

# Segmentation Analysis

## MS River Collaborative

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CCRE researchers conducted a segmentation analysis to identify differentiating patterns relating to COVID-19 vaccination trends among residents in Mississippi and the ten counties of West Tennessee in the MS RIVER grant service area.

- While we do not identify any particular demographic group that have vaccination rates high enough to warrant a low priority from vaccination campaign efforts, the available vital statistics data indicate that the lowest vaccination rates are observed in those counties with high numbers of non-White residents, politically conservative residents, and low median incomes. An analysis of West Tennessee COVID-19 *case* data, which is more disaggregated than vaccination data, identifies a possible differentiation in approach between rural and urban areas: in urban areas, COVID-19 appears to be relatively persistent among Black residents under age 65; in rural areas, the analysis suggests a focus on White residents aged 18-49 in addition to all Black residents, including those over 65.
- We pair the quantitative analysis with a literature review to identify subpopulations in the state that are likely to be vaccine-hesitant, providing information on how to best target these groups. may best be targeted. We find that different audiences would benefit from specialized messaging strategies and messengers. Herein, we discuss the following audiences in detail: low-income rural; politically conservative; religious; old; young; female; African-American; Hispanic; Native American; frontline healthcare essential worker; veteran; and LGBTQIA+.

## COVID-19 Vaccinations - Trends

As of June 29, 2021, a total of 979,997 Mississippians are fully vaccinated against COVID-19 – approximately 39% of the state’s population aged 12 or older. Rates are comparable across most demographic groups, although may be somewhat lower for Hispanic and rural residents.

	# age 12+ population fully vaccinated <sup>1</sup>
Mississippi	39%
White	39%
Black	39%
Hispanic	32%
Counties, population less than 100,000	37%
Counties, population more than 100,000	40%

In the Tennessee portion of the service area, rates vary dramatically. In rural Lake County, only 28% of the eligible population is fully vaccinated, while the rates are higher in metropolitan Memphis (41% in Shelby County; 45% in Fayette County).

	# age 12+ population fully vaccinated <sup>2</sup>
Crockett	37%
Dyer	29%
Fayette	45%
Hardeman	33%
Haywood	39%
Lake	28%
Lauderdale	33%
Obion	30%
Shelby	41%
Tipton	29%

The fully vaccinated rate in rural West Tennessee – that is, all counties excluding Shelby – is 34%, versus 41% in Shelby County.

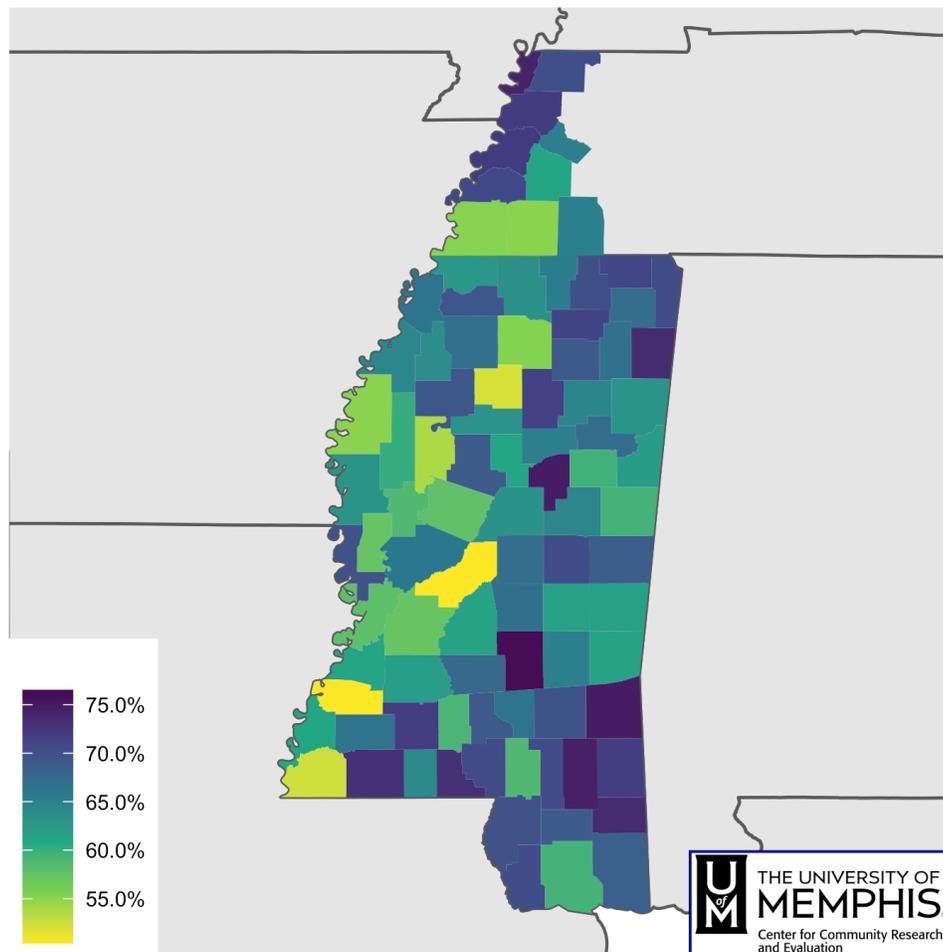
Examining percentage of total population vaccinated, as of July 8, no county in the service area has attained even one-dose vaccination for a majority of the total population (including those under 12). Therefore, reaching out to all regions of the service area appears to be a viable strategy. That said, the lowest rates of vaccination are generally observed in southeast Mississippi, with suburban Madison County, Mississippi having the highest vaccination rate to date.

