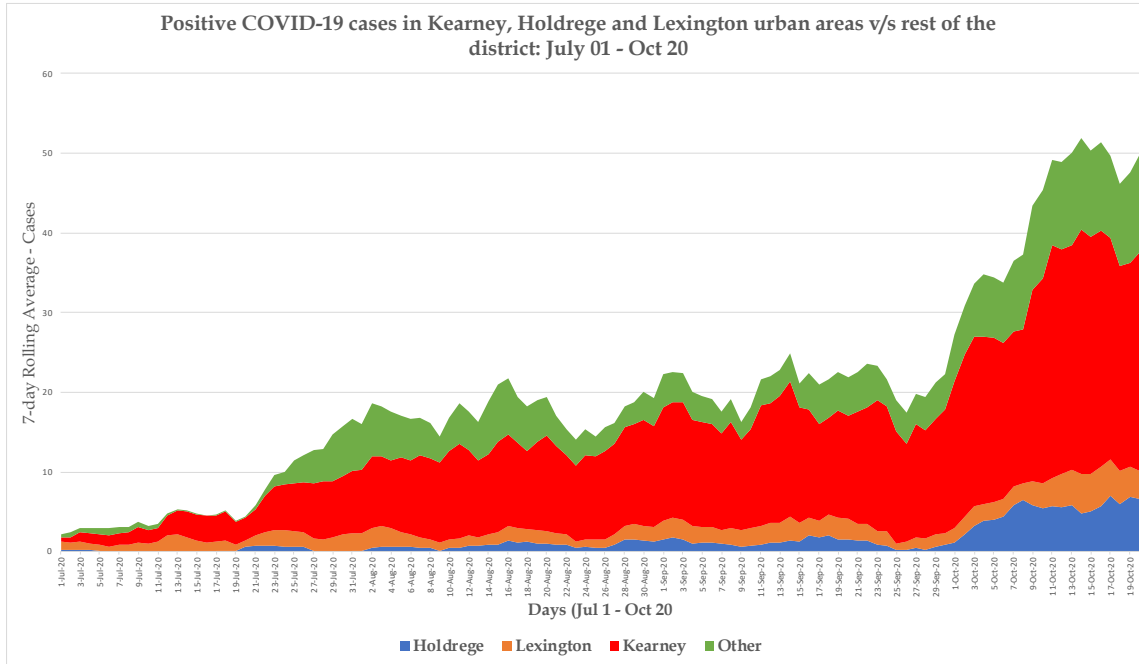


Fig 4 (below) describes the cumulative case totals and 7-day rolling average of COVID-19 cases in Kearney area from July 1 - Oct 20, 2020

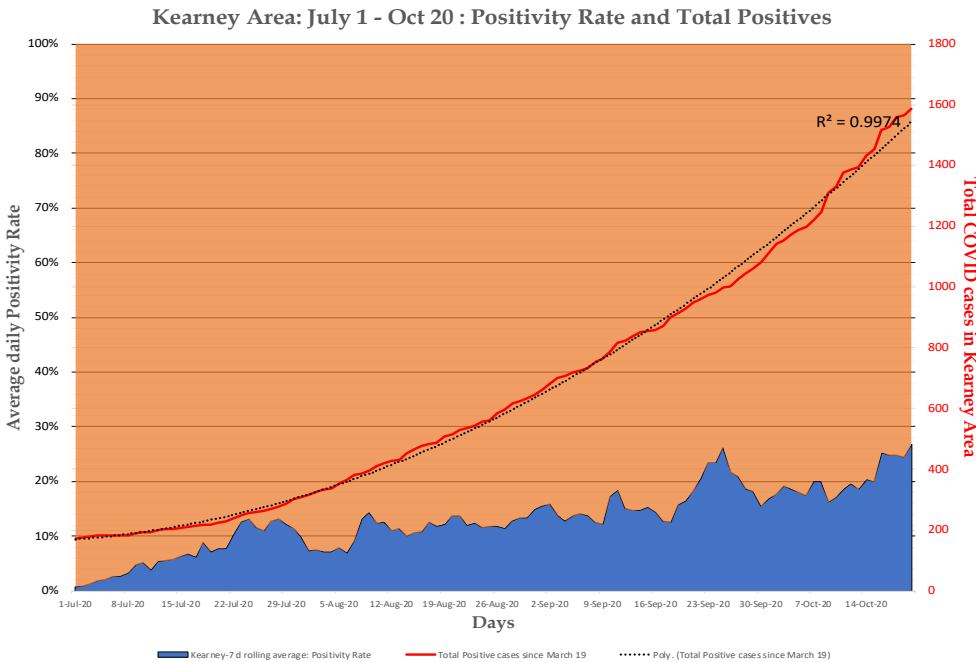




Fig 5 (below) describes the 7-day rolling average of COVID-19 cases by age in Kearney area from July 1 - Oct 20, 2020

