

## **Table of Contents**



I. Authors and Contact Information	3
II. Abbreviations and COVID-19 Terminology	4-5
III. Data Sources and Purpose	6-7
IV. Tennessee Regional Maps and Epi Curves	8-10
V. Regional Cases, Hospitalizations, and Mortality	11-12
VI. Cases, Hospitalizations, and Mortality by Race, Ethnicity, and Sex	13-17
VII. Cases, Hospitalizations, and Mortality by Age Group	18-22
VIII. Key Trends of COVID-19 in Tennessee Summary	23-24
IX. <u>Variants</u>	25-26
X. Hospital Utilization	27-28
XI. <u>Vaccinations</u>	29-31
XII. COVID-19 Clusters	32-34
XIII. Special Populations	35
XIV. Health Disparities and Social Vulnerability Index	36-40
XV. Characteristics of COVID-19 in Pregnancy	41-42
XVI. COVID-19 among Children	43-44
XVII. Multi-system Inflammatory Syndrome in Children	45-46
XVIII. Acknowledgments	47
XIX. References	48
XX. Appendix	49
1. Regional Profiles	50-63

## **Authors and Contact Information**





## **Abbreviations**



- American Community Survey (ACS)
- Centers for Disease Control and Prevention (CDC)
- Healthcare Resource Tracking System (HRTS)
- Hospitalizations (hosp)
- Long term care facility (LTCF)
- Multi-system Inflammatory Syndrome (MIS-C)

- National Electronic Disease Surveillance System (NEDSS) Base System (NBS)
- National Vital Statistics System (NVSS)
- Social Vulnerability Index (SVI)
- Tennessee (TN)
- Tennessee Department of Health (TDH)

Abbreviation	Regions	Counties within Regions
CHR	Chattanooga Hamilton County Health Department	
ETR	East Tennessee Regional Health Department	Anderson, Blount, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Loudon, Monroe, Morgan, Roane, Scott, Sevier, Union
JMR	Jackson Madison County Health Department	Madison
KKR	Knoxville Knox County Health Department	Knox
MCR	Mid Cumberland Regional Health Department	Cheatham, Dickson, Houston, Humphreys, Montgomery, Roberston, Rutherford, Stewart, Sumner, Trousdale, Williamson, Wilson
MSR	Memphis Shelby County Health Department	Memphis
NDR	Nashville Davidson County Health Department	Davidson
NER	Northeast Regional Health Department	Carter, Greene, Hancock, Hawkins, Johnson, Unicoi, Washington
SCR	South Central Regional Health Department	Bedford, Coffee, Giles, Hickman, Lawrence, Lewis, Lincoln, Marshall, Maury, Moore, Perry, Wayne
SER	Southeast Regional Health Department	Bledsoe, Bradley, Franklin, Grundy, McMinn, Marion, Meigs, Polk, Rhea, Sequatchie
SUL	Sullivan County Health Department	Sullivan
UCR	Upper Cumberland Regional Health Department	Cannon, Clay, Cumberland, Dekalb, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Smith, Van Buren
WTR	West Tennessee Regional Health Department	Benton, Carroll, Chester, Crockett, Decatur, Dyer, Fayette, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Lake, Lauderdale, McNairy, Obion, Tipton, Weakley

## **COVID-19 Terminology**



**COVID-19:** COVID-19 (Coronavirus disease 2019) is a disease caused by a virus named SARS-CoV-2.

<u>Cases:</u> A person infected with COVID-19 based on test results or information from a public health investigation. The case definition for COVID-19 changed throughout the pandemic as new information became available. The most up-to-date definition is available online:

https://ndc.services.cdc.gov/case-definitions/coronavirus-disease-2019-2021/

<u>Case Rate:</u> The number of COVID-19 cases per 100,000. In this report the total number of cases per year is used to calculate rates.

<u>Hospitalization:</u> A person who is hospitalized due to COVID-19 based on interview information or hospital discharge data from the Tennessee Hospital Association.

<u>Hospitalization Rate:</u> The number of COVID-19 hospitalizations per 100,000 population. In this report the total number of hospitalizations per year is used to calculate rates.

<u>**Death:**</u> A person who died due to COIVD-19 based on death certificate information from a public health investigation. The definition for COVID-19 deaths changed throughout the pandemic as new information became available. The most up-to-date definition is available online: <a href="https://preparedness.cste.org/covid-19-response/">https://preparedness.cste.org/covid-19-response/</a>

<u>Mortality Rate:</u> The number of COVID-19 deaths per 100,000 population. In this report the total number of deaths per year is used to calculate rates.

<u>Public Health Region (Region)</u>: Tennessee has 95 counties grouped into 13 regions. Seven regions are served by a TDH Regional Office and the six larger, urban counties - Madison, Shelby, Knox, Davidson, Hamilton, and Sullivan - operate under local governance. For details on how the public health region are grouped visit the abbreviation page.

**Unknown:** A category that includes individual without sufficient information to be added to a defined group or category.

## **Data Sources**



#### Cases, Hospitalizations, and Deaths:

• National Electronic Disease Surveillance System (NEDSS) Base System (NBS)

#### **Clusters:**

National Electronic Disease Surveillance System (NEDSS) Base System (NBS)

#### **Hospital Utilization:**

Healthcare Resource Tracking System (HRTS)

#### **Population Estimates:**

• U.S. Census Bureau, 2019 American Community Survey 1-Year Estimates

#### **Vaccinations:**

Tennessee Immunization Information System (TennIIS)

#### Variants:

• National Electronic Disease Surveillance System (NEDSS) Base System (NBS)

#### **Special Populations**

#### Children and MIS-C:

National Electronic Disease Surveillance System (NEDSS) Base System (NBS)

#### **Pregnancy:**

- National Electronic Disease Surveillance System (NEDSS) Base System (NBS)
- National Vital Statistics System (NVSS)

#### Health Disparities and SVI (Special Populations):

- National Electronic Disease Surveillance System (NEDSS) Base System (NBS)
- Centers for Disease Control and Prevention/ Agency for Toxic Substances and Disease Registry/ Geo-spatial Research, Analysis, and Services Program. CDC/ATSDR Social Vulnerability Index 2020 Database Tennessee. https:// www.atsdr.cdc.gov/placeandhealth/svi/data\_documentation\_download.html Accessed on March 16, 2023.

#### **Appendix**

#### **Public Health Regional Profiles:**

• National Electronic Disease Surveillance System (NEDSS) Base System (NBS)

## Purpose



This annual report summarizes the key metrics tracked by the Tennessee Department of Health (TDH) for the COVID-19 pandemic response, including infections, disease severity, vaccination, cluster response and data for specific populations.

For additional information, data visualizations and downloadable datasets visit: <a href="https://www.tn.gov/health/cedep/ncov.html">https://www.tn.gov/health/cedep/ncov.html</a>

All data are preliminary and subject to change.

## **COVID-19 Cases**

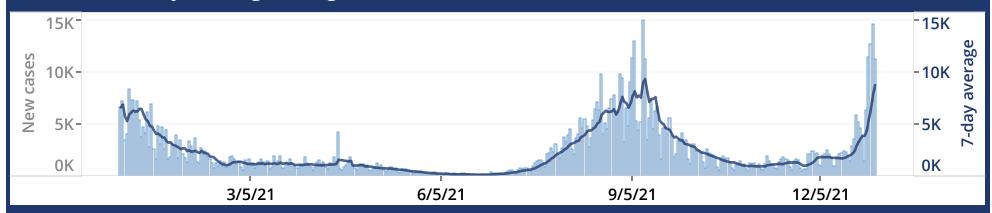


**22,377**Total Hospitalizations

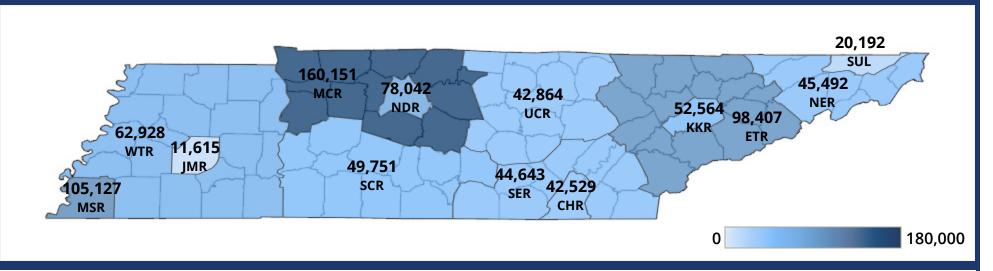
**850,510**Total Cases

13,854
Total Deaths

#### Cases with 7-day Moving Average



### Cases by Public Health Region



This visualization highlights the number of COVID-19 cases from January 01, 2021 to December 31, 2021. The number of cases peaked in January follwed by two other surges in that occurred in August-September and December. Important Variants of Concern (VOC) during the year included the B.1.617.2 (Delta) emerged in August-September and Omicron variant (BA.1) which emerged in December.

## **COVID-19 Hospitalizations**

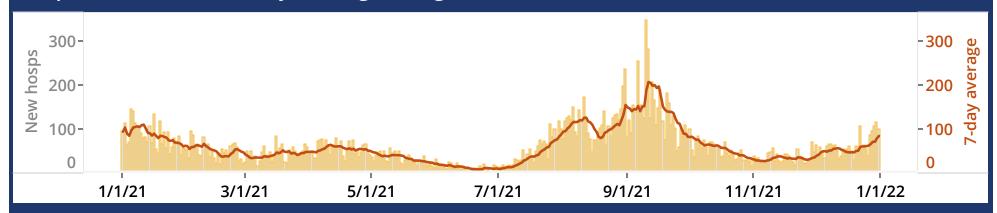


**850,510** Total Cases

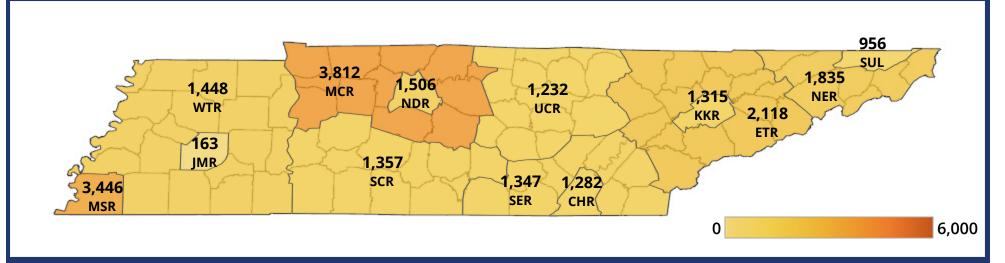
**22,377**Total Hospitalizations

**13,854**Total Deaths

### Hospitalizations with 7-day Moving Average



### **Hospitalizations by Public Health Region**



This visualization highlights the number of COVID-19 hospitalizations from January 01, 2021 to December 31, 2021. The number of hospitalizations peaked in January follwed by two other surges in that occurred in September and December. Important Variants of Concern (VOC) during the year included the B.1.617.2 (Delta) and Omicron variant (BA.1).

## **COVID-19 Deaths**

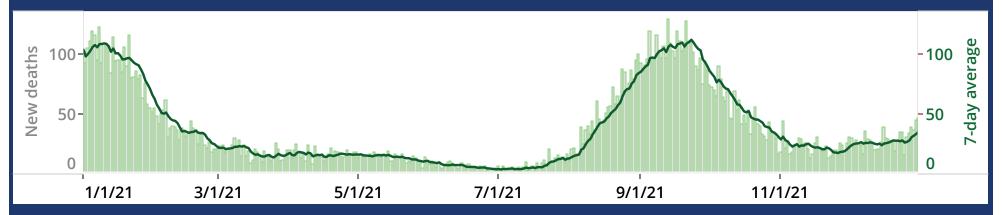


**850,510** Total Cases

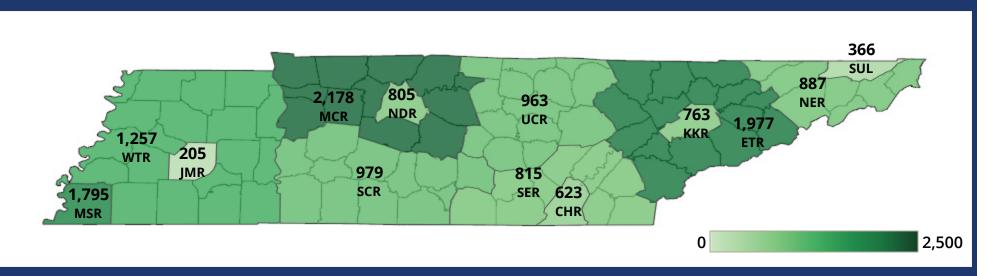
**13,854**Total Deaths

**22,377**Total Hospitalizations

## **Deaths with 7-day Moving Average**



### **Deaths by Public Health Region**



This visualization highlights the number of COVID-19 deaths from January 01, 2021 to December 31, 2021. The number of deaths peaked in January follwed by two other surges in that occurred in August-September and December. Important Variants of Concern (VOC) during the year included the B.1.617.2 (Delta) and Omicron variant (BA.1).

