

Lincoln-Lancaster County Health Department

COVID-19 Risk Dial Metrics

Updated: January 17, 2023



INTRODUCTION

The COVID-19 Risk Dial was developed by the Lincoln-Lancaster County Health Department (LLCHD) to help communicate to the public the risk of spread and impact of COVID-19 in the community.

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 and Local Health Departments, and many other organizations have proposed specific metrics for the public health impact of the COVID-19 pandemic. As the pandemic evolved, so did measures and metrics.

Based on the ever-changing dynamics of COVID-19, LLCHD is updating the risk dial metrics. Three metrics are being retired – positivity rate, contact tracing and test turnaround time. The COVID-19 testing landscape has evolved in the past 6 months with the advent of home test kits. A greater majority of home test kit results are not reported to the health department, which affects the positivity rate. Public health agencies across the country, including LLCHD, have transitioned away from universal case investigation and contact tracing to focus on outbreak investigations and prioritized case investigations. Test turnaround time measured the availability of laboratory capacity for testing and related to the contact tracing. Laboratory capacity is adequate and testing turnaround times are consistently acceptable. The health care system impact and vaccination metrics are being modified (see numbers 3 and 4 below). One new metric is being added – wastewater surveillance (see number 4 below.)

The following is a list of the measures and metrics LLCHD uses and a description how they relate to the position of the LLCHD COVID-19 Risk Dial.

1. CASE RATE

The case rate is the number of new COVID-19 cases over a specific period of time divided by a standard number of people. LLCHD uses a weekly case rate of cases per 100,000 people and reviews the trend over the past three weeks. Despite the changing testing landscape in the recent months, case rate provides a more comprehensive assessment of the situation in combination with other metrics like wastewater testing and hospitalization. The metrics were derived from Johns Hopkins (JH) Coronavirus Resource Center (<https://coronavirus.jhu.edu/testing/tracker/map>). JH uses a scale with seven ranges. LLCHD condensed the JH scale from seven ranges to four to apply it to the LLCHD COVID-19 Risk Dial.

Metric: 'Number of New Cases per 100,000 People'

Johns Hopkins Rates (per 100,000 people)	LLCHD Rates (per 100,000 people)	Avg. Cases Per Day
0.00	0 to 7	0 to 23
7.32		
14.64	>7 to 15	24 to 47
21.96	>15 to 29	48 to 93
29.28		
36.60	>29	94 or more
43.92		

2. HEALTH CARE SYSTEM IMPACT & CAPACITY

Early in the pandemic, ‘Percentage of ICU Bed Availability’ and ‘Beds Used by COVID-19 Patients’ were considered important measures of the impact of COVID-19 on the local health care system. Data for both these metrics are reported to LLCHD by the local hospital systems. Local hospitals developed response mechanisms to ensure adequate ICU capacity, even while a significant number of beds were occupied by COVID-19 patients. As local hospitals move into “surge” status, they convert areas previously devoted to lower-level care into ICU areas. Thus, the total number of available ICU beds changes. LLCHD has determined that the metric of “Percent of ICU Beds Available” is not as valuable in measuring the impact on the health care system as it was previously but has retained the “Percent of Medical/Surgical Beds Used to Care for COVID-19 Patients.”

Metric: ‘Percent of Medical/Surgical Beds Used to Care for COVID-19 Patients’

LLCHD and the local health care system have worked closely together throughout the pandemic. The local health care system has a consistent number of medical/surgical beds. Health care system leaders provided useful input and guidance, identifying thresholds of medical/surgical bed use by COVID-19 patients that reflected levels of stress on the local health care system. Thus, LLCHD’s metric measures the percentage of medical/surgical beds used to care for COVID-19 patients. We believe this measure provides a reliable indicator of impact on the health care system and measures the severity of COVID-19 in the community.

Percent of Medical/Surgical Beds Used to Care for COVID-19 Patients
5% or less
>5% to 15%
>15% to 25%
>25%

3. WASTEWATER SURVEILLANCE – NEW METRIC

People infected with SARS-CoV-2 can shed the virus in their feces. The virus can be detected in wastewater, enabling wastewater surveillance to serve as a measure of COVID-19 in a community.

The City of Lincoln Transportation and Utilities Department Wastewater Division has been collecting samples of wastewater and having them tested for SARS-CoV-2 by Biobot Analytics since June of 2021. Statistical analysis has shown a correlation between the

number of effective viral copies found in city wastewater and the number of hospitalizations in our community. LLCHD reviewed the wastewater surveillance data and past risk dial position, and developed the indicator shown in the table.

