



## Kearney Urban Area - COVID-19 Status Report 29 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.

To better understand COVID transmission in TRPHD<sup>1</sup>, we decided to analyze case numbers in Kearney, Lexington and Holdrege, defined as the city and surrounding smaller towns

- “Kearney area” includes Kearney city, Elm Creek, Pleasanton, Amherst, Riverdale, Gibbon, Shelton and Axtell.
- “Lexington area” includes Lexington city, Overton, Johnson Lake and Cozad.
- “Holdrege area” includes Holdrege city, Loomis and Funk.

In the fourth edition of this document, we will

- a) Look at the overall course of the COVID-19 pandemic in TRPHD from April - October (**35 weeks**) and identify the outbreaks in each of the three urban areas.
- b) Analyze data from July 01 - October 27 (**17 weeks**) to see daily cases across Kearney area by age and city of residence.
- c) We will also describe average daily positivity rates and cumulative cases per 100,000 population for Buffalo county, comparing it to Phelps, Dawson and the state of Nebraska
- d) Describe the progress of COVID-19 cases from Sep 30 - Oct 27 (**4 weeks**) across cities in Buffalo and Dawson counties, presenting 7-day rolling averages of positive case numbers and rates per 100,000 population.
- e) Present a brief weekly overview and analysis for Kearney

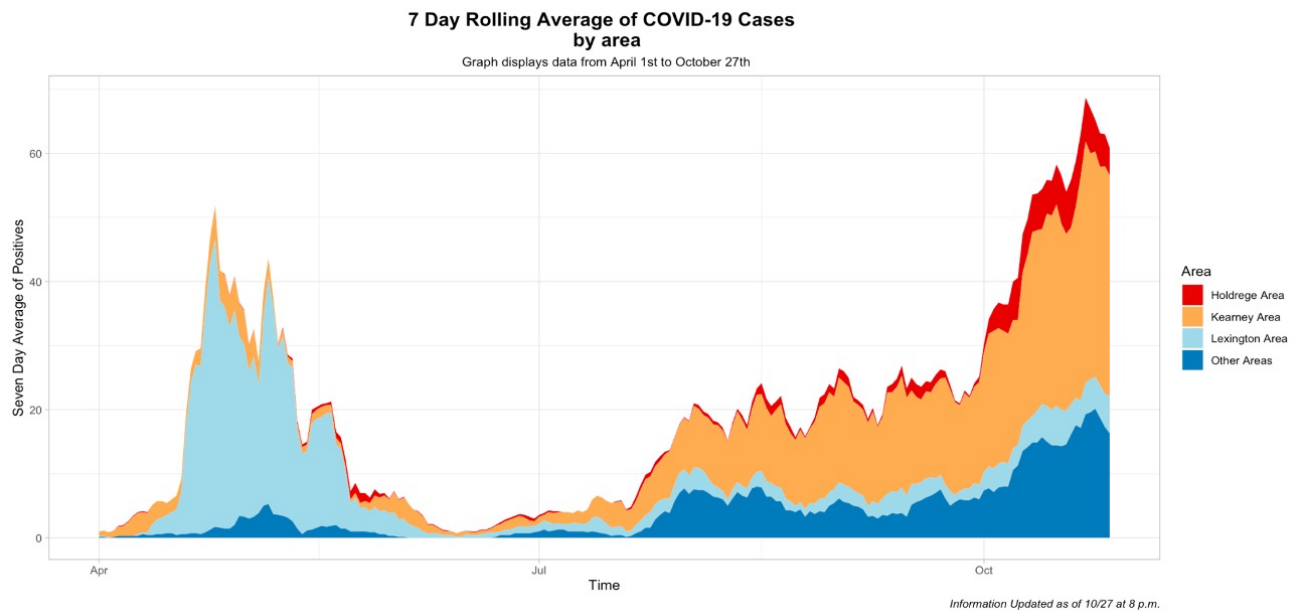
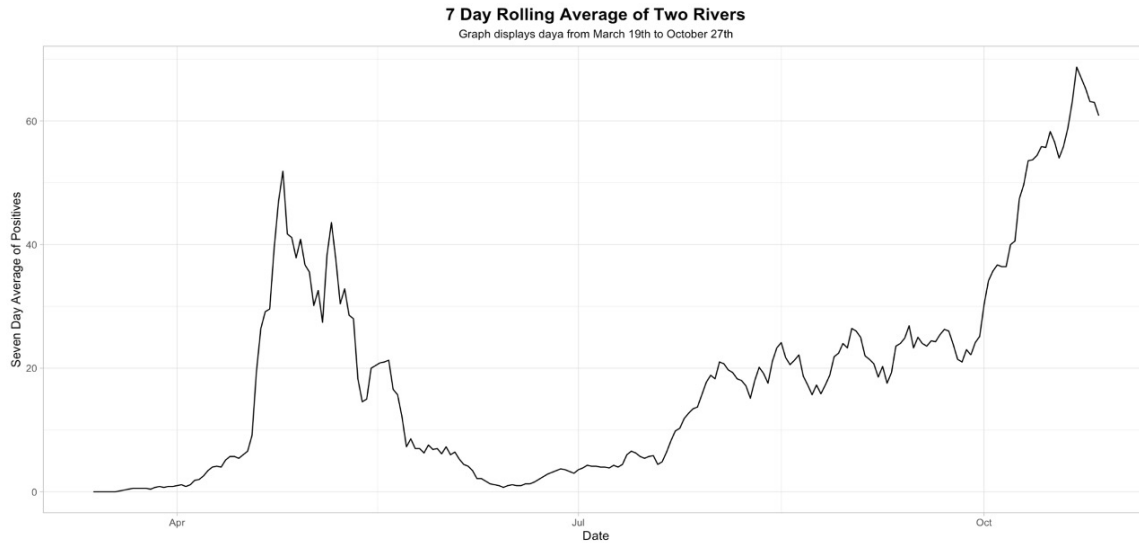
*In summary, Kearney city and Kearney urban area have seen a recent acceleration in the rate of growth of COVID-19. Cases have been reported across all age groups, and incidence rates among persons aged 60 years and over is rising. The number of per-capita cumulative cases has overtaken the statewide average, where it seems likely to remain for some time. Positivity rates have risen steadily in the past two weeks, despite testing coverage being roughly equal to the previous 8 weeks' average. Residents of Kearney and surrounding towns are strongly advised to avoid non-essential travel and follow standard preventive practices like masking and social distancing to avoid incident infection.*