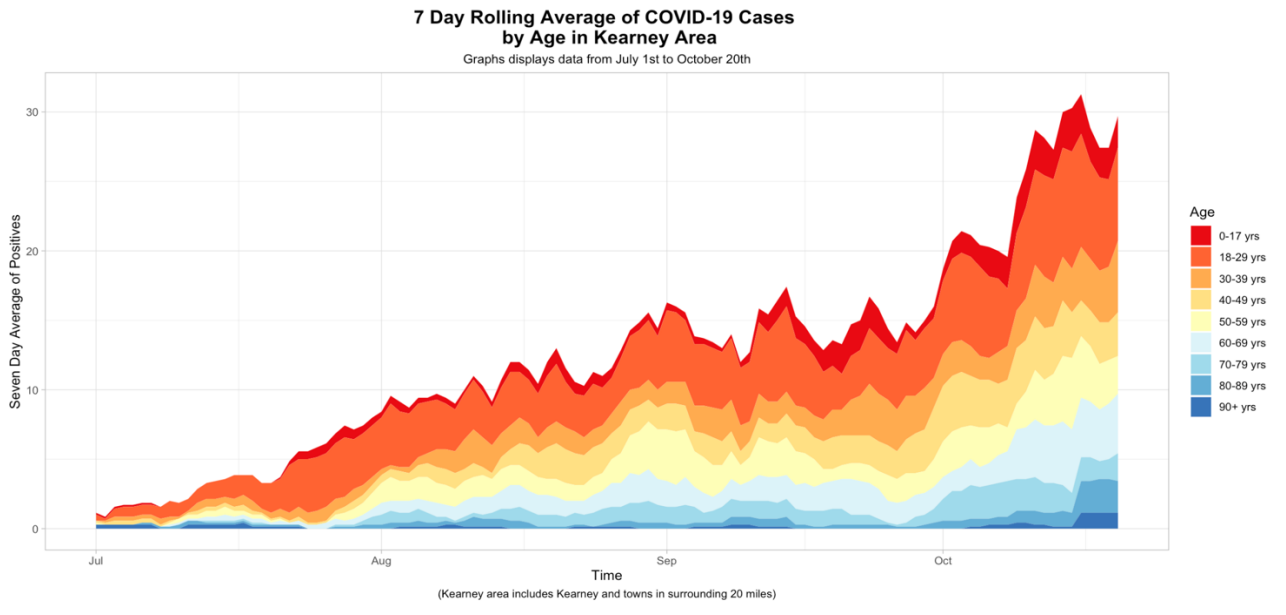


Fig 6 (below) describes the 7-day rolling average of COVID-19 cases across different cities in Kearney area from July 1 - Oct 20, 2020