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<sup>1</sup> Vaccination data from Mississippi Department of Health daily report; population data estimated from Mississippi Department of Health vital statistics database. For cases where demographics are unknown, we assume data is distributed proportionally to the known data. Data pulled June 29, 2021.

<sup>2</sup> Vaccination data from Tennessee Department of Health daily case summary; population data estimated from Census Bureau. Data pulled June 29, 2021.

## Unvaccinated, % of population



Source: CDC, 'COVID-19 Vaccinations in the United States, County', updated 7/8/21

Using county-level data for our service area, we conducted a linear regression analysis to determine the most significant factors behind a county's vaccination rate. We find the following:

- **Vote share for Donald Trump** in 2020 is highly negatively predictive of vaccination: a 10% increase in Trump vote share is predicted to increase the unvaccinated rate by 6%. After controlling for vote share, the ostensibly positive relationship between religiosity and vaccination rate actually reverses, with Evangelical share being predictive of vaccination.
- Counties with more **non-white residents** are also more likely to report low vaccination rates: an increase in 20% of non-white residents is predicted to contribute to a 5% higher unvaccinated rate.
- While urbanicity (population density) is not statistically significant, **median income** is: a \$10,000 increase in county median income is predictive of a 3% increase in vaccination.

Table: Regression Analysis.

Dependent variable	% population unvaccinated, July 8, 2021
Unit of analysis	county
% vote for Trump, 2020 <sup>3</sup>	+0.601***
% Evangelical Protestant <sup>4</sup>	-0.107**
% white <sup>5</sup>	-0.248*
% 65+	-0.095
% under 18	+0.040
Median Income (thousands)	-0.003***
Population density (1,000 sq mi)	+0.027
Intercept	+0.601
Adjusted R-squared	0.568
N	92
Significance	* 95% ** 99% *** 99.9%

### COVID-19 Cases - Trends

To our knowledge, only aggregate and not individual level vaccination data is available. One way to identify the effectiveness of the vaccination campaign is to examine change in COVID-19 cases before and after the rollout of vaccinations to the general public. We compared Shelby County, a largely urban and suburban county, to the other nine Tennessee counties in the service area. While we cannot directly examine these trends in Mississippi, as CDC does not currently have timely individual case data for the state, it is likely that these Tennessee results may be meaningful for Mississippi as well.

The tables below report the *relative* distribution of COVID-19 cases by race and age group. While *absolute* cases may be going down for all groups, examining the change in the *relative* distribution of COVID cases allows the identification of groups that are having the most and least success at vaccination.

In urban and suburban Shelby County, COVID-19 cases are relatively more likely to occur in the Black population aged 50 and younger. While our investigation is ongoing, this suggests that outreach efforts in urban areas may benefit from a focus on younger Black residents.

Share of COVID cases in <b>Shelby County</b> before and after rollout of vaccinations to the general public. <sup>6</sup>	Pre-Vaccine (Jan/Feb 2021)	Post-Vaccine (May 2021)	Change
White, aged 0-17	5.3%	2.8%	-47%
White, aged 18-49	17.3%	9.5%	-45%
White, aged 50-64	7.6%	3.9%	-49%
White, aged 65+	7.0%	2.3%	-67%
Black, aged 0-17	7.7%	16.5%	+116%
Black, aged 18-49	29.8%	45.7%	+53%
Black, aged 50-64	12.2%	11.3%	-7%
Black, aged 65+	6.6%	4.8%	-27%

<sup>3</sup> MIT Election Data and Science Lab, County Presidential Election Returns, 2000-2020.

<sup>4</sup> ASARB, U.S. Religion Census Religious Congregations and Membership Study, 2010.

<sup>5</sup> Remaining variables from U.S. Census Bureau, American Community Survey.

<sup>6</sup> Columns do not add to 100% due to cases for other races, as well as rounding. Hispanics included in White or Black rates. Where demographic data is unknown or missing, data is imputed using multiple imputation based on available data for month, county, age group, sex, and race, using the Amelia package in R. Source: CDC COVID-19 Case Surveillance Public Use Data with Geography.

The story in rural West Tennessee is somewhat different. While the share of COVID-19 cases has declined here for the older White population (aged 50+), the share of cases is rising for younger White residents aged 18-49. Additionally, the Black share of cases is rising for older residents as well as younger residents. These data suggests that in rural areas, an outreach effort targeting all groups (possibly with less of a focus on the older White population) may be indicated.

