



## Lexington 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 Lexington area by age and city of residence from **July 01 - November 10**.
- d) We will also describe average daily positivity rates in Dawson over the past 19 weeks, comparing it to Phelps, Buffalo 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 Lexington

*In summary, Lexington urban area, specifically Cozad and Lexington are witnessing a dramatic rise in cases since November 1, and the trend shows signs of persisting in the coming weeks. Positivity rates across Dawson county have almost tripled in the past four weeks. Daily case counts in the Lexington area have almost tripled during this period, and daily reported case numbers in Cozad and Lexington are roughly the same now. The steep rate of increase of daily cases in the past two weeks seems to point towards the beginning of a sustained outbreak in the urban area. Residents are advised to avoid unnecessary travel and adhere to strict preventive measures (social distancing, correct and consistent masking) at all times to protect themselves.*

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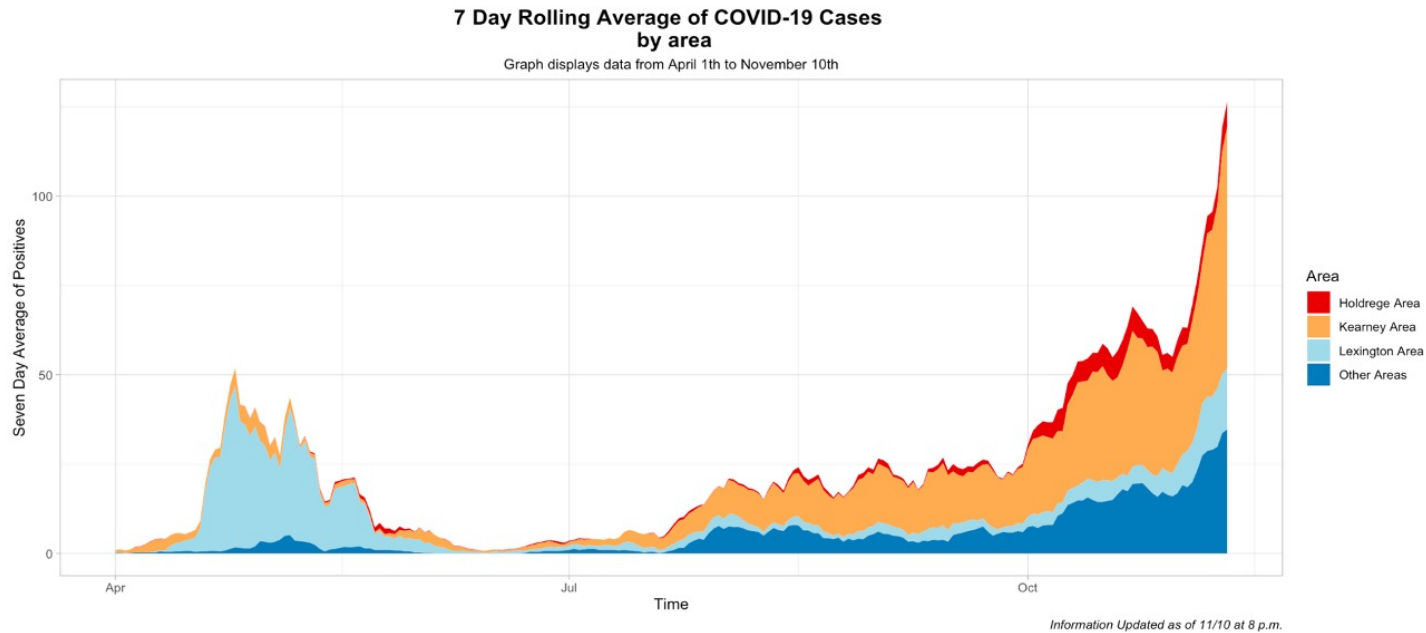
<sup>1</sup> For complete explanation of definitions and data sources, please see appendix 1