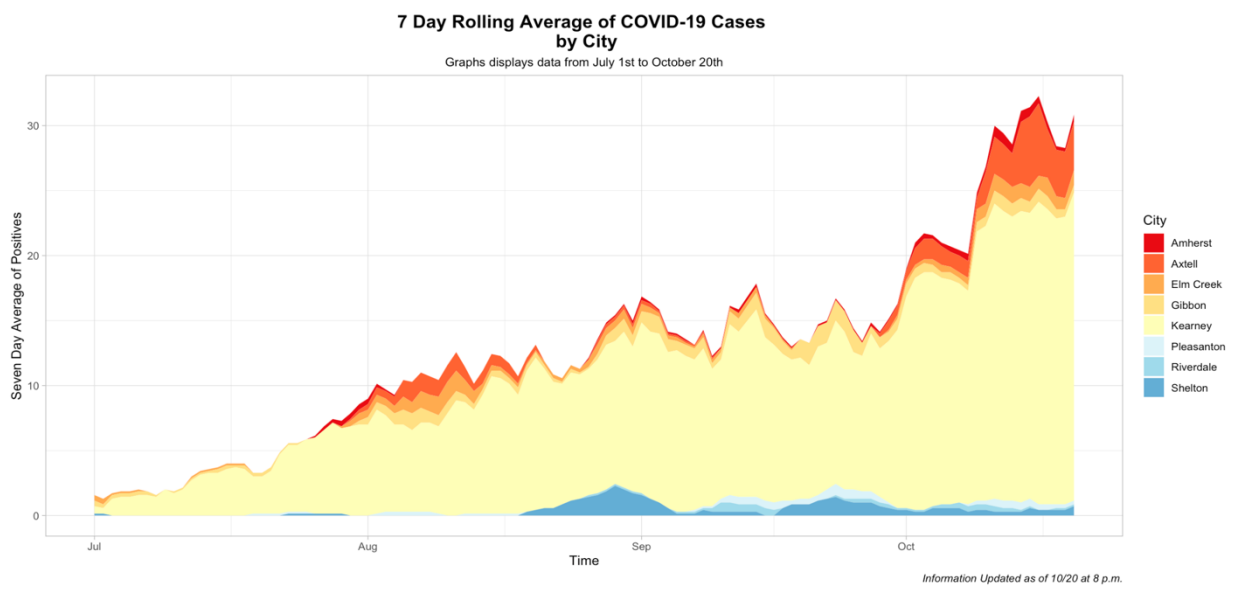




Fig 7 (below) describes the 7-day rolling average of COVID cases in Kearney, Holdrege and Lexington areas from Sep 23 - Oct 20, 2020

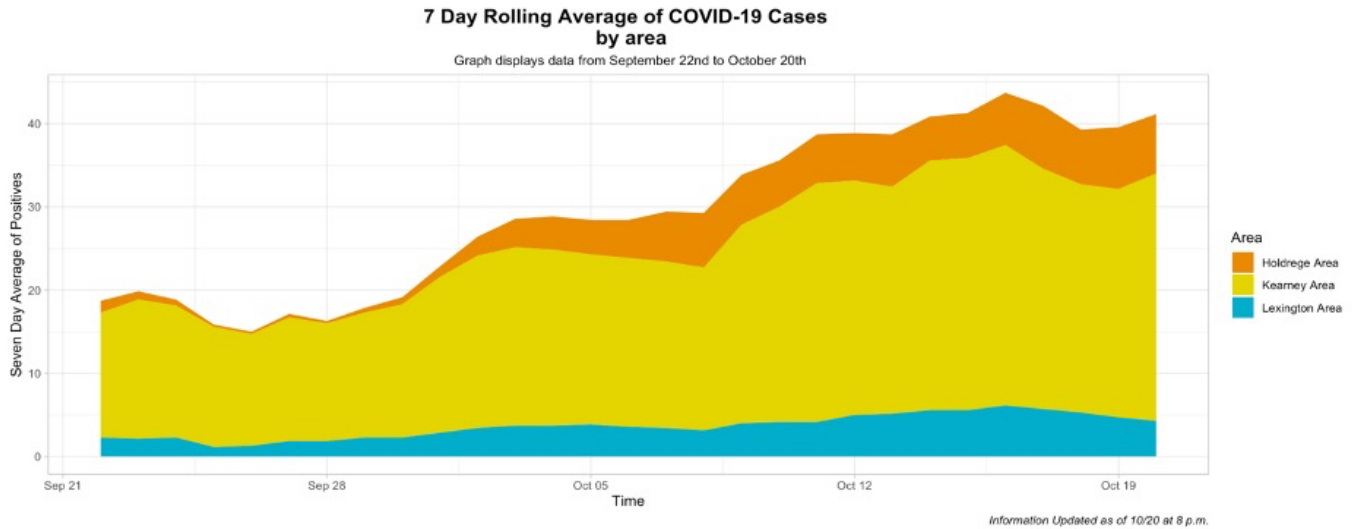


Fig 8 (below) describes the 7-day rolling average of COVID-19 cases by age in Kearney area from Sep 23 - Oct 20, 2020

