

Inpatient Hospitalizations for COVID-19 in Texas – 2020

Part 1a: Demographics

A report using the 2020 THCIC Inpatient Public Use Data File

Prepared by Center for Health Statistics, COVID-19 Data Dissemination Team

Contact: chs-info@dshs.texas.gov

Contributors:

Sarah Seidel, DrPH

Leah Chapman, PhD, MPH

Jean Hu, MS

Kai Cobb, MPH

Jeff Koss, MA

Background

The SARS-CoV-2 virus caused 1,620,499 confirmed cases of the novel coronavirus disease 2019 (COVID-19) in the state of Texas in 2020 (Texas Department of State Health Services, 2022a). Common symptoms of COVID-19 include fever, cough, fatigue, and loss of taste or smell (Centers for Disease Control and Prevention, 2021). More severe symptoms include difficulty breathing or shortness of breath, loss of speech or mobility, and chest pain (Centers for Disease Control and Prevention, 2021). SARS-CoV-2 infection has also been associated with increased risk of pneumonia, heart failure, kidney complications, and various other disease indications (Li et al., 2021; Rao et al., 2021).

COVID-19 hospitalizations have been a major public health concern during the pandemic due to overcrowding and the strain on hospital resources (French et al., 2021). In Texas, the number of patients with COVID-19 in Texas hospitals peaked at 14,218 on January 11, 2021, and the percentage of patients with COVID-19 in hospitals out of total hospital capacity peaked at 19.63% on July 20, 2020 (Texas Department of State Health Services, 2022b).

Certain demographic factors are associated with a higher risk of severe illness and in-hospital mortality from SARS-CoV-2 infection, such as higher age and belonging to a racial or ethnic minority group (Rozenfeld et al., 2020; Thakur et al., 2021; Williamson et al., 2020). The purpose of this report is to characterize inpatient hospitalizations for COVID-19 in Texas in 2020 by various geographic and demographic characteristics, such as sex, age, race/ethnicity, and payor type.

Methods

Data for this report come from the Texas Department of State Health Services (DSHS) Texas Health Care Information Collection's (THCIC) 2020 Texas Inpatient Public Use Data File (PUDF). In Texas, all state licensed hospitals are required to report health care activity data to THCIC under Chapter 108 of the Texas Health and Safety Code (Sections 108.011 through 108.0135) (Texas Department of State Health Services, 2022c). The THCIC inpatient PUDF therefore contains hospital discharge data (at the patient level) from all state licensed hospitals. Of note, these data are individual hospitalizations and not necessarily individual patients (i.e., the same patient may appear multiple times throughout the data set if he or she was hospitalized more than once in Texas in 2020). Data are available by quarter and are broken down as follows: January 1-March 31, 2020 (Quarter 1), April 1- June 30, 2020 (Quarter 2), July 1-September 30, 2020 (Quarter 3), and October 1-December 31, 2020 (Quarter 4). Seven hundred and two, 687, 688, and 694 facilities reported to THCIC for Quarters 1, 2, 3, and 4, respectively, in the 2020 inpatient PUDF.¹

This report defined a hospitalization for COVID-19 as a discharge with the ICD-10-CM code of U07.1 in the admitting diagnosis or principal diagnosis codes. Hospitalizations in this report

¹ Reporting variation between quarters is due to the opening and closing of facilities throughout the calendar year.

include non-Texas residents (i.e. any patient hospitalized in a Texas hospital regardless of residency status).

Analysis

Descriptive statistics were calculated using SAS 9.4 (SAS Institute Inc., Cary, NC). Rates were calculated using 2019 population estimates from the Census Bureau’s American Community Survey (United States Census Bureau, n.d.). The 2019 estimates were used, rather than the 2020 population estimates, to remain consistent with the Centers for Disease Control and Prevention’s previously published hospitalization rates for 2020 (Garg et al., 2020) and the Texas DSHS COVID-19 dashboards (Texas Department of State Health Services, 2022a).

