



# CDC's State of Vaccine Confidence Insights Report

Vaccination in Rural America Special Report  
September 25, 2023



**Centers for Disease Control & Prevention,  
COVID-19 Response, Vaccine Task Force**  
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The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).



# Report Summary

*This State of Vaccine Confidence Insights Report emphasizes major themes influencing general vaccine confidence and uptake among rural populations in the United States between 2017-2023, with a particular focus on COVID-19 vaccination.*

## Themes with the potential to impact vaccine confidence and demand:

- **Theme 1:** Residents in rural parts of the United States have concerns about vaccine safety, long-term side effects, effectiveness, and necessity.
- **Theme 2:** Differences exist in vaccine access and vaccine confidence between rural areas and suburban and urban areas.
- **Theme 3:** Lack of government trust and the politicization of science may have contributed to lower vaccine uptake in rural areas. However, community outreach and utilizing trusted messengers can and has increased vaccine confidence in rural America.

## Ways public health and partners can take action to improve vaccine confidence and demand:

- Offer additional services at vaccination sites to increase comfort of individuals seeking vaccination, such as multilingual support, vaccine counseling, and family-friendly services.
- Provide opportunities for community members to ask questions and voice their concerns. Offer channels for direct communication, such as helplines, email, or in-person meetings, where trained professionals can provide personalized information and address specific worries.
- Share multilingual messages that present the benefits of youth vaccination against COVID-19, including protection from severe illness or hospitalization and the ability to safely participate in childcare, school, sports, and other group activities. When possible, provide safety information and ways to have questions answered as part of this messaging approach.
- Ensure all messaging acknowledges and recognizes the diversity of rural populations and does not falsely label rural populations as monolithic.
- Complete need-based assessments and [rapid community assessments](#) to identify and address specific barriers in rural communities.
- Create community-based networks to increase vaccine access, such as providing vaccine appointments after traditional work hours.
- To build trust with rural residents, engage with trusted community leaders, gather community input on questions and concerns, and work to prioritize and address them.
- Encourage state and local health departments, community pharmacists, and other local trusted messengers to promote vaccine messaging in communities where they are the preferred trusted messenger over federal agencies.
- Utilize nontraditional sites like school-based health centers and mobile clinics to bridge the vaccination access gap in rural areas.
- Address inaccurate health information about vaccine safety and effectiveness by leveraging health care professionals, public health departments, libraries, and other local institutions to answer consumer questions and provide informative resources.
- Provide support and guidance on managing common side effects and reassure the community that any adverse events are being closely monitored and addressed.
- Continue to implement evidence-based vaccination-promoting interventions endorsed by the [Community Preventive Services Task Force](#).



# Contents

<b>3</b> <a href="#">Aims and Methods</a>	<b>10</b> <a href="#">Theme 3: Lack of government trust and the politicization of science may have contributed to low vaccine uptake in rural areas. However, community outreach and utilizing trusted messengers can and has increased vaccine confidence in rural America. [moderate/stable]</a>
<b>5</b> <a href="#">Theme 1: Residents in rural parts of the United States have concerns about vaccine safety, long-term side effects, effectiveness, and necessity.</a>	<b>11</b> <a href="#">Vaccine hesitancy in rural populations</a>
<b>5</b> <a href="#">Perceptions, concerns, and threats to vaccine confidence</a>	<b>11</b> <a href="#">Strategies that have worked to promote vaccine uptake in rural populations</a>
<b>6</b> <a href="#">Questions to consider</a>	<b>12</b> <a href="#">Questions to consider</a>
<b>6</b> <a href="#">Ways to take action</a>	<b>12</b> <a href="#">Ways to take action</a>
<b>7</b> <a href="#">Theme 2: Differences exist in vaccine access and vaccine confidence between rural areas and suburban and urban areas.</a>	<b>13</b> <a href="#">Inaccurate health information themes</a>
<b>7</b> <a href="#">Differences in vaccination uptake between rural and non-rural populations</a>	<b>13</b> <a href="#">Resources</a>
<b>9</b> <a href="#">Vaccine access as a barrier to vaccination</a>	<b>14</b> <a href="#">References</a>
<b>10</b> <a href="#">Questions to consider</a>	<b>18</b> <a href="#">Appendix: Inputs and Sources</a>
<b>10</b> <a href="#">Ways to take action</a>	



# Aims and Methods

By reviewing and analyzing numerous specific sources and inputs (see Appendix), this State of Vaccine Confidence Insights Report emphasizes major themes influencing general vaccine confidence and uptake among rural populations in the United States between 2017-2023, with a particular focus on COVID-19 vaccination. These themes are characterized by the level and type of threat to vaccine confidence, degree of spread, and directionality. In addition, by examining how consumers think and feel, social processes, and the practical issues around vaccination, this Insights Report seeks to identify emerging issues related to the spread of inaccurate health information to help identify where intervention efforts can improve vaccine confidence across the United States.