# Case, Hospitalization (Hosp), and Mortality Rates by Region



Region	Case	Case Rate	Hosp	Hosp Rate	Death	Mortality Rate
CHR	42,529	11,563	1,282	349	623	169
ETR	98,407	12,677	2,118	273	1,977	255
JMR	11,615	11,854	163	166	205	209
KKR	52,564	11,177	1,315	280	763	162
MCR	160,151	12,007	3,812	286	2,178	163
MSR	105,127	11,218	3,446	368	1,795	192
NDR	78,042	11,243	1,506	217	805	116
NER	45,492	12,856	1,835	519	887	251
SCR	49,751	12,027	1,357	328	979	237
SER	44,643	13,170	1,347	397	815	240
SUL	20,192	12,752	956	604	366	231
UCR	42,864	11,895	1,232	342	963	267
WTR	62,928	11,955	1,448	275	1,257	239
UNKNOWN	36,205	_	560	_	241	-
TOTAL	850,510	12,454	22,377	328	13,854	203

This visualization highlights the number of COVID-19 cases, hospitalizations, and deaths from January 01, 2021 to December 31, 2021 by region. The rates were calculated per 100,000 population.

# Case, Hospitalization (Hosp), and Mortality Percents by Region



Region	Case	% of Case	Hosp	% of Hosp	Death	% of Death
CHR	42,529	5.0%	1,282	5.7%	623	4.5%
ETR	98,407	11.6%	2,118	9.5%	1,977	14.3%
JMR	11,615	1.4%	163	0.7%	205	1.5%
KKR	52,564	6.2%	1,315	5.9%	763	5.5%
MCR	160,151	18.8%	3,812	17.0%	2,178	15.7%
MSR	105,127	12.4%	3,446	15.4%	1,795	13.0%
NDR	78,042	9.2%	1,506	6.7%	805	5.8%
NER	45,492	5.3%	1,835	8.2%	887	6.4%
SCR	49,751	5.8%	1,357	6.1%	979	7.1%
SER	44,643	5.2%	1,347	6.0%	815	5.9%
SUL	20,192	2.4%	956	4.3%	366	2.6%
UCR	42,864	5.0%	1,232	5.5%	963	7.0%
WTR	62,928	7.4%	1,448	6.5%	1,257	9.1%
UNKNOWN	36,205	4.3%	560	2.5%	241	1.7%
TOTAL	850,510	100.0%	22,377	100.0%	13,854	100.0%

This visualization highlights the number and percent of COVID-19 cases, hospitalizations, and deaths from January 1, 2021 to December 31, 2021 by region.

## Case, Hospitalization (Hosp), and Mortality Rates, by Race, Ethnicity, and Sex



Category	Category Breakdown	Case	Case rate	Hosp	Hosp rate	Death	Mortality rate
RACE	White	547,519	10,226	15,870	296	10,626	198
	Black or African American	126,568	10,869	4,304	370	2,285	196
	Asian	7,955	5,933	150	112	69	51
	American Indian or Alaska Native	1,486	4,550	48	147	*	*
	Native Hawaiian or Other Pacific Islander	864	13,135	17	258	*	*
	Other/Multiracial	53,657	39,168	932	680	480	350
	Unknown	112,461	_	1,056	_	*	*
	Total	850,510	12,454	22,377	328	13,854	203
ETHNICITY	Hispanic	31,955	8,165	713	182	287	73
	Not Hispanic or Latino	589,921	9,163	19,015	295	12,456	193
	Unknown	228,634	_	2,649	_	1,111	_
	Total	850,510	12,454	22,377	328	13,854	203
SEX	Male	392,281	11,772	11,563	347	7,506	225
	Female	452,199	12,931	10,774	308	6,339	181
	Unknown	6,030	_	40	_	9	_
	Total	850,510	12,454	22,377	328	13,854	203

This visualization highlights the number of COVID-19 cases, hospitalizations, and deaths from Januray 01, 2021 to December 31, 2021 by race, ethnicity and sex. Rates were calculated per 100,000 population. | \*Death counts less than 20 have been suppressed due to data privacy.

## Case, Hospitalization (Hosp), and Mortality Percents by Race, Ethnicity, and Sex



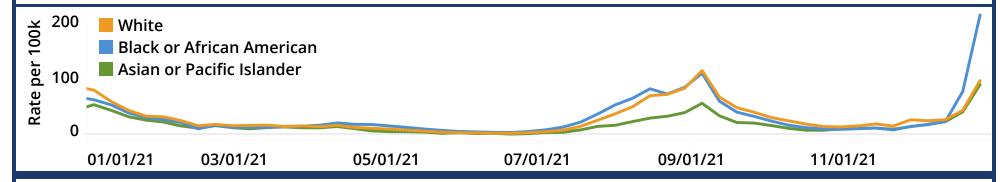
Category	Category breakdown	Case	% Case	Hosp	% Hosp	Death	% Death
RACE	White	547,519	64.4%	15,870	71.0%	10,626	76.7%
	Black or African American	126,568	14.9%	4,304	19.8%	2,285	16.5%
	Asian	7,955	0.9%	150	0.7%	69	0.5%
	American Indian or Alaska Native	1,486	0.2%	48	0.2%	*	*
	Native Hawaiian or Other Pacific Islander	864	0.1%	17	0.1%	*	*
	Other/Multiracial	53,657	6.3%	932	4.0%	480	3.5%
	Unknown	112,461	13.2%	1,056	4.2%	373	2.7%
	Total		100.0%	22,377	100.0%	13,854	100.0%
ETHNICITY	Hispanic	31,955	3.8%	713	3.2%	287	2.1%
	Not Hispanic or Latino	589,921	69.4%	19,015	86.1%	12,456	89.9%
	Unknown	228,634	26.9%	2,649	10.7%	1,111	8.0%
	Total	850,510	100.0%	22,377	100.0%	13,854	100.0%
SEX	Male	392,281	46.1%	11,563	51.2%	7,506	54.2%
	Female	452,199	53.2%	10,774	48.7%	6,339	45.8%
	Unknown	6,030	0.7%	40	0.1%	9	0.1%
	Total	850,510	100.0%	22,377	100.0%	13,854	100.0%

This visualization highlights the number and percent of COVID-19 cases, hospitalizations, and deaths from January 01, 2021 to December 31, 2021 by race, ethnicity and sex. | \*Death counts less than 20 have been suppressed due to data privacy.

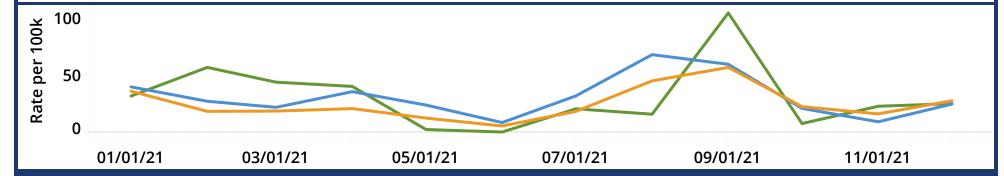
## Case, Hospitalization, and Mortality Rates by Race



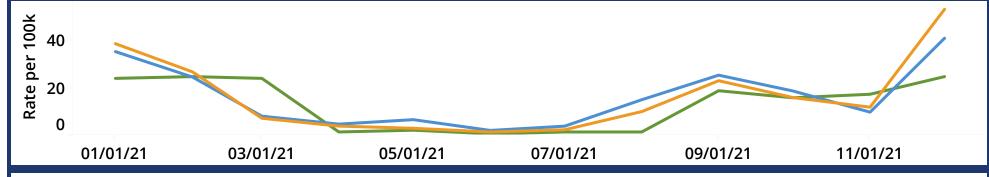
#### Case Rates per 100,000



### **Hospitalization** Rates per 100,000



#### Mortality Rates per 100,000

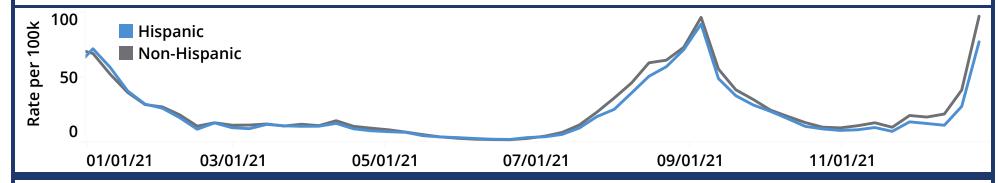


The Black or African American (AA) population had similar case rates as Whites in 2021, and had higher hospitalization rates than Whites through the majority of the year. The mortality rates were similar between the Black/AA and White populations.

## Case, Hospitalization, and Mortality Rates by Ethnicity



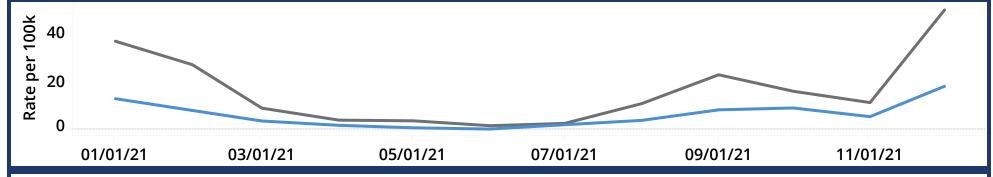
#### Case Rates per 100,000



### **Hospitalization** Rates per 100,000



#### **Mortality** Rates per 100,000

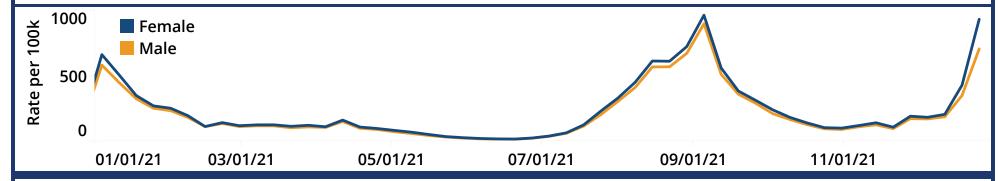


In 2021, Hispanic individuals had similar case rates as non-Hispanic individuals, and non-Hispanic individuals had higher hospitalization and mortality rates compared to Hispanic individuals.

## Case, Hospitalization, and Mortality Rates by Sex



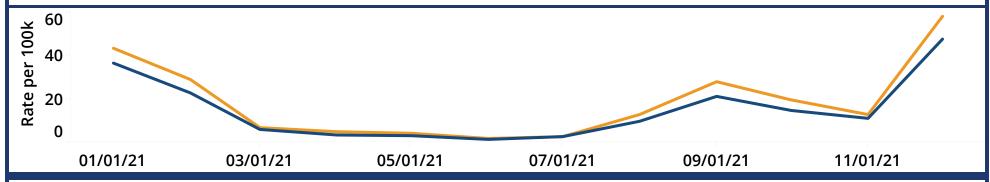




### **Hospitalization** Rates per 100,000



#### **Mortality** Rates per 100,000



In 2021, COVID-19 case rates were similar in females and males, and hospitalization and mortality rates were higher in males than females.

## Case, Hospitalization (Hosp), and Mortality Rates by Age Group



Age Range	Case	Case Rate	Hosp	Hosp Rate	Death	Mortality Rate
0-10 years	84,651	9,331	221	24	*	*
11-20 years	131,662	15,360	349	41	*	*
21-30 years	147,393	15,531	852	90	121	13
31-40 years	135,673	15,456	1,666	190	389	44
41-50 years	117,293	13,749	2,746	322	930	109
51-60 years	104,841	11,694	4,382	489	2,019	225
61-70 years	72,326	9,202	5,114	651	3,026	385
71-80 years	39,348	8,170	4,353	904	3,649	758
81+ years	16,723	7,578	2,694	1,221	3,602	1,632
Unknown	600	_	0	-	*	-
Total	850,510	12,454	22,377	328	13,854	203

This visualization highlights the number of COVID-19 cases, hospitalizations, and deaths from Januray 01, 2021 to December 31, 2021 by age. The rates were calculated per 100,000 population. | \*Death counts less than 20 have been suppressed due to data privacy.

