

Population Health Vital Statistics Brief:

COVID-19 Pandemic Summary, 2021

The *Population Health Vital Statistics Data Brief* series was created to provide regular updates to the 2016 Community Health Assessment and to provide the community with additional important information about population health. For more information on the Community Health Assessment and to access other reports in the *Vital Statistics Data Brief* series, please visit scph.org/assessments-reports



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The Arrival and Spread of COVID-19 in Summit County

The first known case of COVID-19 in Summit County was reported in early March, 2020. By the end of the first month, the county had 130 known cases. By the end of April, that rate had grown nearly 500%, to nearly 650 cases. Through a combination of the state's stay-at-home order, school and business closures, and the public's willingness to adopt mask wearing, hand washing, and social distancing, the rate of growth slowed down sharply until the surge in cases in November and December 2020 (Figure 1).

Even with the precautionary measures the community put in place, cases grew at fast enough pace to increase the county's COVID-19 total from 130 in March 2020 to about 94,000 as of December 2021, while the number of deaths is now approaching 1,600 (Figure 1). Those 94,000 cases represent more than 17% of Summit County's total 2019 population of 541,013. As will be discussed in more detail later, the number of cases we know about is probably far lower than the actual number of cases in the community.

The number of deaths spiked initially as the virus first hit long-term care facilities. However, as protective measures took effect, the number of deaths per 1,000 cases dropped sharply between April and November of 2020, and remained relatively steady since then (Figure 2).

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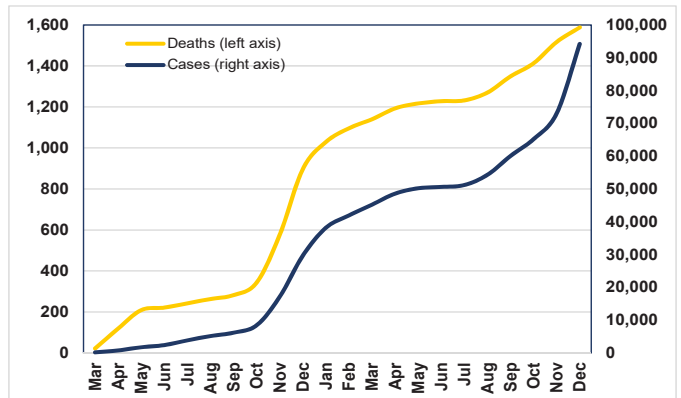


Figure 1: Growth in COVID-19 Positive Cases and Deaths in Summit County, March, 2020 - December, 2021 Source: Ohio Disease Reporting System (ODRS), Summit County Public Health (SCPH)

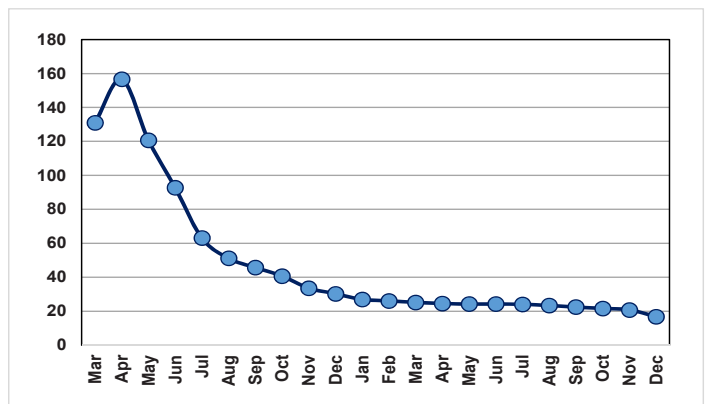


Figure 2: Change in COVID-19 Deaths Per 1,000 Positive Cases in Summit County, March, 2020 - December, 2021 Source: Ohio Disease Reporting System (ODRS), Summit County Public Health (SCPH)



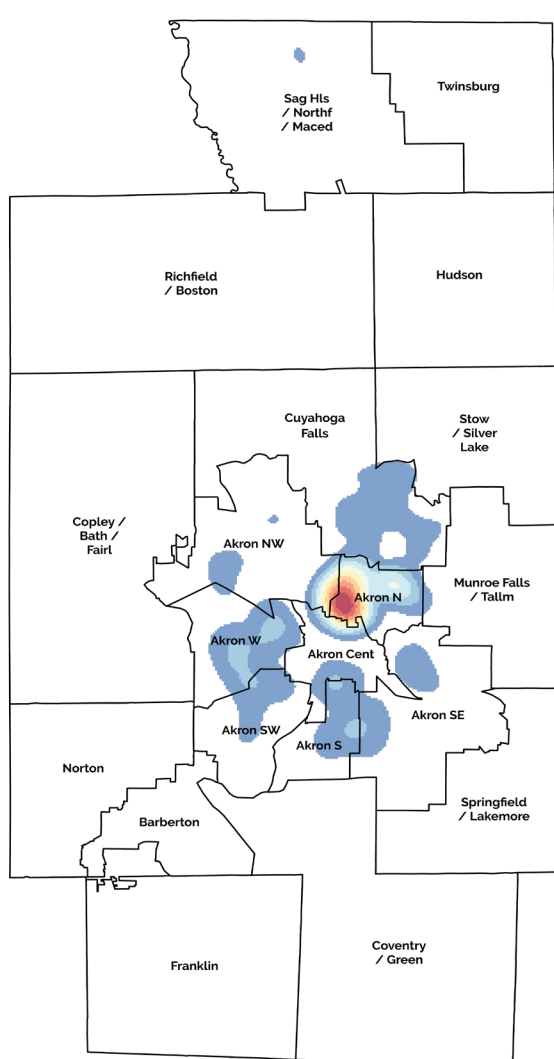
Link to SCPH data dashboards

Mapping The Spread of COVID-19 In Summit County

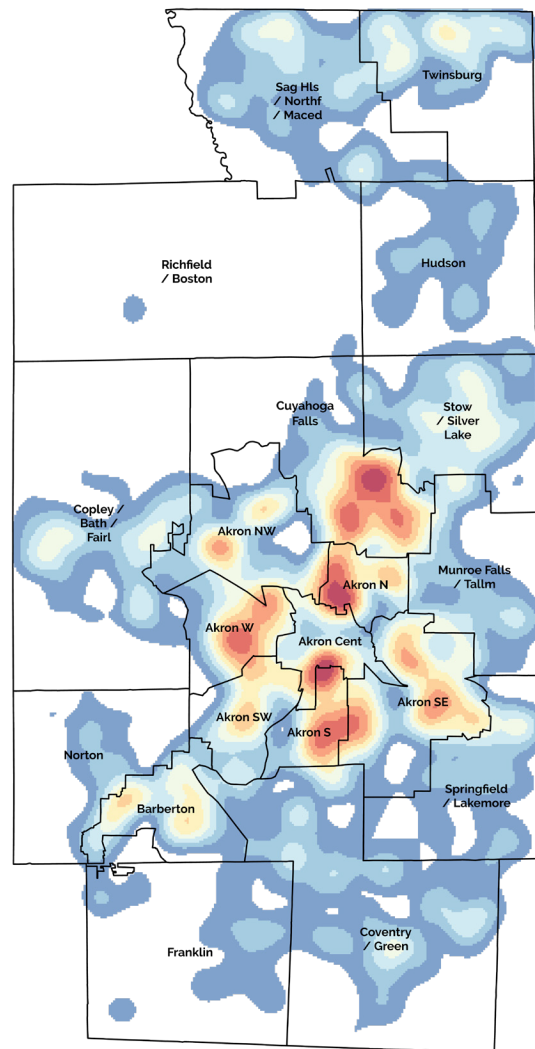
March - October 2020: In the earliest days of the pandemic, the highest concentrations of COVID-19 cases were in long-term care facilities, though community spread was occurring throughout the county as seen here. It was during this time that the governor's stay-at-home order was issued. By the end of the period Summit County was experiencing about 86 new cases per day (see Map 1).

November - December 2020: By November, it was clear that the growth in cases was accelerating. Case counts began to skyrocket, with expansion occurring throughout most of the county. At the end of this period, the county was seeing about 452 new cases per day (see Map 2).

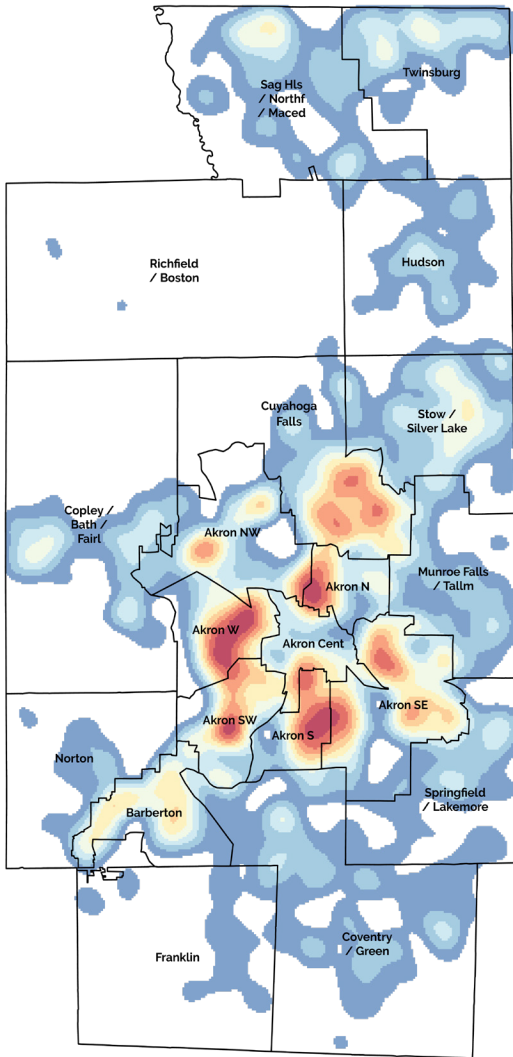
January - June 2021: The severe surge of cases seen in the prior two months began to fade, with the decline in cases accelerating as June approached. Vaccinations, which became available in December 2020, peaked in early April then dropped off sharply after the temporary pause on using the J and J vaccine was announced. By the end of June cases were down to just 9 per day (see Map 3).



