COVID-19 Current State Analysis and Forecasting for the DFW Region

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About the Model

The following slides illustrate a model of how COVID-19 is spreading across the DFW region based on real patient data. This provides a snapshot based on data available as of August 8-9. Every time we receive new data, we re-run the model and refine the graphs.

In the following slides we examine how well preventive measures including vaccinations, masking, staying at home, physical distancing, hand hygiene and others have limited the spread of COVID-19, and what might happen looking forward.

Model-building is an iterative process with inherent uncertainty in its predictions. It facilitates planning and should not be the sole basis for policies or management decisions for any emerging infection.

We thank the Dallas and Tarrant County health departments, the hospitals, and health systems that have contributed data to help us build this model.
Hospitalization growth has slowed in the region. Over the next several weeks, the total number of people hospitalized for COVID-19 is now expected to decline in Dallas County and remain relatively flat in Tarrant County. Admissions in patients over the age of 65, who often experience more severe disease, have now flattened out as well. The Dallas County Health and Human Services COVID-19 risk level is still orange, and Tarrant County Public Health’s advisory level is still high. Indoor masking is strongly encouraged for everyone at this time. Test positivity rates are still high, indicating that many positive cases are being missed in official records, but these rates have plateaued or slightly decreased, which may indicate a slower growth rate in the coming weeks. As the new school year begins across the region, transmission may increase again. Based on these trends, our medium-term forecast predicts that hospitalizations are still on a longer uptrend and could return to elevated levels by early autumn.

Vaccination remains our most powerful tool for preventing severe COVID-19. Vaccinated individuals still have a significantly decreased chance of catching COVID-19 compared to unvaccinated individuals, and even more importantly, significantly decreased risk of hospitalization and death. All Texans over the age of 6 months are now eligible for vaccination. Boosters are recommended for everyone age 5+, and second boosters are recommended for those age 50+. As part of our ongoing commitment to an equitable, effective, and efficient vaccination rollout, Texans aged 12 and older can schedule a vaccination appointment using UT Southwestern’s online scheduling portal: utswmed.org/vaccines.

Both nationally and locally, Omicron is now by far the dominant variant of the virus, representing 100% of positive tests sequenced at UT Southwestern. The closely related BA.4/BA.5 Omicron sub-lineages are more transmissible and now represent 75% of our samples, outcompeting the “original” BA.1 Omicron variant and subsequent BA.2 sub-lineage.

Based on the latest CDC “COVID-19 Community Levels” guidance, which considers hospital admissions and capacity, Dallas, Tarrant, and Collin Counties are now high risk, meaning that indoor masking is currently recommended for everyone. Visit the CDC website for more guidance on individual and household-level prevention measures recommended during times of high risk. The CDC “Community Transmission” levels for the DFW region, which consider new cases and test positivity, are currently high. Use of high-quality masks when appropriate, physical distancing, increased ventilation, staying home when feeling unwell, and other interventions recommended by health experts will help continue to curb transmission and protect the health of all Texans, especially those who are currently unvaccinated, unable to be vaccinated, or immunocompromised. Anyone who is experiencing symptoms or exposed to someone with COVID-19 is encouraged to get tested and quarantine to break the chain of transmission.
COVID-19 Hospitalizations in Dallas County: Past, Present, and Future Forecasting

- COVID-19 hospitalizations (black squares) are rising again.
- The blue line shows the estimated number of hospitalizations for the last three weeks, as well as our 21-day forecast starting from 8/9.
- Dallas County total COVID-19 hospitalizations expected to decline to 200 within the next several weeks.

Source: NCTTRAC EMResource Master Data Set - County Level for data through 8/1/20-8/8/22
Shaded regions in the model's forecast represent 90% credible interval.
Dallas County’s Trajectory Is Increasing

- Total hospitalizations due to COVID-19 are expected to stabilize over the next several weeks.
  - Hospitalizations could return to elevated levels by early autumn as mobility increases as schools reopen.
  - These trends are influenced by reduced immunity over time from past infections during Delta and earlier waves, as well as the effect of more transmissible and immune-escaping Omicron subvariants.

