



## Overview of Barriers and Facilitators in COVID-19 Vaccine Outreach

As the nation responds to the Coronavirus Disease of 2019 (COVID-19) pandemic, this report provides an overview of lessons learned from vaccine programs, presents evidence on COVID-19 vaccine outreach, and discusses several examples of programs that could serve as potential models for designing new vaccine outreach strategies.

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### KEY POINTS

- Recent research estimates that the U.S. COVID-19 vaccination program may have prevented roughly 279,000 deaths through June, 2021.<sup>1</sup> Available evidence supports multipronged strategies for COVID-19 vaccine outreach and the importance of tailoring messages for specific audiences. An overview of existing initiatives identified successful examples of COVID-19 vaccine outreach strategies that were implemented as part of federal or state public health programs.
- High COVID-19 vaccination rates were found with some vaccine outreach initiatives carried out through the Federally Qualified Health Centers (FQHC's), Indian Health Service, Medicaid program, National Institutes of Health, and several state public health efforts.
- Multiple federal agencies have implemented community-based vaccination programs resulting in trends towards higher number of vaccinations. Typically, these programs are multipronged and include community and stakeholder engagement, data collection and analysis, and financial support.
- Examples of vaccine outreach innovations include new ways of using data, social media, and ways to address structural barriers such as home vaccinations through emergency medical service providers.
- Evidence-based tools for designing and implementing successful vaccine outreach programs are freely available from government agencies, professional societies, and non-profit organizations.

### INTRODUCTION

Fewer than nine months after the FDA's emergency use authorization (EUA) of three vaccines to prevent COVID-19, many cities, states, and communities have achieved high COVID-19 vaccination rates.<sup>2</sup> Recently, the FDA granted full approval to one of these three vaccines.<sup>3</sup> All persons ages 12 and older living in the United States, regardless of immigration status or whether they have health insurance, are eligible to receive

COVID-19 vaccines free of charge because of funding provided by the federal government<sup>4</sup> Vaccine administration is widely available through multiple means including mass vaccination sites, community health clinics, nursing homes, primary care settings, and pharmacies. These efforts have led to significant reductions in the number of COVID-19 cases, emergency department visits, hospital admissions, and deaths,<sup>5</sup> and there is growing real-world evidence of the effectiveness of COVID-19 vaccines<sup>6-8</sup> Serious adverse events associated with vaccination are rare and the current evidence shows that benefits for COVID-19 vaccination outweigh potential risks for most people 12 years and older.<sup>9</sup>

Nevertheless, some communities still experience low vaccination rates and challenges with vaccine hesitancy. Approximately sixty percent of the U.S. population over 12 years of age was fully vaccinated by August 21, 2021, but that percentage varies by state from a low of 43 percent to a high of 76 percent.<sup>10</sup> Furthermore, HHS recently announced a plan to begin offering COVID-19 booster shots beginning the week of September 20, 2021, and starting after 8 months of an individual's second dose, pending appropriate regulatory evaluation and decision.<sup>11</sup> The expanding evidence of vaccine safety and effectiveness, combined with the increase in cases and rise of circulating variants, underscores the importance of ongoing vaccine outreach initiatives.

Vaccination for the prevention of infectious diseases is one of the great public health achievements of the 20th century and has saved millions of lives and billions of dollars annually.<sup>12</sup> Due to vaccinations, the world has successfully eradicated or nearly eradicated diseases like smallpox and significantly reduced the number of measles, mumps, and rubella infections. However, despite these successes, willingness to be vaccinated varies among individuals and groups based on a variety of factors including individual beliefs about vaccine safety and efficacy. Notably, vaccine hesitancy – or *the delay in acceptance or refusal of vaccines despite availability of vaccination services*<sup>13</sup> – has been found with every FDA-approved vaccine<sup>14</sup> and also observed among some health care providers.<sup>15</sup> The reasons for vaccine hesitancy are multifactorial<sup>16</sup> and consequently successful vaccine outreach campaigns usually involve multi-faceted strategies. Effective outreach programs increase vaccine confidence and improve vaccination rates in a community. Evidence suggests that there is greater efficacy in outreach program that involve the community.<sup>17</sup> A safe, effective, comprehensive vaccination campaign is part of the national strategy for the COVID-19 response and pandemic preparedness.<sup>18</sup>

Recent research estimated that the COVID-19 vaccine rollout may have prevented 1.25 million hospitalizations and 279,000 deaths through June, 2021.<sup>1</sup> Another recent research study using a different methodology estimated that the U.S. vaccination campaign may have prevented over 139,000 COVID-19 deaths (by the end of spring on May 9, 2021).<sup>19</sup> While research on the effectiveness of different COVID-19 vaccine outreach strategies is ongoing and the literature is still far from definitive, studies of past vaccine outreach interventions suggest best practices that are being successfully applied and expanded to develop new COVID-19 vaccine outreach programs. In most cases, the COVID-19 outreach programs that show indications of success employ various evidence-based strategies that have been adapted for COVID-19 outreach.

This report provides an overview of lessons learned from vaccine programs before the COVID-19 pandemic, including findings about general barriers to vaccination; describes the evidence on vaccine outreach; and discusses several examples of COVID-19 outreach strategies that could serve as potential models for others to adapt. It aims to identify best practices that can be used to inform COVID-19 outreach in places that have low vaccination rates. Finally, the report references a variety of online tools and resources that can assist with the design of vaccine outreach initiatives.

