Strategies for Disseminating and Implementing the COVID-19 Vaccines in Rural Areas

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Summary:
It is critically important that rural areas receive COVID-19 vaccines efficiently and equitably. Proven strategies for distributing other vaccination programs and public health measures in rural areas should be used to guide the distribution of COVID-19 vaccines in rural areas.
Abstract

The United States has well-documented rural-urban health disparities and it is imperative that these are not exacerbated by an inefficient roll-out of the COVID-19 vaccines to rural areas. In addition to the pre-existing barriers to delivering and receiving healthcare in rural areas, such as high patient:provider ratios and long geographic distances between patients and providers, rural residents are significantly more likely to say they have no intention of receiving a COVID-19 vaccine, compared to urban residents. To overcome these barriers and ensure rural residents receive the vaccine, officials and communities should look to previous research on how to communicate vaccine information and implement successful vaccination programs in rural areas for guidance and concrete strategies to use in their local efforts.

Keywords:
COVID-19, coronavirus, vaccine, vaccination, rural
Graphical Abstract

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- Educate community leaders about the vaccine and encourage them to talk to residents

  In the case of the human papillomavirus, many rural parents wished their pastors would discuss the vaccine with their congregations but only if the pastors were educated and knowledgeable about the vaccine.

- Utilize social media and the Internet

  Fear of stigma has been shown to lead some rural residents to seek anonymous sources of health information and the most preferred anonymous source was the Internet.

- Create alternative vaccine distribution sites

  Using pharmacies and mobile health units or clinics, such as vans, as vaccine providers would likely significantly increase accessibility for many rural residents and overcome barriers such as geographic distance and privacy concerns.

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In early 2020, the majority of COVID-19 cases were in urban parts of the United States (US) and the conversation was focused on how to disseminate and implement prevention strategies in rural areas. Unfortunately, there are now cases of COVID-19 in nearly every rural community in the US and some have seen cases increase at a faster rate than anywhere else in the country. If there was a hope that rural America could be spared the brunt of the pandemic, that hope is long gone.

Fortunately, with the approval of effective vaccines, the conversation is now shifting to disseminating vaccine information and implementing vaccinations, particularly in rural areas. A recent study found that rural residents were significantly more likely to say they had no intention of receiving the vaccine, compared to urban residents. Ensuring rural residents receive the vaccine means taking into consideration the challenges and cultural context in rural areas. Looking to previous research on how to communicate vaccine information and implement successful vaccination programs in rural areas can offer guidance and concrete strategies that officials and communities can use in their local efforts.

Importance of Community Leaders and Organizations

Community leaders and organizations influence the community on many topics, including health. In a study of the human papillomavirus (HPV) vaccine in rural areas, religiosity was an important factor in whether parents chose to vaccinate their children. Parents reported that their vaccine-related decisions and beliefs were influenced by other church members and saw the church as an active disseminator of health information. In fact, most parents reported a desire for their pastors to present information specifically on the HPV vaccine. Parents who did not report this desire indicated this was driven by concern that the pastor lacked the training to discuss the topic and that it was better left to someone educated on the vaccine. If religious leaders were informed and educated
about the COVID-19 vaccines, there may be wide acceptability in them discussing the topic with their congregations.

In another study, researchers implemented a comprehensive, community-wide campaign to increase HPV vaccine rates among children. Their campaign included presentations about the vaccine and HPV at school- and community-based events. They also distributed educational materials to health clinics in the community and importantly, used Facebook, local radio stations, and newspapers to provide a description of their program and advertise events. Using this approach, they were able to significantly increase vaccination rates among children in the community.

Role of Social Media and Internet

Social media and the Internet should be leveraged in the dissemination of information about the COVID-19 vaccines. In a study of women in rural Kentucky, anonymous sources of health information were preferred to interpersonal sources, such as a family member, friend, or healthcare professional. Concern about stigma was associated with preferring an anonymous source and the Internet was the most preferred anonymous source. Given that rural Americans report having less intention to get a COVID-19 vaccine, and the influence of community leaders and friends/family on health intentions, having accurate but anonymous sources of information about COVID-19 vaccines, especially on the Internet and social media, will be critically important to ensuring that all those who want to learn about the vaccines can do so.