Results

Demographic Characteristics

In 2020, there were 2,945,904 inpatient hospitalizations due to any cause in Texas. Of these hospitalizations, 117,151 (3.8%) were hospitalizations for COVID-19. Among inpatients hospitalized for COVID-19, 53,427 (45.6%) were women, 59,748 (50.1%) were men, and sex was unknown for 3,976 (3.4%) (Table 1). Although hospitalizations for COVID-19 were most common among those aged 45-64 (43,298, equating to 37.0%, Table 1) the rate of COVID-19 hospitalizations per 1,000 population was greatest in those aged 75 and above (19.4, Table 1). The highest percentage of hospitalizations for COVID-19 was among Non-Hispanic White (48,410, equating to 41.3%, Table 1) followed by Hispanic/Latino (43,228, equating to 36.9%, Table 1). However, the rate of COVID-19 hospitalizations per 1,000 population was highest for the Non-Hispanic Other population (11.9, Table 1). “Routine discharge” was the most common discharge status (69,176, equating to 59.0%), followed by “transferred” (i.e., discharged to another medical facility) (30,722, equating to 26.2%, Table 1).

Table 1. Demographic characteristics of patients hospitalized for COVID-19 in Texas in 2020

	n	(%)	Per 1,000 population (ACS 1yr 2019)
All Hospitalizations for COVID-19	117,151	100.0%	4.0
Sex			
Female	53,427	45.6%	3.7
Male	59,748	51.0%	4.2
Unknown/Missing/Invalid ^a	3,976	3.4%	
Age group			
0-17	1,053	0.9%	0.1

18-44	17,954	15.3%	1.6
45-64	43,298	37.0%	6.3
65-74	25,713	21.9%	11.3
75+	29,131	24.9%	19.4
Unknown/Missing/Invalid ^a	2	0.0%	
Race/Ethnicity			
Non-Hispanic Asian	1,966	1.7%	1.4
Non-Hispanic Black	15,299	13.1%	4.4
Non-Hispanic White	48,410	41.3%	4.1
Non-Hispanic Other ^b	7,676	6.6%	11.9
Hispanic/Latino	43,228	36.9%	3.8
Unknown/Missing/Invalid ^a	572	0.5%	
Patient Status at Time of Discharge			
Still a Patient	30	0.0%	
Routine Discharge	67,176	59.0%	
Transferred	30,722	26.2%	
AMA	1,220	1.0%	
Expired (Died)	12,812	10.9%	
Hospice	3,191	2.7%	
Payor Source			
Medicare ^c	53,332	45.5%	
Medicaid	5,294	4.5%	
Private Insurance	39,783	34.0%	
Self-Pay	2	0.0%	
Charity/Unreimbursed/Unknown	8,772	7.5%	
Other ^d	7,184	6.1%	
Invalid/Missing	2,784	2.4%	

^aUnknown sex, age, and race/ethnicity may occur due to redaction of this information in the THCIC PUDF. Additionally, unknown sex, age, and race/ethnicity do not have an underlying population for rate calculation.

^bNon-Hispanic Other includes non-Hispanic American Indian/Alaska Native, Native Hawaiian/Pacific Islander, some other race alone, or two or more races.

^cMedicare includes Part A, B, and HMO Medicare Risk.

^dOther payor source includes VA, CHAMPUS, Title V, and other federally, state, & locally funded.

Inpatient Hospitalizations by Sex

Figure 1 shows that reported hospitalizations for COVID-19 were more common among men than women in Texas in 2020 (59,748, 51.0% versus 53,427, 45.6%, respectively). Similarly, the rate of hospitalizations for COVID-19 in Texas in 2020 was slightly higher in men than women, with a rate of 4.2 and 3.7 per 1,000, respectively (Figure 2).