Share of COVID cases in <b>rural West Tennessee</b> before and after rollout of vaccinations to the general public. <sup>7</sup>	Pre-Vaccine (Jan/Feb 2021)	Post-Vaccine (May 2021)	Change
White, aged 0-17	9.9%	6.1%	<b>-39%</b>
White, aged 18-49	32.0%	39.6%	<b>+23%</b>
White, aged 50-64	18.6%	12.4%	<b>-33%</b>
White, aged 65+	15.5%	9.4%	<b>-39%</b>
Black, aged 0-17	2.9%	2.2%	<b>-23%</b>
Black, aged 18-49	10.8%	15.1%	<b>+40%</b>
Black, aged 50-64	5.3%	5.8%	<b>+9%</b>
Black, aged 65+	2.2%	4.0%	<b>+82%</b>

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<sup>7</sup> Columns do not add to 100% due to cases for other races, as well as rounding. Hispanics included in White or Black rates. Rural West Tennessee includes the counties of Crockett, Dyer, Fayette, Hardeman, Haywood, Lake, Lauderdale, Obion, and Tipton. Where demographic data is unknown or missing, data is imputed using multiple imputation based on available data for month, county, age group, sex, and race, using the Amelia package in R. Source: CDC COVID-19 Case Surveillance Public Use Data with Geography.

## Strategies for Reaching Different Groups in Mississippi and Tennessee

While vital statistics data can be cleanly disaggregated into simple categories such as race, sex, and age, this belies the diversity of reasons for vaccine hesitancy among different subpopulations in Mississippi and Tennessee. We conducted a literature review to identify different subpopulations for whom diversity in messaging strategy could be warranted. Each group is discussed in turn, below. The table summarizes findings supporting the adaptability of messaging strategies for the identified subpopulations.

COVID-19 Vaccine Messaging Strategies for Subpopulations in Mississippi and Tennessee		
Subpopulation	Concerns/Perceptions	Messaging Approaches
Low-Income, Rural Residents	<ul style="list-style-type: none"> <li>• Seriousness of COVID-19 is exaggerated</li> <li>• Being vaccinated is a personal choice</li> </ul>	<ul style="list-style-type: none"> <li>• Informational, person-tailored vaccine messages using trusted individuals (primary care providers and pharmacists)</li> </ul>
Politically Conservative Residents	<ul style="list-style-type: none"> <li>• Fears about the safety, efficacy, rapid development, and necessity of the vaccine</li> <li>• Mistrust in vaccine messages</li> </ul>	<ul style="list-style-type: none"> <li>• Informational, person-tailored vaccine messages using primary care providers and pharmacists</li> <li>• Community strategies such as panel sessions that engage individuals in vaccine conversations</li> </ul>
Religious Residents	<ul style="list-style-type: none"> <li>• Fear that getting the vaccine demonstrates a lack of faith</li> </ul>	<ul style="list-style-type: none"> <li>• Church leader outreach to parishioners that offer motivation to getting the vaccine</li> </ul>
Older Residents	<ul style="list-style-type: none"> <li>• Barriers to vaccine access such as lack of transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Improve vaccine access</li> <li>• Messaging approaches that trigger emotions and empathy to getting the vaccine</li> </ul>
Younger Adults & Teen Residents	<ul style="list-style-type: none"> <li>• Fears about vaccine safety, efficacy and long-term health outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• Informational, person-tailored vaccine messages using medical professionals</li> <li>• Engage parents in learning about the safety of the vaccine for their teens</li> </ul>
Female Residents	<ul style="list-style-type: none"> <li>• Concerns about the rapid development of the vaccine, side effects and efficacy</li> <li>• Fears about fertility and safety of the vaccine if pregnant or planning to become pregnant</li> </ul>	<ul style="list-style-type: none"> <li>• Informational, person-tailored vaccine messages using medical professionals</li> <li>• Coverage of fertility and pregnancy concerns in messaging approaches</li> </ul>
African-American Residents	<ul style="list-style-type: none"> <li>• Concerns about the rapid development of the vaccine, side effects, long-term health effects (including death) and efficacy</li> <li>• Mistrust in the medical system and government based on a history of being exploited and mistreated</li> </ul>	<ul style="list-style-type: none"> <li>• Build confidence using trusted African-American messengers, such as primary care doctors</li> <li>• Use African-American role models to provide vaccine messages and administer vaccinations</li> </ul>
Hispanic Residents	<ul style="list-style-type: none"> <li>• Barriers to vaccine access</li> <li>• Concerns about English language proficiency and immigration status</li> </ul>	<ul style="list-style-type: none"> <li>• Implement efforts to improve vaccine access</li> <li>• Implement sensitive outreach that highlights vaccine safety and cultural concerns</li> </ul>
Native American Residents	<ul style="list-style-type: none"> <li>• Barriers to vaccine access</li> </ul>	<ul style="list-style-type: none"> <li>• Implement efforts to improve vaccine access</li> <li>• Involve community and healthcare professionals in educating individuals about vaccine safety</li> </ul>
Frontline Essential Workforce Residents	<ul style="list-style-type: none"> <li>• Fear about vaccine safety</li> <li>• Mistrust in the healthcare system, government and vaccine information</li> <li>• Barriers to vaccine access</li> </ul>	<ul style="list-style-type: none"> <li>• Implement efforts to improve vaccine access</li> <li>• Use trusted peer groups (e.g., same industry workers) to deliver factual messages about the vaccine safety</li> </ul>
Veteran Residents	<ul style="list-style-type: none"> <li>• Fears about rapid vaccine development and vaccine safety</li> <li>• Mistrust in the government and vaccine information</li> </ul>	<ul style="list-style-type: none"> <li>• Use fellow veterans to deliver messages about the COVID vaccine</li> <li>• Provide group opportunities for veterans to voice concerns and learn about the vaccine</li> </ul>
LBGTQIA+ Residents	<ul style="list-style-type: none"> <li>• Mistrust of the government and healthcare system</li> <li>• Barriers to vaccine access</li> <li>• Fears about the safety, side effects and cost of the vaccine</li> </ul>	<ul style="list-style-type: none"> <li>• Provide opportunities to get the vaccine in community-based, LBGTQIA+ affirming settings</li> <li>• Use trusted sources to provide factual information about vaccine access, safety and cost</li> </ul>