## LESSONS FROM OTHER VACCINATION CAMPAIGNS

### Barriers to Vaccination

Experience from prior infectious disease outbreaks and pandemics has identified a large array of barriers that can interfere with vaccine uptake, resulting in worsened disease control. These barriers can be broadly divided into two categories.<sup>20</sup>

- **Structural barriers:** Systemic issues may limit the ability of individuals to access vaccinations. Common structural barriers include the cost of the clinical visit and vaccine; physical access including geographic and functional proximity to vaccines; limited job flexibility or caregivers of children or older adults unable to take time off in order to be vaccinated; and supply chain disruptions such as constraints on the production, distribution, and delivery of vaccines.
- **Attitude related barriers:** Individuals' beliefs or perceptions may also reduce their willingness to seek out or accept vaccination. These barriers include low perceived risk of contracting the disease or its severity; lack of trust towards vaccines, regulatory agencies that monitor vaccine development and distribution, healthcare workers who deliver vaccines, or companies that develop and produce vaccines; skepticism surrounding the need for or use of the data collected related to the administration of vaccinations (e.g., address, ID, insurance forms); misinformation that creates fear and uncertainty around vaccines; misconceptions due to lack of knowledge about vaccines and vaccine recommendations; and past experiences with other vaccines. Vaccine attitudes may be seen on a continuum, ranging from total acceptance to complete refusal, with vaccine-hesitant individuals, who may be persuadable depending on the circumstances, somewhere in between.

Interwoven within these two categories of barriers are factors related to racially and ethnically diverse communities that have historically been disproportionately affected by disasters and public health emergencies in the United States, including COVID-19. Limited English proficiency, cultural differences, and distrust in government are among these factors that define the distinct needs of these communities to overcome vaccine barriers.<sup>21</sup>

The World Health Organization's Strategic Advisory Group of Experts on Immunization reviewed vaccine hesitancy definitions and concluded in their report that vaccine hesitancy is complex and driven by multiple factors.<sup>22</sup> One intuitive framework for vaccine hesitancy is the "3Cs" model:

<b>Complacency</b>	Low perceived risk of vaccine-preventable diseases, so vaccination is not deemed necessary and other health issues may be a higher priority.
<b>Confidence</b>	Low levels of trust in vaccines, the delivery system, or health authorities. This may include doubts about vaccine efficacy, motivations of policymakers, or mistrust rooted in a history of unethical public health practices.
<b>Convenience</b>	Barriers related to physical availability of vaccines, geographic accessibility, affordability, and acceptability of services.

Understanding the wide range of factors leading to vaccine hesitancy is key for developing and implementing effective solutions to increase vaccine demand and ensure a rapid, equitable rollout of COVID-19 vaccines.

## Effective Vaccine Interventions

A recent study published by Mayo clinic<sup>23</sup> reinforced the importance of a multipronged and concerted approach of implementing evidence-based strategies at the organizational, interpersonal, and individual levels to improve population acceptance of COVID-19 vaccination. Although it remains vital that health care professionals communicate effectively by using the right words, the right messengers, and the right methods to reach diverse audiences, combining multiple strategies that also engage the communities in addressing different barriers is generally the best approach. Strategies increasing vaccination uptake include interventions that directly impact clinician behavior, clinic and public health processes, patient behaviors, and policy.

Currently, there is limited evidence on which interventions have been most successful in increasing COVID-19 vaccinations. As more data is being gathered, different frameworks and methods such as Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM)<sup>23</sup> may be used to better assess the impact of these innovative interventions at both individual and organizational (i.e., delivery agent) levels. In addition, more studies are needed to better understand and address misinformation, distrust, and hesitancy regarding COVID-19 vaccines, especially in populations at increased risk for morbidity and mortality due to long-standing systemic health and social inequities across the lifespan.

## EXAMPLES OF PROMISING AND INNOVATIVE COVID-19 VACCINATION OUTREACH STRATEGIES

The COVID-19 pandemic has prompted governments and organizations to leverage existing practices with promising outcomes as well as think creatively in implementing new approaches to accelerate the adoption of the vaccines. While the pieces of evidence on the effectiveness of COVID-19 vaccination outreach strategies are still building, there are numerous examples of strategies currently being used at the federal, state, and local levels, with preliminary evidence of success in many settings. This section highlights some promising and emerging innovative outreach approaches that have the potential to improve access to and increase uptake of COVID-19 vaccines.

### Leveraging Data Infrastructure for Outreach and Support

Studies and reports have documented that a data-driven approach can help inform vaccination programs, improve access, and address disparities.<sup>24-27</sup> HHS agencies have published data resources related to vaccination and COVID-19 risk-related data to inform targeted outreach efforts. For example, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) has published reports and detailed public-use files on vaccine hesitancy rates at the state, county, and local levels, with frequent updates to assist public and private efforts to improve outreach.<sup>28-30</sup> Several states have partnered with national health insurance providers for data and analytical support to inform proactive outreach activities and responsive services (addressing structural barriers) through the Vaccine Community Connectors (VCC) program.<sup>31</sup> For example, in Illinois, the state partnered with health plans to aggregate data for its population to identify and help senior members and Medicaid managed care members who live in the top 25% Social Vulnerability Index (SVI) tracts get vaccinated. The health plans also assisted members in securing appointments and coordinating transportation services. Another example is the collaborative approach in North Carolina. The state used maps with data on vaccination rates overlaid with SVI data to identify and encourage local providers to serve as vaccine providers and to inform local community organizations where to focus outreach activities.<sup>32</sup> Educational institutions and industry partners (e.g., health IT solution provider) also produced additional publicly available data resources (e.g., aggregated dashboard,<sup>33</sup> vaccination prioritization index<sup>34</sup>) to aid local governments and communities in tracking and planning vaccine distribution and outreach.