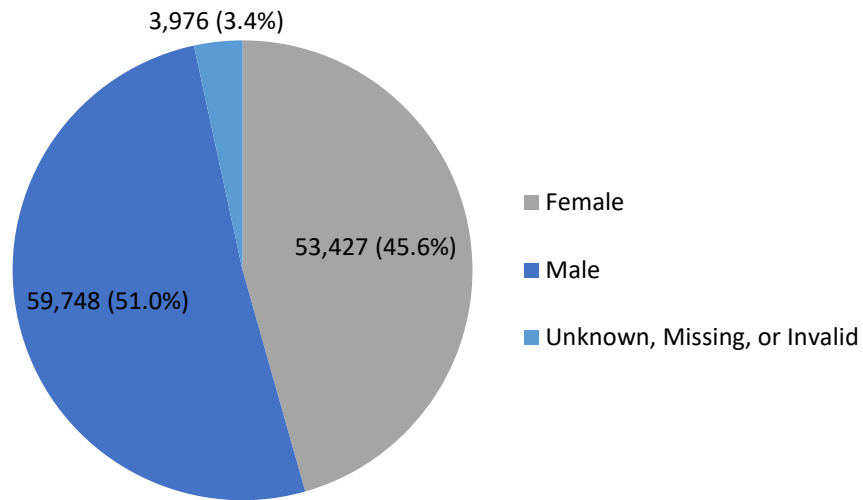


Figure 1. Number of Hospitalizations for COVID-19 in Texas in 2020 by Sex

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

Notes: Unknown Sex and Race/Ethnicity may occur due to redaction of this information in the PUDF.

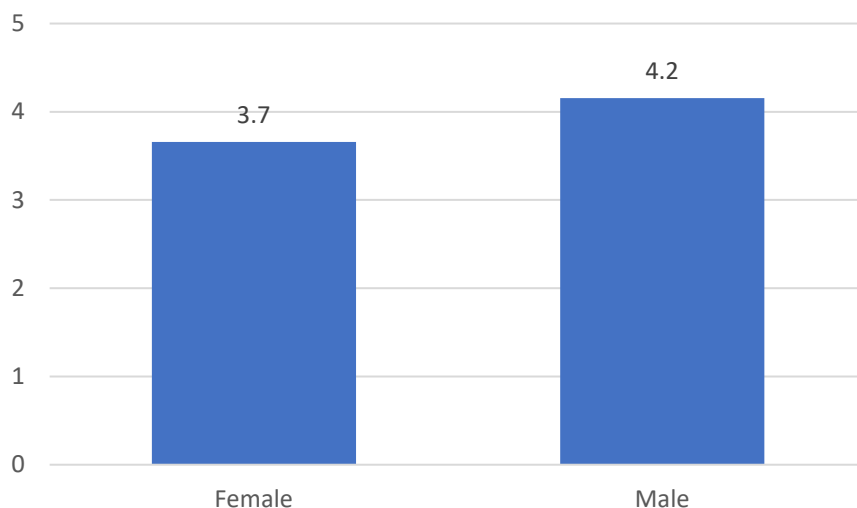


Figure 2. Number of Hospitalizations for COVID-19 in Texas in 2020 by Sex per 1,000 Population (ACS 1-year 2019 Population Estimates)

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

Inpatient Hospitalizations by Age

In accordance with the THCIC inpatient PUDF age categories, inpatient hospitalizations for COVID-19 were divided into five age groups: 0-17, 18-44, 45-64, 65-74, and 75 years of age or older. Figure 3 shows that hospitalizations for COVID-19 were most common among those aged 45-64 (n=43,298, equating to 37.0%) followed by those aged 75 and above (n=29,131, 24.9%). However, the rate of patients hospitalized for COVID-19 in Texas in 2020 was highest for those aged 75+, with a rate of 19.4 per 1,000 (Figure 4).

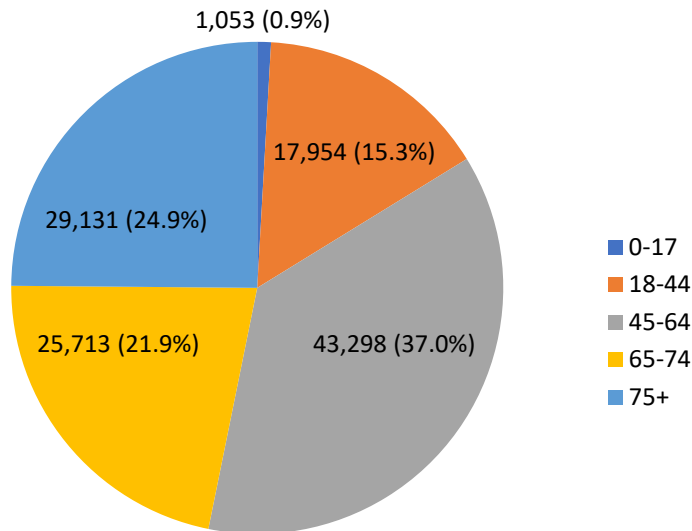


Figure 3. Number of Hospitalizations for COVID-19 in Texas in 2020 by Age.

