



## Kearney Urban Area - COVID-19 Status Report 13 Nov 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 fifth edition of this document, we will

- a) Look at the overall course of the COVID-19 pandemic in TRPHD from **April - November** (33 weeks) and identify the outbreaks in each of the three urban areas.
- b) Analyze data from **July 01 - November 10** (19 weeks) to see daily rolling average of cases across the 7 counties in Two Rivers Health District.
- c) Describe 7-day rolling average of cases in Kearney area by age and city of residence from **July 01 - November 10**.
- d) We will also describe average daily positivity rates in Buffalo county in the past 19 weeks, comparing it to Phelps, Dawson and the state of Nebraska<sup>2</sup>
- e) Describe the progress of COVID-19 cases from **Oct 14 - Nov 10** (4 weeks) across cities in Buffalo and Dawson counties.
- f) Present a brief weekly overview and analysis for Kearney

*In summary, Kearney city and Kearney urban area are witnessing unprecedented rise in COVID-19 cases. Average daily case counts have doubled over the past month, and positivity rates in Buffalo county have tripled in the same period. Case rates have increased across all age groups, and the precipitous rise in average daily cases across the area indicates that this trend seems set to continue. Residents are advised to exercise utmost caution and adhere to strict preventive measures (social distancing, correct and consistent masking) at all times to protect themselves.*

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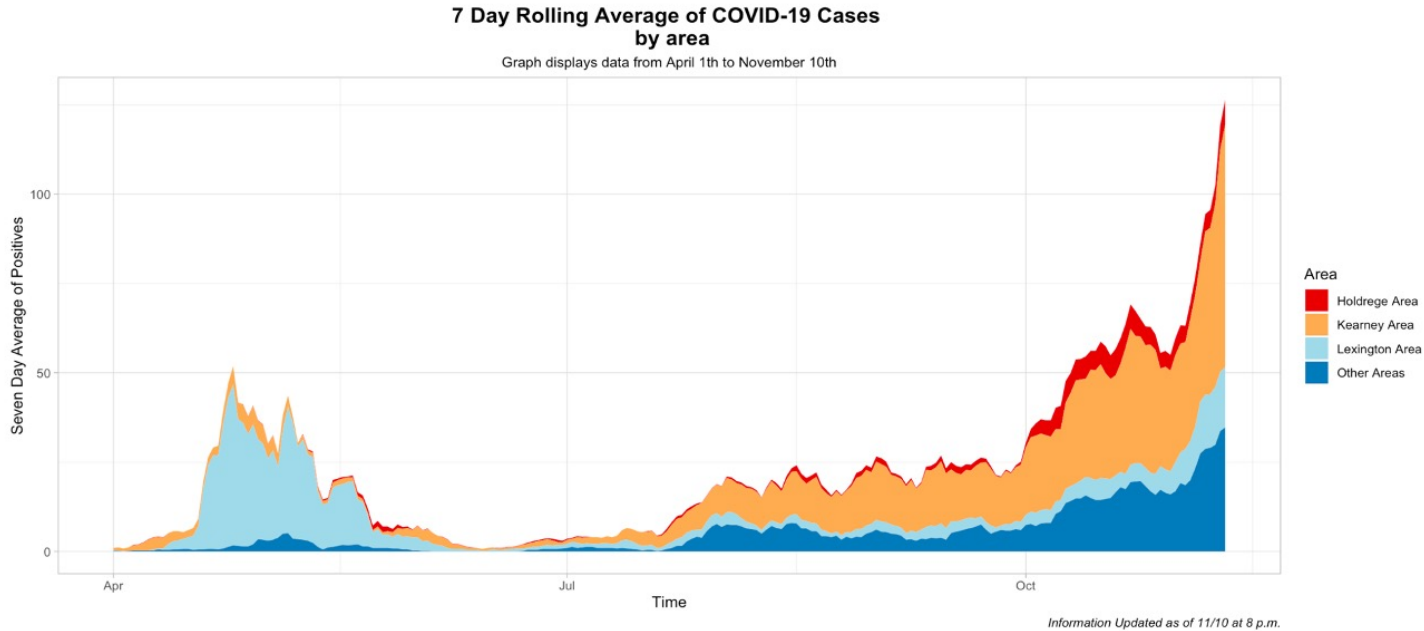
<sup>1</sup> For complete explanation of definitions and data sources, please see appendix 1