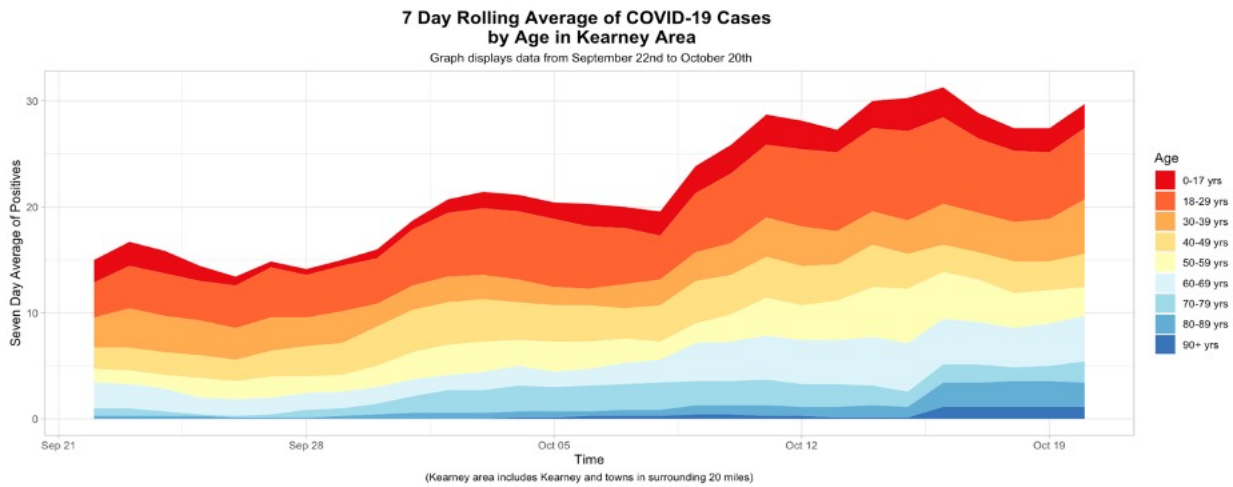
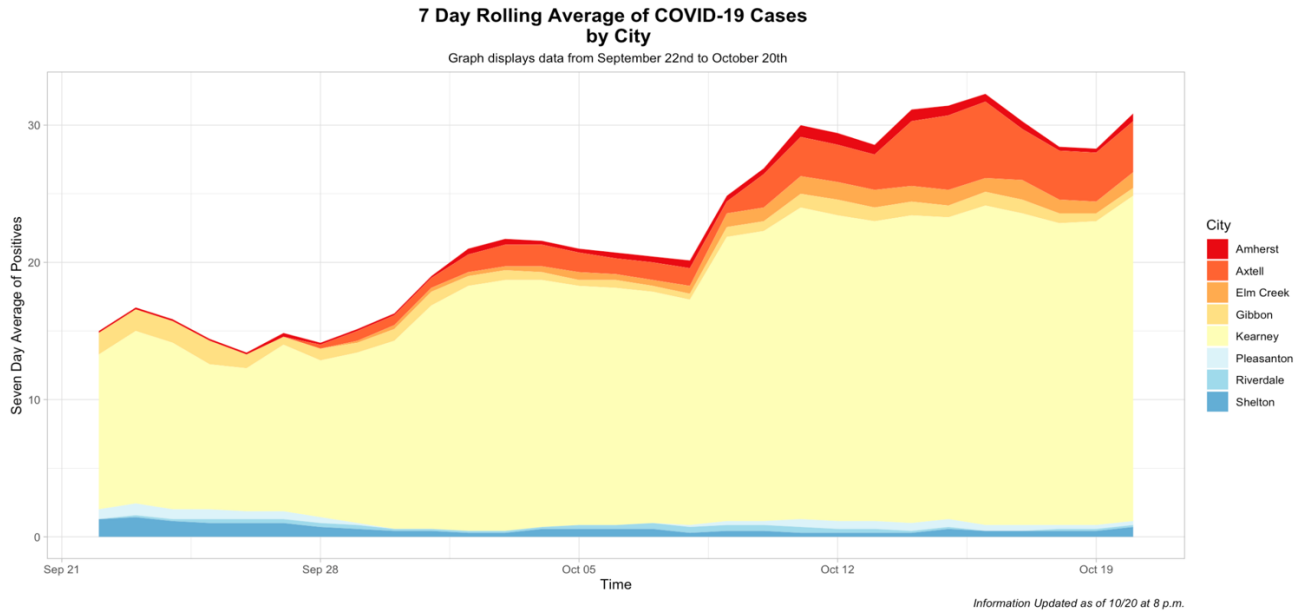




Fig 8 (below) describes the 7-day rolling average of COVID-19 cases by age in Kearney area from Sep 23 - Oct 20, 2020





Weekly Summary Report

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

- COVID-19 cases in Kearney area have been steadily rising since July, following an earlier outbreak in Lexington in May.

From figures 3 & 4, it is clear that cases in Kearney area have driven the rise in cases across the district since July.

- Although total persons tested per week in Kearney area has doubled since July 1, positivity rates have risen – more than a quarter of all tests last week were positive.
- The cumulative case count in Kearney area 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 Kearney urban area from July 1 – Oct 20 (16 weeks), and figures 8&9 describe the same data from Sep 23 – Oct 20 (4 weeks)

- Kearney city accounts for a bulk of the cases in Kearney urban area, although smaller outbreaks in towns like Axtell have also been observed more recently.
- The shift of infection burden from 18-29 year olds to 50-59, 60-69 and 80-89 year olds is worrying. Although overall positivity rates have declined marginally for younger persons, the rise on cases among seniors continues to raise cumulative case counts in the city.
- ***In summary, Kearney city and Kearney urban area continued to see rising numbers of COVID-19 cases since July. The disease incidence seems to be shifting to persons over 50 years, combined with 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 Kearney and surrounding towns are strongly advised to be extra cautious and follow standard practices like masking and social distancing to avoid incident infection.***