In a separate study, researchers looking at the uptake of the influenza vaccine in one rural town found that both residents who received the vaccine and those who did not believed the vaccine was
affordable, convenient, and quick to receive. The main difference between those who received the vaccine and those who did not was whether they believed the vaccine made them sick and whether they believed getting the vaccine was worthwhile (the former being associated with not receiving the vaccine and the latter with receiving it). However, half of those who believed the vaccine was worthwhile still did not get it. This suggests that there are additional barriers to receiving the vaccine that are not related to affordability, access, or worth, and perhaps facilitating the dissemination of accurate information via trusted channels, such as community leaders and social networks, could overcome these barriers.

Alternative Distribution Sites and Models

Given the challenges of providing and receiving healthcare in rural areas, vaccine roll-out will certainly require specialized strategies. In a study of the differences in location of influenza vaccinations, those in rural areas were more dependent on traditional, clinical locations, such as a physician’s office, hospital, or health department than those in urban areas. The authors believed this was due to a lack of alternative distribution sites such as retail clinics or pharmacies in rural areas. The lack of alternative distribution sites in rural areas, as well as the overall lack of clinical sites, likely contributes to the overall lower vaccination rates in rural areas. Therefore, increasing both clinical and alternative distribution sites may significantly increase access to COVID-19 vaccines in rural areas.

Pharmacies are one such alternative distribution site for which there is considerable evidence of effectiveness. In one study of vaccine distribution in Texas, if pharmacists were considered vaccine providers, 18% of previously inadequately covered rural census tracts (defined by provider-to-resident-ratio) would become adequately covered. In addition to pharmacists being more geographically dispersed in rural areas, rural residents frequently report positive relationships with their pharmacists, which could facilitate residents seeking out a COVID-19 vaccine (or information...
on it) from them. Furthermore, rural pharmacies are already aware of the important role they could play in vaccine distribution.\textsuperscript{16}

Despite the promise of rural pharmacies as vaccine distribution sites, the number of independent pharmacies in rural areas has been steadily declining,\textsuperscript{17} and therefore, additional alternative vaccine distribution sites must be explored. Often taking the form of vans, mobile health units or clinics (MHUCs) can successfully reach rural residents who do not have adequate access to other types of healthcare.\textsuperscript{18} MHUCs in rural Appalachia were found to mitigate many of the access barriers presented to rural residents.\textsuperscript{19} The researchers also found that the private, trusted environment MHUCs offered, coupled with the fact that MHUCs often serve patients who do not receive routine healthcare, led to the discovery or disclosure of multiple problems with patients beyond their initial complaint.\textsuperscript{19} For example, a MHUC may be specifically targeting breast cancer screening but during that encounter additional concerns such as hypertension or intimate partner violence may be discovered. This would also very likely be the case in the event MHUCs are used to distribute COVID-19 vaccines and, as such, MHUCs should have protocols in place to address these additional concerns. This may mean having additional providers on hand who are trained to triage these concerns or having a robust referral database to direct patients to for additional follow-up.

\textbf{Summary}

Nearly a year into this pandemic, there is finally a light at the end of the tunnel. We must now focus our efforts on ensuring every rural resident who wants a COVID-19 vaccine receives one, and importantly, that rural residents are not the last to receive them. Despite the challenges to providing healthcare in rural areas, there are also, fortunately, effective strategies to overcome these challenges, specifically as they relate to vaccinations. Learning from, and utilizing these existing, evidence-based strategies, can ensure the COVID-19 vaccines are rolled out efficiently and equitably in rural areas.
Patient Consent Statement:

This study was not human subjects research and does not include factors necessitating patient consent.

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Conflicts of Interest:

The author reports no conflicts of interest.
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