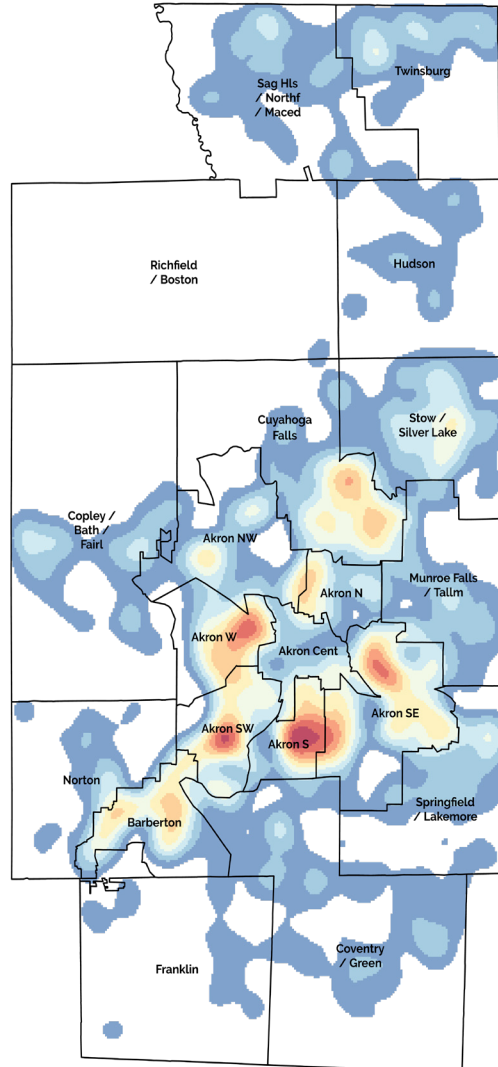
Map 1: COVID-19 Phase 1: Mar - Oct 2020; **5,279** cases over 8 months (660 per month). Predominant variant: **COVID-19 original virus**



Map 2: COVID-19 Phase 2: Nov - Dec 2020; **18,550** cases over 2 months (9,275 per month). Predominant variant: **Alpha**

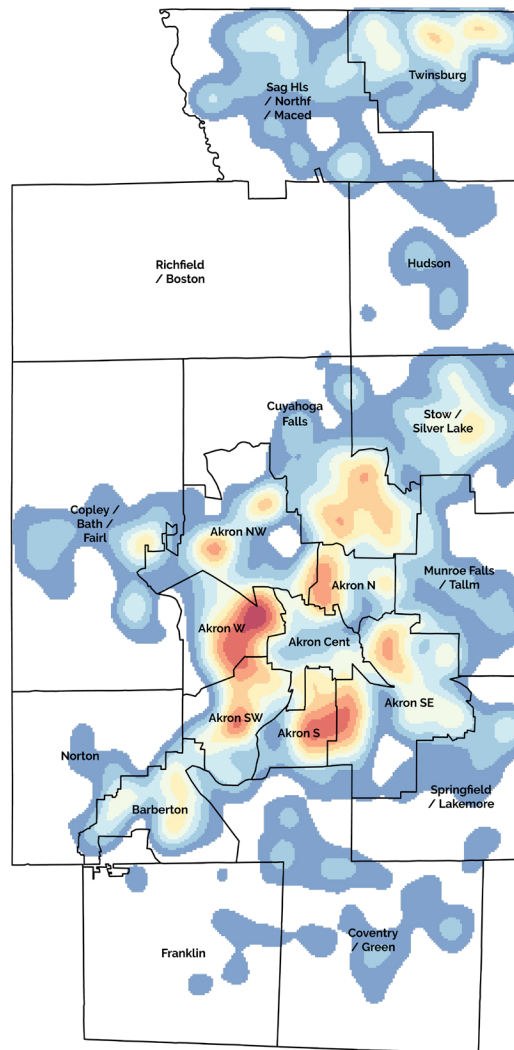


Map 3: COVID-19 Phase 3: Jan - Jun 2021; **24,227** cases over 6 months (**4,037 per month**). Predominant variant: **Alpha**



Map 4: COVID-19 Phase 4: Jul - Nov 2021; **24,743** cases over 5 months (**4,954 per month**). Predominant variant: **Delta**

July - October 2021: COVID-19 roared back in early July with the arrival of the Delta variant, sending case counts to the highest levels seen since November and December of 2020. At the end of October 2021 the county was averaging about 142 new cases per day (Map 4).



Map 5: COVID-19 Phase 5: Dec 2021 - ?; 20,299 cases over 1 month (20,299 per month). Predominant variant: Omicron

November - December 2021: The continuing impact of the Delta variant and the sudden arrival of the Omicron variant fueled an even greater increase in case counts starting in early November. The number of new cases per day shot up from 142 at the end of October to a high of 988 per day by the end of the year. The all-time high was hit just four days into the new year, with 1,093 new cases per day by January 4th (see Map 5 on next page).

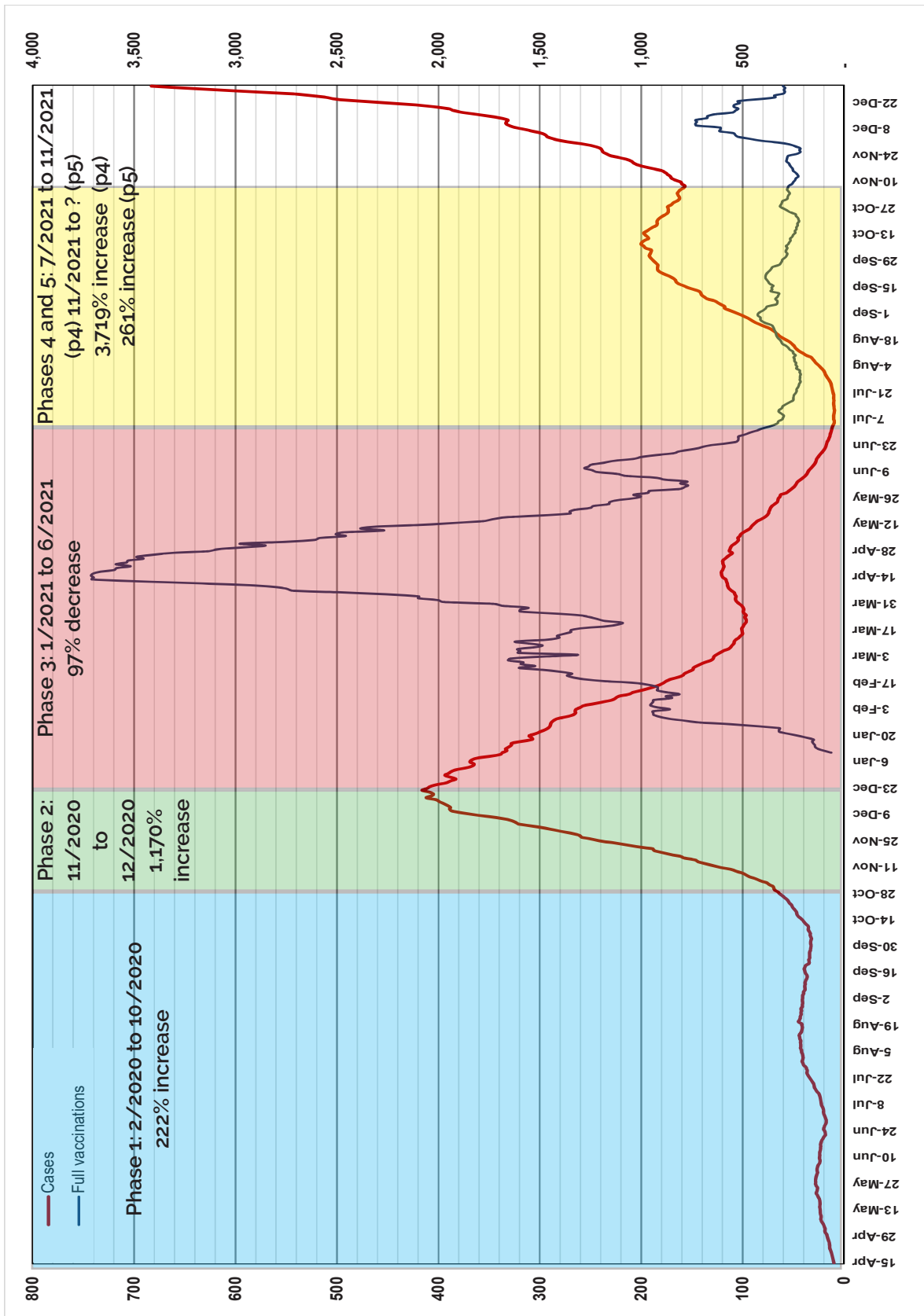


Figure 3: Phases of the COVID-19 Pandemic in Summit County, March 2020 to December 2021 -- The five phases of the pandemic discussed in the maps above can be seen here in its entirety. The red line above shows county's 7-day average number of confirmed and probably COVID-19 cases, while the blue line shows the 7-day average number of COVID-19 vaccinations. Cases peaked in December 2020, again in September 2021, and a third time in December 2021. Vaccinations peaked in April 2021.

A Word About COVID-19 Data: Counting COVID-19 cases sounds like it should be easy; just add up everyone who tests positive and report that number. In reality, trying to put hard numbers on COVID-19 is much more complicated than it sounds. The fact is, nobody knows the true number of people who have had COVID-19. The CDC estimates that only about 1 in 4 COVID-19 positive cases, 1 in 4 cases with symptoms, and 1 in 2 hospitalizations actually get reported. The CDC estimates that by as of April 2021 a total of about 115 million people have been actually been infected, 97 million of whom had symptoms. Of those, about 5.6 million have likely been hospitalized.¹ Using these estimates, 211,000 Summit County residents may have actually had COVID-19, 170,000 may have had symptoms, and as many as 8,800 may have been hospitalized.

There are many challenges to accurate COVID-19 reporting. People who are sick don't always see a doctor, and doctors can sometimes mistake a COVID-19 infection for something else. Overworked staff at all levels sometimes don't report results when or how they should. Most people without symptoms are unlikely to be tested, while others who need to be tested will decline the opportunity. Tests can also return false results.

There are also technological challenges; hospital computer systems can be incompatible with state systems, smaller medical practices often rely on paper and fax machines; state and local health departments may not have the resources to field modern reporting systems. Sometimes, automatic computer updates either don't run when scheduled or don't run at all. These and other such problems lead to delays in reporting at all levels, incorrect reporting, and revised totals when errors and omissions are corrected, and missing data is added.

The result of all these challenges is that the numbers being reported at the federal, state, and local levels will never be as firm, as current, or as final as we all want them to be. Those of us who analyze these numbers try to be as accurate as possible, but members of the public who rely on COVID-19 data should be aware of both the strengths and the limitations of the numbers they're seeing and what they actually show.

¹ <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/burden.html>

COVID-19 Demographics through 6/30/21

Age of COVID-19 Cases: The median age of all COVID-19 cases is currently 43 years of age. Seniors account for 17% of the cases but 88% of the deaths, while adults account for 74% of the cases but only 12% of the deaths. Children make up 9% of cases but fortunately no deaths to date.

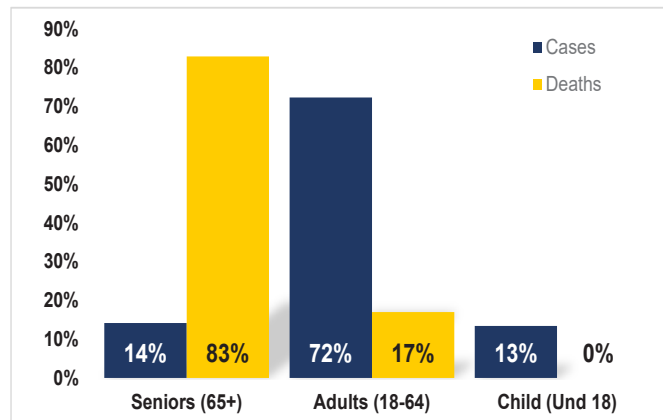


Figure 5: Percent of COVID-19 Cases by Age Source: ODRS, SCPH

Gender of COVID-19 Cases: There are more females than males among all cases (54% to 46%), while deaths due to COVID-19 are roughly evenly split.