## Case, Hospitalization (Hosp), and Mortality Percents by Age Group

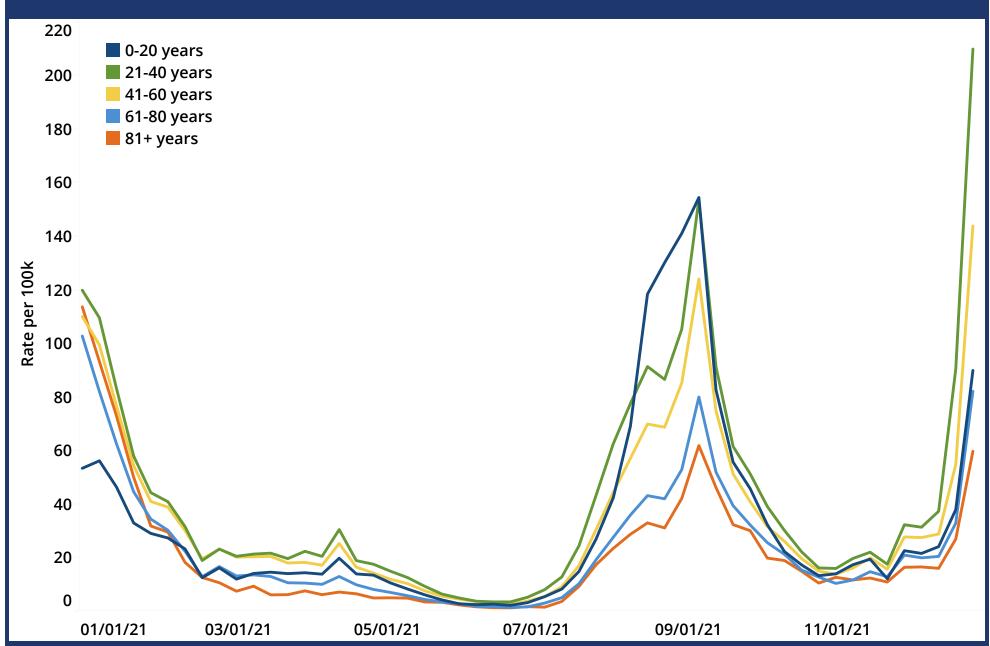


Age Range	Case	% Case	Hosp	% Hosp	Death	% Death
0-10 years	84,651	10.0%	221	1.0%	*	*
11-20 years	131,662	15.5%	349	1.5%	*	*
21-30 years	147,393	17.3%	852	4.1%	121	0.9%
31-40 years	135,673	16.0%	1,666	7.3%	389	2.8%
41-50 years	117,293	13.8%	2,746	12.8%	930	6.8%
51-60 years	104,841	12.3%	4,382	19.8%	2,019	14.7%
61-70 years	72,326	8.5%	5,114	22.8%	3,026	22.0%
71-80 years	39,348	4.6%	4,353	19.1%	3,649	26.5%
81+ years	16,723	2.0%	2,694	11.6%	3,602	26.2%
Unknown	600	0.1%	0	0.0%	*	*
Total	850,510	100.0%	22,377	100.0%	13,854	100.0%

This visualization highlights the number and percent of COVID-19 cases, hospitalizations, and deaths from January 01, 2021 to December 31, 2021 by age. | \*Death counts less than 20 have been suppressed due to data privacy.

## **Case Rates by Age Group**

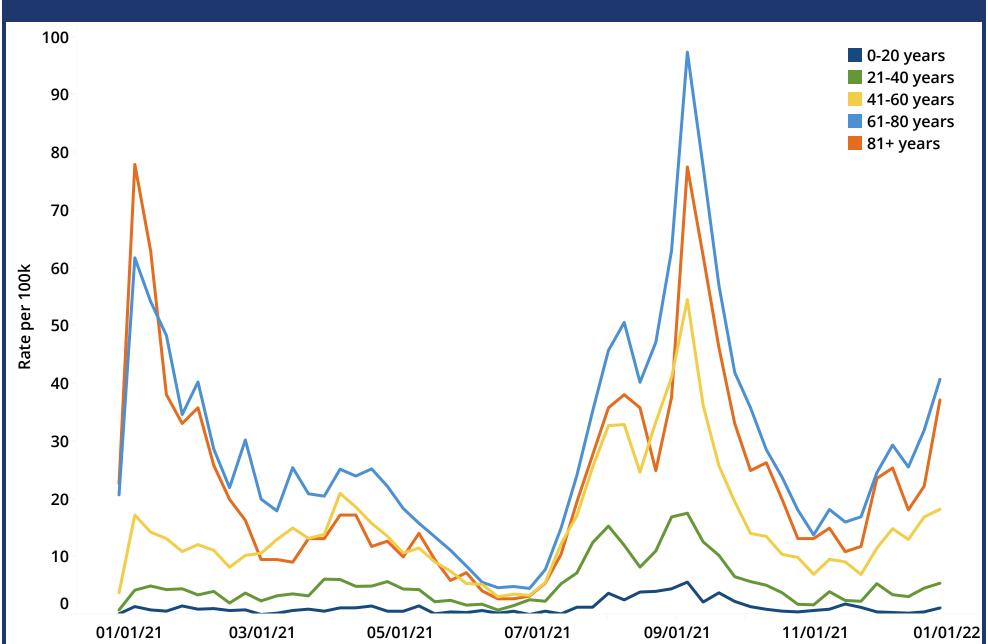




In 2021, younger age groups (0-20, 21-40, 41-60 years) had the highest case rates compared to individuals aged 61 or older. The age groups were combined for data visualization purposes.



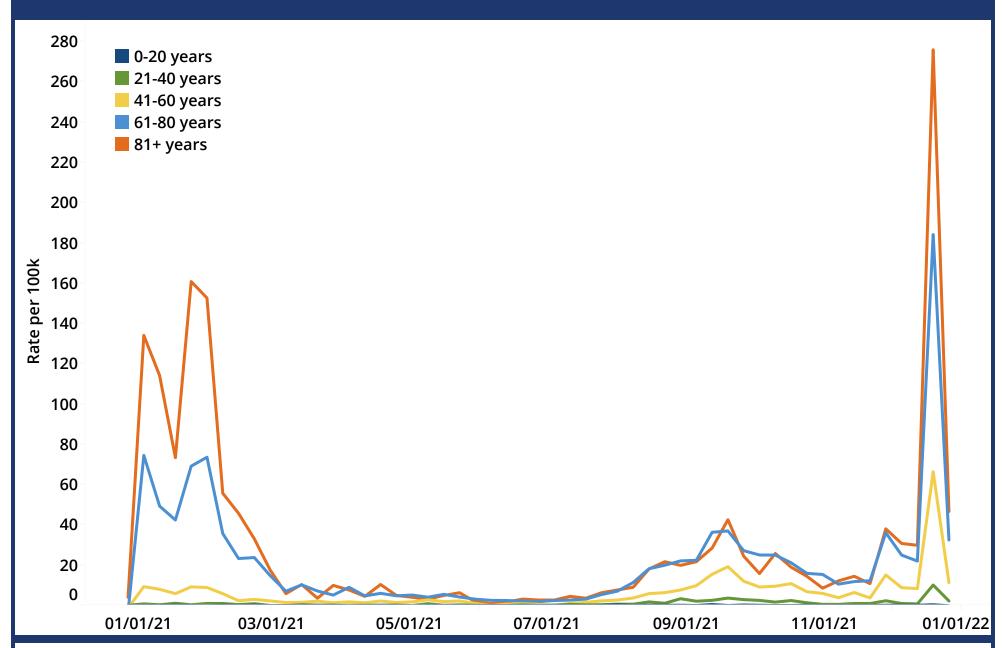




Individuals aged 61-80 years and 81+ had the highest hospitalization rates compared to those 60 and younger.

## **Mortality Rates by Age Group**





Individuals aged 81+ had the highest mortality rate followed by individuals aged 61-80 years.

# **Key Trends of COVID-19 in Tennessee Summary**



The data for cases, hospitalization and deaths were derived from National Electronic Disease Surveillance System (NEDSS) Base System (NBS) and the population estimates were derived from 2019 American Community Survey (ACS) 1-Year population estimates. From January 01, 2021 to December 31, 2021, Tennessee (TN) reported 850,510 cases of COVID-19 (case rate of 12,454), 22,377 hospitalizations (hospitalization rate of 328) and 13,854 deaths (mortality rate of203). All rates were calculated per 100,000 population (100k). The case rates, hospitalization rates and mortality rates among the thirteen public health regions varied significantly. The case rates were lowest at 11,177 for KKR and highest at 13,170 for SER. Similarly, the hospitalization and mortality rates varied with highest hospitalization rate in SUL and highest mortality rate in UCR at 604 and 267 per 100k respectively.

The population makeup by race for the state of TN is diverse; 78.4% Whites, 17.1% African Americans, 2.0% Asians, 2.0% Other/Multiracial, 0.5% American Indian/Alaskan Native, 0.1% Native Hawaiian and Pacific Islander. Race was missing for 13% of all reported 2021 cases. African Americans accounted for 14.9% of cases, 19.8% of hospitalizations, and 16.5% of deaths. The 2021 case rates for African Americans (10,869) and Native Hawaiian or Pacific Islander (13,135) were higher compared to Whites (10,226), though Whites accounted for 78.4% of the TN population when compared to African Americans at 17.1% and Native Hawaiian or Pacific Islander at 0.1%. The hospitalization rate among African Americans were 1.2 times higher when compared to Whites.

# **Key Trends of COVID-19 in Tennessee Summary**



Ethnicity data for COVID-19 was missing for 27% of all reported COVID-19 cases. Hispanic cases accounted for 3.8% of the 2021 cases, 3.2% of hospitalizations and 2.1% of deaths. Hispanic case rates per 100K were lower than non-Hispanics at 8,165 and 9,163, respectively. The percentage of cases, hospitalizations, and deaths follows the same trend with higher percentages among non-Hispanics when compared to Hispanics.

In Tennessee, males account for 48.8% of the population while females account for 51.2%. Among reported COVID-19 cases, 46.1% of cases were male, and 53.2% were female. Increased hospitalizations were seen among males when compared to females (3.0% males to 2.4% females). A similar pattern was seen among deaths where more males died from COVID-19 when compared to females (1.9% males to 1.4% females).

The population makeup by age for the state of TN is varied with the highest population among ages 21-30 years at 13.9% and the lowest among ages 81 years and older at 3.2%. The impact of COVID-19 was disproportionate among age groups in TN with older age groups taking the burden or severity of the disease in terms of hospitalization and deaths when compared to younger age groups. In 2021, 21-30-year-olds made up the highest percent of cases at 17.3% with the lowest percent of cases among 81 years and older at 2.0%. However, increased hospitalizations and deaths were seen among ages 81-years and older at 16.1% and 21.5%, respectively.

## **COVID-19 Variants**



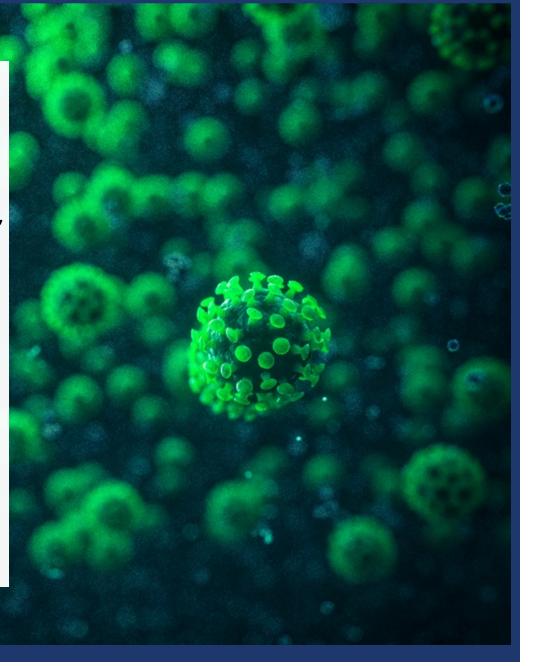
Genomic sequencing has been crucial to the COVID-19 public health response.

Reports of identified variants of concern, variants of interest or variants being monitored, as defined by CDC, are sent to TDH from facilities conducting genetic sequencing on Tennessee resident samples.