### **Low-Income, Rural Residents**

Vaccine hesitancy in low-income, rural areas is a major barrier to getting the COVID-19 vaccine. In March 2021, a poll by the Kaiser Family Foundation found that vaccine hesitancy was highest in rural communities, with 21% of rural residents stating that they would “definitely not” get a vaccine compared with 10% of urban residents<sup>8</sup>. According to the Mississippi COVID-19 Vaccine Confidence Survey (May 2021),<sup>9</sup> approximately 17% of Mississippi adults are “vaccine-hesitant” or still undecided on whether to take a COVID-19 vaccine. Rural hesitancy has been linked to variables such as level of education, race and political party identification, which are discussed in subsequent subsections. However, even after controlling for these variables, individuals living in rural areas are still more likely to be vaccine hesitant compared to those living in suburban and urban areas<sup>10</sup>. Evidence suggests that rural residents are less likely than urban or suburban residents to believe they or someone in their family will get sick from the coronavirus and think its seriousness is “exaggerated.” Getting the COVID-19 vaccine for rural residents is seen more as a personal choice (62%) than as part “of everyone’s responsibility to protect the health of others” (36%).

Evidence suggests that vaccine uptake in rural communities could be improved through communications between medical personnel and residents. Research indicates that rural residents have trust in and good rapport with local healthcare providers, rendering primary health care providers and pharmacists as credible sources for delivering COVID vaccine messages that focus of safety and efficacy. Indeed, the Mississippi COVID-19 Vaccination Confidence Survey results showed that Mississippians felt medical providers would be the most effective vaccine influencers and more effective than messages delivered through federal and state entities (e.g., CDC or state health department), community leaders, pastors/ministers, political leaders, TV, family and friends, social media or celebrities.

### **Politically Conservative Residents**

There is a clear partisan divide in attitudes towards getting the COVID-19 vaccine, with Democrats being more open to receiving the vaccine than Republicans<sup>11</sup>. Among Republicans, men are least likely to get a coronavirus vaccine if given the chance, followed by people who supported Trump in 2020. In a local context, data from the Tennessee Vaccination Messaging Study<sup>12</sup> suggests reluctance to getting the vaccine is most prevalent among rural, conservative Whites. Of the rural White conservatives sampled, only 22% reported they were willing to get the vaccine, 33% were unwilling and would not consider getting the vaccine, 22% were unwilling but open to consideration, and 22% were undecided. Reasons for reluctance included concerns about the vaccine being rushed, not wanting to be the “guinea pig,” safety, serious or long-term health effects, uncertainty and mistrust about messages surrounding the vaccine/the necessity of the vaccine, and fear that the vaccine will result in contracting COVID-19.

Guidelines for communicating with “steadfast opponents”<sup>13</sup> suggest that is important to look beyond disseminating scientific facts and listen to and recognize concerns and skepticism. Strategies for reaching skeptical audiences include community listening sessions, informal grassroots campaigns in low-demand, “hot-spot” areas and one-to-one provider discussions (e.g., doctor-patient). According to the Tennessee Vaccination Messaging Study, rural White participants may be most receptive to vaccine messages delivered by local physicians and pharmacists.

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<sup>8</sup> <http://info.primarycare.hms.harvard.edu/blog/start-local>  
<https://www.pewresearch.org/science/2021/03/05/growing-share-of-americans-say-they-plan-to-get-a-covid-19-vaccine-or-already-have/>

<sup>9</sup> [https://msdh.ms.gov/msdhsite/\\_static/resources/13827.pdf](https://msdh.ms.gov/msdhsite/_static/resources/13827.pdf)

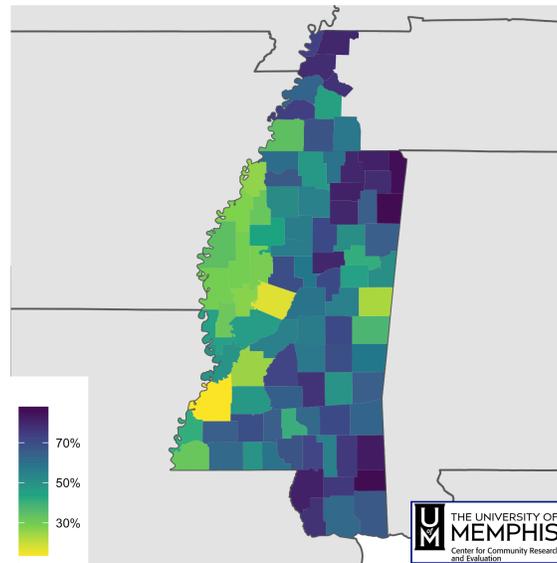
<sup>10</sup> <https://www.kff.org/coronavirus-covid-19/poll-finding/vaccine-hesitancy-in-rural-america/>