<sup>2</sup> For data about Nebraska and other states COVID-19 testing and cases, visit the covid tracking project:

<https://covidtracking.com/data>

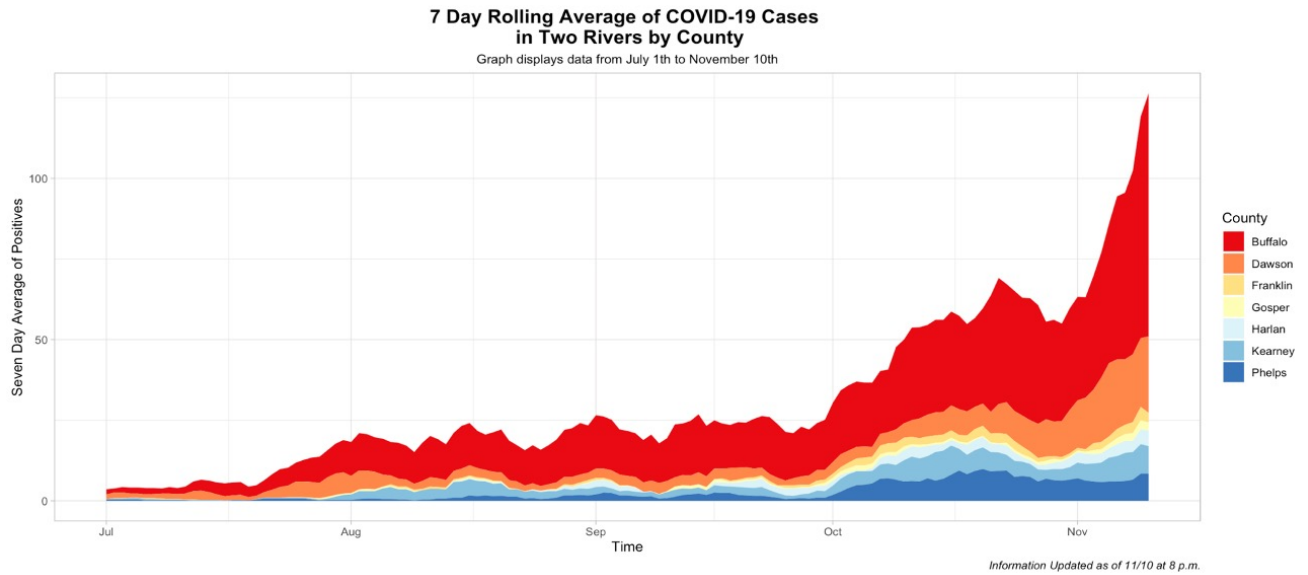


- The graph below describes daily COVID-19 cases in TRPHD from **April 1 – November 10** broken down by urban area (Holdrege, Lexington, **Kearney** and all others). The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to the urban area.