For more information about COVID-19 Variants and their classification as well as circulating variants please visit:

https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-classifications.html

https://covid.cdc.gov/covid-data-tracker/#variants- genomic-surveillance



## **COVID-19 Variants**

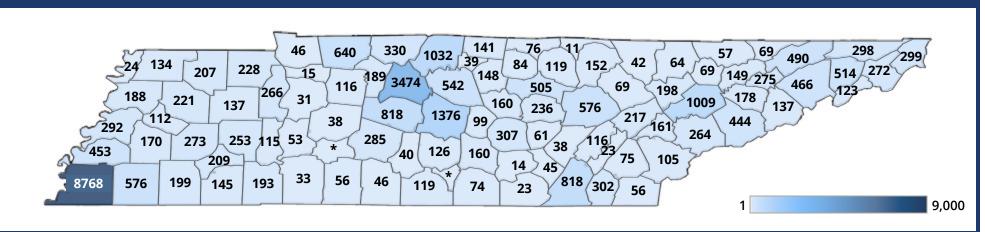


**Total Cases: 602,004** 

**Total Cases Sequenced: 33,472** 

**Percent Sequenced: 5.56%** 

### **COVID-19 Cases with Sequencing Results by County**



#### **Sequencing results of Top 4 Variants in 2021**

Region	B.1.617.2 (Delta)	B.1.1.529 (Omicron)	B.1.2	BA.1.1
CHR	550	128	*	48
ETR	1904	139	40	37
JMR	223	20	0	*
KKR	841	56	*	15
MCR	3065	559	452	196
MSR	4890	1703	267	202
NDR	2043	775	26	195
NER	1645	104	25	31
SCR	749	68	24	19
SER	494	39	24	*
SUL	231	22	0	*
UCR	2083	150	*	25
WTR	2872	604	24	81
TOTAL	21590	4367	898	864

<sup>\*</sup>Counts less than 11 have been suppressed due to data privacy.

## **COVID-19 Hospital Utilization**





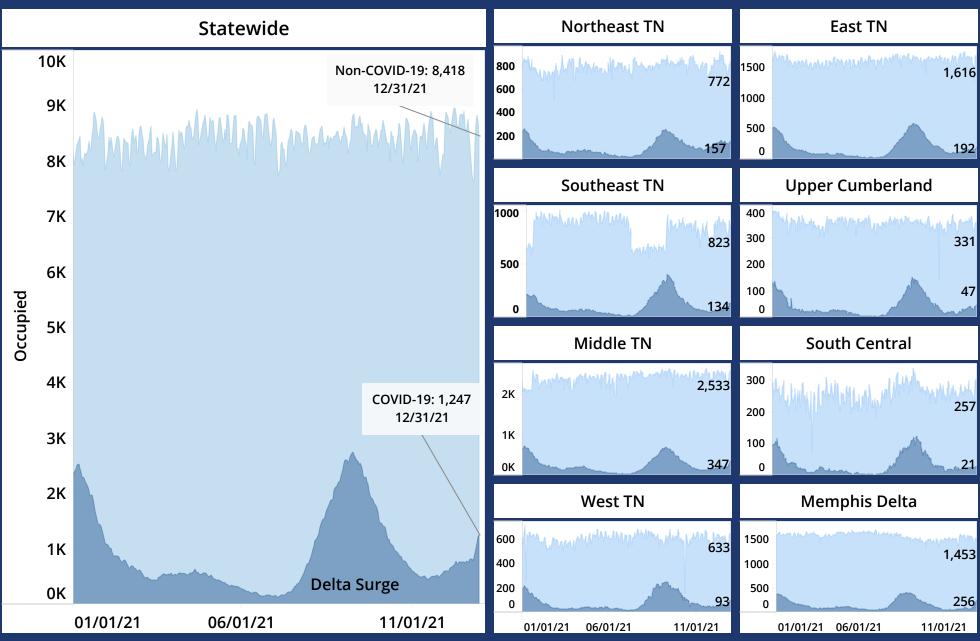
Hospital utilization data are from the Healthcare Resource Tracking System (HRTS). HRTS is a secure website used by Tennessee healthcare facilities and emergency managers to direct ill or injured patients to appropriate healthcare facilities in the event of an emergency or disaster. HRTS allows healthcare facilities to record and continually update their current availability of beds, specialty services, and resources providing state-wide awareness for emergency managers. The hospitalization data in this portion of the report are based on the bed occupancy per day. The number of hospitalized adults with diagnosed COVID-19 and non-COVID-19 diagnoses are compared to illustrate the impact of COVID-19 on the hospital infrastructure across Tennessee.

For more data on COVID-19 hospitalizations visit: <a href="https://www.tn.gov/health/cedep/ncov/data/hospitalization-data.html">https://www.tn.gov/health/cedep/ncov/data/hospitalization-data.html</a>.

## **Hospital Utilization in Tennessee**



**Adult Floor Bed Hospital Patients (COVID-19 vs. Non-COVID-19)** 



This portion of the report details a comparison between COVID-19 hospitalizations and non-COVID-19 hospitalizations in TN among the Healthcare Coalitions and statewide. As of December 31, 2021, there were 1,247 COVID-19 adult hospitalizations.

## **COVID-19 Vaccinations**





This portion of the report highlights COVID-19 vaccination data from the Tennessee Immunization Information System (TennIIS).

Providers administering COVID-19 vaccines are expected to report vaccine doses to TennIIS within 24 hours of administration and are required to report doses no later than 72 hours after administration. TennIIS does not collect data for COVID-19 vaccinations administered by the Bureau of Prisons (BOP), Department of Defense (DOD), Indian Health Service (IHS), and Veterans Health Administration (VHA).

On February 27, 2021, The Food and Drug Administration approved an emergency use authorization for Johnson & Johnson vaccine. Pfizer vaccine was approved for children 12 to 15 years of age on May 10, 2021 and for children 5 to 11 years of age on October 29, 2021.

Booster shots were endorsed for immunocompromised individuals on Auguest 13, 2021, all adults on November 19, 2021, and adolescents on December 10, 2021.

For more COVID-19 Vaccine information visit: <a href="https://www.tn.gov/health/cedep/ncov/covid-19-vaccine.html">https://www.tn.gov/health/cedep/ncov/covid-19-vaccine.html</a>

## **COVID-19 Vaccine Administration**

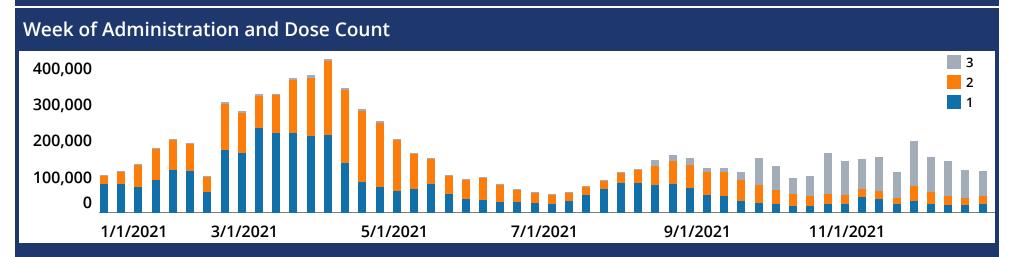


**8,554,926**Total Doses Administered

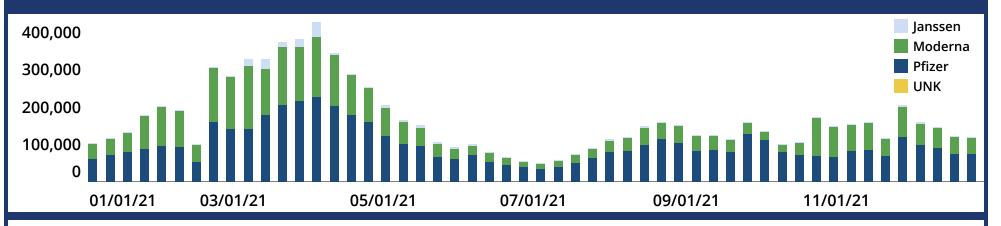
**3,960,854**Total People With ≥ 1 Dose

**3,510,457**Total People Fully Immunized

## Number of COVID-19 Vaccine Doses Administered and Reported to TennIIS



#### Week of Adminstration and Vaccine Manufacturer



Totals are cumulative and range from December 17, 2020 to December 27, 2021 with 3,960,854 vaccinations reported in TN.

## **COVID-19 Vaccination Demographics**

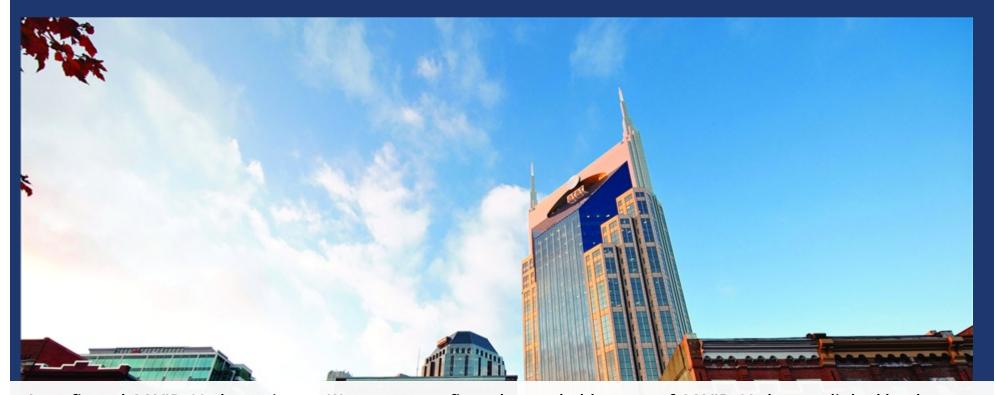


Category	Category Breakdown	People Vaccinated	Percent Vaccinated	Age Range	People Vaccinated	Percent Vaccinated
	White	1,971,582	56%	5-11 years	62,523	2%
	Black or African American	393,983	11%	12-15 years	125,982	4%
RACE	Asian	58,335	2%		·	
RACE	Other/Multiracial	971,176	28%	16-20 years	193,320	6%
	Unknown	106,721	3%	21-30 years	464,481	13%
	Total	3,501,797	100%	31-40 years	491,569	14%
	Hispanic	210,595	6%	41-50 years	504,427	14%
ETHNICITY	Not Hispanic or Latino	3,038,578	87%		·	
ETHNICITY	Unknown	252,624	7%	51-60 years	568,490	16%
	Total	3,501,797	100%	61-70 years	556,546	16%
	Female	1,878,677	54%	71-80 years	370,917	11%
	Male	1,617,647	46%	81+ years	163,334	5%
SEX	Other	1,016	0%		·	
	Unknown	4,457	0%	Unknown	208	0%
	Total	3,501,797	100%	Total	3,501,797	100%

In TN from January 1, 2021 to December 31, 2021, there were 3,501,797 people vaccinated with the highest number of people vaccinated amongst White, non-Hispanic, and female demographics groups. During 2021, the most amount of people vaccinated were 51-60-year-olds and 61-70-year-olds. On November 3, 2021 children 5-11 years of age are now eligible for the COVID-19 vaccine with TN children able to receive the vaccine on November 4, 2021.

## **COVID-19 Clusters**

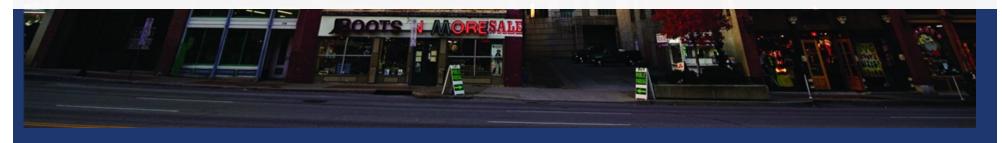




A confirmed <u>COVID-19 cluster</u> is two (2) or more confirmed or probable cases of COVID-19 that are linked by the same location of exposure (e.g., workplace, long-term care facility, grocery store, etc.) or exposure event (e.g., work party, vacation, etc.) within a 14-day period that is not a household or school-associated exposure.

For more information about COVID-19 and congregate care settings visit:

https://www.tn.gov/health/cedep/ncov/congregate-care-settings.html



## **COVID-19 Clusters**

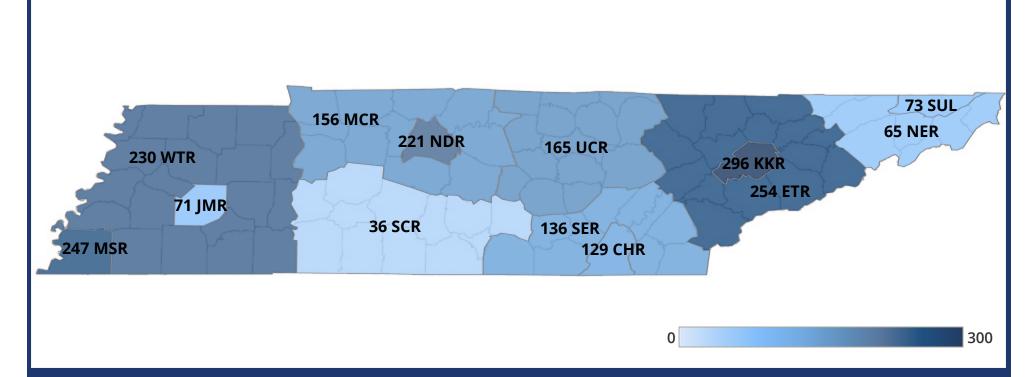


**2,083**Total Clusters

**31,731**Total Clustered Cases

**405**Total Cluster-Associated Deaths

## **Clusters by Region**



This visualization shows the sum of clusters by county from January 1, 2021 to December 31, 2021. The counties with the highest amount of clusters are Knox, Shelby, and Davidson. This could be due to these counties being more densely populated.