<sup>11</sup> <https://www.cnn.com/2021/02/15/politics/covid-vaccine-hesitant-partisan-split/index.html>

<sup>12</sup> <https://www.tn.gov/content/dam/tn/health/documents/Vaccine-Messaging-Market-Survey-Executive-Summary-Reports.pdf>

<sup>13</sup> <https://about.kaiserpermanente.org/content/dam/kp/mykp/documents/instructions/covid-19-vaccine-confidence-toolkit.pdf>

Voted for Republican presidential candidate (2020), % of voters

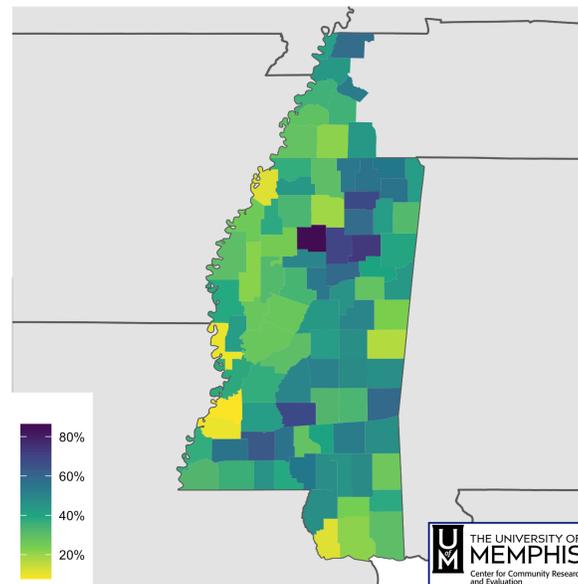


Source: MIT Election Data and Science Lab, 'County Presidential Election Returns 2000-2020'

### Religious Residents

Resistance to the COVID-19 vaccine is often entrenched in deeply Christian Southern communities, particularly those that are rural, overwhelmingly Republican, and 95% white<sup>14</sup>. While a primary concern is the perception that getting the vaccine demonstrates a lack of faith,<sup>15</sup> anti-vaccine attitudes among groups such as Evangelical Christians are intricately related to fear (e.g., long-term side effects and speed with which the vaccine was developed) as well as perspectives about politics, science and authority. Therefore, strategies designed to target religious groups will need to uncover the roots of hesitancy before delivering vaccine messages. When addressing religious concerns, church-focused outreach may play an important role in managing faith-related reservations. Motivational interviewing approaches may also be effective for reconciling disconnects between faith-related motivations (e.g., going to church) and getting the vaccine (e.g., being able to attend worship in person)<sup>16</sup>.

Reported Evangelical Protestant adherents, % of population



Source: ASARB, 'U.S. Religion Census Religious Congregations and Membership Study (2010)'

<sup>14</sup> <https://www.seattletimes.com/nation-world/faith-freedom-fear-rural-americas-covid-vaccine-skeptics/>

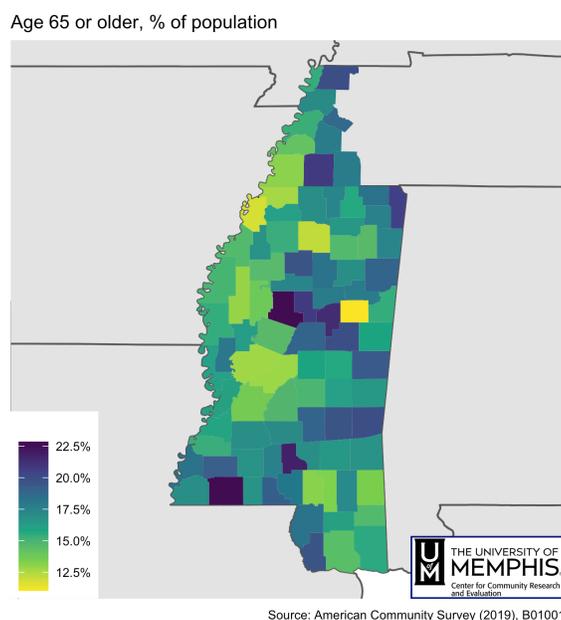
<sup>15</sup> <https://religionnews.com/2021/03/05/black-protestants-arent-least-likely-to-get-a-vaccine-white-evangelicals-are/>

<sup>16</sup> <https://theconversation.com/christian-nationalism-is-a-barrier-to-mass-vaccination-against-covid-19-158023>

## Older Residents

Counties in the South have lower vaccination rates among older adults than counties in other US regions. Vaccination rates among adults 65 and older are also lower in counties where a higher share of people 65 and older live in poverty and where Donald Trump won the majority of votes. Over and above poverty and politics, older individuals living in Southern or rural communities may face barriers to vaccine access, such as lack of transportation and Internet, or the presence of health conditions that make traveling to vaccination sites difficult<sup>17</sup>. One important strategy to increase COVID-19 vaccine rates among the older population involves community efforts to make vaccines easily accessible (e.g., help scheduling, no appointment or mobile clinics and help with transportation).