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

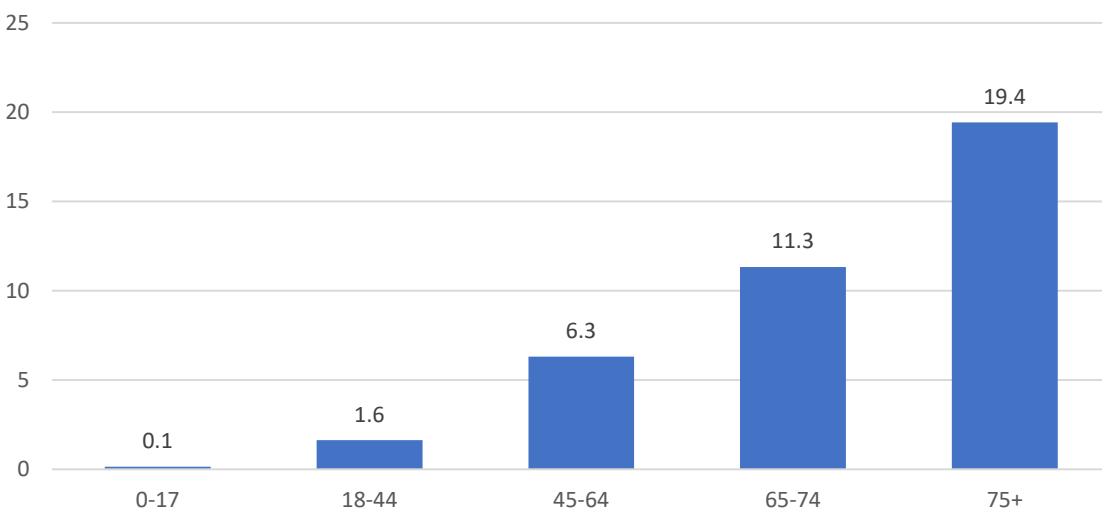


Figure 4. Number of Hospitalized for COVID-19 in Texas in 2020 by Age per 1,000 Population (ACS 1-year 2019 Population Estimates).

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

Inpatient Hospitalizations by Race/Ethnicity

Most hospitalizations for COVID-19 were among Non-Hispanic white individuals (n=48,410, 41.3%, Figure 5), followed by Hispanic/Latino individuals (n=43,228, 36.9%). However, the rate of hospitalizations for COVID-19 in Texas in 2020 was highest for the Non-Hispanic Other population with a rate of 11.9 per 1,000 (Figure 6).

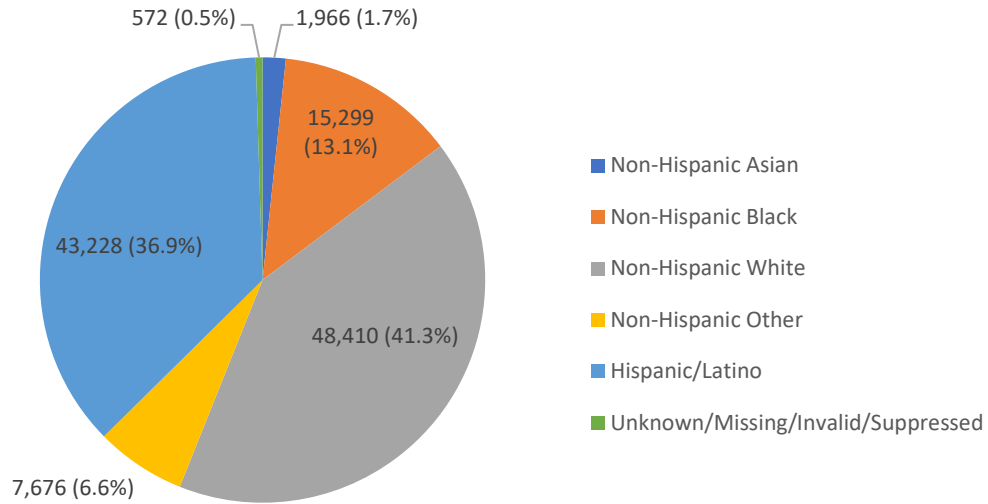


Figure 5. Number of Hospitalizations for COVID-19 in Texas in 2020 by Race/Ethnicity

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

Notes: Unknown Sex and Race/Ethnicity may occur due to redaction of this information in the PUDF.