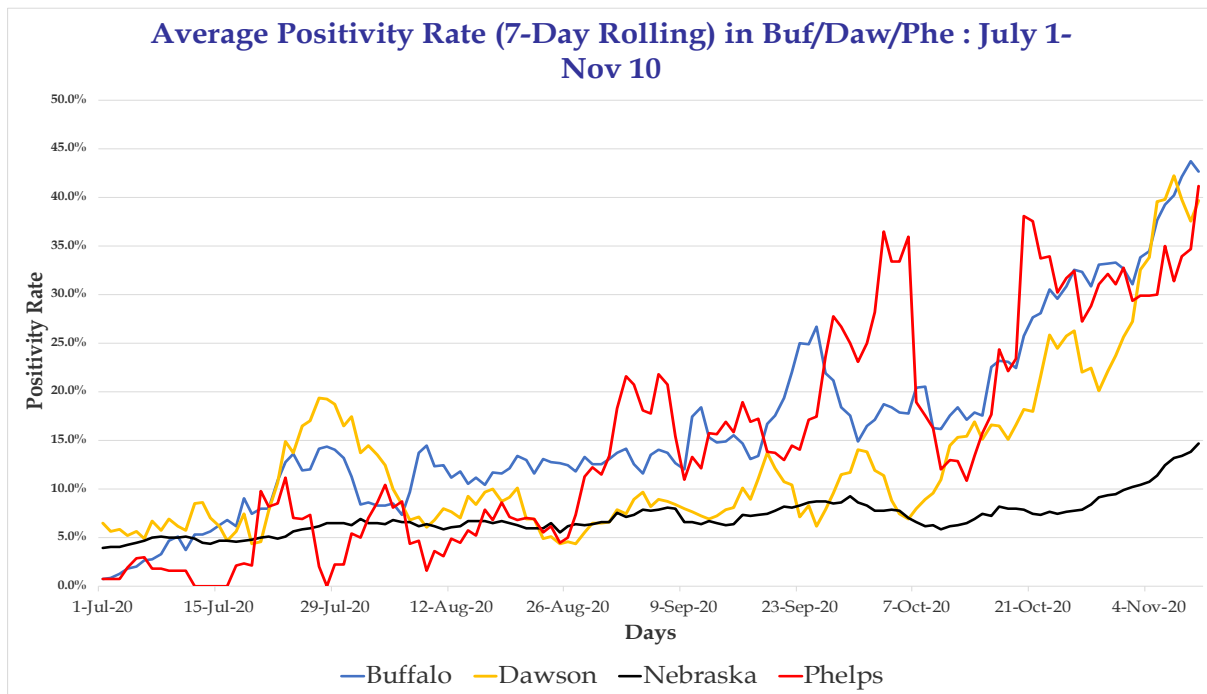




- The graph below describes the daily caseload across all 7 counties of TRPHD from **July 1 - November 10**. The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to the county.



- The graph below describes average daily positivity rates (7-day rolling) from **July 1 - Nov 3** in **Buffalo, Dawson, Phelps and Nebraska**

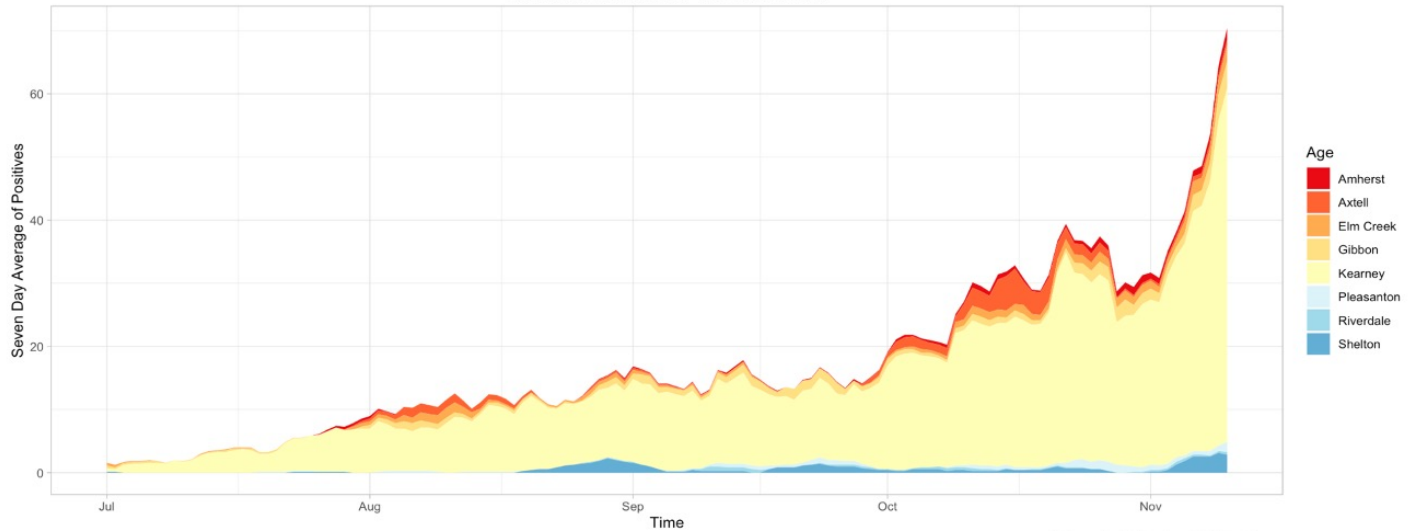




- The graph below shows COVID-19 cases in **Kearney** area from **July 1 - November 10**, describing positive cases by city. The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to a city's contribution.
- The second graph describes cases by age during the same period in the **Kearney** area.