COVID-19 messaging literature also suggests that approaches used to inform older adults about the vaccine play a key role in fostering buy-in. Guidelines also suggest increasing buy-in to vaccine acceptance among older populations may be increased by messaging approaches that spark emotions and feelings of empathy (e.g., stories about the ways in which COVID-19 affects the health of loved ones) rather than crafted public health messaging campaigns<sup>18</sup>. Findings from the Tennessee Vaccination Messaging Study suggested that emotional triggers related to the love and health of family are more likely to motivate positive vaccine responses than informational approaches or messages that focus on social responsibility or economic recovery.



## Younger Adults and Teen Residents

Vaccine hesitancy is often prevalent in younger Americans<sup>19</sup> with primary concerns relating to vaccine safety, efficacy, potentially serious long-term health outcomes, safety during pregnancy and fertility<sup>20</sup>. There are racial, income and rural disparities in vaccine update among younger adults and findings from the Mississippi COVID-19 Vaccination Confidence Survey show individuals under 35 are less receptive than any other subgroup to getting the vaccine. Increasing confidence in the vaccine among younger adults may be challenging and require carefully crafted messages to address vaccine safety concerns and

<sup>17</sup> <https://www.kff.org/coronavirus-covid-19/issue-brief/vaccination-rates-are-relatively-high-for-older-adults-but-lag-in-counties-in-the-south-in-counties-with-higher-poverty-rates-and-in-counties-that-voted-for-trump/>

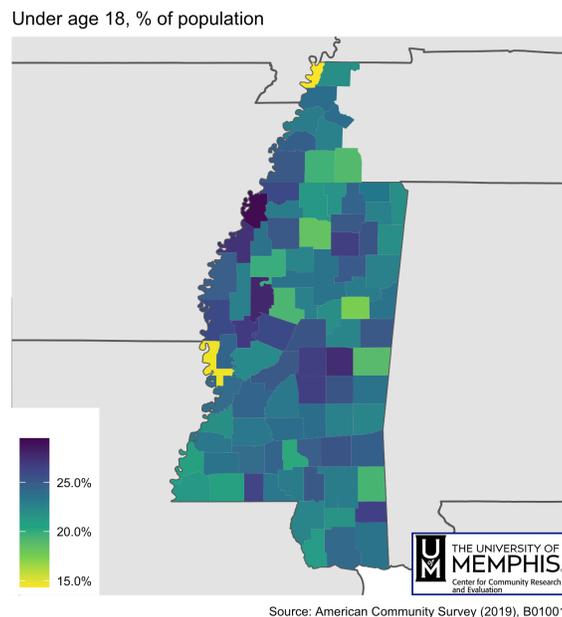
<sup>18</sup> <https://theconversation.com/why-telling-stories-could-be-a-more-powerful-way-of-convincing-some-people-to-take-a-covid-vaccine-than-just-the-facts-155050>

<sup>19</sup> <https://www.cnn.com/2021/05/05/health/young-people-covid-vaccine/index.html>

<sup>20</sup> <https://www.bbc.com/news/uk-northern-ireland-56515490>

misconceptions while simultaneously increasing motivation.<sup>21</sup> Communications around the COVID vaccine may involve medical professionals and peers (e.g., vaccinated younger adults with shared backgrounds and goals) and use young person-centered message delivery platforms, such as community events, college campus outreach, and social media posts<sup>2223</sup>.

It should be noted that is not uncommon for parents to be hesitant about allowing their teenage children to be vaccinated. The Mississippi COVID-19 Vaccination Confidence Survey indicated that only 52% of parents plan to approve vaccination for their children. Parental views about their child's vaccination were related to subgroup with lower levels of vaccine approval reported by Black parents, mothers, young parents, low-income parents and parents whose highest level of education was high school. Part of an effective messaging strategy for young people will likely include materials for and outreach to parents that identify the benefits to the child if they are vaccinated (e.g., health of a loved one)<sup>24</sup>.



### Female Residents

Nationwide, a smaller percentage of women than men intend to get a vaccine or have already received at least one dose. This trend is also observed among Mississippians with greater vaccine hesitancy observed for women than men (The Mississippi COVID-19 Vaccination Confidence Survey). On a national and local level, women are more likely than men to cite concerns about the rapid pace of vaccine development, side effects and a lack of information about how well they work whether the vaccine has any bearing on fertility or could be unsafe for pregnant women<sup>25</sup>. Key approaches for addressing concerns of women include providing medically accurate information that highlights safety and addresses concerns about side effects, fertility and pregnancy. It is also important to ensure messages are delivered through trusted sources, such as medical providers, and include options for one-to-one conversations where women can talk openly about their concerns. According to the Mississippi COVID-19 Vaccination Confidence survey, women are most likely to be influenced about the vaccine by a trusted medical provider.