**Lines**
- **Red Line** is if all behavior returns to unmitigated, pre-pandemic patterns with Omicron-like severity
- **Blue Line** is if we maintain our current trajectory

**Shading**
- **High Risk**: Recommend indoor masking
- **Medium Risk**: Recommend indoor masking for high-risk groups and their contacts
- **Low Risk**: Indoor masking is personal preference
COVID-19 Hospitalizations in Tarrant County: Past, Present, and Future Forecasting

- COVID-19 hospitalizations (black squares) are climbing again.
- The blue line shows the estimated number of hospitalizations for the last three weeks, as well as our 21-day forecast starting from 8/9.
- Tarrant County total COVID-19 hospitalizations are expected to stabilize around 250 over the next three weeks.

Hospitalized COVID-19+ Patients: Past and Predicted

Source: NCTTRAC EMResource Master Data Set - County Level for data through 8/1/20-8/8/22
Shaded regions in the model’s forecast represent 90% credible interval.
More About the Measures We Follow to Build the Model

- **Mobility** proxy measures indicate the degree to which residents are compliant with physical distancing, determined using data from cell phones and surveys.

- **Visits to the doctor** for COVID-like symptoms are a leading indicator that will likely rise ahead of hospitalizations.

- **Test percent (%) positivity** is a useful number to follow to make sure that enough tests are being done and to follow over time. If it goes up, then cases and hospitalizations follow. % positivity varies by the population tested. For example, the % positivity of samples from the emergency department would be different than that of a group of asymptomatic individuals.

- **Hospitalizations** trail new infections by 1-2 weeks but are not influenced by testing capacity or test reporting delays, thus giving us a clear picture of severe cases in the community.

- **Vaccinations** indicate the level of protection that is present in the community against severe disease.

- Based on testing and hospitalization data, we calculate **infection rates**, which indicate how prevalent COVID-19 is within an age group or community, and **$R_t$**, which represents how many people 1 individual is likely to infect under current conditions.
How Mobile Are North Texans?

The graphs above show mobility trends through August 5 based on cell phone data. Time spent at home has increased slightly over the summer. Visits to other sites outside the home, with the exception of workplaces, are near their pre-pandemic baselines.
Approximately 28% of COVID-19 tests are positive in the state of Texas.

Hospital volumes for COVID-19 have decreased 2% compared to one week ago and increase 59% compared to one month ago.

Source (left): TX DSHS data through 8/7/22, Accessed 8/9/22
Source (right): TX DSHS Combined Hospital Data by TSA Region data through 8/7/2022
“North Texas” is defined as Trauma Service Area E, % increases compare trailing 7-day averages
COVID-19 Hospital Admissions Are Growing More Slowly

- Hospital admissions for COVID-19 across most age groups and counties in the DFW area are now growing more slowly or flattening out. Admissions in the 65+ age group, which had been rising steeply, have also flattened out.

- Please note the differing scales for each county when reading the graphs at left. Data show location of hospital, not necessarily patients’ resident county.
Dallas County Infection Rates Are Elevated Across Age Groups

- The redder the rectangle, the more cases per 100,000 people.
- Infection rates are elevated across most age groups.
- Please note that the upper bound of the color scale is now **400 cases per 100,000 people**, as compared to an earlier upper bound of 1,000.

Source: Dallas County HHS, Accessed 8/9/22, data for positive tests with a specimen collection date of 7/30/22 or earlier
Infection Rates in All Dallas County Cities Are Elevated

- The redder the rectangle, the more cases per 100,000 people.
- Infection rates are elevated across Dallas County.
- Please note that the upper bound of the color scale is now 400 cases per 100,000 people, as compared to an earlier upper bound of 1,000.

Source: Dallas County HHS, Accessed 8/9/22, data for positive tests with a specimen collection date of 7/30/22 or earlier
$R_t$ Represents Contagiousness

- $R_t$ helps us measure how effective social distancing measures are after they are put into place.
- If social distancing and measures like masking are effective, then the number of secondary infections is dramatically reduced.
- In this scenario where social distancing measures were 50% effective, then only five people end up infected, rather than the original 31.
How Contagious Was COVID-19 in Dallas Two Weeks Ago?

This graph shows the $R_t$ value in Dallas County as of one-to-two weeks ago, calculated using the date positive tests were collected. The $R_t$ value has dropped to approximately 1 in Dallas County.

Source: Dallas County HHS, Accessed Aug 9; up to specimen collection date of Aug 2;