## Maximizing Media Channels for Outreach

The use of media channels (e.g., television, radio, direct mail, newspaper, social media) has shown different degrees of acceptance and impact in improving public health knowledge and in influencing positive behaviors.<sup>35,36</sup> Although these media channels have been a valuable tool to disseminate accurate information during the COVID-19 pandemic, these platforms also became sources of misinformation that contributed to individuals' hesitancy in getting vaccinated.<sup>37</sup> To counter misinformation and disinformation,<sup>\*</sup> federal and state governments, health systems, and service delivery partners (e.g., pharmacy chains) have launched a series of mass media campaigns.<sup>38,39</sup> For example, HHS launched the "[We Can Do This](#)"<sup>40</sup> multimedia campaign to increase confidence in COVID-19 vaccines and reinforce basic prevention measures. The campaign developed tools and shareable resources to provide the latest updates on vaccine science, reinforce the safety of the COVID-19 vaccine, and address common misconceptions about the vaccine.<sup>40</sup> Another large national campaign called "[It's Up To You](#)" aims to make the public feel confident about the vaccine by providing the latest and accurate information, normalizing hesitancy, and answering important questions.<sup>41</sup> Led by the Ad Council and COVID collaborative, this initiative is a collaboration among more than 300 major brands, media companies, community-based organizations, faith leaders, medical experts, and other trusted messengers. Following scientific guidance from CDC, the campaign uses vaccination data to target its audience (mostly among the racial and ethnic minority groups who are disproportionately impacted by the pandemic) and uses different creative messaging content that are culturally resonant, published in multiple languages, and distributed through different platforms (e.g., TV, radio, websites, and social media).<sup>42</sup>

Aside from traditional media, online social networking platforms are also used for communicating crucial messages during public health emergency.<sup>43</sup> While evidence on the impact of social media use for vaccine outreach programs is preliminary,<sup>44</sup> a number of studies have demonstrated its potential to increase intention to get vaccinated.<sup>45,46</sup> Recognizing the potentials of social networking platforms for influencing behavior and for reaching a wider audience, state health departments and local organizations launched social media campaigns as part of the pandemic response. For example, a Facebook campaign sponsored by an international humanitarian organization has reached 1.44 million people in low vaccine acceptance states in about a month of implementation. The campaign highlighted the importance of targeted messaging to change perceptions about the vaccine. The organization's evaluation has shown that people who saw their content are 1.5 percentage points more likely to see the vaccine as effective and 1.2 percentage points more likely to perceive that the vaccine is important in preventing the spread of the virus.<sup>47</sup> When the Pfizer vaccine was originally authorized for 12-17 year-olds, campaigns on social media further intensified, given that this population uses social media platforms heavily. According to a news report, the White House recruited influencers and celebrities to spread accurate information and influence the audience to get vaccinated.<sup>48</sup> The "[See Friends Again](#)" on TikTok<sup>†</sup> is an example of a campaign implemented by grassroots organizations. The campaign partnered with content creators from minority groups to help ease apprehensions about the vaccine among the communities of color.<sup>49</sup> Using the same platform, a state public health department launched a contest to encourage vaccination among young people before students go back to in-person learning.<sup>50</sup>

Like some of the traditional media, social media has also been a common vehicle for vaccine-related misinformation and disinformation. In July 2021, the Office of the Surgeon General released an [advisory](#) that defines recommended action items that individuals and the whole community can do to collectively confront

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<sup>\*</sup> Misinformation is "information that is false, inaccurate, or misleading according to the best available evidence at the time." Disinformation on the other hand is knowingly or "intentionally spreading misinformation to serve a malicious purpose, such as to trick people into believing something for financial gain or political advantage." ([The U.S. Surgeon General's Advisory on Building a Healthy Information Environment](#))

<sup>†</sup> TikTok is a social networking service that allows users to create and share 15-second videos. In August 2020, TikTok has more than [100 million active users](#) in the US. Research published in April 2021 by the [Pew Research Center](#) shows that 48% of U.S. adults between 18-29-years-old use TikTok. Another [consumer trend survey](#) showed that 41% of TikTok users are aged between 16 and 24.

misinformation about the COVID-19 pandemic using offline means and mass media, and technology platforms.<sup>51</sup>

## Addressing Structural Barriers

Structural barriers (e.g., time, transportation, cost, and clinic or vaccine site location) continue to be a problem for many vaccination programs. Studies have found that addressing these barriers can improve vaccine coverage among different population groups.<sup>52-55</sup>

- **Cost barriers**

The federal government invested in the development and procurement of the COVID-19 vaccine to ensure that vaccines are offered to everyone who is recommended to receive it for free, regardless of insurance status and without cost-sharing.<sup>56, 57</sup> However, concerns about paying an out-of-pocket cost to get the vaccine still exist.<sup>58</sup> This underscores the need for ongoing messaging and outreach.<sup>59</sup> Examples of current efforts include continued outreach to providers and patients with clear messaging that the vaccines are offered free of charge on vaccine registration websites and also at vaccination locations.<sup>60, 61</sup> To also address costs associated with transportation, the Federal government partnered with ride-sharing companies to offer free rides to individuals going to vaccination clinics to get a shot.<sup>62</sup>

