WEST CENTRAL DISTRICT HEALTH DEPARTMENT
Lincoln, Logan, McPherson, Thomas, Hooker, & Arthur Counties

INTRODUCTION

The COVID-19 Risk Dial was implemented by the West Central District Health Department (WCDHD) and adapted from a tool developed by the Lincoln-Lancaster County Health Department (LLCHD) to help communicate to the public the risk of spread of COVID-19 in the community. The Risk Dial is based on the following measures that can be evaluated using current data:

1. Weekly Positivity Rate
2. Trajectory of Cases in the last 14 days (cases)
3. Cases per Million per Day
4. Average Daily Hospitalization
5. ICU Availability
6. Testing Availability
7. Average Testing Turnaround Time
8. Individuals Affected
9. Vaccination

These metrics are commonly cited by numerous reputable public health agencies and research organizations as important public health indicators for COVID-19. Over the course of the pandemic, public health agencies such as the World Health Organization (WHO), the U.S. Centers for Disease Control and Prevention (CDC), State Health Departments, national public health associations, schools of public health, research foundations, and many other organizations have proposed specific metrics to measure the progress of, or set goals for controlling the COVID-19 pandemic. Not surprisingly, measures and metrics have evolved, and multiple iterations of similar metrics have been offered by different organizations.

The West Central District Health Department (WCDHD) has monitored this evolution of measures and metrics and selected measures and metrics for which data is available locally and which can be practically applied to our local jurisdiction. WCDHD may make periodic changes to the local measures to better reflect community risk as the pandemic situation evolves and changes.

Each of the measures are scored on a scale of 0 – 4 based on current data. The final score is calculated by averaging the scores of the 9 measures. The composite measure is updated weekly to generate the current week's severity.

The most important change in fighting this global pandemic has been the approval of vaccines by various health entities across the globe. In the U.S., on December 11, 2020, the U.S. Food and Drug Administration (FDA) issued Emergency Use Authorization (EUA) for Pfizer-BioNTech COVID-19 vaccine in persons aged 16 years and older for prevention of COVID-19. This was quickly followed by FDA issuing an EUA for the Moderna COVID-19 Vaccine on December 18, 2020. Then on February 27, 2021, FDA issued an EUA for a third vaccine for the prevention of COVID-19 produced by Janssen Biotech, Inc. (aka Johnson & Johnson).

Due to the nature of live data available to us at the time of Risk Dial placement, we use a three-week average for each data point to determine placement for that week.

Measure #1: Weekly Positivity Rate

This score is the percent of positive tests, out of tests performed, for the current week. Again, the measure is "person based", therefore, a person is counted only once, no matter how many times they have been tested. The scale for this measure is the same as the scale for Measure #1 above.

None	0	0%
Low	1	1%-4%
Moderate	2	5%-9%
High	3	10%-14%
Severe	4	>15%

Measure #2: Trajectory of Cases in the last 14 days.

This measure looks at the percent change in the number of positive cases reported the previous week to the number of positive cases reported in the current week. The scale for this measure is:

None	0	< -100%
Low	1	-100% < -50%
Moderate	2	-50.1% - 0%
High	3	0% - 9%
Severe	4	>=10%

Measure #3: Cases per Million per Day

This measure is a population measure of the magnitude of cases occurring daily in the community which has been used widely both nationally and internationally.

Number of cases per day (based on a 7-day rolling average) divided by the current population of the WCDHD Jurisdiction (39,000) times 1,000,000. The scale for this measure is:

None	0	0
Low	1	1-4/Million
Moderate	2	5-25/Million
High	3	26.50/Million
Severe	4	>=50/Million

Measure #4: Average Daily Hospitalization

Hospitalization information for this measure comes from Great Plains Health (GPH). The same information is reported to the State of Nebraska. The scale for this measure is:

Very Low	0	0-10
Low	1	11-15
Moderate	2	16-20
High	3	21-25
Severe	4	26+

Measure #5: Adult ICU Availability

Across the country, 30% of ICU availability within facilites is often being suggested as a "tipping point" after which systems become overwhelmed. The scale for this measure is:

Widely Available	0	60%
Adequate	1	50%
Stable	2	30%
Critical	3	20%
Shortage	4	<0%

Measure #6: Testing Availability

This measure looks at how available testing is to everyone in the area. The scale for this measure is:

Widely Available	0	Testing Available to All
Available	1	High Availability/Exceeding Need
Low	2	Available/Meeting Need
Critical	3	Not Meeting Need
None	4	Severe Shortage of Testing

Measure #7: Average Testing Turnaround Time

A key metric related to testing is the time frame for receiving test results from the date of sample collection (turnaround time). To best ensure mitigation of disease, test results should be reported within 48 hours. Turnaround times that exceed the 48 hour window, increase the likelihood those testing positive may expose others, resulting in spreading of disease. The scale for this measure is:

Very Good	0	< 1 day
Good	1	1 day
Moderate	2	2 to 3 days
Critical	3	4 to 6 days
None	4	7 days or more

Measure #8: Individuals Affected

Individuals affected account for the number of known close contacts of positives. The scale for this measure is:

None	0	0 individuals
Low	1	1-20 individuals
Moderate	2	21-40 individuals
High	3	41-60 individuals
Severe	4	61-80 individuals

Measure #9: Vaccination

Percentage of eligible population vaccinated. Vaccinating 75% of persons 50 years of age and older will be a key milestone in reducing the impact of COVID-19 in our community, since that age group includes the vast majority of persons who are at increased risk of hospitalization or death due to COVID-19.

Very good	0	100%
Good	1	>75%-100%
Low	2	>50-%75%
Critical	3	>25%-50%
Severe	4	0%-25%

Once all of the measures have been scored, the average of the 9 scores is the number used for the Risk Dial. See below for an example.

ID	Risk Factors	Qualitative (Committee)	Objective (Data)	Overall
R0	Weekly Positivity Rate	2	2	2
R1	Trajectory of Cases in the last 14 days (Cases)	2	2	2
R2	Cases per Million per Day	3	3	3
R3	Average Daily Hospitalization	0	0	0
R4	ICU Availability	3	3	3
R5	Testing Availability	0	0	0
R6	Average Testing Turnaround Time	1	1	1
R7	Individuals Affected	1	1	1
R8	Vaccination	3	3	3
	Average	1.67	1.67	**1.67**

This score of **1.67** would equate to the upper yellow range on the Risk Dial. The number published with the risk dial is rounded to the nearest tenth.

Objective data is reviewed and analyzed on a weekly basis by a team of public health experts. The qualitative scores and the objective data are averaged to provide the overall score.