<sup>21</sup> <https://www.nytimes.com/2021/06/28/us/covid-vaccine-immunity.html>

<sup>22</sup> <https://www.verywellhealth.com/covid-vaccine-sentiment-tracker-young-rejectors-5113077>

<sup>23</sup> <https://www.wbrc.com/2021/05/19/doctors-encourage-more-young-people-get-vaccinated/>

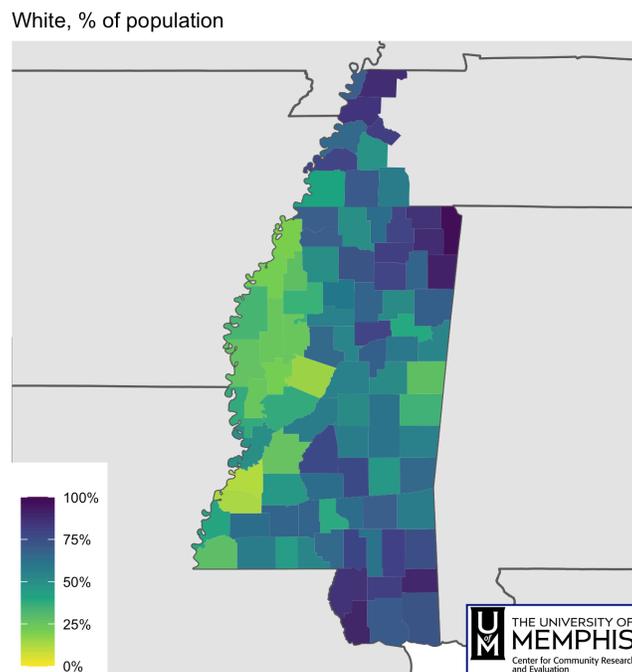
<sup>24</sup> <https://www.nbcnews.com/news/us-news/faced-anti-vaccination-parents-teens-are-helping-each-other-get-n1268093>

<sup>25</sup> <https://www.fastcompany.com/90614105/why-many-essential-workers-are-vaccine-hesitant>

## African-American Residents

Nationally and in the South, African-American people have the highest positivity rates for COVID-19, the lowest access to testing, and the lowest acceptance of the COVID-19 vaccine. Both the Mississippi COVID-19 Vaccination Confidence Survey and Tennessee Vaccination Messaging Study reported high levels of vaccination hesitancy among African American participants, with key concerns being fears about the speed the vaccine was developed, side effects, long-term health risks, and possible death from the vaccine. It is important to note that high levels of hesitancy are also linked to a broader lack of trust in the government and medical system based on histories of being exploited and oppressed as well as being disproportionately impacted by COVID-19. According to the Mississippi COVID-19 Vaccination Confidence Survey, vaccine hesitancy in the African-American community is heightened in lower-income rural areas, such as the Mississippi Delta.

However, hesitancy does not mean refusal, and according to the Tennessee Vaccination Messaging Study, urban, suburban and rural African American populations show willingness to be vaccinated but may need more time and reassurance. Study participants indicated that they may seek information about the vaccine from trusted medical providers (e.g., primary care physician, pharmacists) and family members, but indicated they wanted to learn from medical researchers and scientists (e.g., those from the CDC). Messaging approaches that use Black medical experts may also serve to increase buy-in. The Mississippi COVID-19 Vaccination Confidence Survey found that African-American men showed a modest preference for hearing covid messages from Black, older, male doctors whereas African-American women showed a preference for Black, older, female doctors. Moreover, TV ads by the National Medical Association, a professional organization of Black physicians, showing one Black nurse inoculating another with the COVID-19 vaccine helped to establish trust among the Black community as well as openness to being vaccinated<sup>26</sup>.



Source: American Community Survey (2019), B02008

<sup>26</sup> <https://time.com/5925467/covid-19-vaccine-hesitancy/>

Although not corroborated by findings in the Tennessee Vaccination Messaging Study, other vaccine outreach guidance indicates that Black churches are trusted institutions that can play a key role in delivering messages about vaccine safety and offer a location in which vaccinations may be delivered<sup>27</sup>.

### **Hispanic Residents**

Despite recent trends suggesting improving equity in COVID-19 vaccination patterns and a recent narrowing in the gap between vaccination rates for White and Hispanic people, disparities persist. Hispanic populations experience barriers to vaccination access that include limited transportation and Internet, limited English proficiency and concerns associated with immigration status<sup>28</sup>. A primary strategy for boosting vaccination levels among the 90,000 Hispanic residents of Mississippi will likely involve making the vaccines easier to get (e.g., no appointment vaccines in community, transit-assisted or mobile clinics) and providing culturally appropriate outreach about vaccination safety that addresses immigration concerns and language barriers. It is also important that communication strategies are employed to address concerns about the vaccine, such as those identified among Hispanic participants in the Tennessee Vaccination Messaging Study - speed with which vaccines were developed, side effects from the vaccine and long-term health effects – that may be addressed by medical experts or other trusted individuals (e.g., family members).

### **Native American Residents**

There have been large disparities among the Native American and Alaskan population in terms of COVID-19 cases and deaths. Nationally and locally, Native American groups have been prioritized for vaccines and tribal leadership approaches have been used to reach out to American Indian groups for vaccination education and inoculations.<sup>29,30</sup> In a local context, the Mississippi COVID-19 Vaccination Confidence Survey indicated that two-thirds of American Indians surveyed expressed acceptance for the COVID-19 vaccine. Efforts in Mississippi have shown that increasing availability to convenient and accessible vaccination sites, increasing clinical and community-based workforce for outreach, and offering education about the safety and importance of the vaccine have been important for increasing the uptake of COVID-19 vaccines among Native American residents<sup>31</sup>.