The information in this report is only a snapshot, and specific populations may be underrepresented. Images and quotes are illustrative examples and are not meant to comprehensively cover all content related to the highlighted themes.

How do you classify this theme/information?			
High risk	Moderate risk	Low risk	Positive sentiment
<ul style="list-style-type: none"> <li>May lead to vaccine refusals and decreased uptake</li> <li>Wide reach, pervasive</li> </ul>	<ul style="list-style-type: none"> <li>Potential to trigger hesitancy to vaccination</li> <li>Moderate reach, modest dissemination</li> </ul>	<ul style="list-style-type: none"> <li>Concerning, but low risk to vaccine confidence</li> <li>Limited reach, limited dissemination</li> </ul>	<ul style="list-style-type: none"> <li>Could increase vaccine confidence, intent, or motivation</li> <li>Variable reach and dissemination</li> </ul>

How has this theme/idea changed over time (since last report or over the course of multiple reports)?		
<p><b>Increasing</b></p> <p>Information spreading rapidly</p>	<p><b>Stable</b></p> <p>Information remaining constant at prior level</p>	<p><b>Decreasing</b></p> <p>Information is not gaining further traction and there has been no indication of additional activity</p>



## Theme 1: Residents in rural parts of the United States have concerns about vaccine safety, long-term side effects, effectiveness, and necessity.

Rural communities in the U.S. have been uniquely impacted by the COVID-19 pandemic. Data from the Centers for Disease Control and Prevention (CDC) indicate that rural areas have experienced higher rates of [COVID-19 infection and mortality](#), [lower vaccination coverage](#), and [higher vaccine hesitancy](#) compared to urban areas. Addressing these rural-urban disparities and improving vaccine confidence within rural communities requires that public health officials and their partners recognize and engage with the complex cultural, historical, structural, and political factors that contribute to vaccine hesitancy. As such, it is important to better understand specific concerns about vaccination that may be especially salient within rural communities.

### Perceptions, concerns, and threats to vaccine confidence

- According to data collected by CDC's National Immunization Survey-Adult COVID Module (NIS-ACM) between May 28–June 30, 2023, urban and rural areas differ in their perceptions of COVID-19 vaccine safety, concern about COVID-19, and the importance of vaccines in protecting against COVID-19. Roughly half of adults in rural areas (50.9%) reported feeling confident in the safety of COVID-19 vaccines compared to 61.7% of urban-dwelling adults. Similarly, a smaller percentage of rural residents (63.3%) felt that vaccines were somewhat or very important in protecting against COVID-19 compared to adults in urban areas (76.1%). Rural adults were also less inclined to report feeling concerned about COVID-19 than urban adults (25.7% vs. 30.8%, respectively).<sup>1</sup>
- Some rural consumers state the primary cause of their vaccine-related concerns is fear, stemming from the belief that the COVID-19 vaccines were created hastily and that potential long-term side effects remain unknown. Additionally, their decision-making process is influenced by a multifaceted interplay of beliefs regarding bodily autonomy, trust in science and authority, and a strong regional identity, characterized by a sense of self-reliance.<sup>2</sup>
- A study exploring barriers to COVID-19 vaccination within rural Latino communities in southwest Florida found fear as a barrier to vaccination, such as fear of COVID-19 vaccines and their side effects.<sup>3</sup>
- A study exploring vaccine hesitancy found rural communities in Tennessee are prone to fear and conspiracy theories and are concerned about COVID-19 vaccine side effects.<sup>4</sup>
- Concerns about potential adverse events following vaccination are a barrier to vaccine confidence in rural areas, according to an [August 2022 survey of 1,000 rural adults](#) conducted by the [National Rural Health Association](#). Among “persuadable” unvaccinated adults (i.e., respondents who indicated they might be willing to receive a COVID-19 vaccine in the future), 83% expressed concern about serious adverse effects of vaccines, although the majority (66%) reported that they did not actually know someone who had experienced a serious adverse event.
- A study measuring the effectiveness of an HPV vaccination intervention in a rural medical clinic found a personal fear of adverse and/or side effects and uncertainty about vaccine necessity increased following interventions.<sup>5</sup>