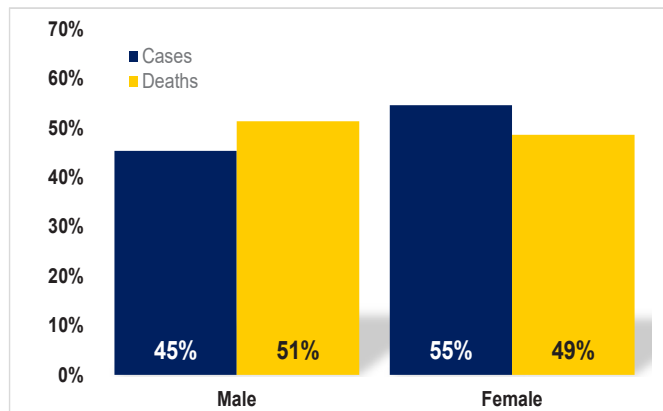


Figure 6 Percent of Cases and Deaths by Gender Source: ODRS, SCPH

Race of COVID-19 Cases: Whites make up 76% of total cases and 82% of the deaths. Black cases and deaths are about evenly split, while Asians account for 5% of the cases but 1% of the deaths. While race will be discussed in more detail later on, it is important to note here that the percentages of deaths by race isn't the whole story. The disproportionate death-to-case ratio for whites is due at least in part to the fact that White cases tend to be older (median age 45), while Asian cases account for a smaller percentage of deaths than cases is because Asian cases tend to be younger (median age 39). For reasons that will be made clear later, Blacks (median case age of 41) suffer disproportionately from COVID-19.

Ethnicity of COVID-19 Cases: Hispanics make up about 2% of total COVID-19 cases and 1% of the deaths.

Long-Term Care (LTC): Owing to the generally advanced age and fragile health status of those living in LTC facilities such as assisted living or nursing homes, known LTC residents make up only 6% of cases but 57% of the total deaths due to COVID-19.

Note: LTC status in ODRS was missing for a large proportion of cases (66%). Data for Figure 9 includes only confirmed LTC cases, with confirmed non-LTC and unknown cases combined to calculate the percentage living in an LTC. The percentages for LTC residence based only on cases where that status is known is Lives in LTC (23%) / Does not live in LTC (77%).

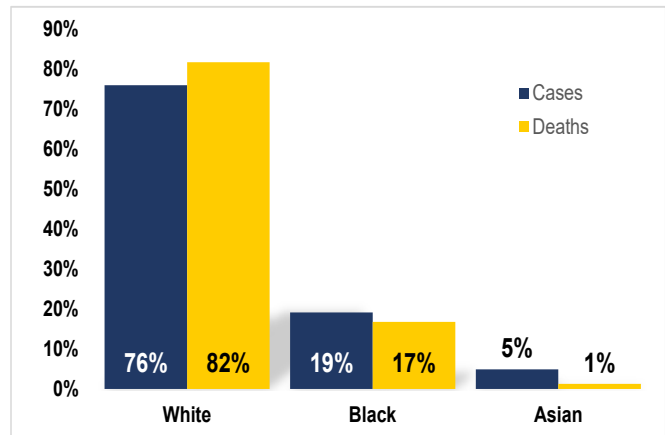


Figure 7: Percent of COVID-19 Cases and Deaths by Race Source: ODRS, SCPH

Note: Race data in ODRS was missing for 5% of cases. The percentages for each race were based only on cases where race is known.

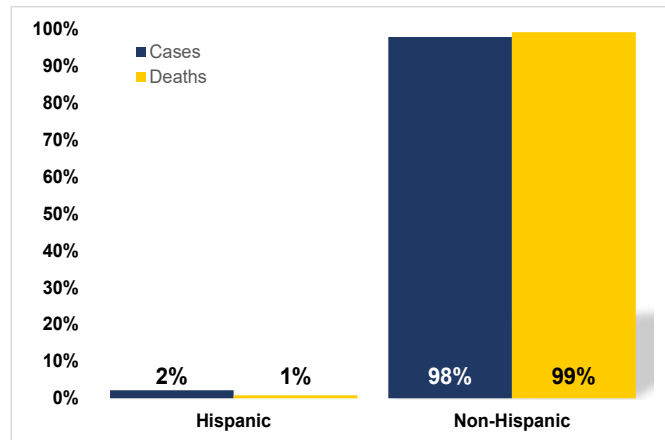


Figure 8: Percent of COVID-19 Cases and Deaths by Ethnicity (percent of those with ethnicity known) Source: ODRS, SCPH

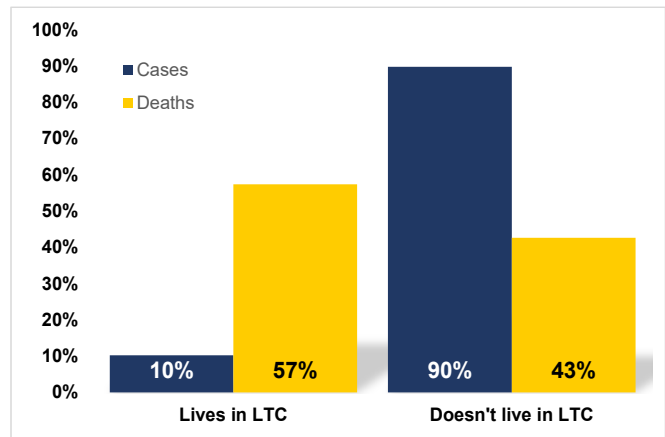


Figure 9: Percent of COVID-19 Cases and Deaths by Long-Term Care Status (LTC) Source: ODRS, SCPH

COVID-19 Hospitalizations: About 9% of COVID-19 positive cases were known to be hospitalized. Since March 2020 about 4,400 Summit County residents with COVID-19 were hospitalized. About 3% of those hospitalizations (40) were children. Adults 18-64 and seniors 65+ made up 47% and 50% of hospitalizations, respectively.

Note: Hospitalizations in ODRS were missing in 52% of cases. Figure 10 includes only confirmed hospitalizations, with confirmed non-hospitalizations and unknowns combined to calculate the percentage hospitalized. The hospitalized percentage based only on cases where that status is known is 16%.

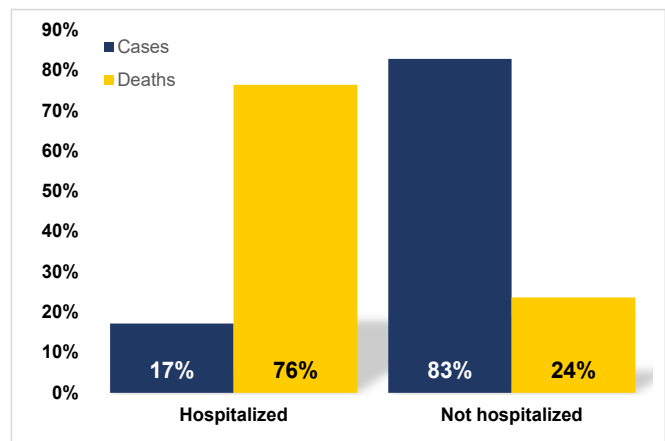


Figure 10: Percent of COVID-19 Cases by Hospitalization Status
Source: ODRS, SCPH

Length of Hospitalizations: The average hospital stay was 2.8 days for children, 6.1 days for adults and 7.2 days for seniors.

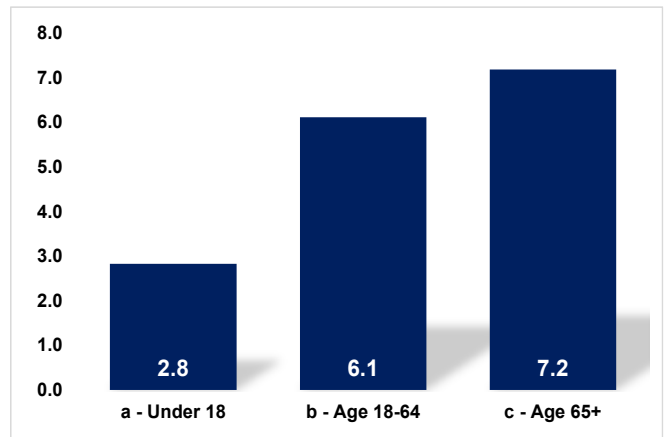


Figure 11: Average Length of COVID-19 Hospitalizations
Source: ODRS, SCPH

Intensive Care Status: About 17% of hospitalized cases wound up in the intensive care unit (ICU). Nearly 47% of those in the ICU died of COVID-19.

Nearly half of those who were in the ICU were also placed on a ventilator (42%) at some point in their stay. The median length of being on a ventilator was 9.8 days. The shortest ventilation time was 1 day, while the longest was 46 days. As mentioned earlier, the fatality rate for all COVID-19 cases is 1.6%. For those who were in the ICU and on a ventilator, the fatality rate is 47%.

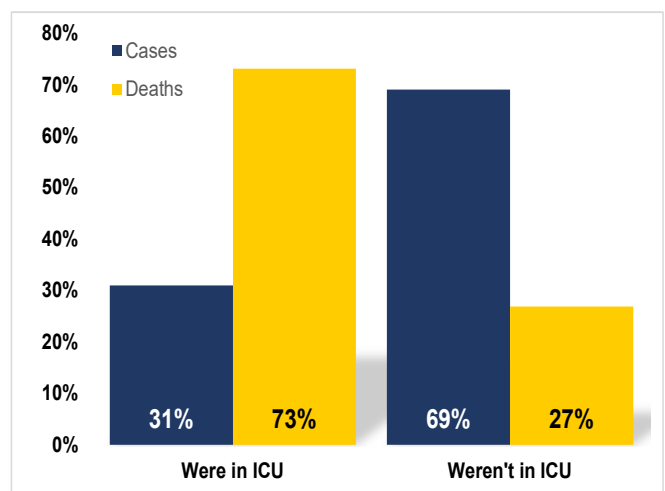


Figure 12 Percent of COVID-19 Cases and Deaths by Intensive Care Unit Status
Source: ODRS, SCPH

COVID-19 Symptoms: About 10% of those testing positive were found to be asymptomatic (see Figure 13).

About 38% of the cases had information about whether or not there were symptoms present (37,000 of 97,000 total positive cases). The average person reported having five symptoms.

Figure 14 shows the most common symptoms for those that had them. The six most common symptoms for those with COVID-19 were cough (64%), headache (61%), muscle aches (55%), the loss of taste and/or smell (53%), runny nose (48%), and chills (46%).

Eight percent reported having all 15 of the symptoms listed, while another 9% reported having only one of the symptoms.

For the 2,498 COVID-19 cases who have both an illness onset and a symptom resolution date, the average length of time being sick with COVID-19 was 5.6 days. As Figure 15 shows, that varied by age group, with seniors being sick the longest on average and children being sick the shortest amount of time. The length of illness grew longer between 2020 and 2021 for those in the age 65+ and under 18 age groups, with children seeing the biggest increase. The length of adult illness remained fairly constant.

