COVID-19 Vaccination Field Guide:
12 Strategies for Your Community

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Vaccinate with Confidence
Strategy to Reinforce Confidence in Covid-19 Vaccines

Table of Contents

4 Introduction

- **4** About This Guide
- **5** Using this Guide

6 Common Barriers

- **6** Structural Barriers
- **6** Behavioral Barriers
- **7** Informational Barriers

8 Understanding Your Community

- **8** The Social Vulnerability Index (SVI)
- **9** Walk a Mile Exercise
- **11** Diagnostic Tool to Identify Factors and Strategies
- **12** Rapid Community Assessment (RCA)

13 Vaccine Confidence and Uptake Strategies

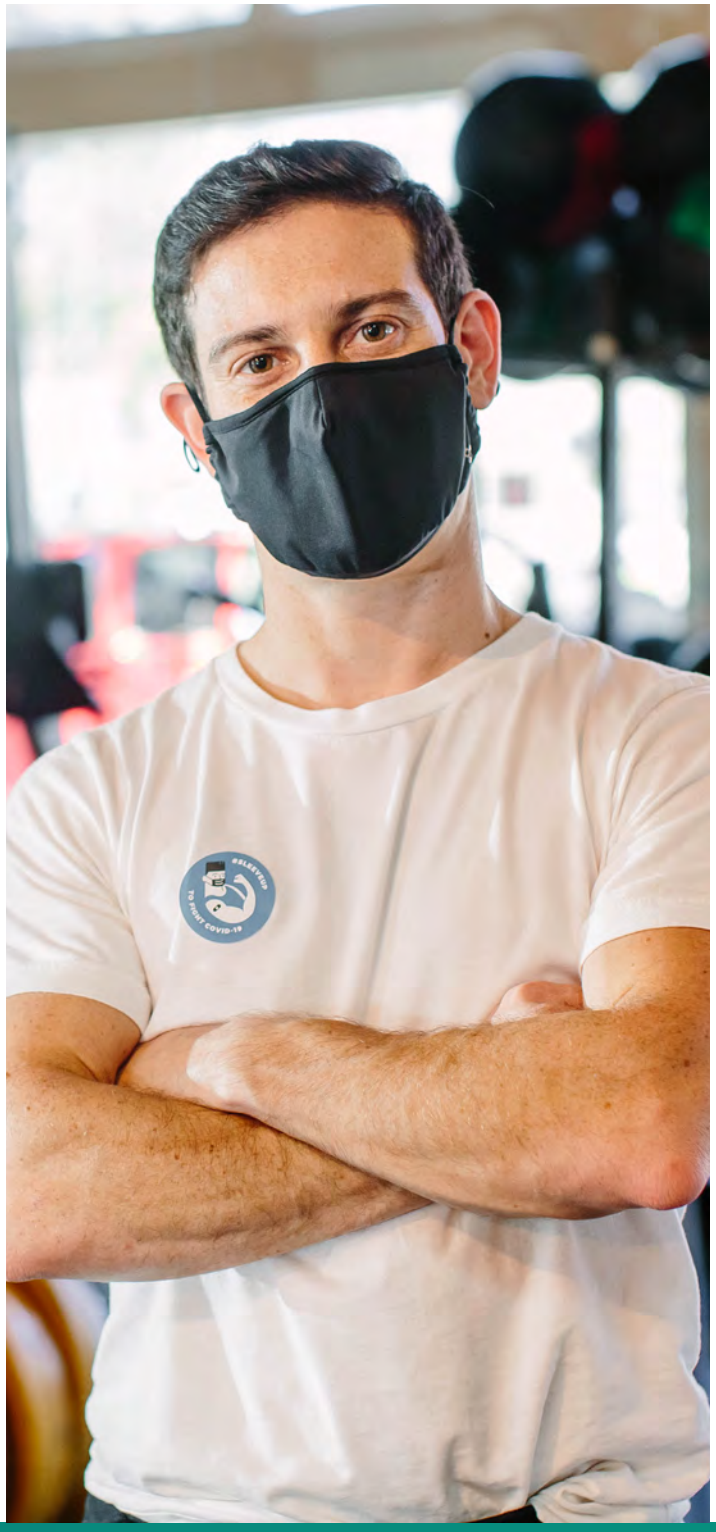
- **15** *Strategy 1:* Vaccine Ambassadors
- **17** *Strategy 2:* Medical Provider Vaccine Standardization
- **18** *Strategy 3:* Medical Reminders
- **20** *Strategy 4:* Motivational Interviews
- **21** *Strategy 5:* Financial Incentives
- **22** *Strategy 6:* School-Located Vaccination Programs
- **23** *Strategy 7:* Home-Delivered Vaccination
- **24** *Strategy 8:* Workplace Vaccination Programs
- **25** *Strategy 9:* Vaccine Requirements
- **27** *Strategy 10:* Effective Messages Delivered by Trusted Messengers
- **29** *Strategy 11:* Provider Recommendation
- **30** *Strategy 12:* Combating Misinformation