- Some consumers have expressed on social media that the fear of COVID-19 vaccine side effects is increasing in rural parts of the United States.<sup>6,7,8,a</sup>
- Some social media users have shared positive experiences about the lack of side effects following COVID-19 vaccination.<sup>9,10,11</sup>
- A 2022 study examining COVID-19 vaccine hesitancy in rural Chemung County, New York found 23% of participants voiced apprehension about vaccine safety, 18% expressed concerns about insufficient long-term safety data, 9% feared potential side effects, 32% disagreed with vaccine mandates, and 18% held the belief that the vaccine is ineffective.<sup>12</sup>
- Some posts on social media indicate that low vaccine confidence in rural America might be due to peer pressure, lack of government trust, and unanswered questions about COVID-19 vaccines.<sup>13,14</sup>
- Some social media users are frustrated that adults living in rural areas are refusing to receive the COVID-19 vaccine.<sup>15,16,17</sup>

## Questions to consider

- Which specific side effects and adverse events (e.g., myocarditis) are individuals in rural America concerned about? his
- How can specific messaging about vaccine side effects be applied without causing message fatigue while also acknowledging the known but rare serious adverse events associated with COVID-19 vaccination?
- How does a lack of trust in the federal government contribute to the perception that COVID-19 vaccines were hastily developed, and how might this concern be addressed?
- How can state and local health departments increase vaccine uptake without using excessive messaging which may result in worsening vaccine confidence?

## Ways to take action

- Encourage health care staff to employ strategies such as distracting, comforting, and educating individuals to decrease stress or anxiety while getting vaccinated.<sup>18</sup>
- Offer additional services at vaccination sites to increase comfort of individuals seeking vaccination, such as multilingual support, vaccine counseling, and family-friendly services.
- Provide information on vaccine safety through informational brochures, flyers, or posters that explain the benefits of vaccination, address common concerns, and debunk myths surrounding vaccines.
- Provide opportunities for community members to ask questions and voice their concerns. Offer channels for direct communication, such as helplines, email, or in-person meetings, where trained professionals can provide personalized information and address specific worries.
- Provide support and guidance on managing common vaccine side effects and reassure the community that any adverse events are being closely monitored and addressed.
- Develop plain language messages in English and Spanish pulling from recent CDC data reports and Morbidity and Mortality Weekly Reports (MMWRs) to educate people on the safety of the vaccine for children and the risk of severe COVID-19 illness in children.

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<sup>a</sup>Social media posts referenced throughout this report can be found in [this online document](#).



- Share multilingual messages that present the benefits of youth vaccination against COVID-19, including protection from severe illness or hospitalization and the ability to safely participate in childcare, school, sports, and other group activities. When possible, provide safety information and ways to have questions answered as part of this messaging approach.
- Amplify messages in English and Spanish about the safety and effectiveness of COVID-19 vaccines in preventing severe illness, hospitalization, and death.



## Theme 2: Differences exist in vaccine access and vaccine confidence between rural areas and suburban and urban areas.

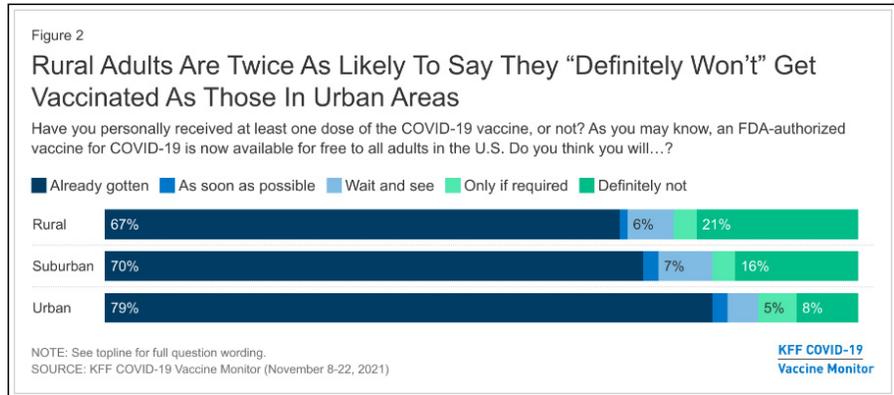
Rural residents in the United States encounter various health inequalities in comparison to their urban counterparts. According to the U.S. Census Bureau, over 46 million Americans, constituting 15 percent of the population, reside in rural areas. Unique challenges necessitate increased focus and allocation of resources to improve health outcomes in rural America. The implementation of enhanced public health programs, promoting healthier behaviors and neighborhoods, along with improved access to healthcare services, could prove beneficial for rural areas.<sup>19</sup>