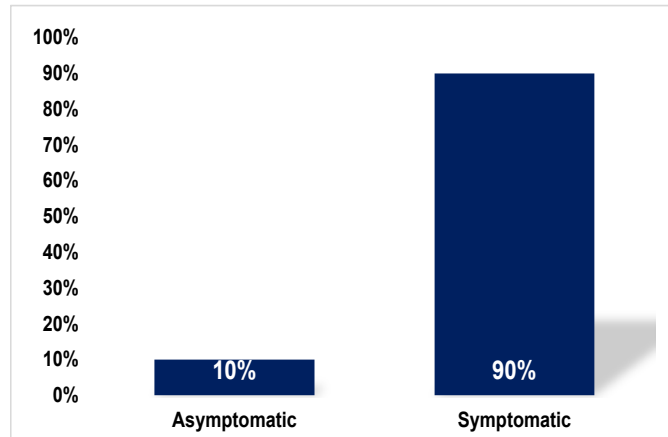


Figure 13: Percent of COVID-19 Cases With Symptoms Source: ODRS, SCPH

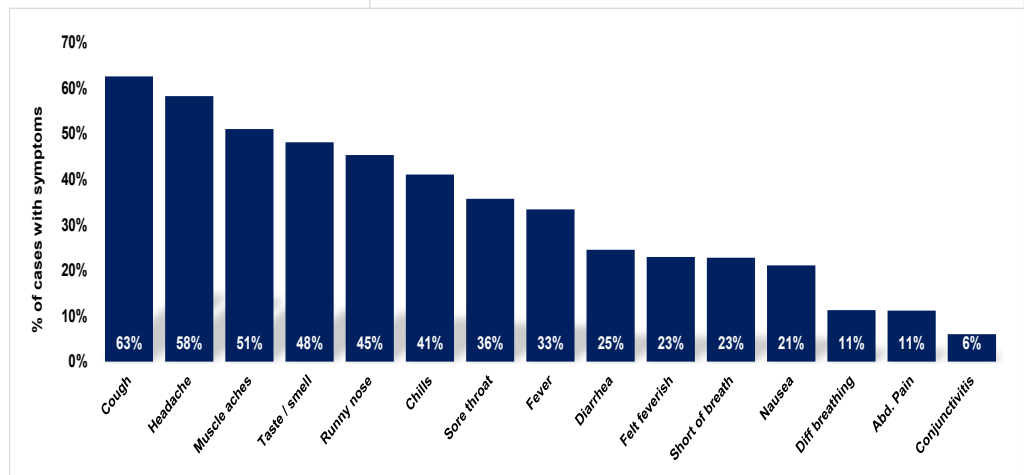


Figure 14: Percent of COVID-19 Cases With Each Symptom (Note: These figures will not add up to 100 percent because people can have multiple symptoms) Source: ODRS, SCPH

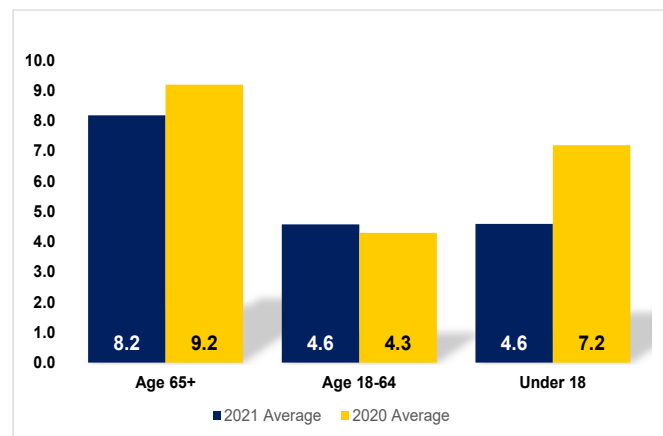


Figure 15: COVID-19 Average Days of Illness, by Age Group Source: ODRS, SCPH

The Impact of COVID-19 on Population Health

Rank	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 74	75 - 84	85 & over
1	Accidents	Accidents	Accidents	Cancer	Cancer	Cancer	Heart disease	Heart disease
2	Assault (homicide)	Assault (homicide)	Cancer	Heart disease	Heart disease	Heart disease	Cancer	Alzheimer's disease
3	Suicide	Suicide	Heart disease	Accidents	COVID-19 (ranked 4th 2020)	COVID-19 (same rank 2020)	COVID-19 (same rank 2020)	COVID-19 (ranked 2nd 2020)
4	Diabetes	Heart disease	Suicide	COVID-19 (ranked 5th 2020)	Accidents	Chronic lower respiratory	Alzheimer's disease	Cancer
5	Cancer	Cancer	COVID-19 (ranked 7th 2020)	Chronic liver disease	Chronic lower respiratory	Diabetes	Chronic lower respiratory	Stroke
6	Congen / chromo abnorm	COVID-19 (not ranked 2020)	Assault (homicide)	Stroke	Diabetes	Stroke	Stroke	Chronic lower respiratory
7	COVID-19 (not ranked 2020)	Septicemia	Diabetes	Diabetes	Stroke	Accidents	Diabetes	Accidents
8	Heart disease	Chronic lower respiratory	Chronic liver disease	Suicide	Chronic liver disease	Chronic liver disease	Accidents	Hypertension
9	Diseases of appendix	Influenza and pneumonia	Stroke	Chronic lower respiratory	Septicemia	Kidney disease	Parkinson's disease	Diabetes
10	Septicemia	Congen / chromo abnorm	Kidney disease	Septicemia	Suicide	Septicemia	Kidney disease	Kidney disease

Figure 16: Ten Leading Causes of Death Ranked For Those Age 15 and Older, 2021 Source: ODH Death Certificate Data, Centers for Disease Control and Prevention.

Figure 16 shows the top 10 leading causes of death since the beginning of the pandemic for each of the 8 age groups with at least one COVID-19 death in Summit County. The tremendous impact of COVID-19 is clear from looking at the table. In less than 2 years, the disease became a top 10 cause of death for Summit County residents age 15 and older. In the 2020-only version of this table, there were no COVID-19 deaths younger than 35. Since then, COVID-19 has become the 7th and 6th leading cause of death for those age 15-24 and 25-34, respectively. COVID-19 as a cause of death also rose for 35-64 year olds.

For seniors, COVID-19 is a top 3 cause of death, ranking just behind cancer and heart disease for those age 65-84, and behind only heart and Alzheimer's diseases for those 85 and older.

The Impact of COVID-19 on Population Health (continued)

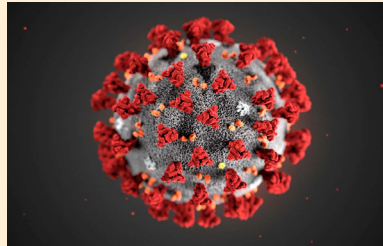
The graphic at right shows another take on the impact of COVID-19 on population health. Nearly 97,000 people in Summit County have had a confirmed or probable case of COVID-19. To put that figure into perspective, if all 97,000 were gathered in one place, that place would be the county's 2nd largest city; nearly half the size of the City of Akron.

About 17% of those who have been infected will be hospitalized. One-sixth of those hospitalized will be transferred to an ICU. More than 40% of those in an ICU will have to be ventilated. Nearly half of those who are ventilated will ultimately die of COVID-19. These deaths are in addition to the 957 people who died of COVID-19 who were either not hospitalized, not in an ICU, or not ventilated. All told, nearly 1,300 have died; an average of about 13 people per week.

Seventeen percent of patients being hospitalized may sound small, but that rate is double what it was in 2020. For those who are hospitalized, the risks for serious or life threatening complications rise quickly.

It's also important to mention that many of those who recover don't recover completely or immediately. That's especially true of those who survive being ventilated. According to the CDC, COVID-19 damages many parts of the body, leading to long-term issues like fatigue, shortness of breath, cough, joint pain, chest pain, difficulty thinking and concentrating, depression, muscle pain, headache, intermittent fever, and heart palpitations. No one yet knows how many people have long-term complications, or if the damage they suffered is permanent.

As of 12/31/2021...



18%

of Summit County's population had COVID-19
(96,650 people)



17%

of people with COVID-19 were hospitalized
(7,296 out of 96,650 people with COVID-19)



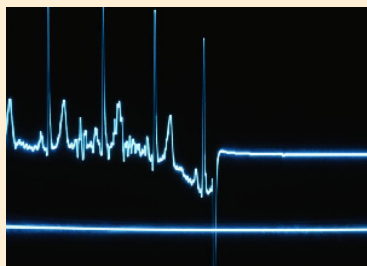
18%

of those hospitalized went to an ICU
(1,293 out of 7,295 hospitalized patients)



42%

of COVID-19 patients in ICU were ventilated
(544 out of 1,293 patients in ICU)



47%

of people who were ventilated died of COVID-19
(256 out of 544 ventilated patients)

The Impact of COVID-19 on the Labor Market in Summit County

Type of Industry	1st Quarter 2020	1st Quarter 2021	1q-20 to 1q-21	1q-20 to 1q-21	Avg. Annual Earnings 2019	Avg. Annual Earnings 2020	2019-2020
Total employment	262,673	247,389	(15,284)	-6%	\$50,422	\$53,799	\$3,377
Private Sector	236,327	222,654	(13,673)	-6%	\$50,080	\$53,485	3,405
Agriculture, forestry, fishing and hunting	112	190	78	70%	\$24,384	\$34,304	9,920
Mining	110	92	(18)	-16%	\$72,522	\$66,739	(5,783)
Utilities	1,069	1,028	(41)	-4%	\$97,886	\$109,416	11,530
Construction	10,776	10,188	(588)	-5%	\$61,579	\$65,655	4,076
Manufacturing	28,296	26,647	(1,649)	-6%	\$57,122	\$59,559	2,437
Wholesale trade	12,974	12,225	(749)	-6%	\$67,363	\$70,359	2,996
Retail trade	28,881	28,252	(629)	-2%	\$32,309	\$34,701	2,392
Transportation and warehousing	11,162	11,894	732	7%	\$45,742	\$42,731	(3,011)
Information	4,117	4,192	75	2%	\$73,242	\$76,631	3,389
Finance and insurance	10,018	9,103	(915)	-9%	\$75,569	\$84,905	9,336
Real estate and rental and leasing	2,890	2,721	(169)	-6%	\$45,602	\$48,402	2,800
Professional and technical services	13,500	13,164	(336)	-2%	\$70,354	\$73,485	3,131
Mgt. of companies and enterprises	13,619	13,002	(617)	-5%	\$104,180	\$109,138	4,958
Administrative and waste services	15,084	13,936	(1,148)	-8%	\$31,951	\$34,593	2,642
Educational services *	3,678	3,490	(188)	-5%	\$29,591	\$33,200	3,609
Health care and social assistance	45,340	43,470	(1,870)	-4%	\$49,997	\$53,078	3,081
Arts, entertainment, and recreation *	4,303	3,224	(1,079)	-25%	\$22,000	\$23,743	1,743
Accommodation and food services *	22,348	18,545	(3,803)	-17%	\$16,511	\$17,334	823
Other services, except public admin. *	8,052	7,290	(762)	-9%	\$32,623	\$34,741	2,118
State & Local Government	26,346	24,735	(1,611)	-6%	\$53,570	\$56,643	3,073
State Government	4,028	3,820	(208)	-5%	\$64,016	\$68,141	4,125
Local Government	22,318	20,915	(1,403)	-6%	\$51,584	\$54,565	2,981
Federal Government	1,931	1,866	(65)	-3%	\$68,240	\$67,746	(494)
Four hardest-hit sectors *	38,381	32,549	(5,832)	-15%	--	--	--