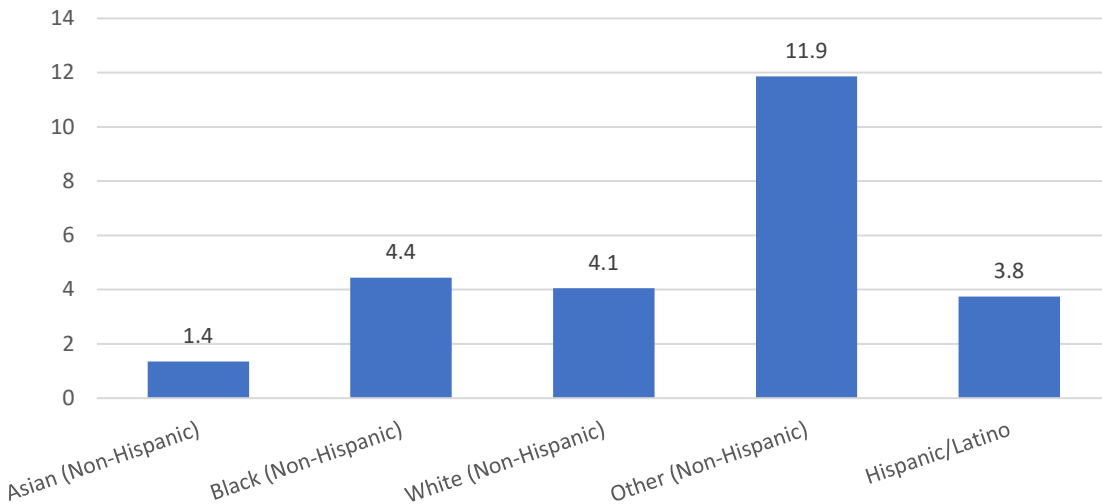


Figure 6. Number of Hospitalizations for COVID-19 in Texas in 2020 by Race/Ethnicity per 1,000 Population (ACS 1-year 2019 Population Estimates)

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

Patient Status at Time of Discharge

“Routine discharge” was the most common discharge status among hospitalizations for COVID-19 in 2020 (n=69176, equating to 59.0%, Figure 7), followed by “transferred” (i.e., discharged to another medical facility) (n=30,722, 26.2%). Of all inpatients hospitalized for COVID-19 in Texas in 2020, 10.9% died while in the hospital (n=12,812).

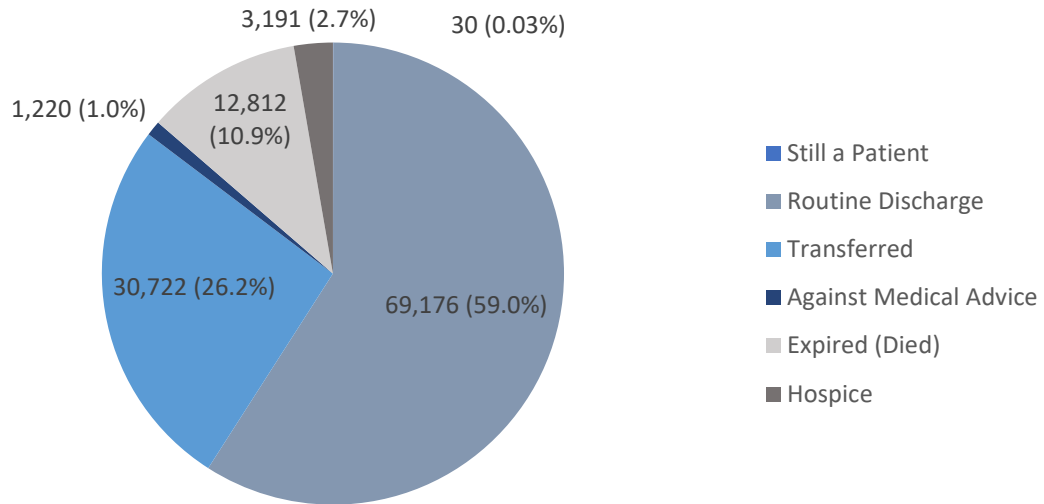


Figure 7. Number of Hospitalizations for COVID-19 in Texas in 2020 by Discharge Status