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<sup>1</sup> For complete explanation of definitions and data sources, please see appendix 1  
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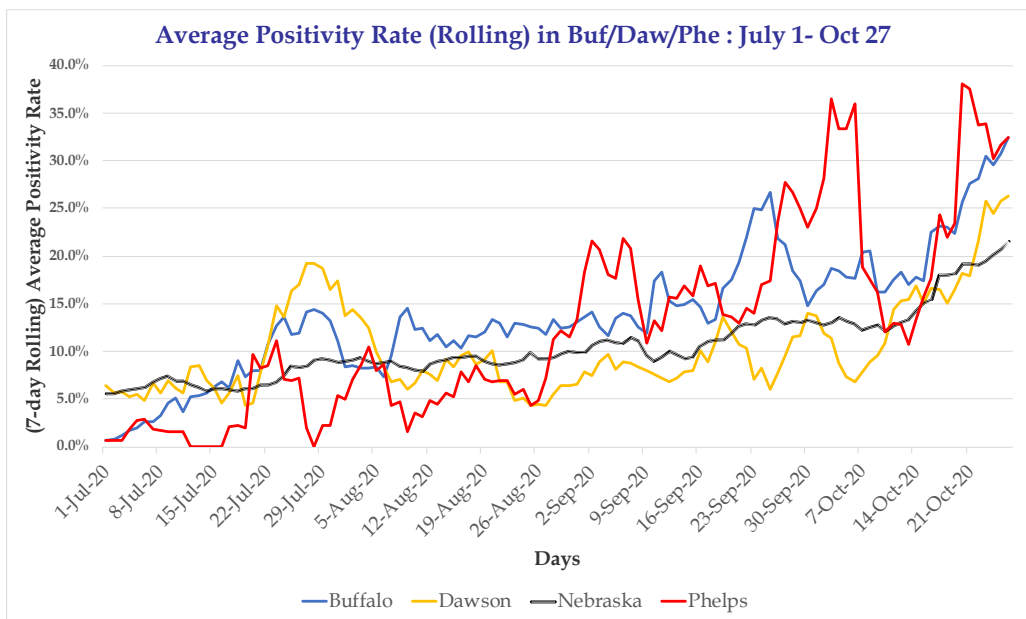
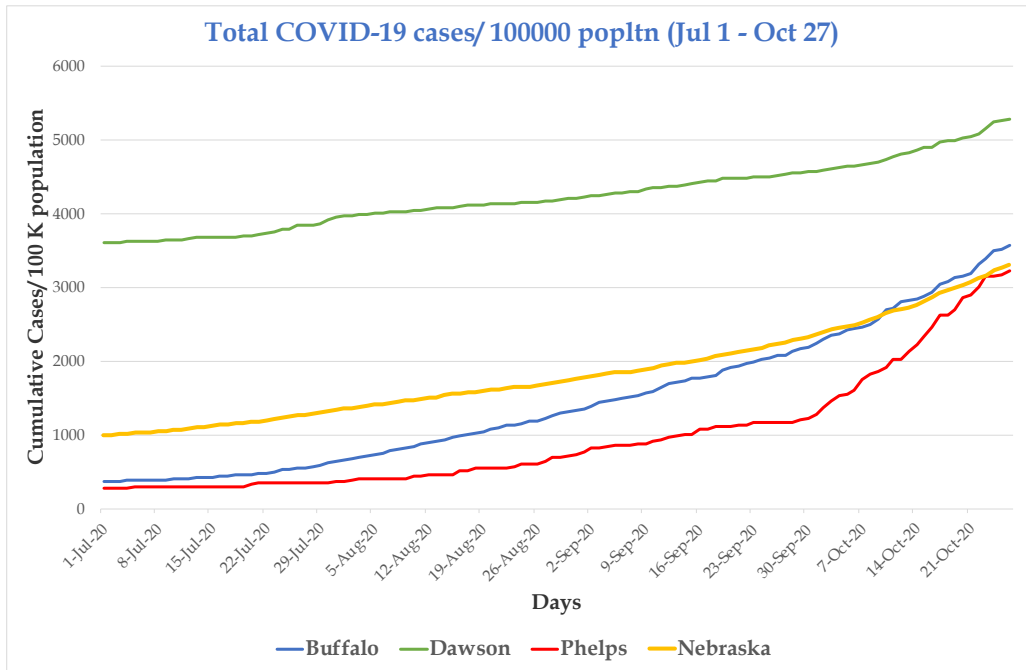