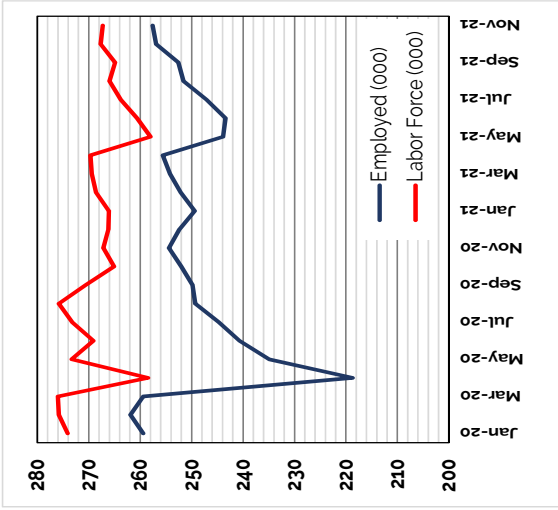


Figure 17: Employment and Job Losses, 2019-2020 by Quarter Source: Ohio Bureau of Labor Market Information, U.S. Bureau of Labor Statistics Quarterly Census of Employment & Wages

Figure 17 shows the change in jobs by sector in Summit County by quarter from 2019 to 2020. In the 1st quarter of 2020, the total number of jobs grew by about 1,300 (relative to the 1st quarter of 2019). By the 2nd quarter of 2020 the impact of COVID-19 was clear. Nearly 33,000 jobs were lost in Summit County between the 2nd quarter of 2019 and the 2nd quarter of 2020. Data for the 3rd quarter of 2020 shows that job losses continued, but at a slower pace, with year-over-year losses dropping from 33,000 to 18,000. Data for the 4th quarter of 2020 is not yet available.

While nearly all sectors suffered, job losses hit four major sectors harder than the rest of the labor market. Arts, Entertainment, and Recreation along with Accommodation and Food Service, Educational services and Other Services lost a total of more than 13,000 jobs in the 2nd quarter of 2020; about 40% of all the jobs lost. Making matters worse, these were among the lowest-paying jobs available, with 11,000 of the lost jobs paying just \$25,000 or less. These losses continued in the 3rd quarter, with Arts, Entertainment, and Recreation suffering another 26% loss and Accommodation and Food Service suffering another 17% loss. It is important to note that these figures are only for employees; they do not include the impact on business owners who had to close because of the spread of the virus.

COVID-19 Racial Disparities

While COVID-19 is effecting every part of our community, it has a greater impact on racial minorities than Whites. This highlights the ongoing inequities in resources, opportunities, and the quality of and access to health care in minority communities.

Testing Positive for COVID-19:

Figure 15 shows COVID-19 incidence and death rates by race. Whites had a lower rate of COVID-19 infections (4,885 cases per 100,000) than both Blacks (5,791 per 100,000) and Asians (8,665 per 100,000).

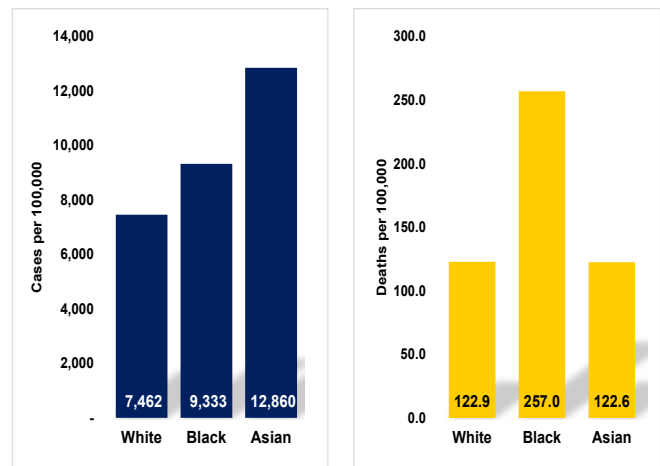
Several factors contribute to higher infection rates among some racial groups, including the physical health of different populations, the environmental conditions in which they live and work, and economic factors such as education, employment, income, and access to health care.

Being Hospitalized for COVID-19:

Disparities seen in COVID-19 hospitalizations follow the same pattern as for people who test positive for the disease. Whites have the lowest age-adjusted hospitalization rates (325.0 per 100,000), while Blacks ranked second (820.2 per 100,000) and Asians had the highest hospitalization rates (975.3 per 100,000).

Dying from COVID-19:

Unfortunately, the racial disparities seen in both infections and hospitalizations continue for fatality rates. While Blacks ranked second of the three broad racial groups for both infections and hospitalizations, they ranked highest when it comes to age-adjusted death rates. Asians as a group have the lowest age-adjusted death rates.



Figures 18a and b: Age-Adjusted COVID-19 Incidence (blue) and Death Rates (gold) per 100,000 Population, by Race, March 2020 to December 2021. Source: ODH, SCPH

Why the higher rates for Blacks? Different employment types between White and Black workers can contribute to higher rates. According to the 2019 American Community Survey, Black workers are 2.6 times more likely to be employed in healthcare support occupations, 1.5 times more likely to be in food preparation or serving occupations, and 1.6 times more likely to be in production, transportation, or material moving occupations than Whites.¹ These occupations generally involve more person-to-person contact and close quarters work than many other professions, and fewer, if any, opportunities to work at home. This exposes employees in these sectors to greater chances for infection. Recent research has highlighted the likely impact of working in these professions for racial and ethnic minorities especially.²

The role of race in population health nationwide has become clearer in recent years. Stark differences can be seen in Summit County and across the nation in health outcomes by race that are strongly influenced by social, economic and environmental factors, as well as broader societal issues such as institutionalized racism. Such factors help create the health disparities by race that we see.

¹ Source: 2019 American Community Survey (ACS). The size of the Asian population in Summit County wasn't large enough for the ACS to generate Asian estimates for these detailed occupations.

Race and Social Vulnerability: There is also a well-known link between race and place. Racial and ethnic minorities who live in vulnerable neighborhoods tend to have worse health than those who live in neighborhoods with better socioeconomic conditions.

In order to better understand the conditions that contribute to health disparities, the CDC developed a Social Vulnerability Index. As the CDC explains, "...the degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households, may affect that community's ability to prevent human suffering and financial loss in the event of disaster. These factors describe a community's social vulnerability."

The Index tracks four measures of vulnerability for each census tract in the nation using 15 indicators of health and social conditions. These measures and indicators are shown in Figure 20.

Maps 8, 9, 10 and 11 show where COVID-19 cases are concentrated in Summit County. More than 11,000 Summit County residents with COVID-19 live in areas of high social vulnerability. These

figures differ sharply by race. For Blacks and Asians, half or more COVID-19 cases are located in those dark blue areas of the map which have the highest social vulnerability. In the case of whites, several areas of higher density COVID-19 concentrations are also located in those highest social vulnerability areas. However, there are many other areas of high-density COVID-19 concentration for whites that are in much less socially vulnerability areas of the county.

What does this mean? Most whites with COVID-19 (85%) live in areas of the county that face fewer socioeconomic challenges, with higher levels of income, education, and employment; homes that are in better condition, with easier access to transportation and many other advantages. These neighborhoods have very few problems like run down housing (that can cause lead poisoning and asthma), or air and water pollution that can contribute to cancer, asthma and other respiratory illnesses. These and other poor environmental conditions weaken people's health and make them more vulnerable to infectious diseases such as COVID-19, especially when combined with socioeconomic disadvantage and jobs with greater potential for exposure to the virus. In other words, most whites have access to resources in the places they live that make it easier for them to cope with the hardships that a crisis like COVID-19 creates.

The remaining 15% of White COVID-19 cases live in one of the areas of high social vulnerability that do not have the same access to resources and good environmental conditions. The same can be said about the 54% of Blacks and 43% of Asians with COVID-19. They, too, live in areas with high social vulnerability; areas that can make coping with COVID-19 and other health crises even harder than it already is.

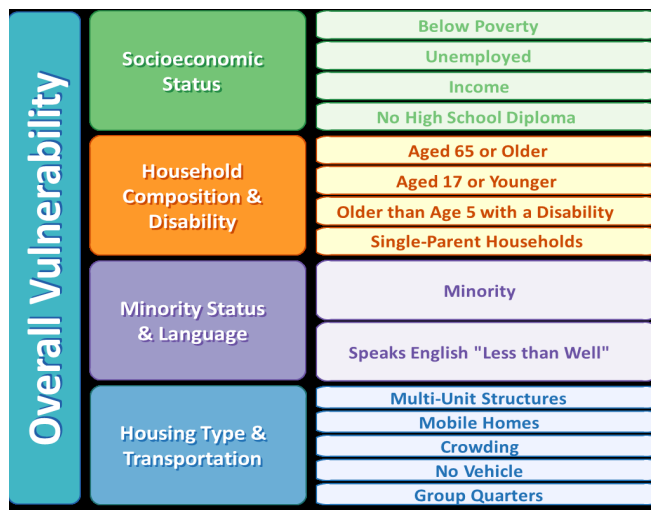
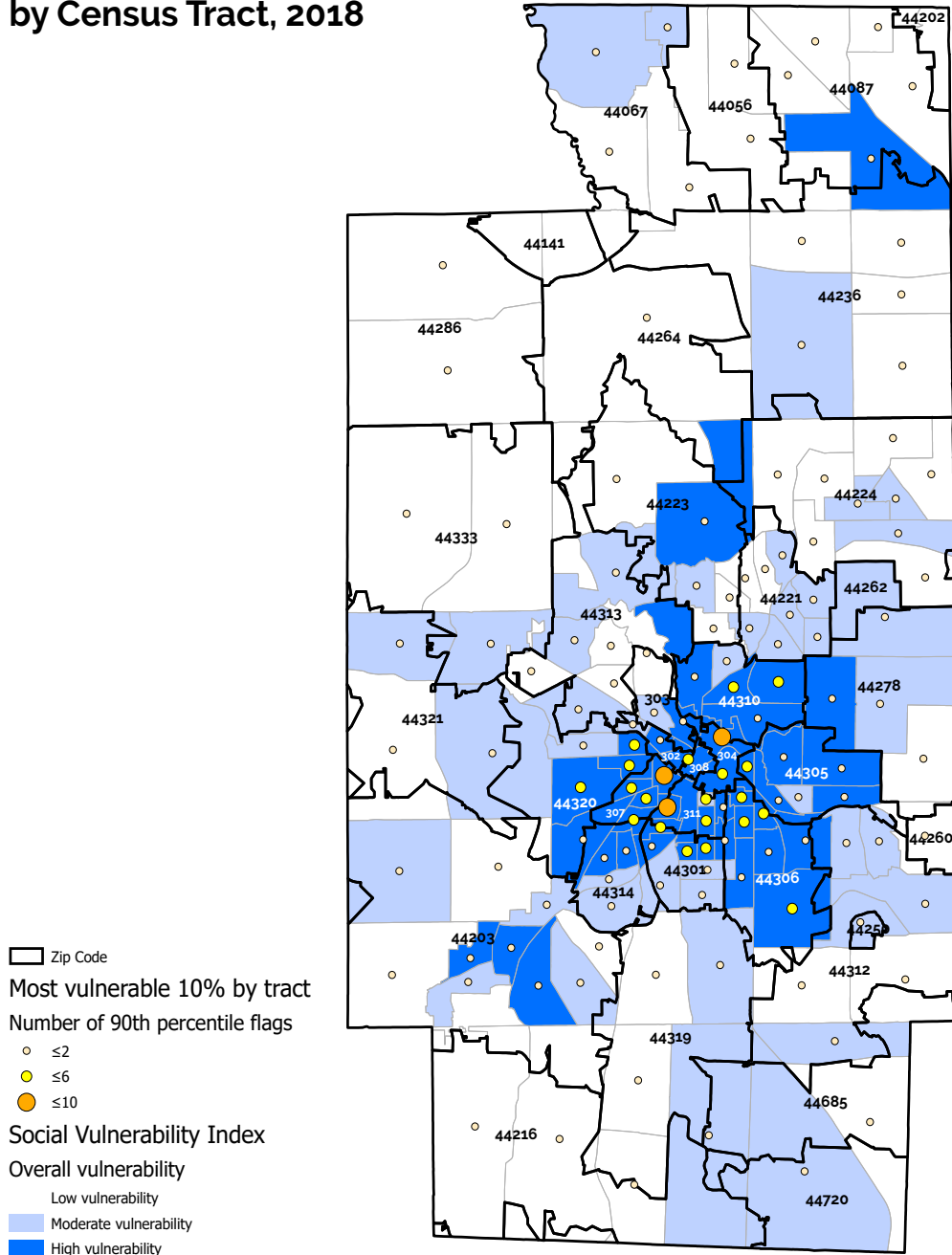