### Differences in vaccination uptake between rural and non-rural populations

- **Adults** in rural areas have lower COVID-19 vaccine primary series completion rates as well as lower rates of updated (bivalent) COVID-19 vaccination than those in urban areas. According to NIS-ACM data from May 28–June 30, 2023, 20.5% of adults in rural areas are completely unvaccinated against COVID-19 compared to 11% of adults in urban areas who remain unvaccinated.<sup>1</sup> Furthermore, a smaller percentage of adults in rural areas (75.4%) have completed their COVID-19 primary series compared to adults in urban areas (85.1%).
- Similarly, NIS-ACM data from May 28–June 30, 2023 indicate differences between rural and urban populations in terms of updated (bivalent) COVID-19 vaccine uptake and intention. Among adults who completed the primary series but had not yet received an updated COVID-19 vaccine, intent to receive an updated COVID-19 vaccine was lower in rural areas, with 31.3% of rural residents reporting that they probably or definitely will *not* get an updated COVID-19 vaccine compared to 25.8% of urban-dwelling adults. Rural adults lagged slightly behind urban residents in being considered “up to date” on their COVID-19 vaccines at 24.6% versus 29.3%, respectively.
- Based on National Immunization Survey–Child COVID Module (NIS-CCM) data from May 28–June 30, 2023, 55.9% of **adolescents** aged 12–17 in rural areas are completely unvaccinated against COVID-19 compared to 33% of adolescents in urban areas (as reported by the parent or guardian completing the NIS-CCM survey).<sup>20</sup> Rural adolescents have lower rates of primary series completion than urban adolescents (39.9% vs. 62.3%) as well as lower rates of up-to-date coverage against COVID-19 (9.4% vs. 16.8%). Among adolescents who already completed the primary series, 32.4% of adolescents in rural areas will probably or definitely *not* get an updated (bivalent) COVID-19 vaccine versus 18.9% of adolescents in urban areas.
- Additional analysis of vaccination coverage among rural and urban populations can be found in [this February 2023 MMWR](#), which analyzes NIS-ACM and NIS-CCM data collected in November–December 2022.

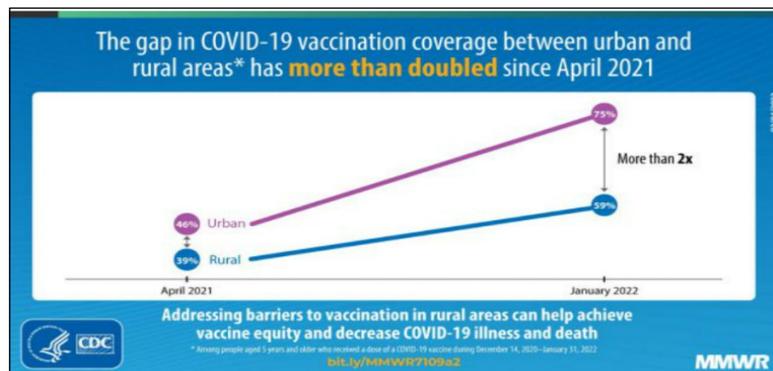
- A MMWR study published in February 2023 found COVID-19 vaccination rates among **children** aged 6 months to 4 years varied based on their rural or urban county of residence. Children in rural counties had lower vaccination coverage with  $\geq 1$  doses of COVID-19 vaccine (3.4%) compared to those in urban counties (10.5%).<sup>21</sup>

- Kaiser Family Foundation published a poll in April 2021 that surveyed 1,001 adults living in rural America.<sup>22</sup> The poll found that 39% of rural residents reported they had received at least one dose of the COVID-19 vaccine, whereas only 31% of both suburban and urban residents received one dose of a COVID-19 vaccine. However, a smaller proportion of unvaccinated rural residents (16%) expressed their intention to get the vaccine as soon as possible compared to urban (35%) and suburban (28%) residents. This suggests that vaccine uptake in rural communities initially surpassed that of urban and suburban areas; however, as access to vaccines became more widespread in densely populated regions, rural areas started to lag in terms of vaccination rates.