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

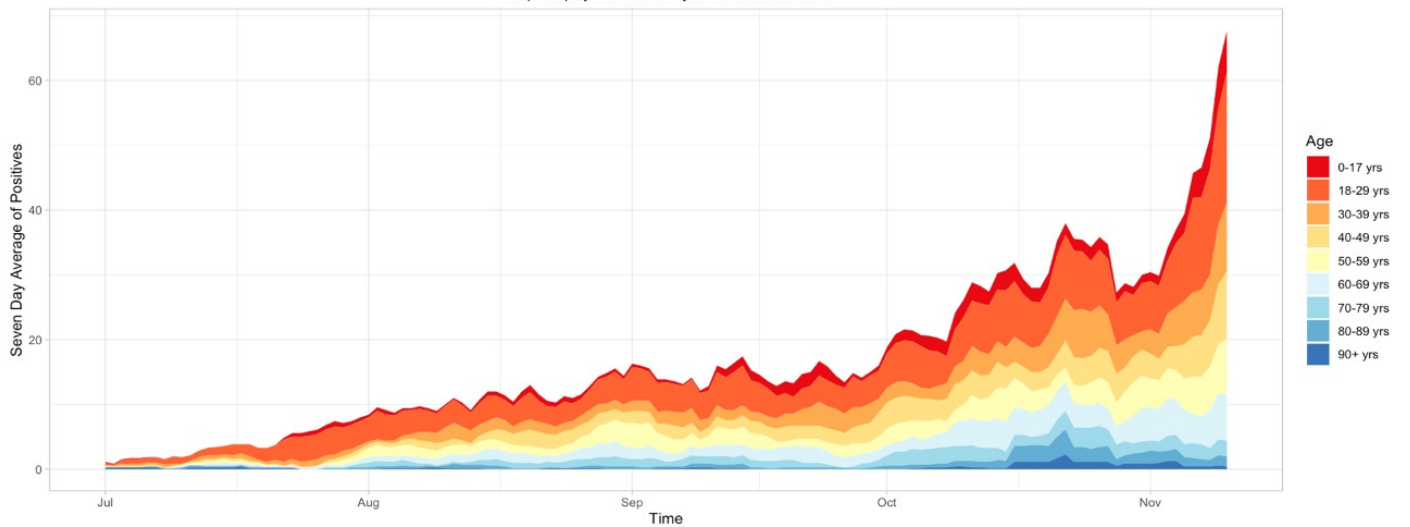
Graph displays data from July 1th to November 10th



Information Updated as of 11/10 at 8 p.m.