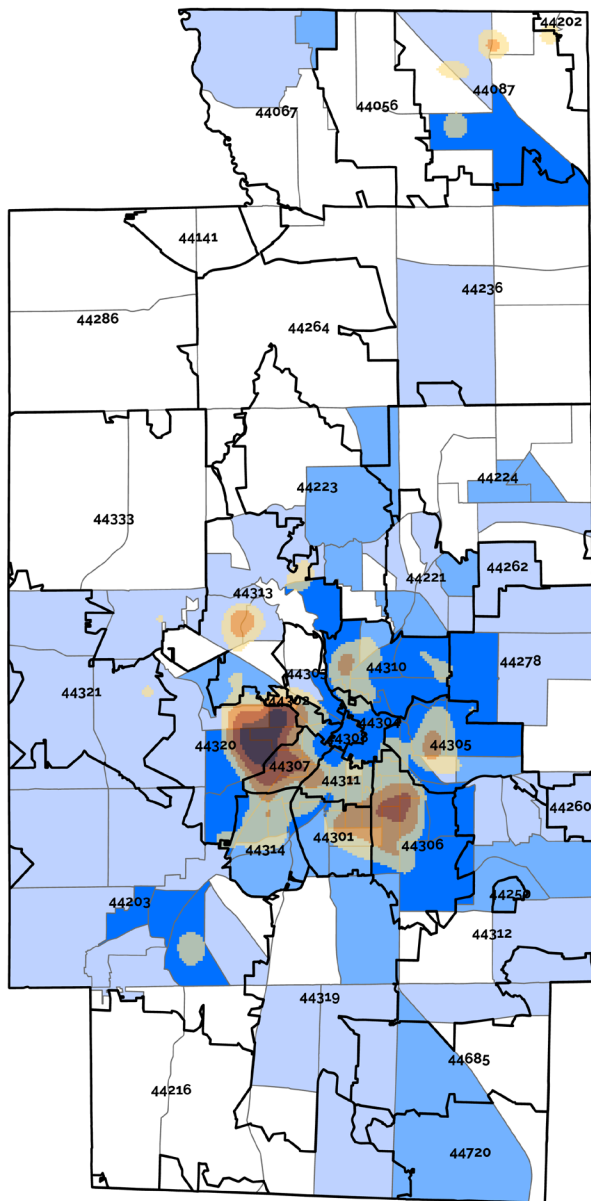
Figure 20: The Social Vulnerability Index Source: CDC

² Hawkins D. Differential occupational risk for COVID19 and other infection exposure according to race and ethnicity. Am J Ind Med. 2020;1-4. <https://doi.org/10.1002/ajim.23145>

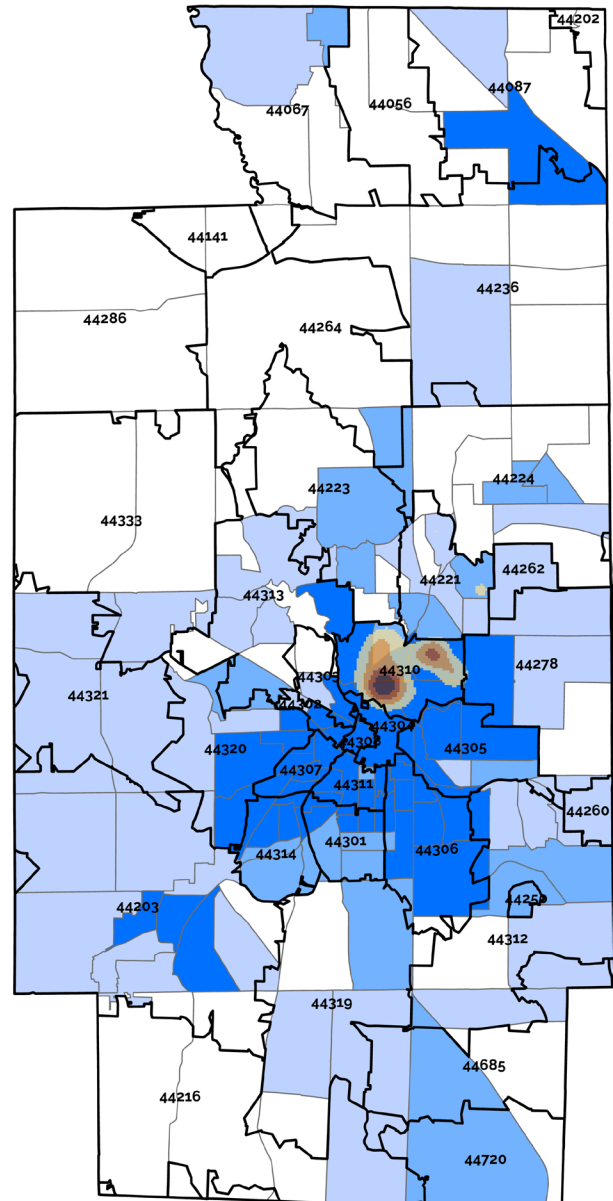
Social Vulnerability Index by Census Tract, 2018



Map 8: Social Vulnerability Index by Census Tract in Summit County, 2018 **Note:** Symbols for the number of 90th percentile flags in each census tract refers to the number of the 15 SVI indicators that the census tract ranks in the worst 10% in the county.



Map 9 (left): Density Map of Black COVID-19 Cases and Social Vulnerability Index by Census Tract



Map 10 (right): Density Map of Asian COVID-19 Cases and Social Vulnerability Index by Census Tract

COVID-19 density (Black)

VALUE

- Very low density
- Low density
- High density
- Very high density

Social Vulnerability Index

By census tract

- Low vulnerability
- Moderate vulnerability
- High vulnerability
- Zip Code

COVID-19 density (Asian)

VALUE

- Very low density
- Low density
- High density
- Very high density

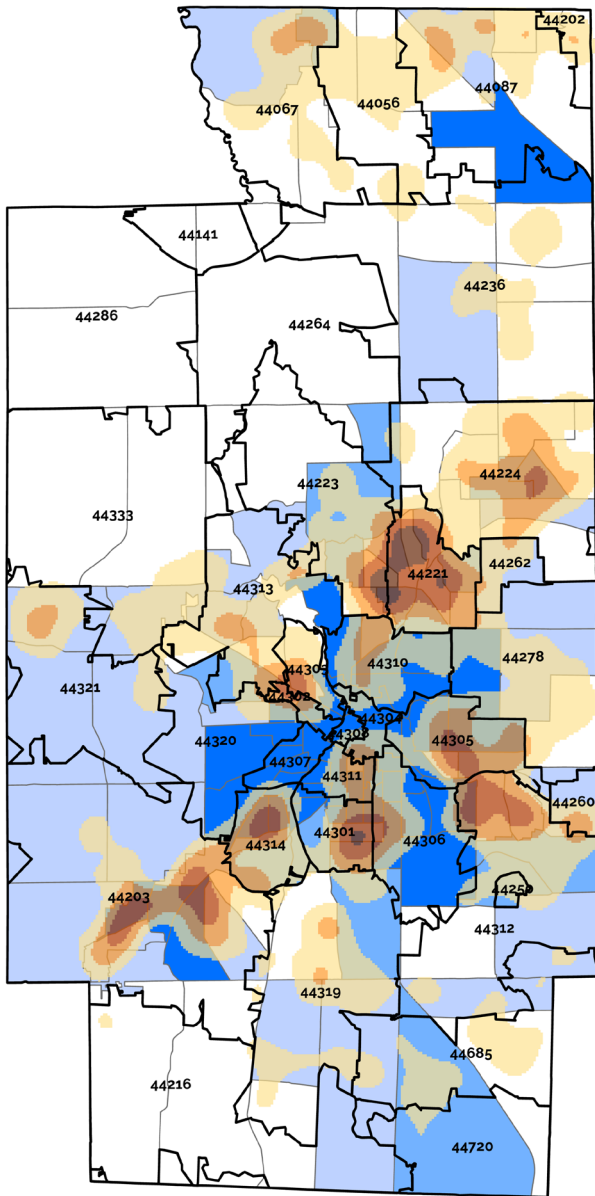
Social Vulnerability Index

By census tract

- Low vulnerability
- Moderate vulnerability
- High vulnerability
- Zip Code

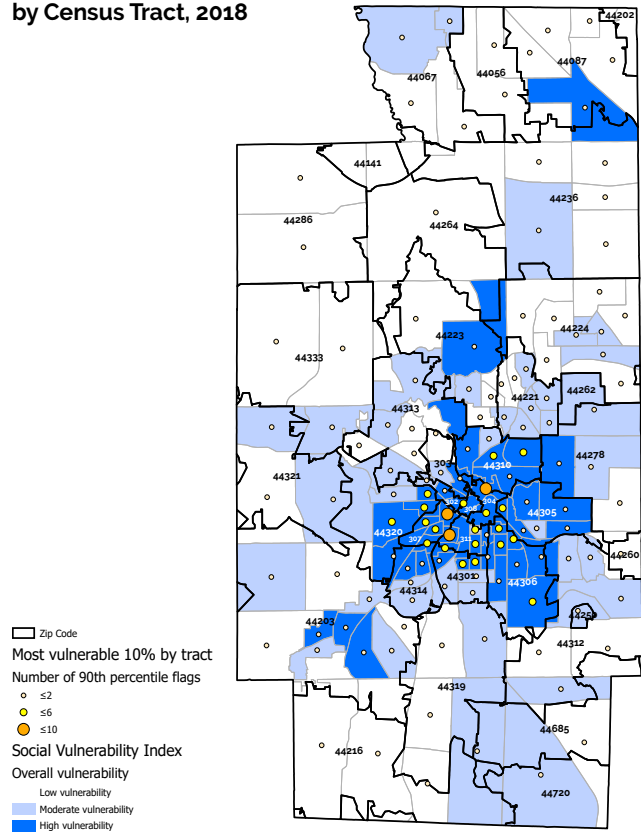
Percent of Black COVID-19 cases living in high vulnerability census tracts: **54%**