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

<https://covidtracking.com/data>

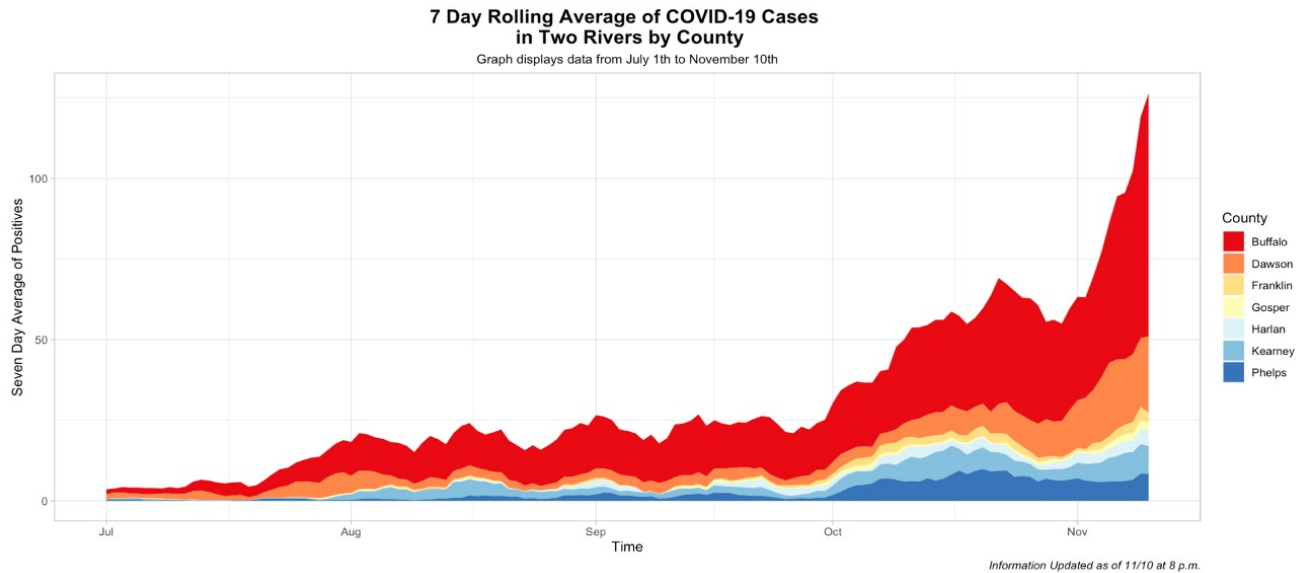


- The graph below describes daily COVID-19 cases in TRPHD from **April 1 – November 10** broken down by urban area (Holdrege, **Lexington**, Kearney and all others). The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to the urban area.