For more information visit: <a href="https://www.tn.gov/content/dam/tn/health/documents/cedep/novel-coronavirus/COVID19-Cluster-FAQs.pdf">https://www.tn.gov/content/dam/tn/health/documents/cedep/novel-coronavirus/COVID19-Cluster-FAQs.pdf</a>

## **COVID-19 Clusters by Facility Type**

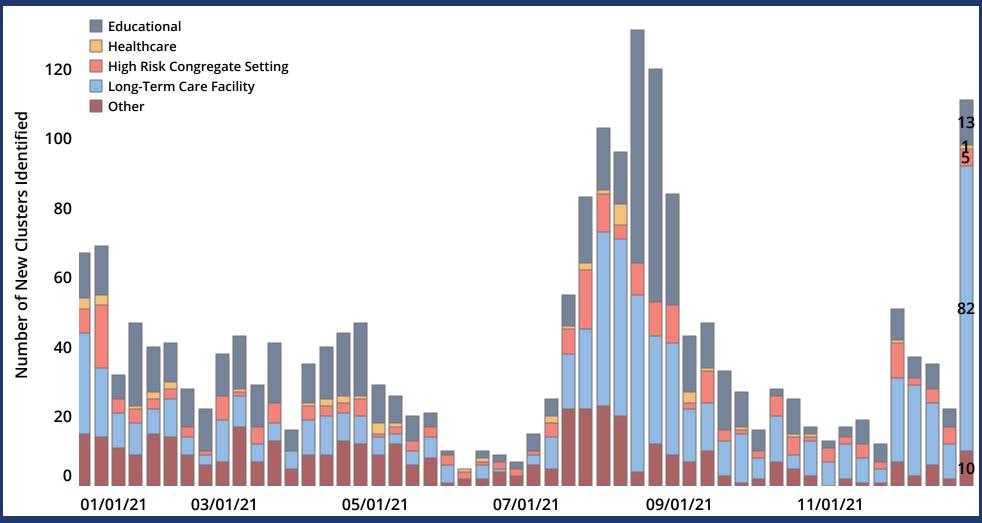


**982**Total LTCF Clusters

**8,092**Total Staff Cases

**6,512**Total Resident Cases

**387**Total Resident Deaths



This bar chart shows the number of new clusters identified by facility type from January 1, 2021 to December 31, 2021. Long-term care facilities had the highest counts of clusters compared to educational, healthcare, congregate, and other settings.



# Health Disparities and Social Vulnerability Index





According to the CDC, "health disparities are preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by populations that have been disadvantaged by their social or economic status, geographic location, and environment".

Social Vulnerability refers to the potential negative effects on communities caused by natural and human influenced disasters or disease outbreaks.

The CDC Social Vulnerability Index (SVI) ranks Census tracts and counties on 16 social factors including poverty and educational attainment, and ranks them into four themes: socioeconomic status, household characteristics, racial and ethnic minority status, and housing type/transportation. Each tract or county receives a ranking for each theme and one overall ranking based on all four themes. These rankings help emergency response planners and public health officials identify and map out communities that will likely need support before, during, and after a hazardous event.

For more information about health disparities vist: <a href="https://www.cdc.gov/healthequity/whatis/index.html">https://www.cdc.gov/healthequity/whatis/index.html</a>

For more information about SVI visit: <a href="https://www.atsdr.cdc.gov/placeandhealth/svi/fact-sheet/fact-sheet.html">https://www.atsdr.cdc.gov/placeandhealth/svi/fact-sheet/fact-sheet.html</a>



## Health Disparities in Black or African American COVID-19 Cases, Hospitalizations, and Deaths

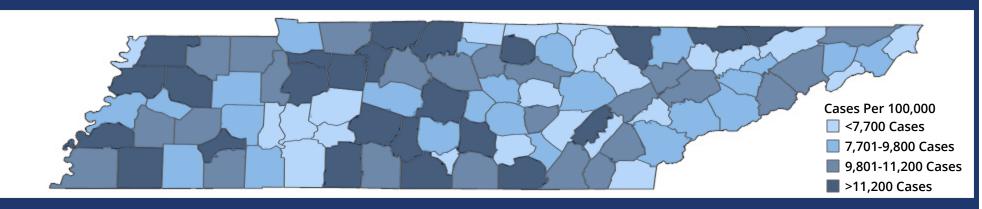


**127,829** Total Cases

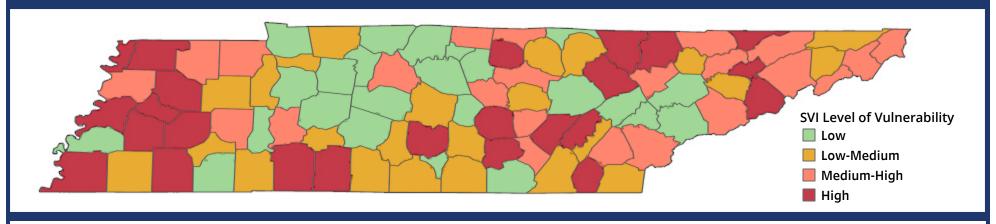
**4,101**Total Hospitalizations

**1,739** Total Deaths

#### Black or African American COVID-19 Cases Per 100,000 | 01/01/2021-12/31/2021



#### **CDC Social Vulnerability Index Rankings**



Featured, is a side by side of SVI rankings for Tennessee and the total 2021 COVID-19 case rate in Black or African American (AA) populations to show the association between the effects on this community and potential support needed based on this disease outbreak.

# Health Disparities in Black or African American COVID-19 Cases, Hospitalizations, and Deaths



Age Range	Black/AA Cases	% of Black/AA Cases	Black/AA Hosp	% Black/AA Hosp	Black/AA Deaths	% of Black/AA Deaths
0-10 years	14,786	11.6%	55	0.4%	*	*
11-20 years	20,313	15.9%	89	0.4%	*	*
21-30 years	26,017	20.4%	259	1.0%	48	2.8%
31-40 years	23,163	18.1%	457	2.0%	108	6.2%
41-50 years	17,536	13.7%	639	3.6%	206	11.8%
51-60 years	13,496	10.6%	849	6.3%	319	18.3%
61-70 years	8,094	6.3%	885	10.9%	427	24.6%
71-80 years	3,137	2.5%	537	17.1%	344	19.8%
81+ years	1,245	1.0%	339	27.2%	279	16.0%
Unknown	42	0.0%	0	0.0%	*	*
Total	127,829	100.0%	4,101	100.0%	1,739	100.0%
Sex	Black/AA Cases	% of Black/AA Cases	Black/AA Hosp	% Black/AA Hosp	Black/AA Deaths	% of Black/AA Deaths
Female	74,136	58.0%	2,321	3.1%	919	52.8%
Male	53,184	41.6%	1,781	3.3%	815	46.9%
Unknown	509	0.4%	7	1.4%	5	0.3%
Total	127,829	100.0%	4,101	100.0%	1,739	100.0%

The above visualization highlights the number of cases, hospitalizations, and deaths in Black or African Americans by age groups and sex from January 1, 2021 to December 31, 2021. The highest percentage of cases were observed in young adult age groups (21-30 years) and in the female population. | \*Counts less than 20 have been suppressed due to data privacy.

# Health Disparities in Hispanic COVID-19 Cases, Hospitalizations, and Deaths

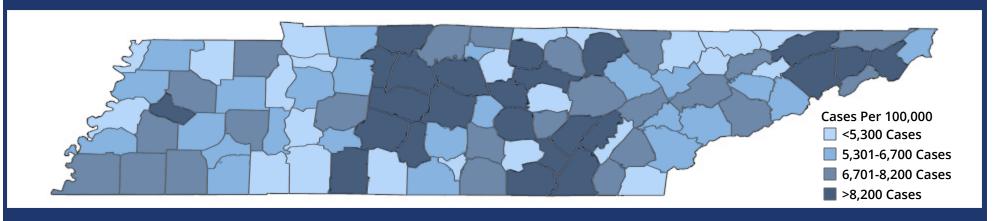


**31,203** Total Cases

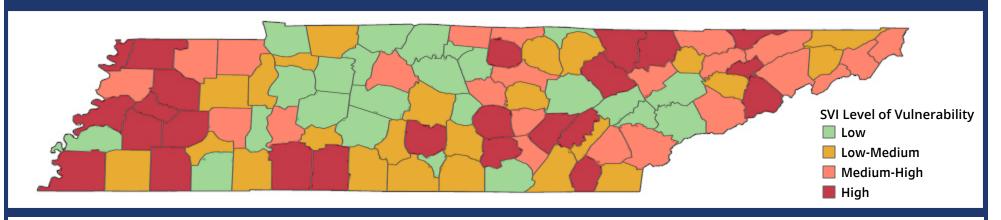
**685**Total Hospitalizations

**205**Total Deaths

#### Hispanic Total COVID-19 Cases Per 100,000 | 01/01/2021-12/31/2021



#### **CDC Social Vulnerability Index Rankings**



Featured, is a side by side of SVI rankings for Tennessee and the total 2021 COVID-19 case rate in Hispanic populations to show the association between the effects on this community and potential support needed based on this disease outbreak.

# Health Disparities in Hispanic COVID-19 Cases, Hospitalizations, and Deaths

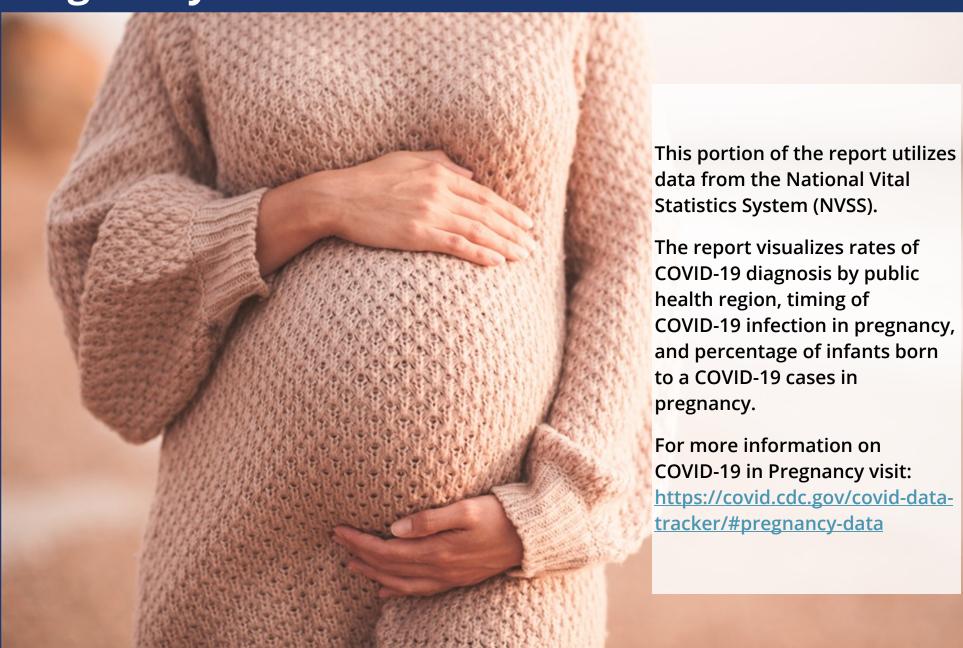


Age Range	Hispanic Cases	% of Hispanic Cases	Hispanic Hosp	% of Hispanic Hosp	Hispanic Deaths	% of Hispanic Deaths
0-10 years	4,767	15.3%	*	*	*	*
11-20 years	6,582	21.1%	22	0.3%	*	*
21-30 years	5,929	19.0%	63	1.1%	*	*
31-40 years	5,821	18.7%	141	2.4%	23	11.2%
41-50 years	4,365	14.0%	169	3.9%	48	23.4%
51-60 years	2,289	7.3%	113	4.9%	41	20.0%
61-70 years	967	3.1%	84	8.7%	40	19.5%
71-80 years	374	1.2%	51	13.6%	31	15.1%
81+ years	107	0.3%	*	*	*	*
Unknown	2	0.0%	0	0.0%	*	*
Total	31,203	100.0%	685	100.0%	205	100.0%
Sex	Hispanic Cases	% of Hispanic Cases	Hispanic Hosp	% of Hispanic Hosp	Hispanic Deaths	% of Hispanic Deaths
Female	15,920	51.0%	290	1.8%	68	33.2%
Male	15,044	48.2%	392	2.6%	137	66.8%
Unknown	239	0.8%	0	0.0%	0	0.0%
Total	31,203	100.0%	685	100.0%	205	100.0%

The above visualization highlights the number of cases, hospitalizations, and deaths in the Hispanic population by age groups and sex from January 1, 2021 to December 31, 2021. The highest percentage of cases were observed in young adult age groups (11-40 years) and in the female population. | \*Counts less than 20 have been suppressed due to data privacy.