- A study examining excess mortality during the first two years of the pandemic found that despite the availability of vaccines, "excess mortality moved substantially from large metros in the first year of the pandemic to nonmetro areas during the second year," with the authors noting that "differences in vaccination rates across metro-nonmetro categories may be playing an increasingly important role in the rural mortality disadvantage observed in the second year of the pandemic."<sup>23</sup>
- County and local estimates for vaccine hesitancy in the United States show that individuals in rural counties have the highest estimated levels of vaccine hesitancy or unreseness.<sup>24,25</sup>
- According to data from the 2019 National Health Interview Survey, self-reported rates of influenza vaccination were higher in urban areas compared to rural areas among adults of all age groups.<sup>26</sup>
- Data from the 2018 National Immunization Survey-Teen shows that HPV vaccine uptake among adolescents is 15 percentage points lower in rural areas than urban areas.<sup>27</sup> The same survey shows uptake of the meningococcal conjugate vaccine is 20 percentage points lower in rural areas than urban areas. Additional analysis can be found in [this MMWR study](#) published in August 2019.<sup>28</sup>

- A MMWR study published in October 2018 indicates that children below the age of three residing in non-MSAs receive recommended vaccines at lower rates compared to children in principal cities of MSAs. The difference in vaccination rates ranges from 2.6 to 6.9 percentage points.<sup>29</sup>





- The findings of one study suggest that influenza vaccination rates among children living in rural areas were consistently 5 to 13 percentage points lower compared to those residing in urban and suburban areas throughout eight influenza seasons (2011-2012 through 2018-2019).<sup>30</sup>

## Vaccine access as a barrier to vaccination

- Reports about the end of the COVID-19 Public Health Emergency discuss decreased access to COVID-19-related testing and vaccines. This is in addition to relaxing or removing previous surveillance benchmarks, potentially masking the ability to notice increases in COVID-19 cases in rural areas.<sup>31</sup>
- A study exploring barriers to COVID-19 vaccination within rural Latino communities in southwest Florida found lack of accessibility to be a prominent theme regarding COVID-19 vaccines, as well as a lack of time and resources.<sup>3</sup>
- A study exploring vaccine hesitancy of rural communities in Tennessee claims that access to testing and vaccination is not as large a barrier to COVID-19 vaccination as poor access to healthcare infrastructure.<sup>4</sup>
- Geographical factors can exacerbate disparities in access, particularly for rural clinics that encounter difficulties in delivering vaccinations to residents several miles away. Rural communities frequently face shortages of resources, such as adequate cold storage facilities for vaccines and a scarcity of healthcare workers and pharmacy locations to administer them.<sup>32</sup>
- A MMWR study published in March 2022 showed several factors can contribute to the growing disparities among rural and nonrural populations, such as access to healthcare. Even prior to the COVID-19 pandemic, individuals in rural areas frequently reported inadequate healthcare providers or hospitals available to serve their communities, posing access difficulties for rural Americans seeking COVID-19 vaccination.<sup>33</sup>
- In one study, the rural–urban difference in hesitancy rates among those still unvaccinated was much smaller than the rural–urban difference in vaccination rates, suggesting that access to vaccines may be another contributor to the lower vaccination rates in rural areas.<sup>34</sup>
- Some social media users claim vaccine uptake in rural parts of the United States is low due to lack of access,<sup>35,36</sup> while other social media users disagree.<sup>37,38</sup>
- Food insecurity and decreased consumer purchasing power may impede the ability to access wellness visits in rural areas. Therefore, routine vaccination may not be a priority for rural residents.<sup>39</sup>

There are sooooo many rural docs that do not and will not carry the COVID vaccines and depending on the pricing LHDs won't be able to afford buying them either. Testing and vaccinations are about to get bone dry in rural America.