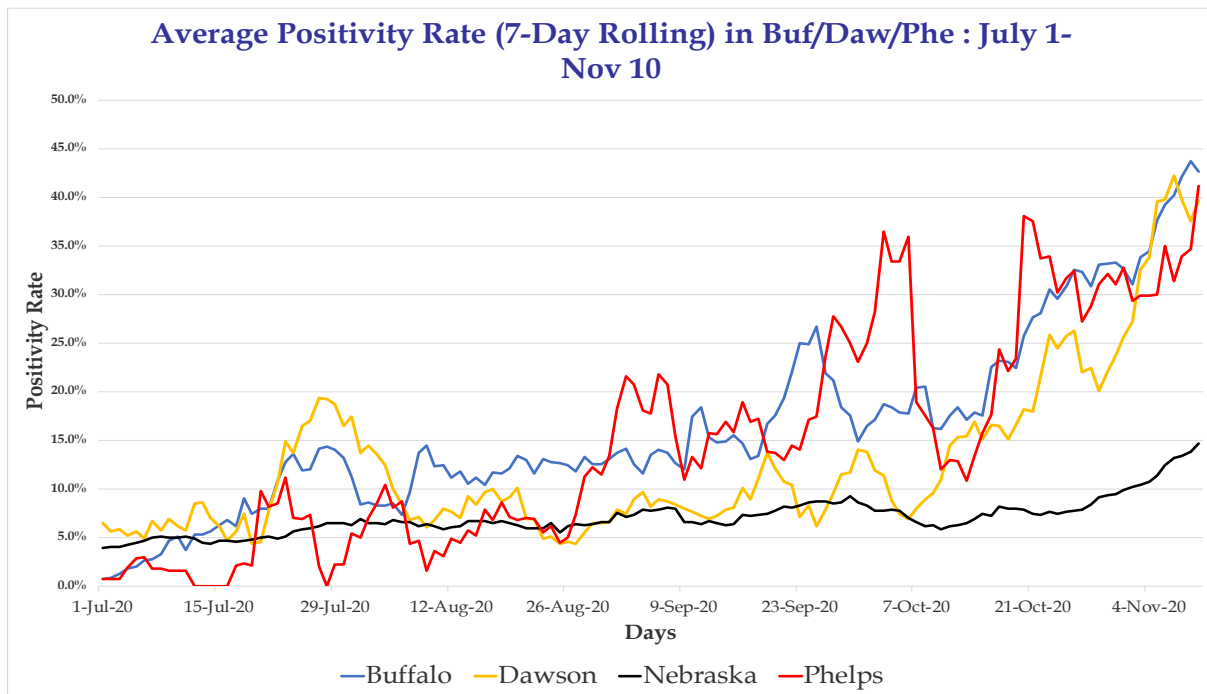




- The graph below describes the daily caseload across all 7 counties of TRPHD from **July 1 - November 10**. The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to the county.