- The graph below describes daily COVID-19 cases in TRPHD from **April 1 - October 27**
- The second graph further breaks down cases by urban area (Holdrege, Lexington, **Kearney** and all others) during this time period





- The graph below describes cumulative (overall total) COVID-19 cases from **July 1 - October 27**, presented per 100,000 population in **Buffalo, Dawson, Phelps** and the state of Nebraska.
- The second graph describes average daily positivity rates across the same counties during this time.

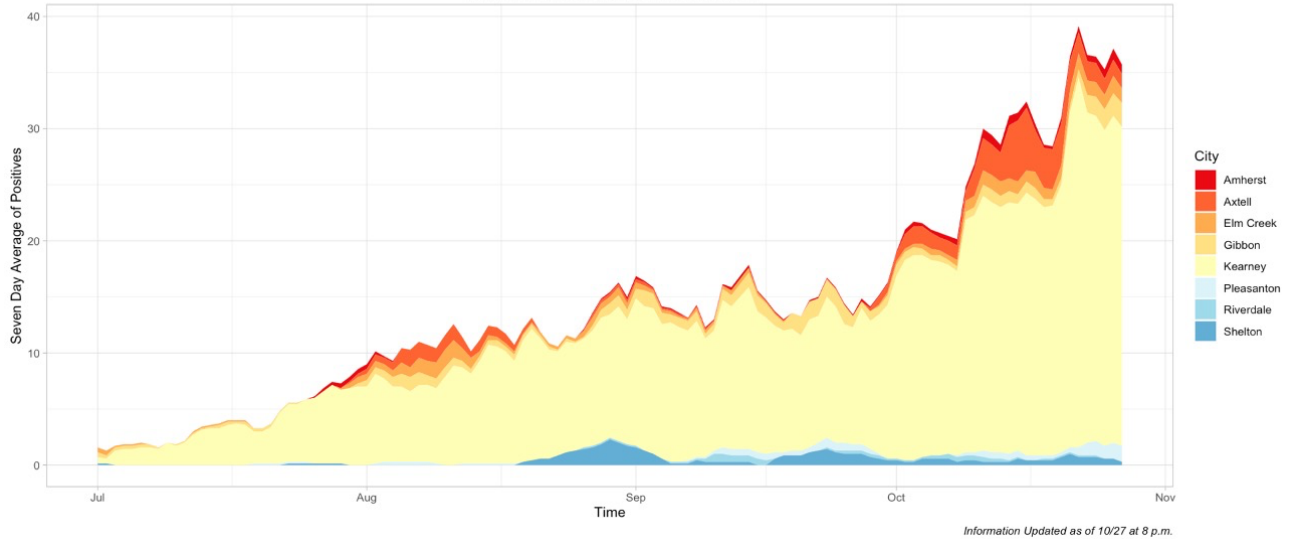




- The graph below shows COVID-19 cases in **Kearney** area from **July 1 - October 27**, describing the number of cases by city.
- The second graph describes cases by age during the same period.

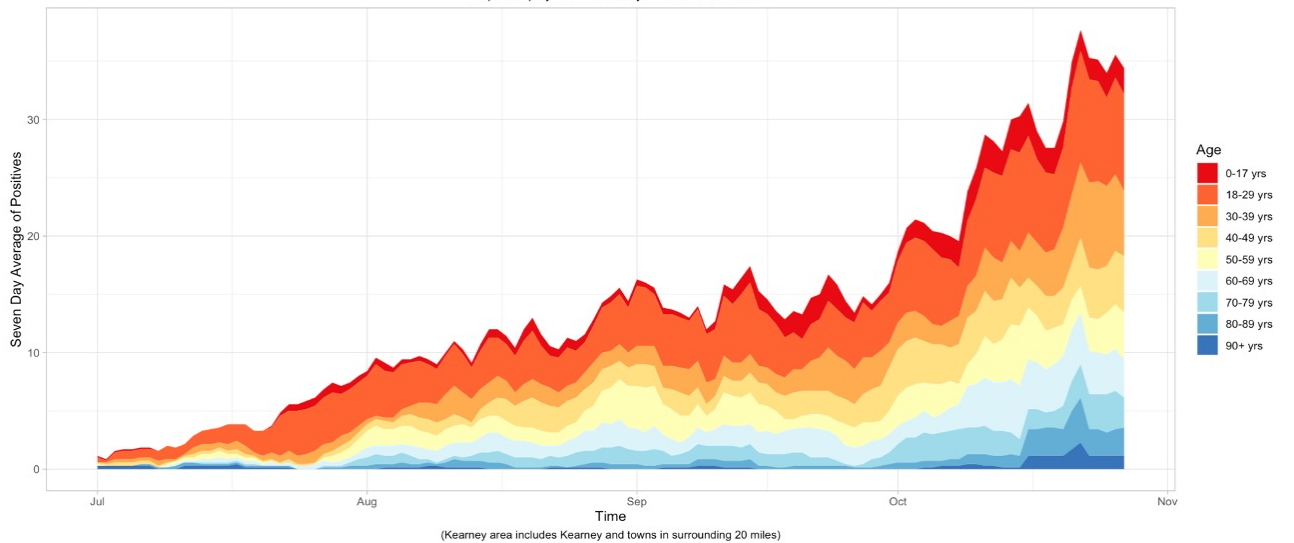
**7 Day Rolling Average of COVID-19 Cases by City**