**Many unvaccinated people are not opposed to getting a shot. The challenge is trying to get it to them.**



## Questions to consider

- Will residents in rural areas still have access to COVID-19 vaccines following the end of the Public Health Emergency?
- How can state and local health departments increase access to all vaccinations without requiring lengthy drives?
- Is lack of access to vaccination affecting routine childhood vaccination rates in children?
- What are the various structural barriers preventing rural residents from accessing vaccines?

## Ways to take action

- Use community-driven, feet-on-the-ground leaders to develop robust public health messaging to promote vaccine uptake that take access issues into consideration.
- Work with partners that have existing relationships with rural residents to promote vaccine uptake.
- Ensure all messaging acknowledges and recognizes the diversity of rural populations and does not falsely label rural populations as monolithic.
- Complete need-based assessments and [rapid community assessments](#) to identify and address specific barriers in rural communities.
- Create community-based networks to increase vaccine access, such as providing vaccine appointments after traditional work hours.
- Work with community and community partners to offer incentives for vaccination.
- To build trust with rural residents, engage with trusted community leaders, gather community input on questions and concerns, and work to prioritize and address them.

## **Theme 3: Lack of government trust and the politicization of science may have contributed to lower vaccine uptake in rural areas. However, community outreach and utilizing trusted messengers can and has increased vaccine confidence in rural America.**

Access to vaccines and increasing vaccine education are the two major themes that were found to increase vaccine confidence in rural communities. Rural communities face unique barriers that require solutions which are able to address these needs.<sup>b</sup> By providing resources to support access to those in rural communities, identifying and addressing misinformation, and providing opportunities to answer questions about vaccine safety, public health officials can increase vaccine confidence and uptake.<sup>40,41,42</sup>

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<sup>b</sup>CDC-INFO.



## Vaccine hesitancy in rural populations

- A qualitative study exploring rural Americans' COVID-19 vaccine perceptions found that vaccine-hesitant adults were more likely to trust local sources of health information such as healthcare providers, pharmacists, and county government officials.<sup>43</sup>
- Vaccine uptake and confidence can be influenced by an individual or community's values, beliefs, and sense of identity, including political affiliation.<sup>44,45,46,47</sup> As such, it is important to engage with rural communities in a manner that recognizes and resonates with their cultural and social context.
- More than 600 vaccine-related bills have been introduced so far in 2023, eclipsing the total number of bills introduced in 2022 according to the National Conference of State Legislatures.<sup>48</sup> Many states are considering legislation that would prohibit or curtail COVID-19 vaccine requirements as well as routine vaccine requirements imposed by schools, employers, and other entities.<sup>49</sup>

## Strategies that have worked to promote vaccine uptake in rural populations

- In New York, the University of Rochester formed the [Finger Lakes Rural Immunization Initiative](#), a 16-month project funded by CDC to increase vaccine awareness, knowledge, and acceptance in rural areas by engaging trusted messengers. These efforts resulted in an interactive workshop, interventional toolkit, and stakeholder forum designed to empower trusted messengers and foster community collaboration. Among the [trusted messengers who were surveyed](#) following their workshop participation, 45% reported that their patients were more likely to get vaccinated and 29% believed that their patients became vaccinated as a result of the conversational strategies from the workshop.
- A study measuring the effectiveness of an HPV vaccination intervention in a rural medical clinic found healthcare team training, education materials, and technology-based vaccine appointment reminders resulted in fewer missed vaccination appointments.<sup>5</sup>
- Locations that were well-stocked, efficient, and offered easy access saw positive feedback and support from the rural communities where they were administering the vaccines.<sup>50,51</sup>
- Consumers in low socioeconomic rural communities were more supportive of clinics and vaccine drives that offered vaccines for free.<sup>40,52</sup>
- Homebound consumers in rural counties stated their willingness to receive vaccines if they had the option of at-home administration.<sup>b</sup>
- Rural communities in some areas provided mobile vaccine clinics and incentives to reach consumers who desired COVID-19 and influenza vaccines but did not have access otherwise.<sup>53</sup>
- Trusted messengers and health care professionals were used to address questions about vaccine safety, effectiveness, and misinformation for rural consumers.<sup>54,a</sup>
- Local health departments and other health care professionals posted vaccine facts, and vaccine clinic locations on social media to inform their communities about the vaccines' safety, efficacy and availability.<sup>55,56</sup>