In early 2022, home test kits were distributed to the public. It is generally believed that this has resulted in an increase in home testing and a decrease in the number of people being tested at medical facilities and test sites. This may result in fewer laboratory confirmed cases being reported to LLCHD. Thus, SARS-CoV-2 in wastewater is a valuable metric.

<u>New Metric :</u> Wastewater Surveillance – Viral Copies per ml of Wastewater
500 or less
>500 to 1000
>1000 to 2,000
>2,000

4. VACCINATION (4 metrics each weighted equally)

LLCHD worked closely with medical providers, other community partners and pharmacies to vaccinate those eligible. LLCHD held multiple mass clinics and targeted micro clinics providing access to underserved populations over the past 24 months. Vaccine have also been made available through pharmacies, long term care facilities, some medical practices and clinics.



Existing Current Metric: 'Percent of Population Vaccinated with primary series'

Percent Population Vaccinated
>75%
>50% to 75%
>25% to 50%
≤25%

valuable in measuring impact.

LLCHD initially set a goal to have 75% of eligible people fully vaccinated. As the pandemic progressed, new variants became predominant, and vaccine induced immunity waned. Thus, booster doses were offered. Booster vaccinations proved highly effective in reducing the risk of hospitalization and death, especially among vulnerable populations. The advent of boosters has made the original vaccine metric less

Additional Vaccination Metric: 'Had a COVID19 Vaccine in the preceding 12 months'

New Metric: Percent Population That Have Had a vaccine in the preceding 12 months
>50%
>30% to 50%
>15% to 30%
≤15%

LLCHD has developed a new vaccine metric which focuses on the percent population who had a vaccine in the past 1 year. After we set the initial goal to vaccinate the population of 75% with the primary series of the vaccine, new variants of the virus developed and in some cases evaded the protection that the primary series provided. Booster doses were not available to most of the population who is under the age of 50 years until September of 2022.

Additional Vaccination Metric: 'Percent of Persons Up-To-Date'

New Metric: Percent of Population That Are Up-To-Date
>50%
>30% to 50%
>15% to 30%
≤15%

LLCHD has developed a new vaccine metric which focuses on the percent of population that are considered by CDC to be "Up- to-Date" on their COVID-19 series, which currently means that they have received Bivalent booster or a dose of COVID-19 vaccine in the past 2 months.

Additional Vaccination Metric: 'Percent of Persons 65 & Older that Have Received Booster Doses'

New Metric: Percent of Persons 65 & Older That Are Up-To-Date
>75%
>50% to 75%
>25% to 50%
≤25%

LLCHD has developed a new vaccine metric which focuses on the percent of the older adult population that are considered by CDC to be "Up- to-Date" on their COVID-19 series, which currently means that they have received Bivalent booster or a dose of COVID-19 vaccine in the past 2 months. While people over 65 years comprise less than 20% of the population, over 70% of deaths have occurred in this age group. Thus, older adults being "Up-to-Date" on COVID-19 vaccination is vitally important. Using the "Up-to-Date" terminology will allow this indicator to reflect updated CDC recommendations on vaccinations.

5. DEATHS

Deaths due to COVID-19 are a hard reality and a definable outcome of this pandemic. Deaths are considered a "trailing indicator" since death from COVID-19 often comes after weeks, or months, of illness. 472 Lancaster County residents have died from COVID-19 as of January 13, 2023. Most deaths have occurred in persons 60 years of age or older, with those over 75 years being especially vulnerable.

Since death is a lagging indicator, LLCHD has chosen to change the metric from a 3-week rolling average to the number of deaths that occurred in the previous week.

Updated Metric: 'Number of Deaths in Past Week'

Number of Deaths in Past Week
<1
>1 to 3
>3 to 7
>7

LLCHD has determined that the number of deaths in the previous week is an important metric to include as a measure of the public health impact of COVID-19 in the community.

CONCLUSION

LLCHD wants to ensure that we are clearly communicating the risk of COVID-19 spread to our community and the public health impact of that spread. These metrics were developed by our LLCHD Team based on reputable public health resources. LLCHD's Team includes staff that have decades of experience in epidemiology, outbreak investigations, and biostatistics. LLCHD's COVID-19 Risk Dial provides the most robust description of the risk of spread and the public health impact in the Lincoln and Lancaster County community. As our knowledge of this pandemic and interventions grows, revisions may be made to these metrics and the thresholds.