Graphs displays data from July 1st to October 20th



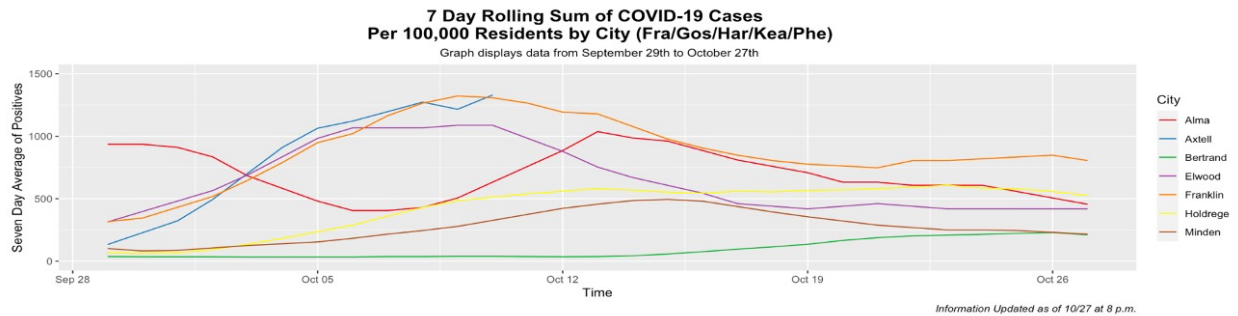
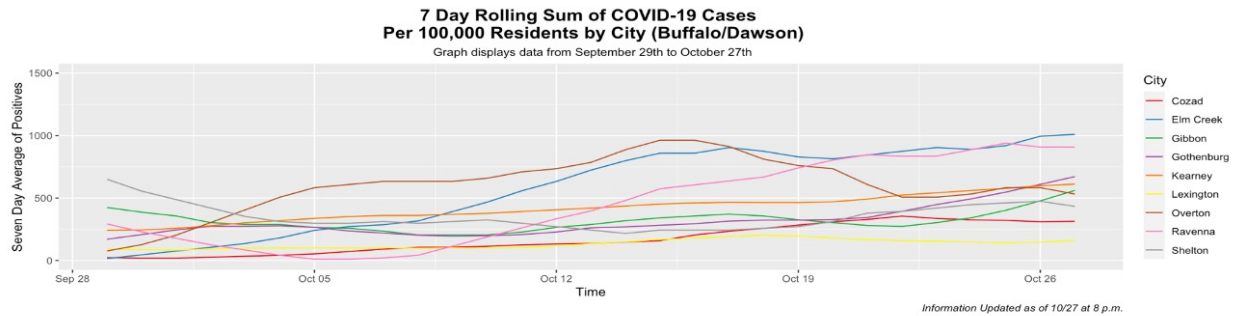
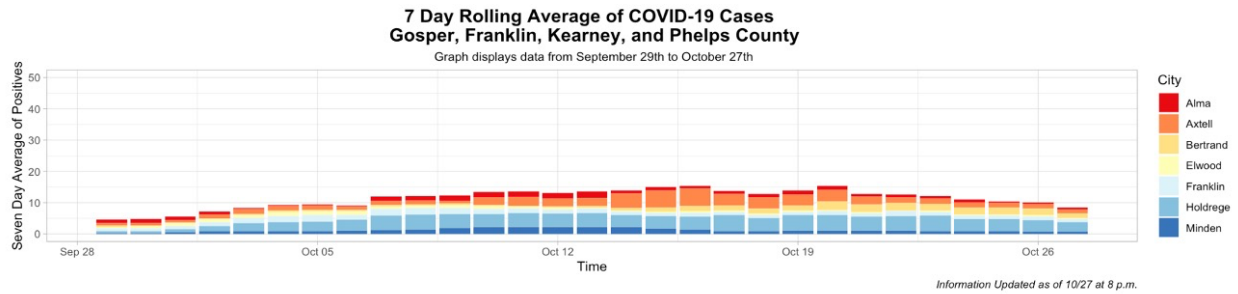
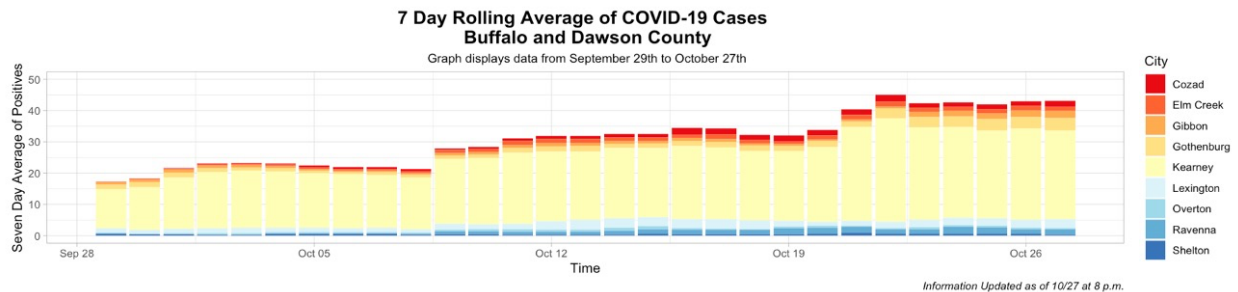
**7 Day Rolling Average of COVID-19 Cases by Age in Kearney Area**