# **Characteristics of COVID-19 in Pregnancy**

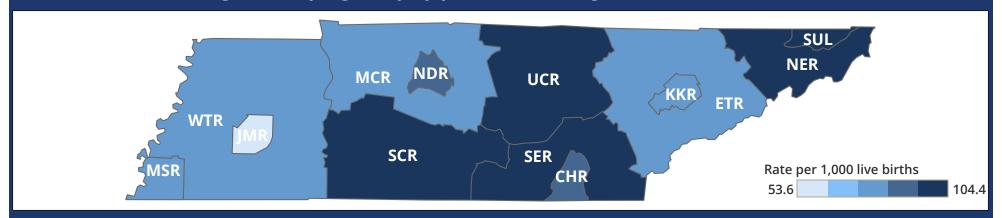




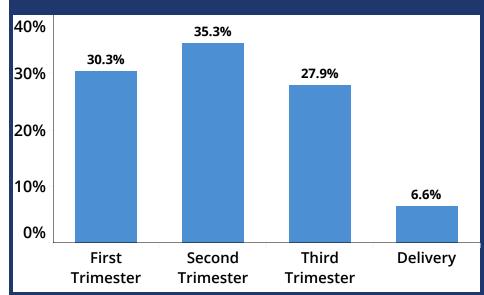
#### **Characteristics of COVID-19 in Pregnancy\***



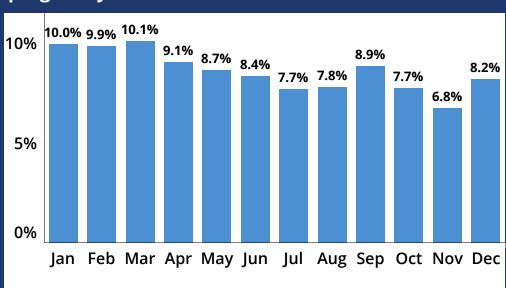
#### Rates of COVID-19 diagnosis in pregnancy by public health region



#### **Timing of COVID-19 infection in pregnancy**



## Percentage of infants born to a COVID-19 case in pregnancy



From January 1, 2021 to December 30, 2021 there were 80,412 pregnancies completed in TN, of which 6,906 (9%) had a PCR-confirmed COVID-19 diagnosis in pregnancy.

<sup>\*</sup>Only pregnancies that have resulted in a live birth are included in these data; therefore, data for pregnancies that were ongoing at the time are not presented here.

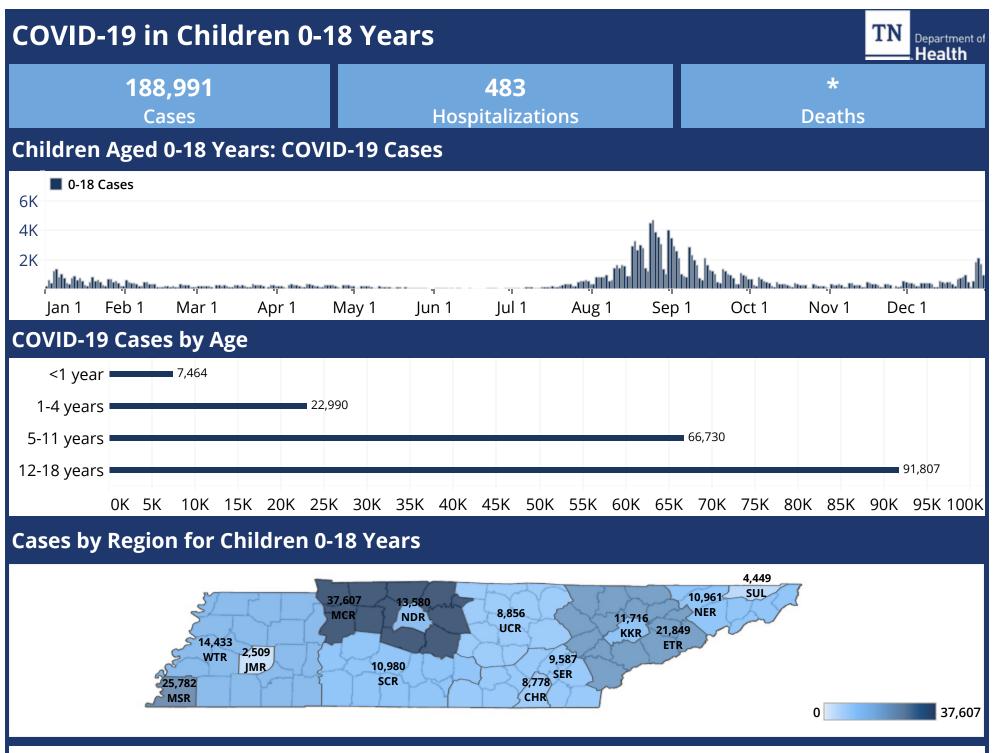
## **COVID-19 in Children 0-18**





This portion of the report covers the COVID-19 numbers for school aged children 0-18 years. The report visualizes the number of 0-18 cases, 0-18 cases by age group, and 0-18 cases by region.

For more information on children 0-18 years in Tennessee visit: <a href="https://www.tn.gov/health/cedep/ncov/data/special-populations.html">https://www.tn.gov/health/cedep/ncov/data/special-populations.html</a>



These visualizations highlight the number of COVID-19 cases in children 0-18 years by date, age group, and region. Cases in children 0-18 years peaked around the later months similar to when the delta surge occured. | \*Counts less than 20 have been suppressed due to data privacy.

# Multisystem Inflammatory Syndrome in Children (MIS-C)





According to the CDC, "Multisystem inflammatory syndrome (MIS) is a rare but serious condition associated with COVID-19 in which different internal and external body parts become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal tract. MIS can affect children (MIS-C) and adults (MIS-A). MIS-C case definition includes people who are younger than 21 years old."

For present Tennessee data on MIS-C visit:

https://www.tn.gov/health/cedep/ncov/data/special-populations.html

For more information from the CDC on MIS-C visit:

https://www.cdc.gov/mis/mis-c.html



#### Multi-System Inflammatory Syndrome in Children (MIS-C)

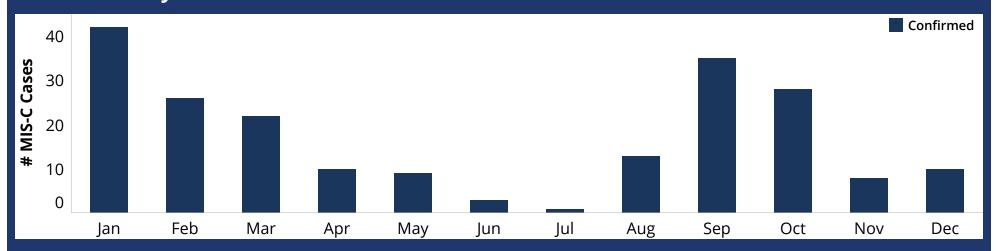




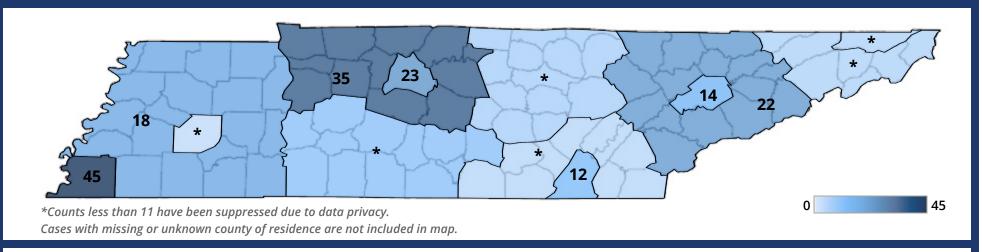
• Probable

**Under Investigation** 

#### **MIS-C Cases by Month**



#### **MIS-C Cases by PHC Region**



These visualizations highlight the number of MIS-C cases and cases by region. Multiple variant types arose during 2021 and MIS-C cases fluctuated throughout the year.

## Acknowledgments





Acknowledgments:

Dr. John Dunn Dr. Mary-Margaret Fill

COVID-19 Clusters Team
COVID-19 Wastewater Surveillance Team
Maternal and Child Health Team
TennIIS Data Quality and Management Team

COVID-19 Support Branch:
COVID-19 Case and Community Support Team
COVID-19 Data Entry Team
COVID-19 Data Quality Team
Genomic Surveillance Team

All staff who supported the TDH COVID-19 Pandemic Response County, Regional and Metropolitan Health Departments





## References



Centers for Disease Control and Prevention. (2022, February 9). COVID-19 vaccines while pregnant or breastfeeding. 2022. Available at: <a href="https://www.cdc.gov/coronavirus/2019-ncov/vaccines/">https://www.cdc.gov/coronavirus/2019-ncov/vaccines/</a> recommendations/pregnancy.html.

Centers for Disease Control and Prevention. (2023, May 26). Health disparities. Adolescent and School Health. <a href="https://www.cdc.gov/healthyyouth/disparities/index.htm">https://www.cdc.gov/healthyyouth/disparities/index.htm</a>

Centers for Disease Control and Prevention. (2020, March 27). Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with Coronavirus Disease 2019 (COVID-19). Emergency Preparedness and Response. HAN Archive. <a href="https://emergency.cdc.gov/han/2020/han00432.asp">https://emergency.cdc.gov/han/2020/han00432.asp</a>

Centers for Disease Control and Prevention. National Center for Immunization and Respiratory Diseases (NCIRD). Division of Viral Diseases. (2022, October 25). Pregnant and recently pregnant people. Centers for Disease Control and Prevention. <a href="https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnant-people.html#:~:text=Increased%20Risk%20of%20Severe%">https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnant-people.html#:~:text=Increased%20Risk%20of%20Severe%</a>
<a href="mailto:20lllness&text=Pregnancy%20causes%20changes%20in%20the,body%20can%20continue%20after%20pregnancy">https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnant-people.html#:~:text=Increased%20Risk%20of%20Severe%20lllness&text=Pregnancy%20causes%20changes%20in%20the,body%20can%20continue%20after%20pregnancy.</a>

Centers for Disease Control and Prevention. (2022, October 26). CDC/ATSDR SVI Fact sheet. Place and Health. <a href="https://www.atsdr.cdc.gov/placeandhealth/svi/fact\_sheet/fact\_sheet.html">https://www.atsdr.cdc.gov/placeandhealth/svi/fact\_sheet/fact\_sheet.html</a>

Centers for Disease Control and Prevention. (2022, September 30). What is the NEDSS base system (NBS)? National Electronic Disease Surveillance System Base System (NBS). <a href="https://www.cdc.gov/nbs/overview/index.html">https://www.cdc.gov/nbs/overview/index.html</a>