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

Payor Source

The most common payor source among inpatient hospitalizations in Texas in 2020 was Medicare (n=53,332, equating to 45.5%, Figure 8) followed by private insurance (n=39,783, 34.0%). Payor source was missing or invalid for 2.4% (n=2,784) of all hospitalizations for COVID-19 in Texas in 2020.

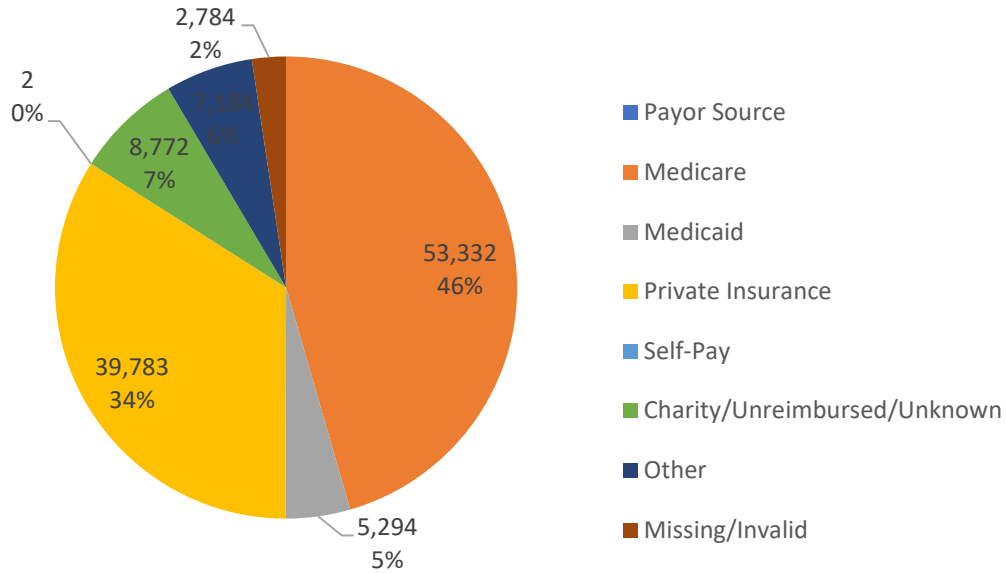


Figure 8. Number of Hospitalizations for COVID-19 in Texas in 2020 by Payor Source

Source: Texas Health Care Information Collection program (THCIC) Public Used Data File (PUDF). Data include inpatient discharges reported from all state hospitals. Data do not include outpatient service providers.

*Medicare includes Part A, B, and HMO Medicare Risk. Other payor source includes VA, CHAMPUS, Title V, and other federally, state, & locally funded.