Percent of Asian COVID-19 cases living in high vulnerability census tracts: **43%**



Map 11 (left): Density Map of White COVID-19 Cases and Social Vulnerability Index by Census Tract

Social Vulnerability Index by Census Tract, 2018



COVID-19 density (white)

VALUE

- Very low density
- Low density
- High density
- Very high density

Social Vulnerability Index

By census tract

- Low vulnerability
- Moderate vulnerability
- High vulnerability
- Zip Code

Percent of White COVID-19 cases living in high vulnerability census tracts: **15%**

COVID-19 Vaccinations

According to the Ohio Department of Health, nearly two-thirds of Summit County's 12-and-older population has been fully vaccinated; a total of 320,036 people. So far, more than 173,000 Summit County residents have received the COVID-19 booster (53% of those fully vaccinated).

Vaccine Demographics:

Gender - More females than males have been fully vaccinated so far (54% vs. 46%).

Race - Among the largest racial categories, Asians have the highest rates of being fully vaccinated (72%), followed by whites (59%) and Blacks (43%).

Ethnicity - Nearly two-thirds of Hispanics (64%) have been fully vaccinated.

Age - Perhaps not surprisingly, those 65 and older have the highest rates of being fully vaccinated. Owing to their vulnerability to COVID-19, the elderly population was and remains the highest-priority age group for vaccinations and boosters.

More than 85% of those 65 and older have been fully vaccinated. Just over half of adults age 18-64 (63%) have been fully vaccinated, as have 34% of those under age 20. A total of 53% of those fully vaccinated have received a booster shot.

Vaccine trends - Figure 22 presents the 7-day average number of vaccinations in Summit County. Daily vaccinations grew slowly at first then built momentum over the first two months of 2021. After a brief lull, vaccinations began to rise sharply in late March (about 1,100 per day) to a peak of about 4,100 per day on April 13th. However, vaccinations began to drop off quickly afterward, falling to a low of 680 per day in early June.

While it is difficult to reliably associate the sudden decline in vaccinations with one or more particular causes, it is worth noting that the U.S. Food and Drug Administration and the CDC recommended a pause in the administration of the Johnson and Johnson (J & J) one-dose vaccine on April 13th. This pause, caused by the emergence of 6 cases of blood clotting in patients taking the J & J vaccine, lasted 11 days. Even though the vaccine was again cleared for distribution, vaccination rates have yet to recover.

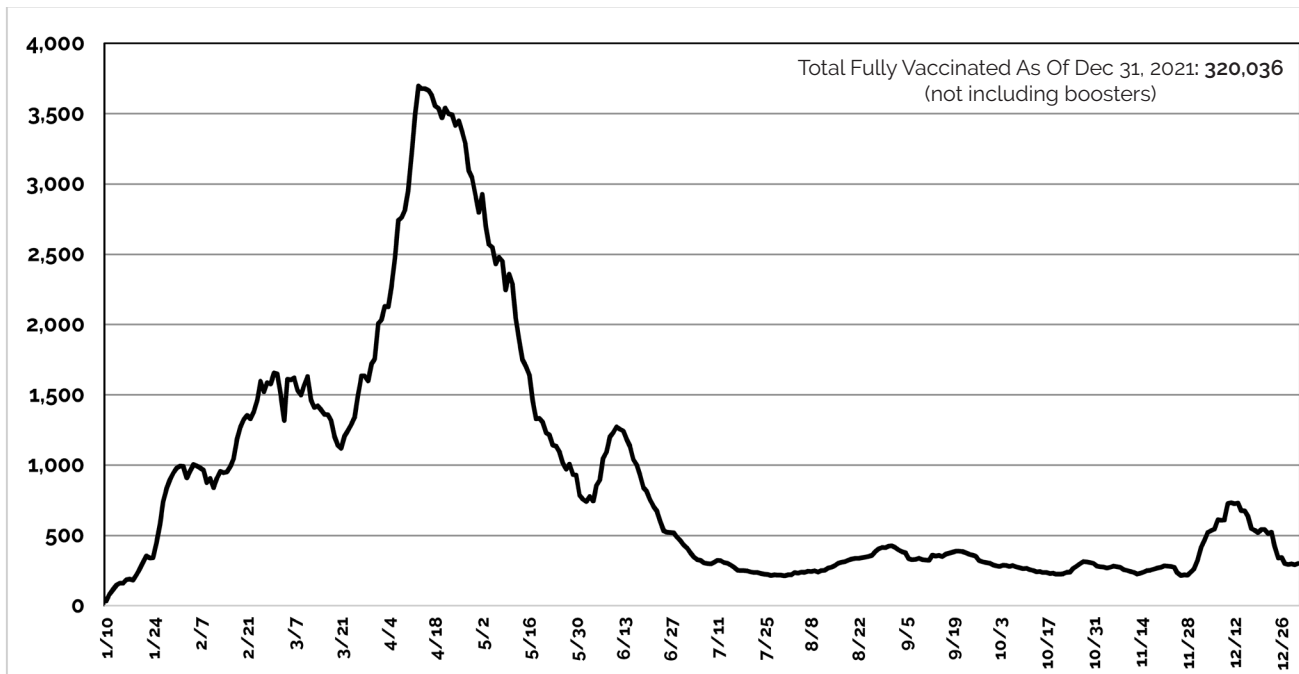
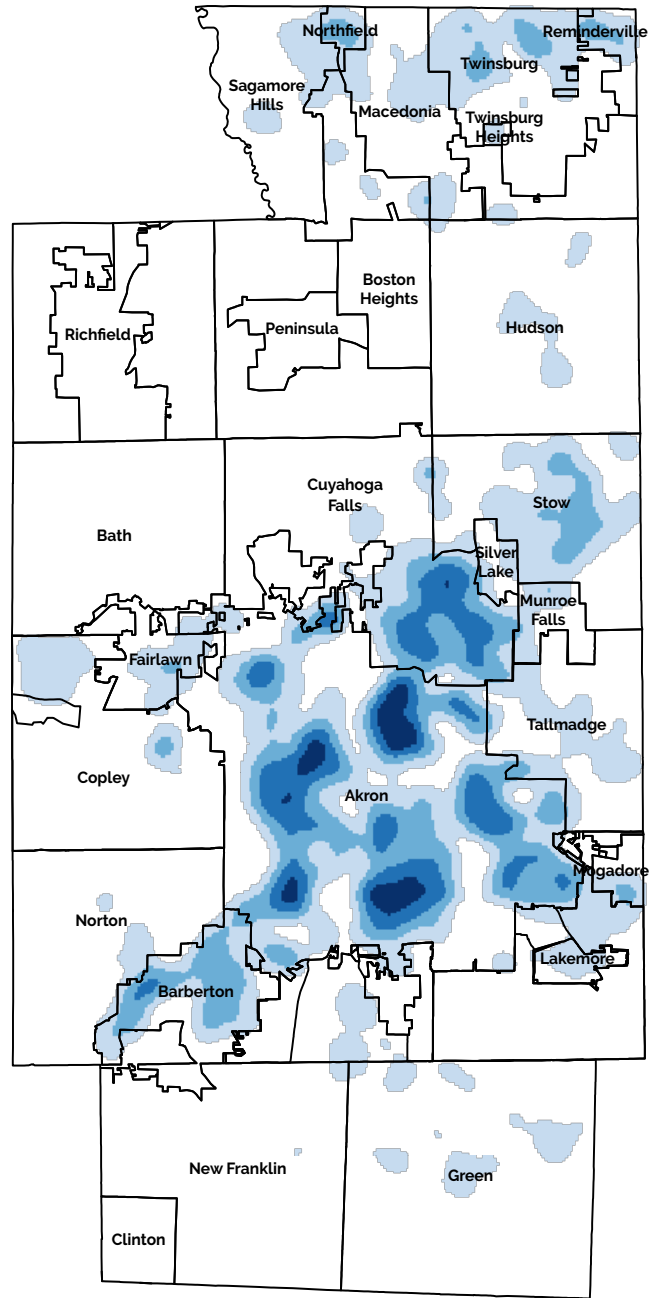
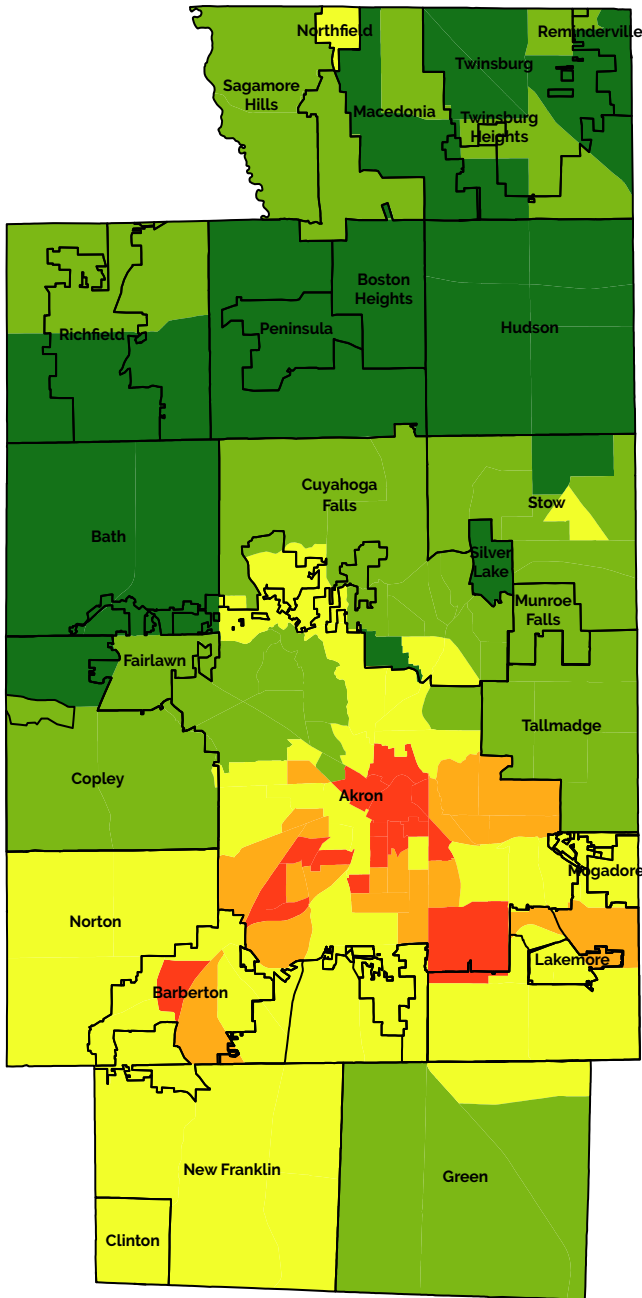


Figure 22: Number of Summit County Residents Fully Vaccinated Against COVID-19, As Of June 2021 (7-Day Moving Average)

Map 12 shows COVID-19 vaccination rates by census tract (green shading) and COVID-19 case density to date in 2021. Areas with hatched shading represent census tracts with very low vaccination rates (about one-third or less, as compared with just under half countywide).