- **Physical Barriers**

Homebound individuals, such as older adults, people with chronic conditions, and people with disabilities, face numerous unique challenges in accessing COVID-19 vaccines (e.g., scheduling, transportation, need for a caregiver to go with them, and provider's location). Recognizing these challenges, programs are being implemented to target and reach individuals for whom traveling to a vaccination location is difficult. For example, the integration of Emergency Medical Services (EMS) and paramedic providers in vaccination programs has greatly expanded outreach and vaccination services.<sup>63</sup> In some states, EMS personnel have been mobilized to supplement pharmacy-based vaccination by delivering vaccines to homebound individuals and those in long-term care facilities.<sup>64-66</sup> A medical center also partnered with the local fire department to ensure that people who could not leave their residence were able to get vaccinated.<sup>67</sup> The Centers for Medicare & Medicaid Services (CMS) is also incentivizing providers by paying an additional \$35 per dose of vaccine administered at a Medicare beneficiaries' home, increasing the total payment amount to \$75 per dose.<sup>68</sup>

Outreach efforts are also targeting people experiencing homelessness because of elevated risks from COVID-19 and vaccination access barriers. For example, a university hospital organized a street medicine team to provide health services to the homeless, including COVID-19 vaccination.<sup>69</sup> Reports on success in vaccinating persons experiencing unstable housing suggest that having vaccination workers stationed in shelters, training non-clinical outreach workers to counsel individuals, and close coordination and open communication with various community leaders and partners can help increase uptake of the vaccine among this population.<sup>70</sup>

- **Increasing Vaccination Opportunities**

Learning from previous experiences in vaccine programs, increasing the number of accessible and convenient locations (including alternate and non-traditional locations) can increase vaccination coverage,<sup>71-73</sup> address equity concerns,<sup>74, 75</sup> and can be a cost-effective intervention<sup>76</sup> in increasing

uptake of vaccines. Federal partnership programs with pharmacies have helped increase access points for vaccination around the country. These programs are further highlighted in the next section. West Virginia has also been utilizing pharmacies for COVID-19 vaccination but took a slightly different approach. During the early stage of vaccine rollout, the state used the nearly 250 independent pharmacy networks in the state to vaccinate residents of long-term care facilities and nursing homes. Local pharmacies used their existing relationships with nursing homes to gather information and leveraged the trust of patients in encouraging them to get vaccinated. This approach resulted in West Virginia being the first state to be able to offer vaccinations to all nursing home residents.<sup>77</sup>

Aside from pharmacy partnerships, mobile vaccination initiatives and pop-up clinics can also be used to reach specific populations, especially those in underserved areas.<sup>78-80</sup> Many states are using mobile vaccination clinics to increase coverage. Arizona used this approach in rural areas, along with other interventions; the state reached 59% of vaccination coverage in rural areas, which is substantially higher than the national average of 38.9% (as of April 10, 2021).<sup>81</sup> A related approach is to offer drive-through services as a convenient way to get vaccinated.<sup>82</sup> The experience of a health system based in Colorado proved that well-planned, coordinated, and efficient drive-through vaccination events could yield a successful mass uptake of vaccines. For example, this health system's 2-day weekend event resulted in successful vaccination of 10,000 people at over 830 people an hour.<sup>83</sup> States also partner with employers for workplace vaccination programs to further increase vaccination opportunities for employees and their families through on-site vaccination clinics and mobile vaccination buses for large work places (e.g., factories and food processing).<sup>84-86</sup>

## EXAMPLES OF HHS SUPPORT FOR COVID-19 VACCINATION PROGRAMS

HHS is coordinating the federal vaccination effort that has been implemented by the Centers for Disease Control and Prevention (CDC) with contributions from agencies across the Department and in partnership with health centers, clinical providers, and community members. The following discussion includes a brief description of the CDC COVID-19 vaccination program and illustrative examples from initiatives under this program as well as other outreach activities in support of the federal vaccination effort.

### Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention (CDC) COVID-19 Vaccination Program was implemented in the fall of 2020 and has been an unprecedented effort to vaccinate hundreds of millions of Americans against SARS-CoV-2, the virus that causes COVID-19 disease.<sup>87</sup> The U.S. government has distributed COVID-19 vaccine doses nationwide and enrolled providers across the nation. The U.S. government also provided publicly funded adjuvant, syringes, needles, or other constituent products and ancillary supplies as set forth in the COVID-19 Vaccination Program Interim Playbook for Jurisdiction Operations.<sup>88</sup>

There are multiple components of the CDC COVID-19 Vaccination Program, including the Long-Term Care Pharmacy Partnership,<sup>89</sup> the Federal Retail Pharmacy Program,<sup>90</sup> Memoranda of Agreement between CDC and other federal agencies to vaccinate their staff and populations they serve, vaccination at health centers and rural health clinics coordinated by CDC and the Health Resources and Services Administration (HRSA),<sup>91</sup> and distribution to dialysis centers to hold vaccination clinics for their patients.<sup>87</sup> Providers also may enroll in the CDC COVID-19 Vaccination Program through their state, territorial, tribal, or local health department. The only way to legally access COVID-19 vaccine is through enrollment as a provider in the CDC COVID-19 Vaccination Program and to sign the CDC Provider Agreement.<sup>92</sup>

## Health Resources and Services Administration

The Health Resources and Services Administration (HRSA) is the primary federal agency within HHS tasked with combatting health disparities and promoting health equity for underserved, geographically isolated, and medically vulnerable populations. In FY 21, under the American Rescue Plan Act (ARP), HRSA received over \$10 billion to support COVID-19 activities, including vaccinations. Below are examples of how HRSA programs have played a role in supporting vaccination efforts for underserved and rural communities across the country.