Maps

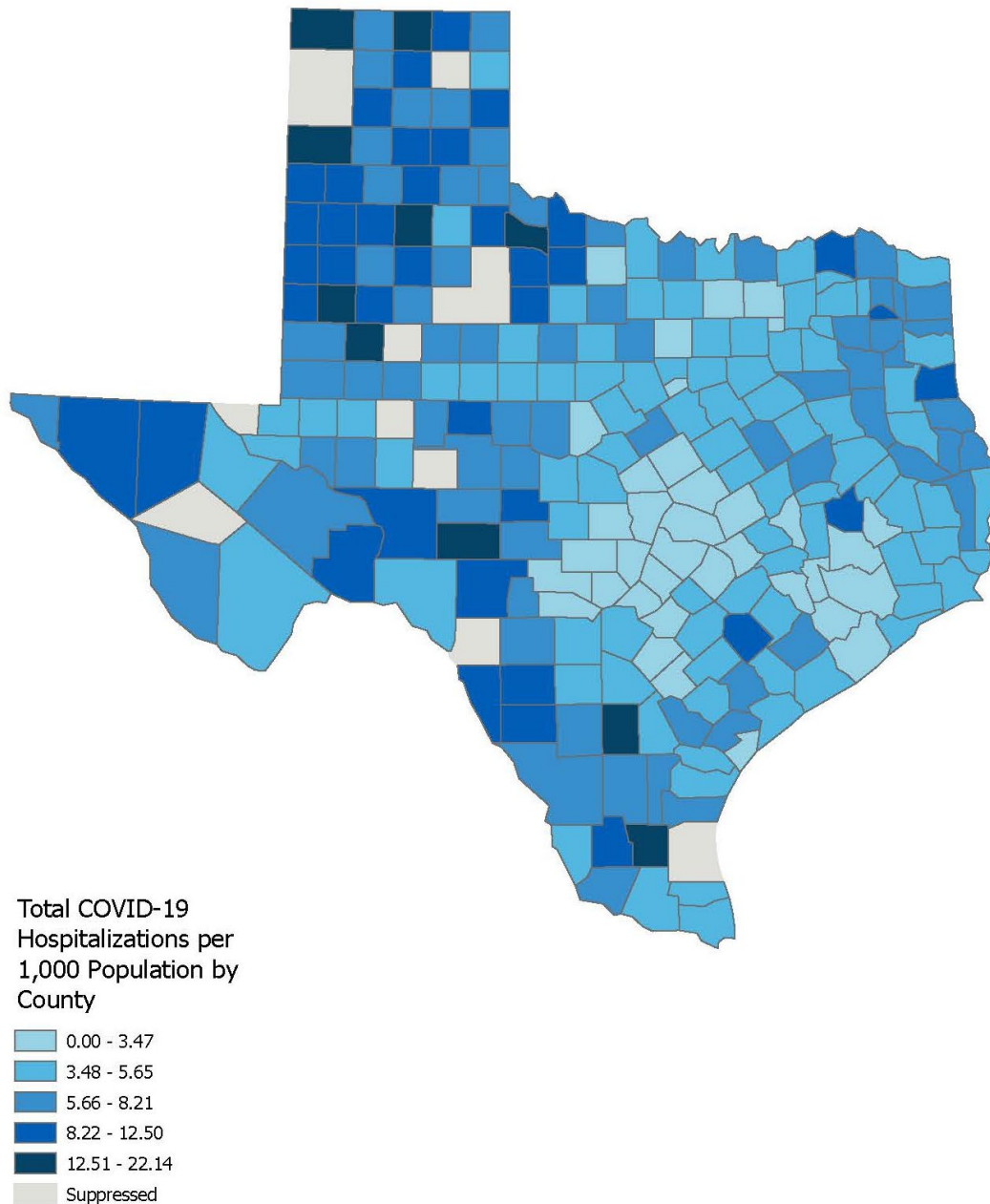


Figure 9. Total hospitalizations for COVID-19 per 1,000 population by county in Texas in 2020

Figure 9 displays the total number of hospitalizations for COVID-19 per 1,000 population by county in Texas in 2020. The highest rates of hospitalizations for COVID-19 were in counties located in the Texas Panhandle, west Texas and the border regions, which contain some of the most rural counties in Texas. This discrepancy (low population, but high COVID-19 hospitalization rates) may be due to limited access to health care in these rural areas, particularly preventive healthcare, thereby increasing the likelihood of more severe illness and hospitalization from a SARS-CoV-2 infection.

Conclusion

Males, adults aged 45-64, and Non-Hispanic whites accounted for the highest percentage of hospitalizations for COVID-19 in Texas in 2020. The highest rates of COVID-19 hospitalizations were observed among men, those aged 75 or older and those who identify as “Non-Hispanic Other” in terms of race/ethnicity. Hospitalizations for COVID-19 also varied based on geographic regions, with the highest rates of hospitalization for COVID-19 in rural counties. The majority of patients received a routine discharge; however 1 in 10 passed away while hospitalized.

In Report 1b, we aim to describe co-existing comorbidities and medical conditions as well as illness severity (including ICU admission, length of hospital stay, experiencing an acute complication, undergoing a medical procedure, and in-hospital mortality) among hospitalizations for COVID-19 in 2020 in Texas.