Graphs displays data from July 1st to October 20th





- The graph below shows COVID-19 cases across 16 cities in TRPHD from **Sep 28 - Oct 27**. **Kearney** is shown along with other cities in Buffalo and Dawson counties. Scales are identical for cities in all 7 counties
- The second graph describes cases per 100,000 population in the same cities during this time period.





### Weekly Summary Report

Viewing the graphs from April – October, some broad trends are noticeable:

- The COVID-19 outbreak in Kearney is now comparable to the earlier outbreak in Lexington in April-May, both in terms of number and rate of growth of daily cases
- COVID-19 cases in Kearney city have largely driven this outbreak.

On analyzing graphs of COVID cases from July – October, some details become clear:

- Per capita cumulative rates in Buffalo county began to rise in late July and overtook the statewide per-capita rate in early October. The rate of growth is faster than that of Nebraska, and seems likely to continue that way.
- The period of accelerated increase also corresponds with higher positivity rates. The average daily positivity rate crossed the statewide average in mid July and has remained elevated since then.
- Although Kearney city accounts for a major portion of the cases in Kearney area, Axtell saw an outbreak in cases in early-mid October (that briefly caused per-capita trendlines to be wildly off the charts and un-representable) that contributed to the caseload in the Kearney area.
- Kearney area began to see a rise in positivity among persons aged 60 years and over in October, and this trends seems to be accelerating .

Graphs looking at the previous 4 weeks from late September to October reveal:

- Kearney city continues to lead in total cases per day across the district, joined more recently by Holdrege.
- Per capita rolling case averages in Kearney have been inexorably trending upwards all Summer and continue to move upwards.

*In summary, Kearney city and Kearney urban area have seen a recent acceleration in the rate of growth of COVID-19. Cases have been reported across all age groups, and incidence rates among persons aged 60 years and over is rising. The number of per-capita cumulative cases has overtaken the statewide average, where it seems likely to remain for some time. Positivity rates have risen steadily in the past two weeks, despite testing coverage being roughly equal to the previous 8 weeks' average. Residents of Kearney and surrounding towns are strongly advised to avoid non-essential travel and follow standard preventive practices like masking and social distancing to avoid incident infection.*



## APPENDIX 1

### 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. The respective populations of all 7 counties in TRPHD are shown below. Kearney city accounts for over third of the population of TRPHD.

County	Population
Buffalo	49,659
Dawson	23,595
Franklin	2,979
Gosper	1,990
Harlan	3,380
Kearney	6,495
Phelps	9,034
<b>TRPHD total</b>	<b>97,132</b>
Nebraska state	1,934,408

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 27 (From the beginning of the pandemic to current)
- b) July 01 - Oct 27 (From the beginning of second sustained ‘wave’ in daily case counts to current)
- c) Sep 28 - Oct 27 (Previous 4 weeks)
  - Data is presented as 7-day rolling averages for daily numbers and absolute counts for cumulative cases. This is simply the sum of all cases for that day and the previous six divided by 7.
  - Cumulative cases refer to all cases that have been confirmed in the district since the beginning of the pandemic in TRPHD (March 19)
  - Average positivity rate refers to a seven-day rolling average positivity rate, which is the sum of all cases for that day and the previous six divided by the sum of all tests done in that day and the previous six
  - In cases that call for comparison across different areas (counties v/s state of Nebraska, for eg), we present the count per 100,000 population. For calculation, we use the 2019 mid-year estimate (American Community Survey, ACS ) and data from The Atlantic’s COVID tracking project (<https://covidtracking.com/data>)