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

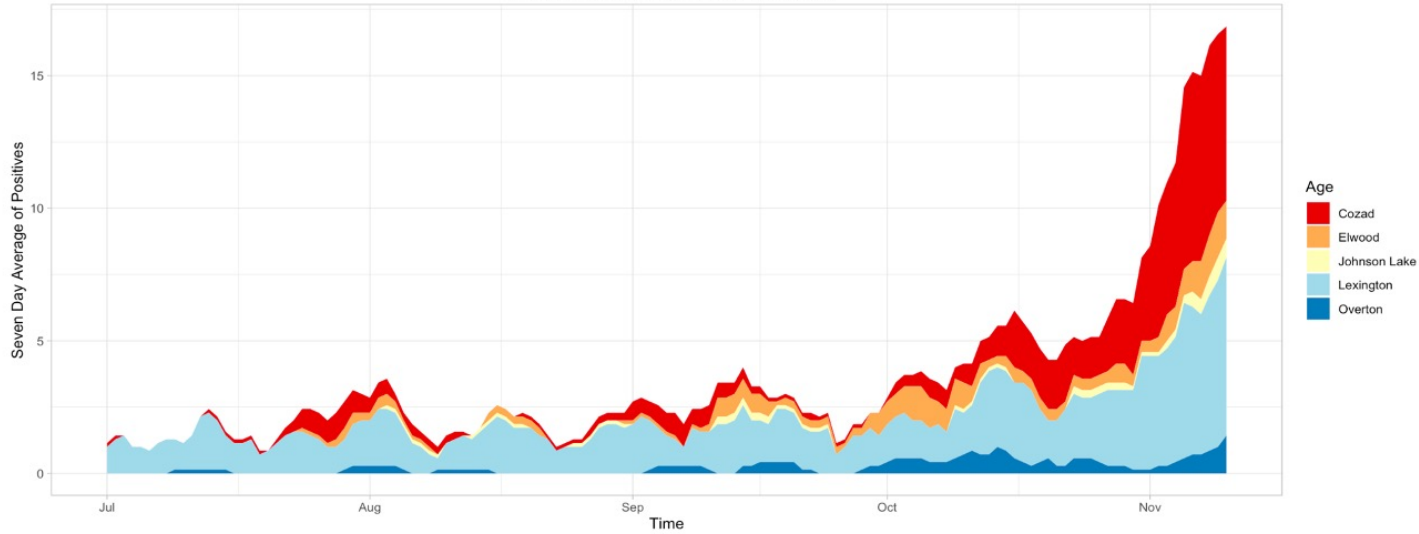




- The graph below shows COVID-19 cases in **Lexington** area from **July 1 – November 10**, describing positive cases by city. The height of the graph corresponds to the daily case count and the thickness of each colored band corresponds to a city's contribution.
- The second graph describes cases by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

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

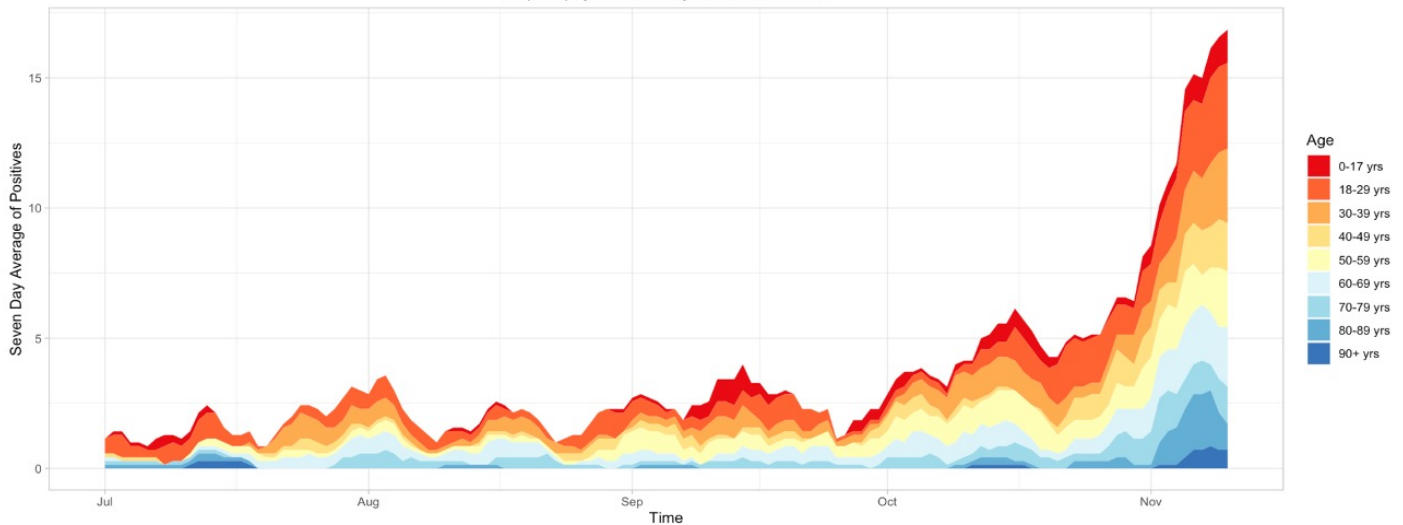
Graph displays data from July 1th to November 10th