The map shows that many of the areas with the lowest vaccination rates are also experiencing the highest density of cases so far in 2021. Many of these areas are also high social vulnerability census tracts. By contrast, in areas where vaccination rates are higher, case densities tend to be lower (as does social vulnerability).

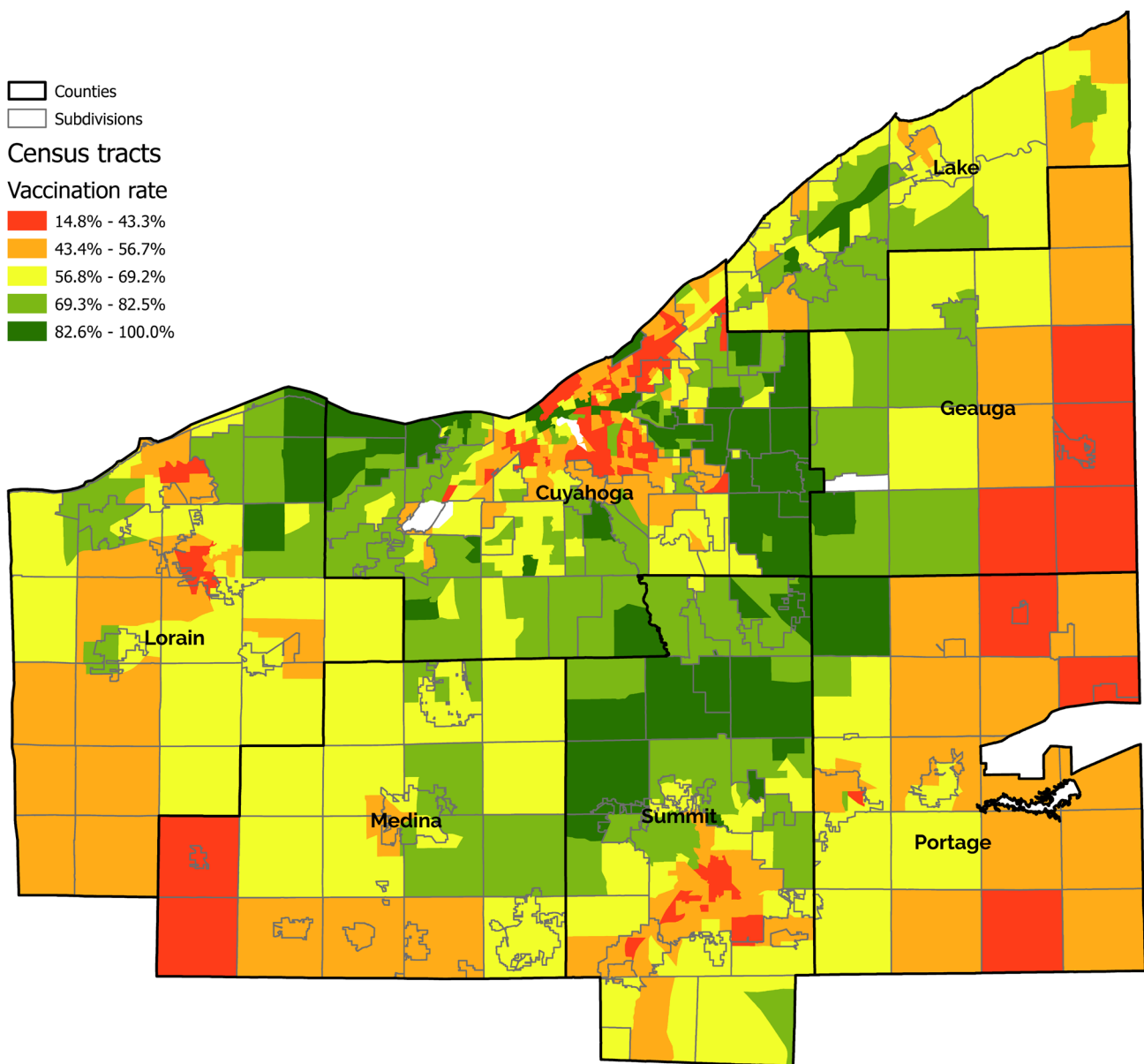


Maps 12a and 12b: Overall COVID-19 Vaccination Rates by Census Tract and COVID-19 Case Density. Areas in red have lower vaccination rates (12a), while darker blue areas have higher case densities (12b).

Vaccination Rates in Northeast Ohio

To date in Northeast Ohio, just over 1.8 million people have been fully vaccinated out of a total population of 2.9 million; a rate of just over 64%.

As map 13 shows, vaccination rates were highest in suburban areas, and lowest in urban and rural areas.



Map 13: Overall COVID-19 Vaccination Rates In the 7 County Region

COVID-19 Variants

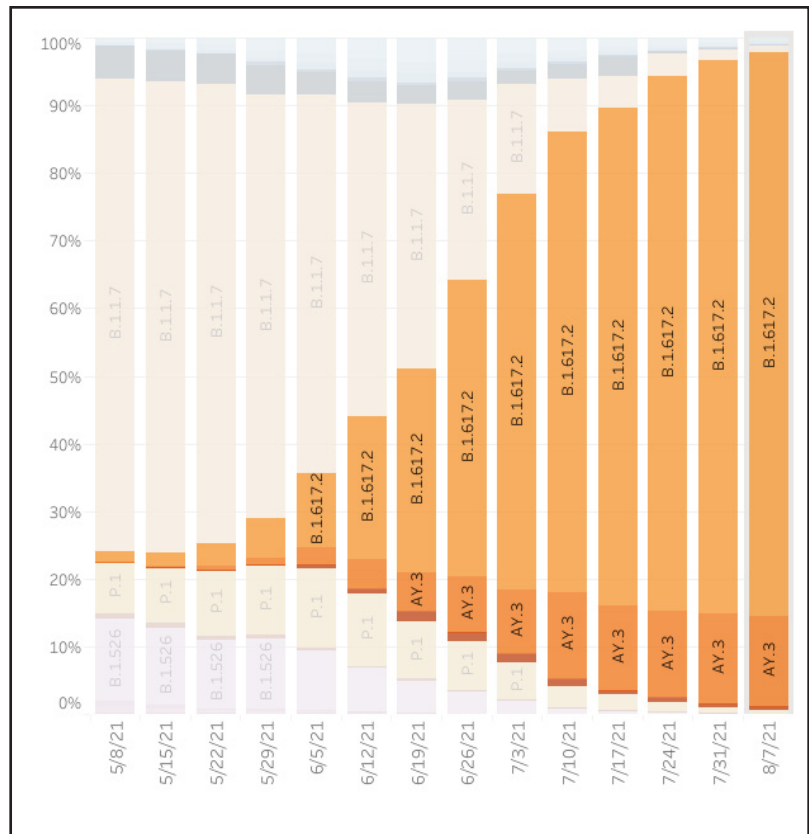
...Viruses have a mutation rate that's much, much higher than humans or other animals, and they replicate at a rate that's really, really fast. So in other words, one virus-infected cell makes 100,000 copies of itself, and all those copies can go out and start replicating. So mutations occur randomly, but because the virus replicates at such a fast rate, you also accumulate mutations really fast.

-- Virologist Andrew Pekosz³

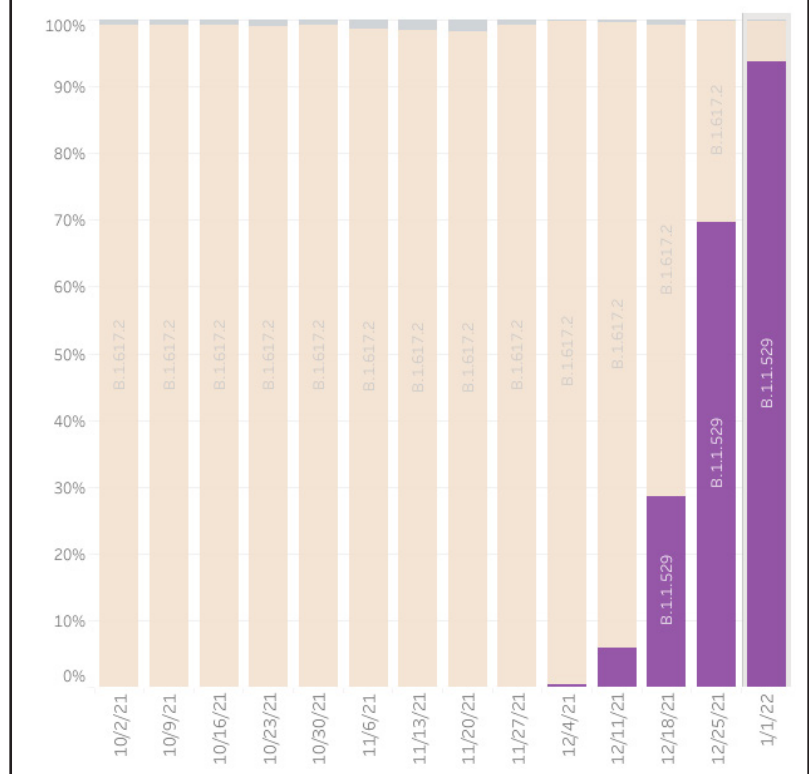
In early May 2021, the Alpha or "B.1.1.7" COVID-19 variant accounted for nearly 70% of all COVID-19 cases in the U.S. Meanwhile, the Delta or "B.1.617.2" variant only accounted for 1.5% of all COVID-19 cases.

After it's first appearance in early May (seen in the upper chart at right), Delta took about 12 weeks to drive out other variants. By early August 2021, Delta's four related viruses became the dominant strains of COVID-19, accounting for more than 95% of all COVID-19 infections.

However, Delta did not remain dominant for long. As seen in the chart at lower right, the Omicron variant drove out the Delta viruses in less than 4 weeks; three times faster than Delta swept away previous variants. As of the new year, the Omicron variant accounts for over 95% of all COVID-19 infections.



Figures 23 and 24: Comparison of the Growth in Delta Variant Cases (upper chart) to Growth in Omicron Variant Cases (lower chart), U.S. Region 5 (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin), Source: CDC and SCPH



³ Cruickshank, S. (2021, July 19). Decoding delta: How viruses mutate and what can be done about it. The Hub. <https://hub.jhu.edu/2021/07/19/andrew-pekoz-delta-variants/>.