News: How Small and Rural Libraries Combat Misinformation

- Research indicates that rural residents might trust community pharmacists for health information and vaccine administration due to a number of factors, such as convenience and connectedness to the communities they serve.<sup>43</sup> Consumers also believe trusted messengers play a large role in encouraging adults in rural America to receive the COVID-19 vaccine.<sup>57</sup>

## Questions to consider

- Who are the influential community leaders in the rural population? How can they be involved in public health initiatives?
- What are the specific reasons for low government trust among rural populations? How can local health departments foster trust and credibility?
- How can local health departments leverage community networks?
- How can local health departments monitor and evaluate the impact of community leader involvement?

## Ways to take action

- Encourage state and local health departments, community pharmacists, and other local trusted messengers (e.g., faith leaders, firefighters, etc.) to promote vaccine messaging in communities where they are the preferred trusted messenger over federal agencies.
- Using trusted and celebrity messengers while providing opportunities to increase health literacy can combat misinformation within rural communities.<sup>4</sup> Consider adopting a hyper-local approach in rural settings by using locally recognizable people and locations in media campaigns.
- Nontraditional sites for preventative health services can help bridge the vaccination access gap in rural areas.
  - School-based health centers (SBHCs) present an opportunity to offer various healthcare services on school premises, eliminating the need for lengthy or inconvenient trips to the doctor's office. According to a study in the American Journal of Public Health, adolescents assigned to an SBHC had higher completion rates for vaccination series compared to those assigned to a community health center.<sup>58</sup> In Oregon, a state with a robust SBHC program consisting of 78 certified centers, 35,252 patients were served in 2016-2017, with 30% of them receiving at least one immunization.<sup>59</sup>
  - Mobile health clinics operating in alternative settings, as highlighted in a review published in the International Journal for Equity in Health, can enhance population health through preventative measures, including immunizations. These clinics, located in workplaces and public spaces, offer convenient access to healthcare interventions.<sup>60</sup>





- In rural communities, healthcare providers and pharmacists can employ various strategies to enhance vaccination rates.
  - Simplify the vaccine regimen and minimize return visits by offering coadministration of vaccines (multiple vaccines in a single visit).
  - Enhance scheduling flexibility by providing same-day appointments or walk-in visits, and at-home/door-to-door vaccination.
  - Streamline the process by implementing standing orders for registered nurses, physician assistants, pharmacists and pharmacy technicians, and medical assistants in accordance with state-specific scope of practice laws to reduce wait times and delays.
  - Improve communication and ensure follow-up by utilizing parent reminders via text messages, phone calls, and emails for upcoming visits and recall notices.
  - Prioritize capacity building/team training and educational materials for staff/retail pharmacy staff/urgent care.
- Inaccurate health information about the safety and effectiveness of COVID-19 vaccines was frequently addressed by health care professionals, local public health departments, and even libraries. These institutions aimed to increase vaccine confidence by answering consumer questions and providing informative resources.<sup>61,62,a</sup>
- Continue to implement evidence-based vaccination-promoting interventions endorsed by the Community Preventive Services Task Force.<sup>63</sup>

### Inaccurate health information themes

- Some consumers believe there is aborted fetal tissue in the COVID-19 vaccines or that the U.S. government exaggerated the number of COVID-19 cases.<sup>2</sup>
- The belief that COVID-19 cases are rising in rural America due to unvaccinated immigrants has been mentioned on social media.<sup>64</sup>
- Some individuals particularly in rural America have taken ivermectin due to the belief it is a safer and more effective method to treat and prevent COVID-19 than vaccination.<sup>65,66,67</sup>
- Some people believe the COVID-19 vaccine was created to sterilize older or exterminate certain populations.<sup>3</sup>

## Resources

- [Rural Health Clinic COVID-19 Programs | HRSA](#)
- [COVID-19 Vaccine Confidence Communication Toolkit | National Rural Health Association](#)
- [COVID-19 Vaccine Resources | National Rural Health Association](#)
- [Vaccination in Rural Communities | CDC](#)
- [Predictors and Barriers to Achieving Immunization in Rural and Urban Areas | Rural Health Research Gateway](#)
- [Vaccines for All: Reaching and Serving Rural Americans | Atlantic Health Partners](#)



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Note: omitted numbers are social media citations, which can be found in [this online document](#).