- **Federally Qualified Health Centers**

Federally qualified health centers (FQHCs) are woven into the fabric of their communities and provide equitable medical care and resources to underserved populations. As trusted sources of information and primary care services,<sup>93</sup> they partner with other local, community-based, and faith-based organizations to encourage COVID-19 vaccinations. HRSA provided grants and other support to FQHCs and engaged them at the start of the public health emergency (PHE) to bolster their COVID-19 response. There are approximately 1,400 HRSA-funded centers<sup>91</sup> delivering high-quality affordable care annually to nearly 29 million low-income patients, of whom approximately 63% are people of color. Through ARP funding, HRSA has awarded or announced the availability of approximately \$7.6 billion to support the FQHC community,<sup>94</sup> including \$32 million to support COVID-19 training and technical assistance.<sup>95</sup> In addition, 102 look-alike health centers (LALs) that are not federally funded were granted \$144 million for the COVID-19 response.<sup>95,96</sup>

As part of the COVID-19 response, FQHCs submitted data to HRSA on testing, vaccination, and outreach, as well as impact on patients and staff and capacity (e.g., resources, technical assistance, training). According to a HRSA summary report, 62% of FQHCs are conducting community outreach for COVID-19 vaccinations through mobile vans, pop-up clinics, and school-based clinics.<sup>97</sup> FQHC networks are also exploring strategies such as “walk-up” and “drive thru” sites after their success with these strategies for COVID-19 testing efforts.<sup>98</sup>

During early 2021, to ensure our nation's underserved communities and those disproportionately affected by COVID-19 are equitably vaccinated against COVID-19, HRSA and CDC launched an effort that allocated vaccines directly to health centers in three phases, first inviting 250 health centers to participate, then expanding participation to an additional 700 health centers. On April 7, 2021, the invitation was then extended to all HRSA-funded health centers and LALs, expanding the opportunity to 1,470 health centers nationwide. Through this effort, more than 6 million vaccinations were provided by health centers participating in the Health Center COVID-19 Vaccine Program. More broadly, more than 14 million doses of COVID-19 vaccine have been provided by health centers, 66 percent of these provided to people of color.<sup>99</sup>

- **Rural Health Clinics and Community-Based Workforce**

Rural Health Centers (RHCs) are often the primary safety-net provider in medically underserved rural communities, with over 4,600 locations across the country. In July 2021, HHS announced nearly \$100 million in ARP funding for nearly 2,000 RHCs to support outreach efforts to increase vaccinations and build vaccine confidence in rural communities.<sup>100</sup> In addition, HHS is also directly allocating COVID-19 vaccines to RHCs and currently has more than 110 RHCs across 22 states have received a total 75,870 vaccine doses.<sup>101</sup>

In May 2021, HHS also announced the availability of nearly \$250 million across two funding opportunities to develop and support a community-based workforce to serve as trusted messengers sharing information about vaccines, increase COVID-19 vaccine confidence, and address barriers to



vaccination for individuals living in vulnerable and medically underserved communities. These organizations are using strategies tailored to the populations and areas they know best to address persistent racial, ethnic, and socioeconomic health inequities.<sup>102, 103</sup>

## Indian Health Service

In March 2020, the Indian Health Service (IHS) leadership activated the Headquarters Incident Command Structure (ICS) to respond to COVID-19. On September 4, 2020, the ICS approved the IHS COVID-19 Vaccine Task Force to lead the Agency's COVID-19 vaccine activities. The IHS COVID-19 Vaccine Task Force comprised of six teams: 1) prioritization, 2) distribution and allocation, 3) vaccine administration, 4) communication, 5) data management, 6) safety and monitoring engaged Indian tribes through consultations and listening sessions to create and refine the IHS COVID-19 Pandemic Vaccine Plan (November 2020).<sup>104</sup>

This approach led to early successes in vaccination. By March 2021, American Indian and Alaskan Natives accounted for 1.6 percent of total vaccinations administered, more than double their share of the population (0.7 percent).<sup>105</sup> However, there was variation in vaccination coverage —the proportion of a given population that has received at least one dose of the COVID-19 vaccine —within a state.<sup>106</sup> IHS received over \$9 billion<sup>107</sup> and distributed over 1.8 million vaccine doses to 354 IHS-operated, tribal health programs, and urban Indian organizations across the health care system. In addition, 1.5 million doses of the COVID-19 vaccine have been administered to patients, staff, and tribal community members through early August 2021.<sup>10, 104, 107, 108</sup> The successful vaccination rate among Indian tribes has been attributed to their tribal leadership and community-centered approach when conducting outreach, such as call centers staffed with people who speak the same language, and messaging through both traditional sources (e.g., direct mail, phone calls, radio) and social media.<sup>109</sup>

## Centers for Medicare and Medicaid Services – Medicaid

Under the American Rescue Plan Act (ARP), enacted in March 2021, states are required to reimburse COVID-19 vaccines and vaccine administration for Medicaid and CHIP beneficiaries without cost-sharing. Federal funding will continue to reimburse all COVID-19 vaccine expenses and vaccine administration for Medicaid and CHIP at 100 percent Federal Medical Assistance Percentage and will be extended one-year post-PHE.<sup>110</sup>

On May 28, CMS issued an [informational bulletin](#) regarding the expansion of the COVID-19 vaccine to adolescents age 12 and over.