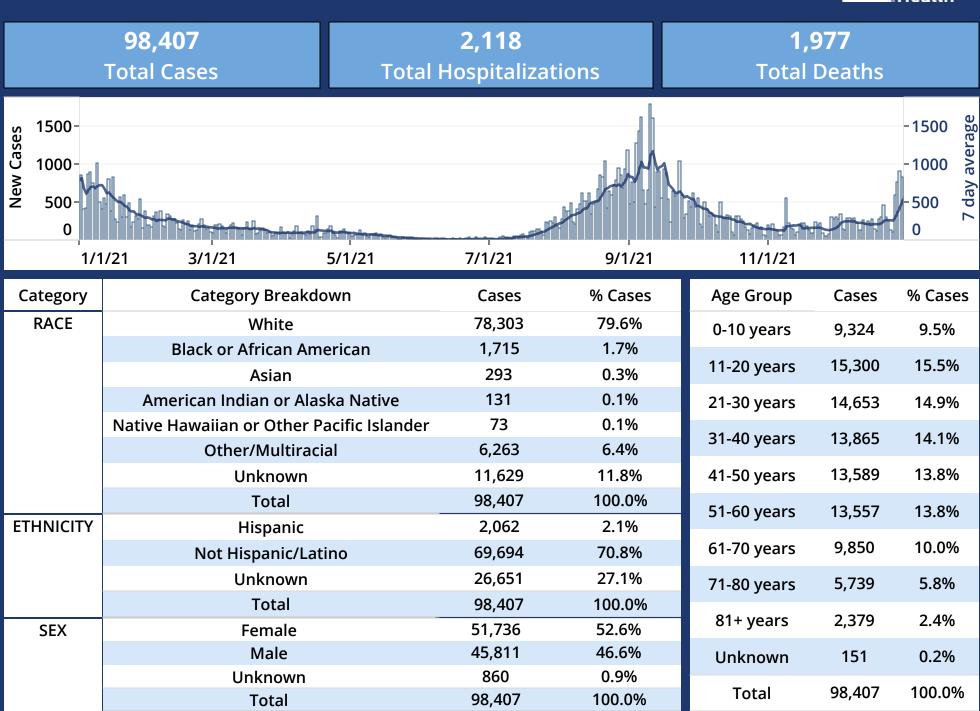
#### **Chattanooga Hamilton Region (CHR)**



42,530 623 1,282 **Total Hospitalizations Total Deaths Total Cases** day average 600 600 400 400 200 200 5/1/21 7/1/21 9/1/21 11/1/21 1/1/21 3/1/21 Category Category Breakdown % Cases Age Group Cases % Cases Cases **RACE** 66.4% White 28,249 0-10 years 4,168 9.8% **Black or African American** 7.763 18.3% 6,133 14.4% 11-20 years **Asian** 625 1.5% American Indian or Alaska Native 81 0.2% 21-30 years 8,044 18.9% 0.1% Native Hawaiian or Other Pacific Islander 34 6,924 16.3% 31-40 years 4.6% 1,950 Other/Multiracial 3,828 9.0% Unknown 41-50 years 5.673 13.3% 42,530 100.0% **Total** 51-60 years 5,016 11.8% **ETHNICITY** 1,842 4.3% Hispanic Not Hispanic/Latino 31,585 74.3% 61-70 years 3.682 8.7% 9,103 21.4% Unknown 42,530 100.0% **Total** 1,959 4.6% 71-80 years 52.5% SEX 22,332 **Female** Male 20,064 47.2% 81+ years 931 2.2% Unknown 134 0.3% 42,530 100.0% Total 42,530 100.0% **Total** 

#### **East Tennessee Region (ETR)**

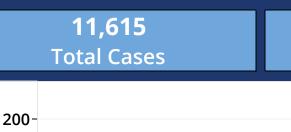




## Jackson Madison Region (JMR)

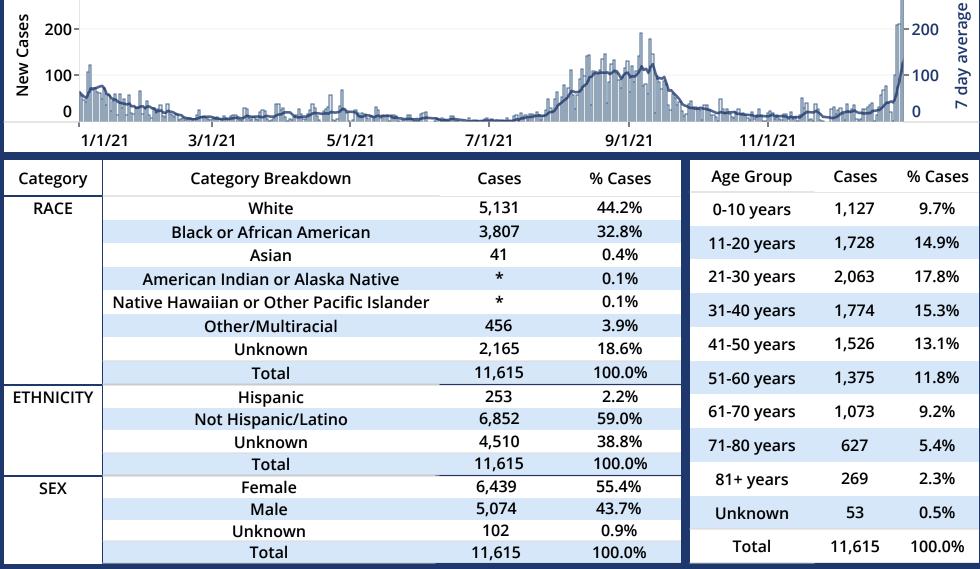


200





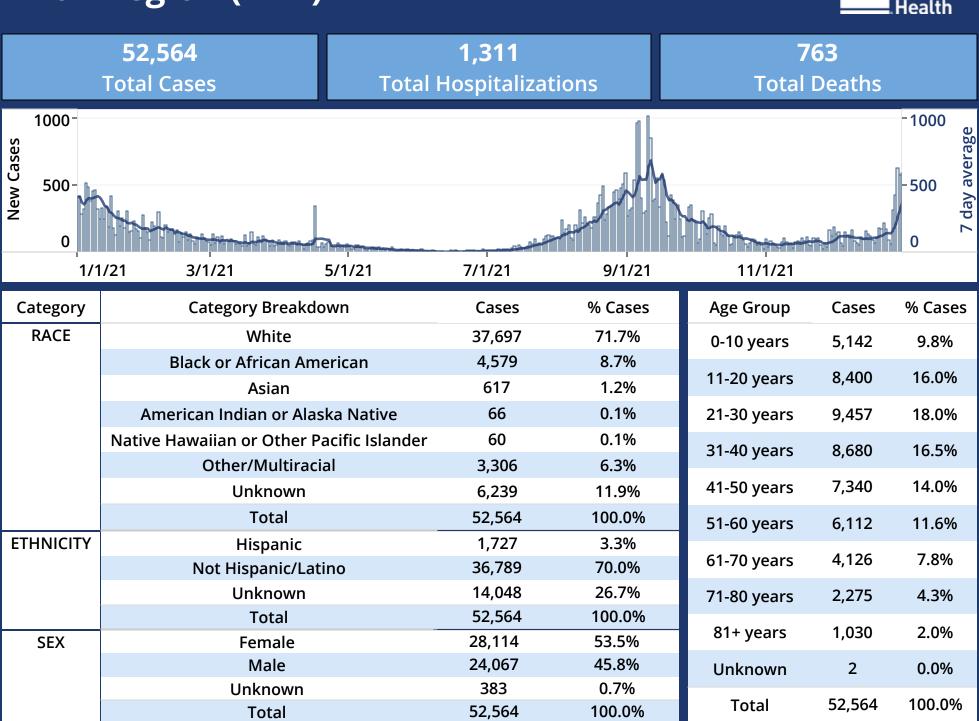
205 **Total Deaths** 



<sup>\*</sup>Counts less than 11 have been supressed due to data privacy.

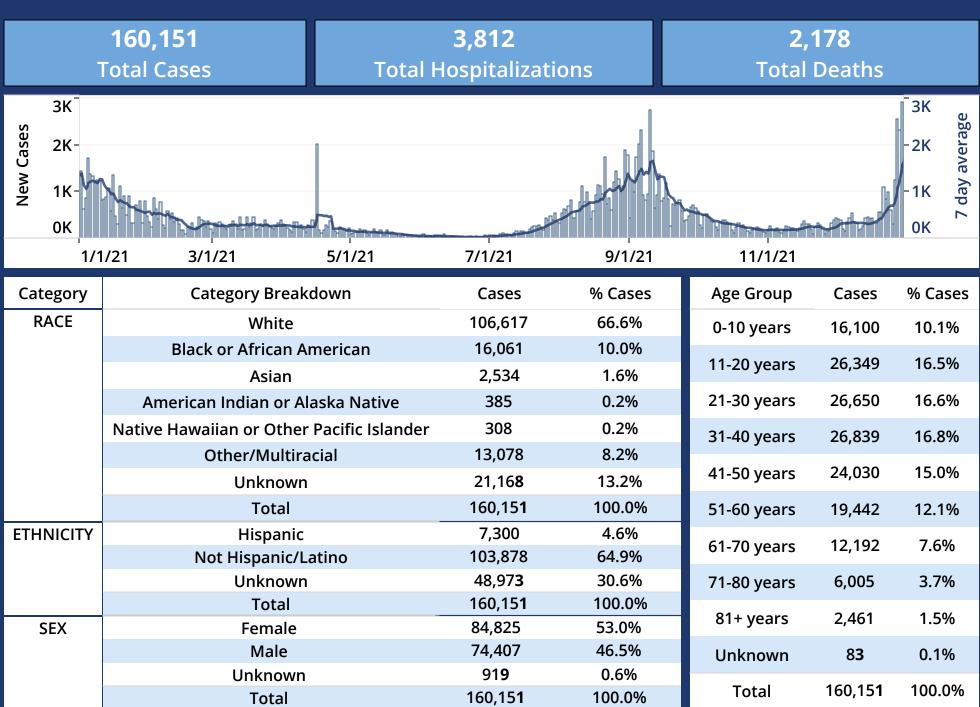
#### **Knox Region (KKR)**





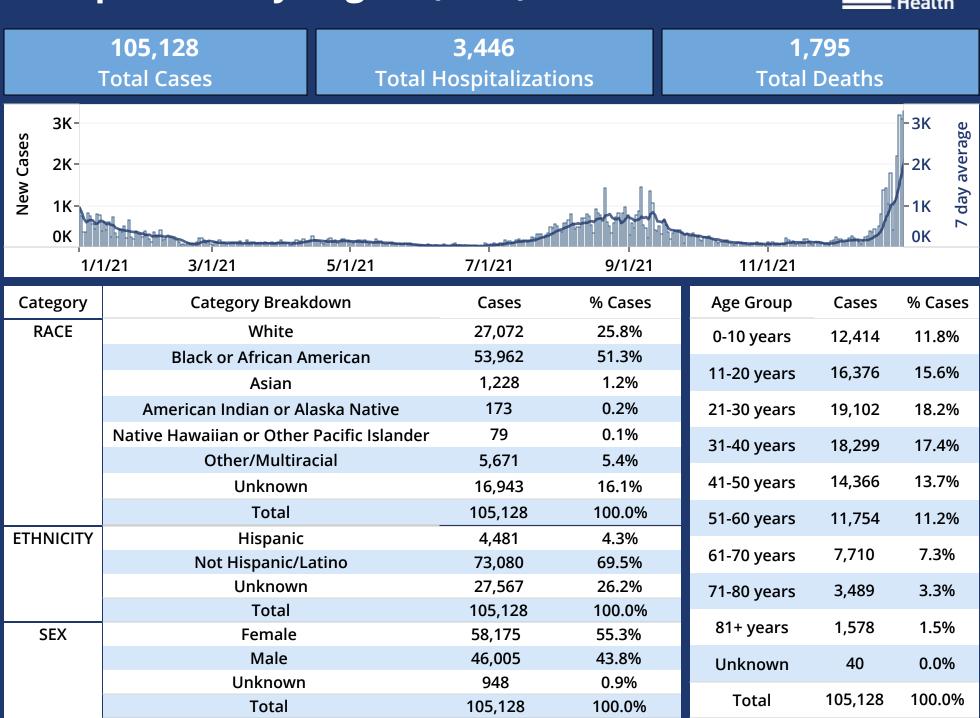
## Mid Cumberland Region (MCR)