### **Frontline Essential Workforce Residents**

In January, a Kaiser Family Foundation study found that nearly a third of healthcare workers, particularly those in nursing homes, were hesitant about the vaccine, and skepticism is prevalent among essential workers (e.g., farmers and convenience stores personnel) and hospitality workers. Hesitancy has been linked to myriad factors, such as misinformation on social media associated with safety, and lack of trust in the healthcare system and government. As with other groups, there are also concerns about access such as transportation and taking time off work.

Again, a multi-tiered approach is needed that increases access to vaccines (offering vaccines in the workplace, possibly through mobile resources) and using messaging strategies that both provide medically accurate information and dispel misconceptions. Guidelines for outreach to essential and frontline workers suggest that employers are not always the best messengers, especially if they are seen to coerce individuals in getting the vaccine. Rather, peer groups (e.g., fellow health workers) may be effective in building confidence and trust in fostering positive change toward getting the vaccine<sup>32</sup>.

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<sup>27</sup> <https://time.com/5925467/covid-19-vaccine-hesitancy/>

<sup>28</sup> <https://www.scientificamerican.com/article/the-biggest-barriers-to-covid-vaccination-for-black-and-latinx-people1/>

<sup>29</sup> <https://www.kff.org/racial-equity-and-health-policy/issue-brief/covid-19-vaccination-american-indian-alaska-native-people/>

<sup>30</sup> <https://www.ihs.gov/coronavirus/>

<sup>31</sup> <https://www.wtvv.com/2021/02/02/mississippi-band-of-choctaw-indians-face-hardships-during-covid-19-pandemic/>

<sup>32</sup> <https://www.fastcompany.com/90614105/why-many-essential-workers-are-vaccine-hesitant>

### **Veteran Residents**

Reports suggest that many veterans are not accepting the vaccine, particularly young veterans and veterans of color. Sources of hesitancy include mistrust of the government, concerns about the rapid vaccine development, vaccine safety and online misinformation that suggests the vaccine contains the AIDS virus, a tracking chip, or other additives<sup>33</sup>. The VA has implemented various approaches to increasing vaccine acceptance, such as information panels with fellow veterans, walk-in vaccinations, mobile vaccination services and virtual town halls with medical experts to help veterans overcome any hesitations. A key strategy for instilling confidence and buy-in is for vaccinated veterans to advocate the safety and efficacy of the vaccine and highlight how getting the vaccine is an important form of service to unvaccinated veterans. Familiar faces with shared backgrounds foster a sense of trust and allow vaccine messages to be appropriately tailored to the needs and concerns of the individual<sup>34</sup>.

### **LGBTQIA+ Residents**

Initial research suggests high levels of vaccine hesitancy among the LGBTQIA+ community. A survey on COVID-19 vaccine hesitancy by Out Boulder indicated 17% of LGBTQ+ respondents did not plan to get the COVID-19 vaccine or were unsure if they planned to get the vaccine<sup>35</sup>. Sources of hesitancy range from mistrust in the medical system and negative reactions from healthcare providers to vaccine access (e.g., transportation and how to get the vaccine) and concerns about side effects, safety and perceived cost of obtaining the vaccine<sup>36</sup>. Trust-related concerns may be heightened in the South where LGBT individuals also face a more challenging social climate and disparities when compared to non-LGBT people.<sup>37</sup>

Recommended approaches to increasing vaccine confidence include offering vaccination sites in community-based, LGBTQIA+ affirming settings and trusted associates to provide tailored messages to LGBTQIA+ individuals (e.g., where vaccines are available, how to make an appointment and advice to address misinformation about costs and side effects of the vaccines). It is recommended that LGBTQIA+ affirming agencies partner with healthcare providers to ensure an intersectional approach to addressing vaccine hesitancy.<sup>38</sup>

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<sup>33</sup> <https://www.washingtonpost.com/politics/2021/04/17/veterans-coronavirus-vaccine/>

<sup>34</sup> <https://www.washingtonpost.com/politics/2021/04/17/veterans-coronavirus-vaccine/>

<sup>35</sup> <https://www.outboulder.org/covid19/covid-19-surveys>

<sup>36</sup> <https://www.hrc.org/resources/covid-19-and-the-lgbtq-community-vaccinations-and-the-economic-toll-of-the-pandemic>

<sup>37</sup> <https://williamsinstitute.law.ucla.edu/lgbtdivide/#>

<sup>38</sup> [https://d3n8a8pro7vhmx.cloudfront.net/bradburysullivancenter/pages/2872/attachments/original/1620748548/COVID-19\\_Vaccine\\_Hesitancy\\_and\\_Impact\\_Summary\\_Report.pdf?1620748548](https://d3n8a8pro7vhmx.cloudfront.net/bradburysullivancenter/pages/2872/attachments/original/1620748548/COVID-19_Vaccine_Hesitancy_and_Impact_Summary_Report.pdf?1620748548)