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

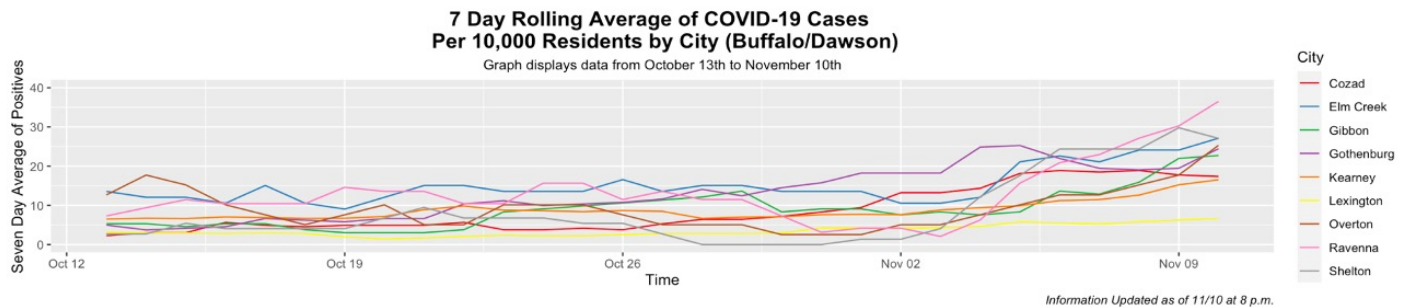
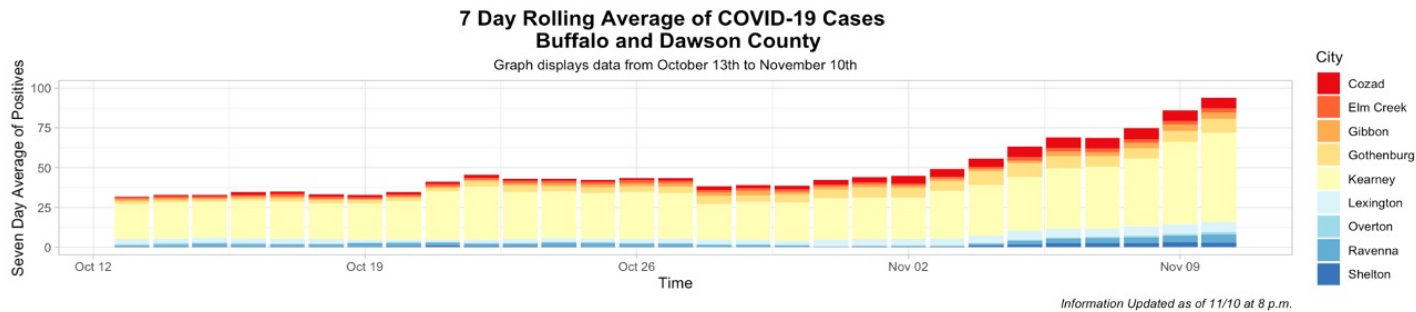
Graph displays data from July 1th to November 10th



(Kearney area includes Kearney and towns in surrounding 20 miles)



- The graph below shows COVID-19 cases across 9 cities in TRPHD from **Oct 14 – Nov 10**. **Kearney** is shown along with other cities in Buffalo and Dawson counties. The height of the bar corresponds to the daily case count and the thickness of each colored band corresponds to a city’s contribution.
- The second graph describes cases per 10,000 residents in the same cities during this time period.<sup>3</sup>



<sup>3</sup> Note: We have used 10,000 residents as reference population to better compare cities across the district.



### Weekly Summary Report

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

- The COVID-19 outbreak in Kearney city has entered a new phase, and the rate of increase in cases represents a dramatic rise in daily caseload across the urban area.
- Although incidence rate growth shows a secular trend across the entire district, the growth of cases in Kearney area is the starkest change over the past week.

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

- Daily positivity rates across Buffalo county have more than **doubled** since early October.
- Daily case averages in Kearney area have more than **tripled**.
- Rolling average daily counts have **doubled** in 10 days in November, and the precipitous slope of the curve indicates further rise in case counts.
- Cases are rising rapidly among persons aged 60 years and over. However, the rate of growth among younger and middle aged groups (18-59 years) also remains high, indicating possible further increase across all age groups in the days ahead.
- The increase in cases over the past two weeks in Kearney has been unprecedented, and account for a majority of the increase across Buffalo county.

On analyzing graphs of COVID cases from **October – November**, we are able to observe the following:

- Daily case counts across Kearney city have more than **doubled** in the past two weeks, and case counts per 10,000 residents show a dramatic increase since late October.
- Kearney area is seeing a sharp rise in daily average case counts, and the trend seems set to continue in the coming weeks.

*In summary, Kearney city and Kearney urban area are witnessing unprecedented rise in COVID-19 cases. Average daily case counts have doubled over the past month, and positivity rates in Buffalo county have tripled in the same period. Case rates have increased across all age groups, and the precipitous rise in average daily cases across the area indicates that this trend seems set to continue. Residents are advised to exercise utmost caution and adhere to strict preventive measures (social distancing, correct and consistent masking) at all times to protect themselves.*



## 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 - Nov 10 (From the beginning of the pandemic to current)
- b) July 01 - Nov 10 (From the beginning of second sustained ‘wave’ in daily case counts to current)
- c) Oct 14 - Nov 10 (Previous 4 weeks)
  - Data is presented as 7-day rolling averages for daily numbers and absolute counts for cumulative cases. The 7-day rolling average 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(except when explicitly stated). 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>)