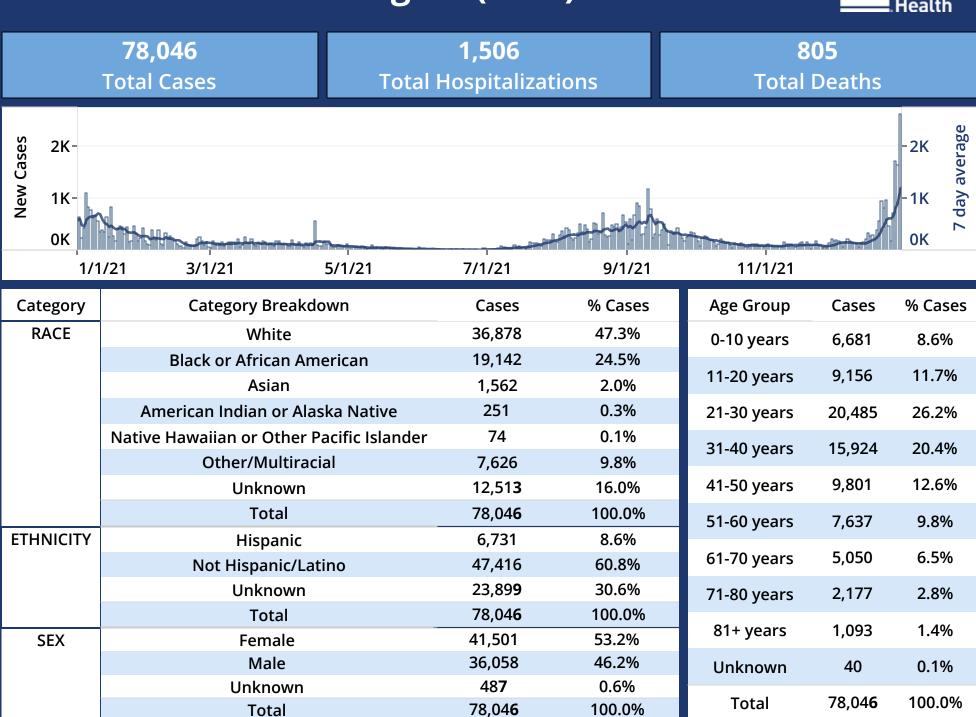
#### **Memphis Shelby Region (MSR)**





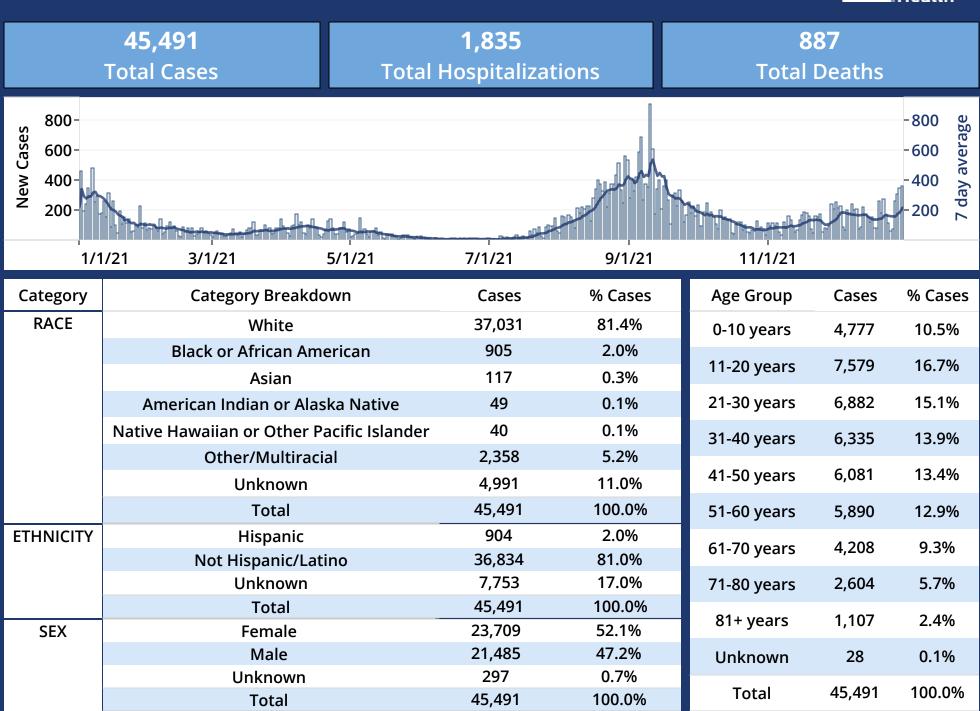
## **Nashville Davidson Region (NDR)**





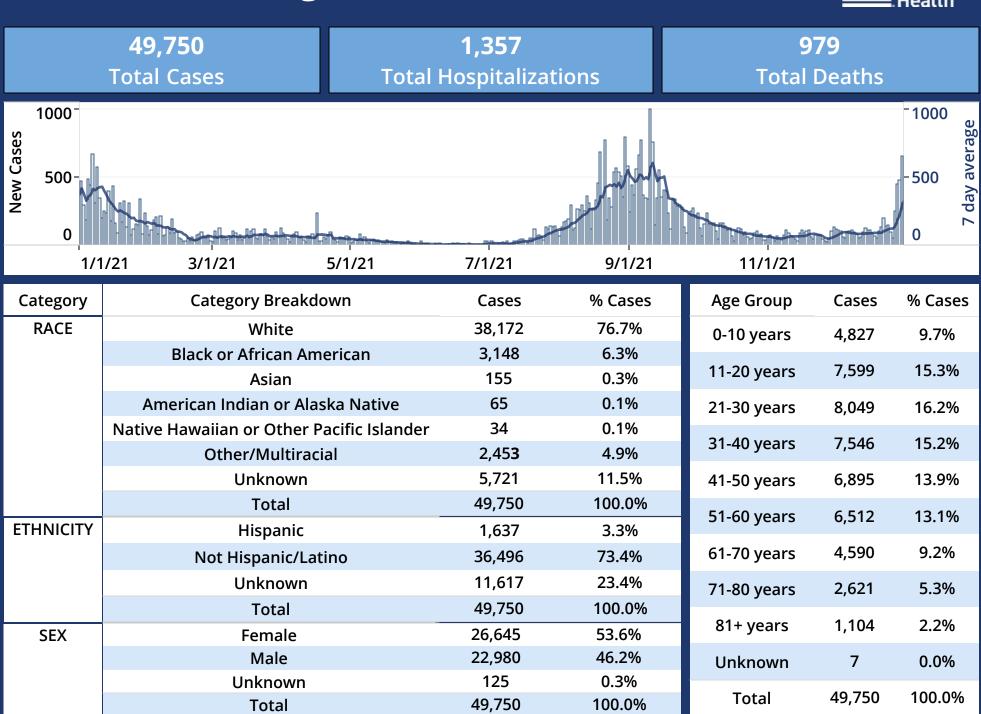
#### **Northeast Region (NER)**





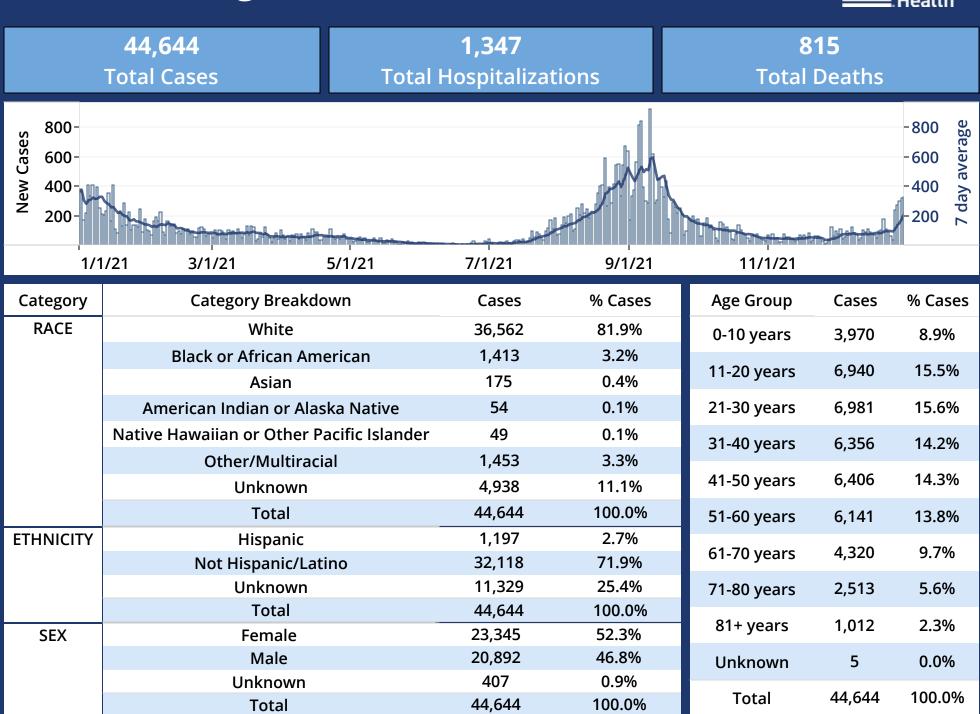
## **South Central Region (SCR)**





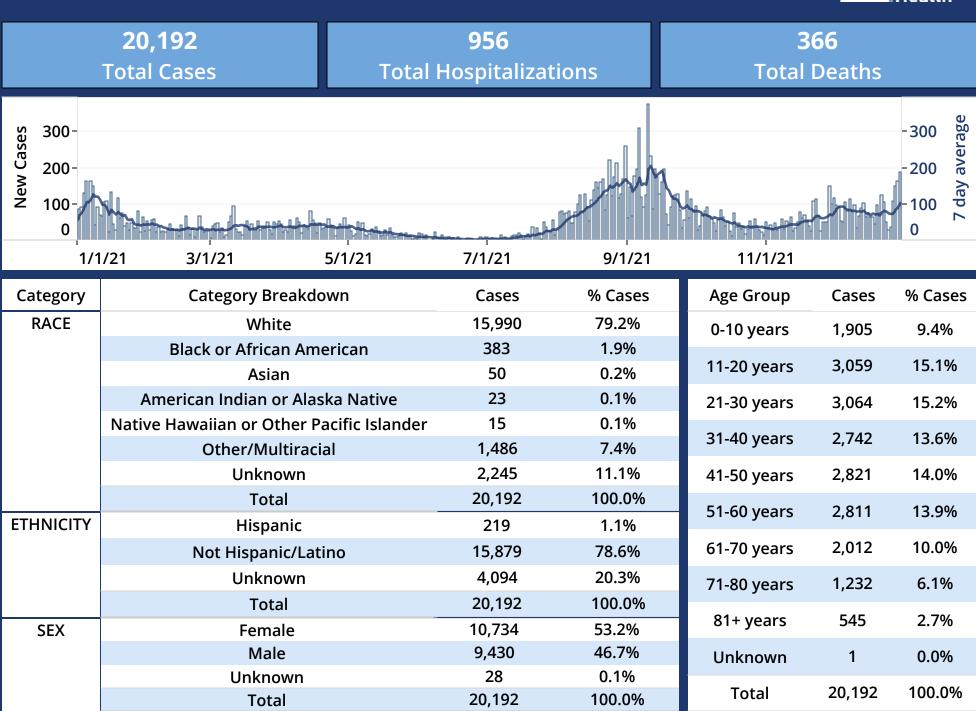
#### **Southeast Region (SER)**





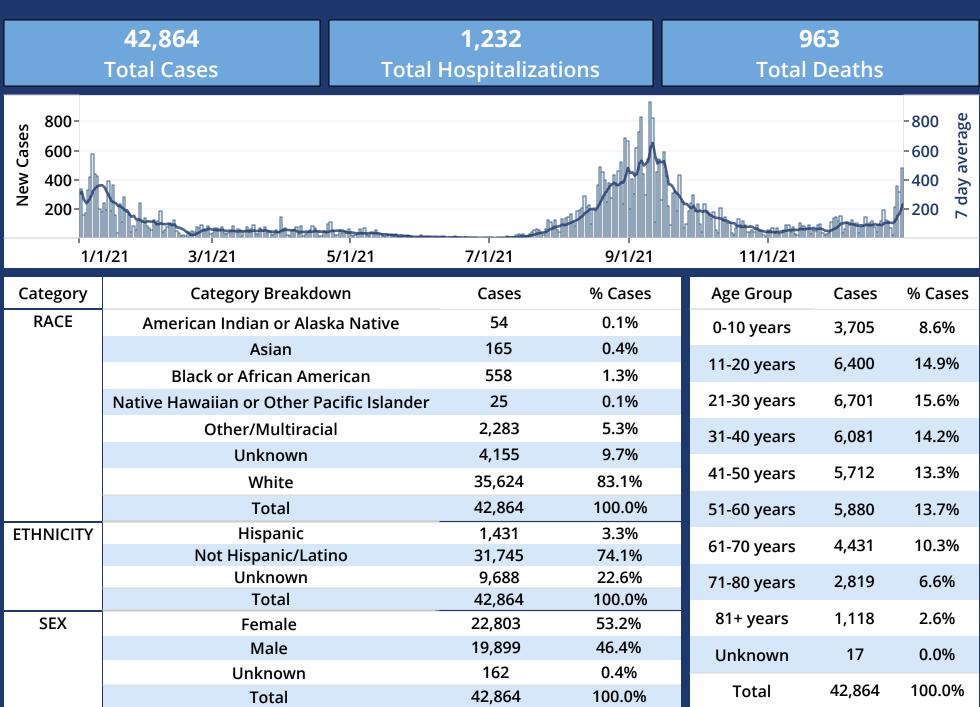
## **Sullivan Region (SUL)**





## **Upper Cumberland Region (UCR)**





## West Region (WTR)



