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

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Updated May 18 with data as of May 16-17
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 May 16-17. 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.
The number of people hospitalized in the region has stabilized at low levels but is expected to slowly increase over the next several weeks. The local Rt value, which represents how effectively the virus is spreading, is now around 1 in Dallas and Tarrant County. Test positivity rates are increasing; however, total testing volumes are near all-time lows. Based on these trends, our medium-term forecast predicts that hospitalizations should remain at low levels throughout the spring but may rise again this summer. Masking behavior is at the lowest levels observed since the start of the pandemic.

Vaccination remains our most powerful tool for preventing severe COVID-19. Although breakthrough infections are more common with Omicron than with previous variants, 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 5 are now eligible for vaccination, and everyone over the age of 12 is encouraged to get a booster. 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 nearly 100% of positive tests sequenced at UT Southwestern. The more transmissible Omicron sub-lineage known as BA.2 now represents over 90% of our samples, outcompeting the “original” BA.1 Omicron variant.

Based on the latest CDC “COVID-19 Community Levels” guidance, Dallas, Tarrant, Denton, and Collin Counties are currently low risk. Visit the CDC website for guidance on individual and household-level prevention measures recommended during times of low risk. 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 who may be 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

Hospitalized COVID-19+ Patients: Past and Predicted

- COVID-19 hospitalizations (black squares) have bottomed out this month.
- The blue line shows the estimated number of hospitalizations for the last three weeks, as well as our 21-day forecast starting from 5/17.
- Dallas County total COVID-19 hospitalizations should remain below 100 for the next several weeks.
- New COVID-19 infections could exceed 250 new COVID-19 infections per day over the next several weeks.

Source: NCTTRAC EMResource Master Data Set - County Level for data through 8/1/20-5/16/22
Shaded regions in the model’s forecast represent 90% credible interval.
Dallas County’s Trajectory Is Flat for Now

- Census is expected to increase over the next several weeks
  - Census could return to elevated levels by early Summer if trends persist
  - Influenced by potentially decaying immunity of Delta and earlier waves plus more transmissible Omicron subvariants

- Hospital admissions are primary driver of CDC recommendations for Dallas County but should remain at manageable level over near future

**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

Hospitalized COVID-19+ Patients: Past and Predicted

- COVID-19 hospitalizations (black squares) have held steady this month.
- The blue line shows the estimated number of hospitalizations for the last three weeks, as well as our 21-day forecast starting from 5/17.
- Tarrant County total COVID-19 hospitalizations should remain below 100 for the next three weeks.
- New COVID-19 infections are could climb above 150 new COVID-19 infections per day over the next three weeks.

Source: NCTTRAC EMResource Master Data Set - County Level for data through 8/1/20-5/16/22
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 May 14 based on cell phone data. Time spent at home continues to decrease. Visits to other sites outside the home have increased as well.

Source: Google COVID-19 Community Mobility Reports accessed 5/17/22, data through 5/14/22
Based on survey responses, rates of observed mask usage in public places and self-reported mask usage rose during the peak of the last surge but are now back to their lowest levels since the start of the pandemic.

The percentage of people reporting that they have been or are willing to be vaccinated remains high but flat.

Source: Facebook survey results from Carnegie Mellon University's Delphi Group. COVIDCast Real-Time Indicators, Accessed 5/17/22, data through 5/14/22
Cases of COVID-19 That Require Hospitalization Are Low; Test Positivity Rates Are Increasing in North Texas

<table>
<thead>
<tr>
<th>Percent Positive COVID-19 Tests in Texas</th>
<th>Confirmed COVID-19 Patients in North Texas Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Graph of percent positive COVID-19 tests" /></td>
<td><img src="image" alt="Graph of confirmed COVID-19 patients" /></td>
</tr>
<tr>
<td>Over 8% of COVID-19 tests are positive in the state of Texas.</td>
<td>Hospital volumes for COVID-19 have <strong>increased 3%</strong> compared to one week ago and <strong>increase 2%</strong> compared to one month ago.</td>
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</tbody>
</table>

Source (left): TX DSHS data through 5/17/22, Accessed 5/18/22
Source (right): TX DSHS Combined Hospital Data by TSA Region data through 5/17/2022
“North Texas” is defined as Trauma Service Area E, % increases compare trailing 7-day averages
COVID-19 Hospital Admissions Are at Low Levels

- Hospital admissions for COVID-19 across all age groups and counties in the DFW area are flat at low levels.

- Please note the differing scales for each county when reading the graphs at left. Data show location of hospital, not necessarily patients’ resident county.

Source: Admissions - NCTTRAC EMResource Master Data Set - County Level for data through 8/1/20-5/9/22

Undisclosed ages imputed using average regional age mix on the reported date
Includes both lab-confirmed and suspected COVID-19 admissions
Dallas County Infection Rates Are Low Across Across All Age Groups

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

Source: Dallas County HHS, Accessed 5/17/22; data for positive tests with a specimen collection date of 5/7/22 or earlier.
Infection Rates in All Dallas County Cities Are Low

Dallas County Weekly Case Rate per 100K
By City

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

Source: Dallas County HHS, Accessed 5/17/22, data for positive tests with a specimen collection date of 5/7/22 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 DFW Two Weeks Ago?

These graphs show the $R_t$ value as of one-to-two weeks ago, calculated using the date positive tests were collected. The $R_t$ value is around 1 in both Dallas and Tarrant County.

Source: Dallas County HHS, Accessed May 17; up to specimen collection date of May 10; *Tarrant County PH, Accessed May 10; data for positive tests with a specimen collection date of May 2 or earlier.