In addition, numerous state Medicaid agencies reported they conducted outreach to their beneficiaries citing specific strategies including<sup>111</sup>:

- Asking Medicaid Managed Care Organizations (MCOs) to adopt a community health worker model<sup>112</sup> to assist vulnerable populations (e.g., individuals with disabilities or experiencing homelessness). In this model, frontline workers, usually from the community, provide health education and connect individuals to services.
- Partnerships with retail pharmacies.
- Encouraging vaccination among Emergency Medical Technicians (EMT) drivers and EMT assistance with transportation to vaccination sites.
- The Connecting Kids to Coverage (CKC) Campaign, which focuses on enrolling and retaining eligible children in Medicaid and CHIP, has incorporated promoting the COVID-19 vaccine as part of its messaging in a variety of activities including a Back to School Initiative. In June, a webinar for community-based organizations, schools, providers, grantees, and advocates featured a CDC

presentation on the importance of getting the COVID-19 vaccine for adolescents. This messaging has also been incorporated into an electronic newsletter to partner organizations and a Radio Media Tour scheduled for early September.<sup>113</sup>

CMS's Medicaid COVID-19 Vaccine Toolkit<sup>114</sup> outlines other options for states to consider with respect to both practitioner and facility-based billing for vaccine administration services, such as enhanced rates or add-on payments (including the possibility of an add-on payment for drive-through immunization sites). To further encourage vaccination uptake, CMS issued a rule in May 2021<sup>115</sup> for long-term and residential facilities to monitor and report vaccinations and offer COVID-19 education to people with intellectual disabilities.<sup>116</sup> CMS Center for Clinical Standards and Quality (CCSQ) and CDC held a series of calls targeted to nursing home staff that were vaccine hesitant or vaccine resistant to encourage vaccine uptake within staff by highlighting the Long Term Care Vaccine Community Champions.<sup>117</sup>

### **National Institutes of Health Community Engagement Alliance Against COVID-19**

In order to further study educational strategies, knowledge, and perceptions regarding the COVID-19 virus and vaccines in communities hardest hit by the pandemic, the National Institutes of Health (NIH) is leveraging its existing community-engaged research networks<sup>118-120</sup> and among community-engaged scientists to address COVID-19 disparities through community engagement (e.g., community-based organizations, FQHCs), outreach, and a centralized location for science-based COVID-19 related information. The mission for the NIH NIH Community Engagement Alliance (CEAL) Against COVID-19 Disparities is *“to provide trustworthy information through active community engagement and outreach to the people hardest-hit by the COVID-19 pandemic, with the goal of building long-lasting partnerships as well as improving diversity and inclusion in response to COVID-19.”*<sup>121</sup>

The CEAL teams are in states across the U.S., including Puerto Rico. These teams engage with trusted organizations and leaders within community-engaged networks to that build trust, provide accurate information on COVID-19, promote, encourage inclusive participation in COVID-19 research, and public health mitigation strategies (including vaccines), improve access to emerging therapies to reduce disparities. Strategies under testing include development and dissemination of newly created information and messages tailored to communities, innovative approaches for outreach at the local level, and partnering with hyperlocal media and social media channels. The CEAL website's "Engagement Spotlights" provide examples of how the CEAL teams are tailoring their approach to the unique communities they serve.<sup>122</sup>

### **Office of Minority Health National COVID-19 Resiliency Network and Advancing Health Literacy to Enhance Equitable Community Responses to COVID-19 Initiatives**

To support the development and dissemination culturally and linguistically appropriate COVID-19 information and connection to COVID-19 services (e.g., testing, vaccination) for racial and ethnic minority populations, the HHS Office of Minority Health (OMH) funded a \$40M National COVID-19 Resiliency Network of national, state, territorial, tribal and local stakeholders.<sup>123</sup>

To increase vaccination and other COVID-19 mitigation measures (e.g., testing, contact tracing, public health prevention practices) in racial and ethnic minority and other socially vulnerable populations, OMH funded 73 local governments for a total of \$250M for the Advancing Health Literacy to Enhance Equitable Community Responses to COVID-19 initiative. The initiative seeks to demonstrate the effectiveness of local government implementation of evidence-based health literacy strategies that are culturally appropriate.<sup>124</sup>

## EXAMPLES OF STATE COVID-19 VACCINATION OUTREACH INITIATIVES

As of August 21, 2021, 21 states, the District of Columbia, Puerto Rico, and Guam have reached over 70 percent of the population (12 years or older) who received at least one dose of vaccine, and eight states have achieved vaccination rates over 80 percent.<sup>10</sup> Nevertheless, the percent of the population 12 years and older in states who are fully vaccinated is lower and at least 11 states have 50 percent or less of the eligible population fully vaccinated. States have used multiple types of outreach strategies,<sup>125</sup> including many that focus on achieving equitable access to vaccines particularly by communities disproportionately affected by the pandemic.<sup>126</sup> This section highlights illustrative state outreach strategies in four states that were chosen based on having information available about their strategies from the health sciences literature, news reports, or on a public website sponsored by the respective state. Many other states are also incorporating successful strategies, and therefore this list is by no means comprehensive:

### Maine

Maine has one of the highest vaccination rates in the nation. Eighty percent of the population 12 years or older are vaccinated in Maine with at least one dose of the vaccine.<sup>10</sup> This is particularly noteworthy because of the outreach challenges it faces with 40 percent of the population living in a rural county<sup>127</sup> and 18 percent of the population over the age of 65.<sup>128</sup> As a result, Maine is considered the most rural state in the nation and the oldest state by median age.<sup>127</sup> In addition, access to affordable and reliable forms of transportation is often problematic.<sup>128,8</sup> In Maine, health systems' roles in leading and mobilizing community partners have been critical components of the state's successful outreach strategy.<sup>129</sup>

Components of Maine's vaccine outreach strategy include:<sup>129</sup>

- Large integrated health systems partnering with community-based organizations, employers, and the state to set up mass vaccination sites.
- Clinical and nonclinical health system employees volunteering to work at vaccine clinics including staff who work in community health, finance, billing, and administration.
- Repurposing physical property resources like a closed horse racing track, a town's recreation department, and a YMCA to establish high throughput vaccine clinics.
- Partnerships with employers and community organizations, some of whom allowed their employees to volunteer as part of their workday.
- Hosting virtual town halls in several languages.
- State funding to community-based organizations to assist with outreach and education.

### New Jersey

New Jersey has achieved high levels of vaccination,<sup>10</sup> which may be partially attributable to its vaccination plan that focuses on providing equitable access, achieving community protection, and build sustainable trust.<sup>130</sup> Eighty percent of the population 12 years or older are vaccinated in New Jersey with at least one dose of the vaccine.<sup>10</sup> It has taken a multipronged approach to its vaccination outreach including initiative such as:

- Working with Medicaid managed care organizations to identify unvaccinated individuals who are eligible for vaccines due to their health status. The insurance companies then mount "high touch" outreach through telephone calls and mailings to Medicaid beneficiaries. The insurance representatives work with beneficiaries to schedule a vaccine appointment and help with transportation if needed.<sup>131</sup>

- Supporting the COVID-19 Community Corps (CCC) initiative, which trains community members to educate and deliver COVID-19 vaccination information and navigation support to underserved communities.<sup>132</sup>
- Providing on-site vaccinations in public housing complexes for seniors and setting up field vaccination sites on farms employing migrant and seasonal workers.<sup>133</sup>

## Minnesota

Minnesota is a state with growing racial and ethnic diversity and an aging population, but a higher rate of health insurance coverage compared to the U.S.<sup>134</sup> The state's COVID-19 vaccination plan<sup>135</sup> calls for a broad public information campaign and using existing relationships with community organizations to reach key audiences with information about COVID-19 vaccine. Seventy-two percent of the population 12 years or older are vaccinated in Minnesota.<sup>10</sup> Some vaccine outreach initiatives in Minnesota are:

- The Minnesota COVID-19 Vaccine Connector, which is a tool that helps Minnesotans find out when, where, and how to get a COVID-19 vaccine.<sup>136</sup>
- The state's 'Vax to School' campaign encourages students and families to get fully vaccinated by the beginning of the school year.<sup>137</sup> The campaign included a [video on YouTube of Minnesotan educators](#) encouraging students and families to get vaccinated to ensure a safe school year.
- The state health department provides funding for community groups to host community COVID-19 vaccination events, including recruiting people to attend, providing transportation, and helping with registration.<sup>138</sup>
- The state public health department is sponsoring a COVID-19 community vaccination clinic at the Minnesota State Fair.<sup>139</sup>
- The state has a "Be a Vaccine Advocate" which provides COVID-19 vaccine toolkit for individuals and organizations in multiple languages like Hmong, Somali, and Spanish<sup>140</sup>
- Metro Transit turned six underutilized transit buses into mobile vaccination clinics by removing seating and installing new equipment. The mobile vaccination units are a highly-targeted vaccine distribution strategy, intended to bring vaccines to people who would otherwise have a hard time getting vaccinated due to barriers, including transportation, technology, and geographic barriers.<sup>141</sup>
- Outreach at places of worship including synagogues, churches, and mosques.<sup>142</sup>
- The "Shots at the Shop" campaign, which is an effort to engage black-owned barbers and stylists and the communities they serve in COVID vaccine education and outreach.<sup>143</sup>

## North Carolina

In North Carolina, 63 percent of the population 12 years or older are vaccinated with at least one dose of the vaccine.<sup>10</sup> In addition, the proportion of vaccinated persons who were Black and of vaccine doses administered to Hispanic persons nearly doubled during March 29–April 6, 2021 compared with December 14, 2020–January 3, 2021, due to the focus of vaccine efforts on equity.<sup>144</sup>

North Carolina's COVID-19 Vaccine Roadmap<sup>145</sup> includes principles of inclusion and respect, trustworthy communication, data-driven decisions, and equitable access to vaccines. A central component of the roadmap was to embed equity in vaccine operations. This was implemented through:

- Partnerships with FQHC's.