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

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

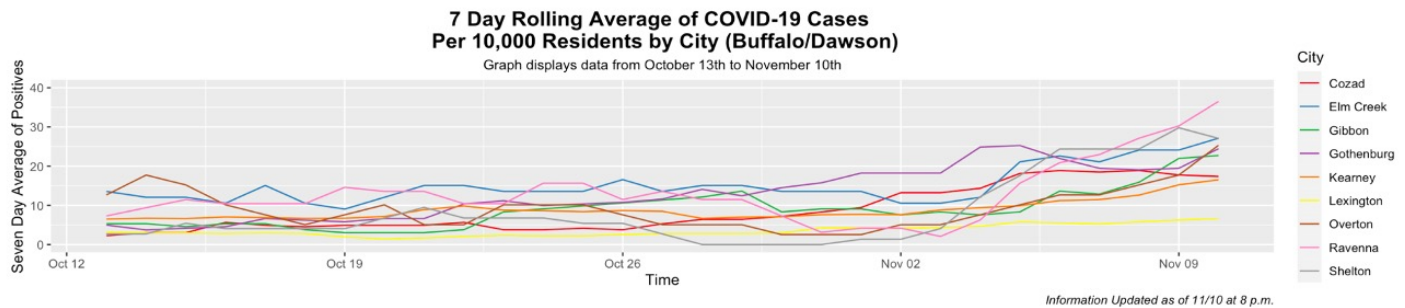
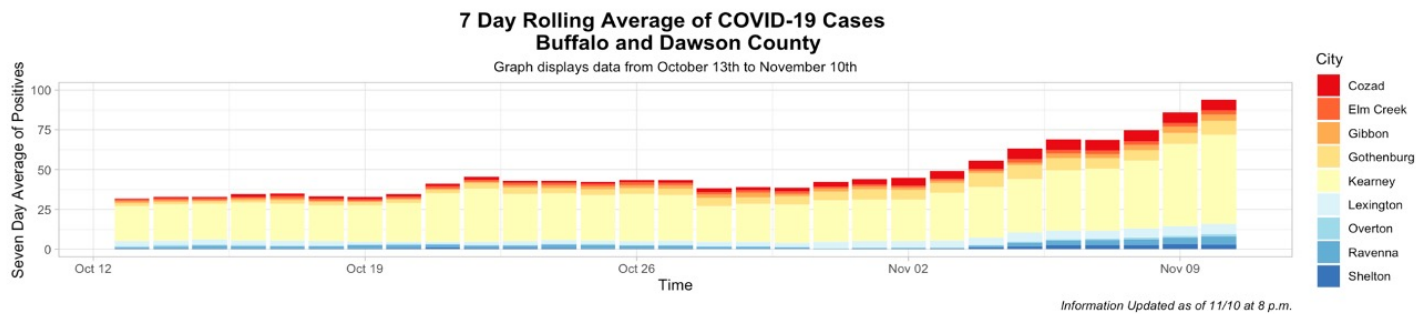
Graph displays data from July 1th to November 10th



(Lexington Area includes Lexington and towns in surround 15 miles)



- The graph below shows COVID-19 cases across 9 cities in TRPHD from **Oct 14 – Nov 10**. **Lexington** 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:

- We have been witnessing a dramatic increase in daily case counts across the Lexington urban area since November 1.
- Although lesser in magnitude compared to the earlier outbreak in May, the rapidity of rise in numbers indicates a possibly longer, sustained increase in caseloads over the next few weeks.

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

- Daily COVID-19 case counts in Dawson county have been increasing since mid-October, and have further increased since November 1.
- Positivity rates in Dawson county tracked closely with the statewide average from early July to mid-October. Current positivity rates are over twice the statewide average.
- Cozad and Lexington are reporting roughly the same number of cases daily, and average case counts across Lexington area have almost **tripled** since November 1.
- Cases among persons aged 60 years and over has shown a dramatic spike. This age group now accounts for **over 2/5ths** of all cases in the Lexington area.

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

- Cases have been rising dramatically in Cozad, and more gradually in Lexington.
- The rate of increase is steep, and cases per 10,000 residents have been rising across all cities in the county since November 1.

*In summary, Lexington urban area, specifically Cozad and Lexington are witnessing a dramatic rise in cases since November 1, and the trend shows signs of persisting in the coming weeks. Positivity rates across Dawson county have almost tripled in the past four weeks. Daily case counts in the Lexington area have almost tripled during this period, and daily reported case numbers in Cozad and Lexington are roughly the same now. The steep rate of increase of daily cases in the past two weeks seems to point towards the beginning of a sustained outbreak in the urban area. Residents are advised to avoid unnecessary travel 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>)