References

- Centers for Disease Control and Prevention. (2021, February 22). *Symptoms of COVID-19*. <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>
- French, G., Hulse, M., Nguyen, D., Sobotka, K., Webster, K., Corman, J., Aboagye-Nyame, B., Dion, M., Johnson, M., Zalinger, B., & Ewing, M. (2021). Impact of hospital strain on excess deaths during the COVID-19 pandemic — United States, July 2020–July 2021. *MMWR. Morbidity and Mortality Weekly Report*, *70*(46), 1613–1616. <https://doi.org/10.15585/mmwr.mm7046a5>
- Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. *Morbidity and Mortality Weekly Report (MMWR)* 2020;69:458–464. [http://dx.doi.org/10.15585/mmwr.mm6915e3external icon](http://dx.doi.org/10.15585/mmwr.mm6915e3external%20icon)
- Li, J., He, X., Yuan Yuan, Zhang, W., Li, X., Zhang, Y., Li, S., Guan, C., Gao, Z., & Dong, G. (2021). Meta-analysis investigating the relationship between clinical features, outcomes, and severity of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pneumonia. *American journal of infection control*, *49*(1), 82–89. <https://doi.org/10.1016/j.ajic.2020.06.008>
- Rao, A., Ranka, S., Ayers, C., Hendren, N., Rosenblatt, A., Alger, H. M., Rutan, C., Omar, W., Khera, R., Gupta, K., Mody, P., DeFilippi, C., Das, S. R., Hedayati, S. S., & de Lemos, J. A. (2021). Association of Kidney Disease With Outcomes in COVID-19: Results From the American Heart Association COVID-19 Cardiovascular Disease Registry. *Journal of the American Heart Association*, *10*(12), e020910. <https://doi.org/10.1161/JAHA.121.020910>
- Rosenthal, N., Cao, Z., Gundrum, J., Sianis, J., Safo, S. (2020). Risk Factors Associated With In-Hospital Mortality in a US National Sample of Patients With COVID-19. *JAMA Netw Open*, *3*(12):e2029058. <https://doi:10.1001/jamanetworkopen.2020.29058>
- Rozenfeld, Y., Beam, J., Maier, H., Haggerson, W., Boudreau, K., Carlson, J., & Medows, R. (2020). A model of disparities: Risk factors associated with COVID-19 infection. *International Journal for Equity in Health*, *19*(1). <https://doi.org/10.1186/s12939-020-01242-z>
- Texas Department of State Health Services. (2022, March 4). *DSHS COVID-19 Dashboard*. <https://txdshsea.maps.arcgis.com/apps/dashboards/4ae43eefd0f641d59d35c3df82ee59c>

- Texas Department of State Health Services. (2022, March 4). *Texas COVID-19 Data*. <https://www.dshs.texas.gov/covid-19-coronavirus-disease-2019/texas-covid-19-data>
- Texas Department of State Health Services. (2022, January 26). *Texas Health Care Information Collection (THCIC)*. <https://www.dshs.texas.gov/texas-health-care-information-collection>
- Thakur, B., Dubey, P., Benitez, J., Torres, J. P., Reddy, S., Shokar, N., Aung, K., Mukherjee, D., & Dwivedi, A. K. (2021). A systematic review and meta-analysis of geographic differences in comorbidities and associated severity and mortality among individuals with covid-19. *Scientific Reports*, *11*(1). <https://doi.org/10.1038/s41598-021-88130-w>
- United States Census Bureau. (n.d.). *American Community Survey B01001 | SEX BY AGE*. <https://data.census.gov/cedsci/table?q=age&g=0400000US48&tid=ACSDT1Y2019.B01001>
- Williamson, E. J., Walker, A. J., Bhaskaran, K., Bacon, S., Bates, C., Morton, C. E., Curtis, H. J., Mehrkar, A., Evans, D., Inglesby, P., Cockburn, J., McDonald, H. I., MacKenna, B., Tomlinson, L., Douglas, I. J., Rentsch, C. T., Mathur, R., Wong, A. Y., Grieve, R., ... Goldacre, B. (2020). Factors associated with covid-19-related death using OpenSAFELY. *Nature*, *584*(7821), 430–436. <https://doi.org/10.1038/s41586-020-2521-4>