- Providing free transportation for people to receive COVID-19 vaccines.
- Training and deploying over 400 community health workers.
- Setting aside a portion of the state’s vaccine allocation to support vaccine sites and events to reach historically marginalized populations such as African Americans and Latinos.
- Supporting partnerships with community organizations to hold vaccine clinics in churches, colleges, and community centers, serving historically underserved communities.

Another novel approach to target COVID-19 vaccine outreach was undertaken by North Carolina Cancer Hospital of the University of North Carolina. Health professionals used electronic health records to identify cancer patients eligible for vaccination and focused on communities of color and those who lived in a county with a greater than 20% poverty rate. Nurses placed scripted informational telephone calls to each identified patient to provide standardized education about the eligibility, safety, and logistics of vaccination. The focus of the calls was to assist patients in making informed decisions about vaccination, address barriers, and answer to questions. Of the 536 patients who were identified, 359 patients (67 percent) were reached successfully by phone and 93 patients (26 percent) were confirmed to receive the vaccination within about three months of the calls. In addition, 14 (4 percent) were scheduled for a vaccine appointment in three months.<sup>146</sup>

## COVID-19 VACCINE OUTREACH TOOLS AND GUIDES

Various outreach toolkits are available through federal, state, local, and non-profit groups to enhance community outreach and promote equitable COVID-19 vaccine coverage. These tools provide guidance to effectively target, communicate, and provide accessible services to the community at large as well as vulnerable groups that are most impacted by the pandemic.

- [ASPE](#) has provided detailed public-use files on vaccine hesitancy rates at the state, county, and local levels, with frequent updates to assist public and private efforts to improve outreach.<sup>28</sup>
- [CDC](#) has toolkits to help local governments and partners in building the confidence of the community to COVID-19 vaccine, including resources to promote COVID-19 vaccine equity for racial and ethnic minority groups.<sup>147</sup>
- The [CDC](#) released guidelines while [ACL](#) consolidated reference materials and recommended processes for jurisdictions and partner organizations to ensure equal opportunities for older adults and people living with disabilities to get vaccinated.<sup>148, 149</sup>
- [CDC and the HHS’ OMH](#) developed the Minority Health Social Vulnerability Index (SVI) to help in the identification of racial and ethnic minority communities who are the greatest risk for disproportionate impact and adverse outcomes due to the COVID-19 pandemic.
- [CMS](#) released a tool to help state and territorial agencies implementing Medicaid, Children’s Health Insurance Program (CHIP), and Basic Health Program (BHP) in identifying and addressing issues to ensure coverage and reimbursement for vaccine administration among the programs’ beneficiaries and enrollees.<sup>114</sup>
- [FDA](#) published webpages with COVID-19 resources, including vaccine fact sheets, in multiple languages (e.g., Chinese, Korean, Tagalog, Portuguese, Somali).<sup>150</sup>
- [HRSA](#) published a webpage for its community-based workforce outreach awardees with resources to help them address misinformation and vaccine hesitancy, and build trust with adults and minority groups, as well as data sources to help in planning.<sup>151</sup>

- [NIH](#) provides science-based resources, including FAQs, factsheets, and social media messages in multiple languages about COVID-19 and vaccines, to communities hit hardest by COVID-19 to assist in providing accurate information and encouraging informed action on vaccination and preventive measures.<sup>152</sup>
- The [Surgeon General](#) released an advisory and [NIH](#) released a guide in addressing misinformation about the COVID-19 vaccine.<sup>51, 153, 154</sup>

Other non-profit groups have also published toolkits to help communities in planning and executing outreach activities to increase vaccine coverage:

- The [American Psychological Association](#) and the [National Academies of Sciences, Engineering, and Medicine](#) released guidance documents engaging the community and offering ways to effectively build trust and confidence around the vaccine among the different sectors of the community.<sup>155, 156</sup>
- Targeting employers, the [National Safety Council](#) released a guidance in providing information and in crafting policies that can aid in increasing the vaccine coverage among workers.<sup>157</sup>
- [Public Health Institute](#) documented best practices in addressing barriers in accessing vaccines.
- The [National Rural Health Association](#) developed tools and resources to help reach and address COVID-19 questions and concerns among rural communities.<sup>158</sup>

## CONCLUSION

The COVID-19 pandemic has taken a staggering toll on the lives of people across the United States and around the world. The social, economic, and health risks of the pandemic are amplified in communities that have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality. New vaccines to prevent COVID-19 became widely available in the United States with unprecedented speed following a rigorous review by FDA to assess vaccine safety and effectiveness. Almost universally, these vaccines provide the safest and most effective way to significantly reduce the risk of morbidity and mortality associated with SARS-CoV-2 infection. While structural and attitudinal barriers exist to COVID-19 vaccination, there are multiple examples of COVID-19 vaccine outreach strategies by federal and state public health programs that have successfully facilitated high COVID-19 vaccination rates in communities and states. Initial research suggests this success has translated into lower rates of hospitalizations and mortality due to COVID-19 in those areas.<sup>1</sup> Additional research and monitoring are needed to understand which components of COVID-19 vaccine outreach programs are the most effective and to inform the design of new COVID-19 vaccine outreach interventions. Nevertheless, there is an urgent need to continue current vaccine outreach efforts using innovative approaches and the best available evidence from research studies as it becomes available. Strategies that are multifaceted, engage communities, address barriers, and are evidence-based are likely to lead to higher vaccination rates.

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