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# Appendix: Inputs and Sources

## Social Media Listening & Media Monitoring Data Sources

Input	Cadence	Sources	Tactics for Utilization
Communication Surveillance Report	Daily on weekdays	<ul style="list-style-type: none"> <li>Google news</li> <li>Meltwater</li> <li>CrowdTangle</li> <li>Native platform searches</li> </ul>	<ul style="list-style-type: none"> <li>Share of voice topic analysis to identify themes</li> <li>Emerging topics</li> </ul>
Meltwater	Daily	<ul style="list-style-type: none"> <li>Facebook, Twitter, Instagram</li> <li>Blogs</li> <li>News media</li> <li>Online forums</li> </ul>	<ul style="list-style-type: none"> <li>Share of voice topic analysis</li> <li>Emerging theme topics</li> <li>Identify high reach/velocity topics</li> </ul>
OADC (Office of the Associate Director of Communication) Channel COVID-19 Post metrics	Weekly	<ul style="list-style-type: none"> <li>Sprout Social</li> <li>Native OADC (Office of the Associate Director of Communication) account analytics</li> </ul>	<ul style="list-style-type: none"> <li>Analyze # of posts, topics</li> <li>Success of messages, # of impressions, reach, # engagements</li> </ul>
OADC Channel Comment Analysis	Daily on weekdays	<ul style="list-style-type: none"> <li>Native platform searches</li> </ul>	<ul style="list-style-type: none"> <li>Sentiment analysis</li> <li>Identify message gaps/voids</li> </ul>

## Direct Report Data Sources

Input	Cadence	Sources	Tactics for Utilization
CDC-INFO Metrics	Weekly	<ul style="list-style-type: none"> <li>CDC-INFO inquiry line list</li> <li>Prepared response (PR) usage report</li> </ul>	<ul style="list-style-type: none"> <li>Cross-compare PR usage with inquiry theme analysis</li> <li>Sentiment analysis</li> <li>Identify information gaps/voids</li> </ul>
VTF Media Requests	Weekly	<ul style="list-style-type: none"> <li>Media request line list</li> </ul>	<ul style="list-style-type: none"> <li>Leading indicator for news coverage</li> <li>Identify information gaps/voids</li> </ul>
Web Metrics	Weekly	<ul style="list-style-type: none"> <li>Top pages</li> <li>Google search queries</li> <li>Top FAQs</li> <li>Referring domains</li> </ul>	<ul style="list-style-type: none"> <li>Identify information gaps/voids,</li> <li>Identify keywords/search terms, changes in web traffic</li> </ul>



### Research and Literature Data Sources

Input	Cadence	Sources	Tactics for Utilization
Poll Review	Weekly	<ul style="list-style-type: none"> <li>▪ Harris Poll, PEW research, Gallup Poll, KFF, Annenberg Public Policy Center</li> <li>▪ New data related to vaccine hesitancy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Identify socio-behavior indicators related to motivation and intention to vaccinate</li> </ul>
Literature Review	Weekly	<ul style="list-style-type: none"> <li>▪ PubMed, LitCovid, ProQuest Central, Altmetric</li> <li>▪ New data related to vaccine hesitancy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Identify current vaccination intention</li> <li>▪ Identify barriers to vaccination</li> </ul>

### Third Party Report Data Sources

Input	Cadence	Sources	Tactics for Utilization
Tanaq Social Listening +Media Monitoring Report	Weekly	<ul style="list-style-type: none"> <li>▪ Meltwater</li> <li>▪ Sprout Social</li> <li>▪ First Draft</li> <li>▪ Native platform searches</li> </ul>	<ul style="list-style-type: none"> <li>▪ Trending topics</li> <li>▪ Demographic and geographic conversation monitoring</li> </ul>
Washington St. Louis iHeard	Weekly	<ul style="list-style-type: none"> <li>▪ Proprietary methods</li> </ul>	<ul style="list-style-type: none"> <li>▪ Survey results</li> <li>▪ Emerging threats and data deficits</li> <li>▪ Vaccine narratives</li> </ul>
Project VCTR	Weekly	<ul style="list-style-type: none"> <li>▪ Proprietary methods</li> </ul>	<ul style="list-style-type: none"> <li>▪ National and regional trends in negative attitudes toward vaccination</li> <li>▪ Conversations around Legislation</li> </ul>