31 **Conclusion**

32 **Appendices**

- **32** *Appendix A:* References and Resources
- **41** *Appendix B:* Strategy Matrix Table
- **42** *Appendix C:* Diagnostic Tool
- **46** *Appendix D:* BeSD Framework

47 **Acknowledgments**



The COVID-19 pandemic has affected millions of lives in communities across the world, including in the United States. COVID-19 is unique in many ways, including its global impact, its politicization, and the need for universal vaccination to combat the virus. When COVID-19 vaccines became available in the United States, millions of Americans eagerly sought out and received them. Many see vaccination as the key to a post-pandemic life, yet millions of Americans have still not been vaccinated despite eligibility and plentiful supply. Desire for receiving a COVID-19 vaccine among some minority populations, particularly Black or African American and Hispanic or Latino populations, is high though uptake is lagging[1][2]. This indicates barriers related to access and equity may be at play. For other populations, there is more hesitancy about getting vaccinated. Communities with vaccination rates much lower than the national average may need to further investigate and address barriers to COVID-19 vaccination.

People encounter barriers that can hinder or facilitate vaccinations. Barriers and facilitators range from logistical and access issues, to personal beliefs and risk perception, to community beliefs and social norms. Insights from behavioral health research can help determine strategies to help people get vaccinated and promote near-universal uptake.

Health departments, community organizations, faith-based communities, and leaders from all sectors of public life are making great efforts to promote COVID-19 vaccination. No single approach will work for every community; in fact, as the research included here demonstrates, a combination of strategies is generally most effective and will increase chances for success. This field guide highlights several strategies derived from evidence-based practices that are being applied in communities across the country to promote vaccine confidence and uptake.

About this Guide

This field guide offers intervention strategies to promote COVID-19 vaccine confidence and uptake based on a rapid assessment of evidence that identified research-proven methods. This guide is intended to support the work of health departments and community- and faith-based organizations across the United States. It highlights some common barriers that communities experience in vaccine confidence and uptake. Not all barriers are relevant in all communities; therefore, the second section of this guide helps you understand the various needs of different communities and offers tools to help you assess barriers and find potential solutions for your community of focus.

The final section describes 12 intervention strategies drawn from historical vaccination efforts that have demonstrated positive outcomes through evaluation research. While most of the guide focuses on increasing vaccine uptake, several strategies address increasing vaccine confidence. Each strategy highlights the approach, population(s) served, location, barriers addressed, basis in research, and an example of how the strategy is currently being applied to address COVID-19 vaccination.

Vaccine Confidence is the trust that people have in recommended vaccines and how they are administered and developed. Without some level of confidence, people will not move toward receiving a vaccine.

Vaccine Uptake refers to the proportion of the population that has received a vaccine.

1 PPRI Staff. (July 27, 2021). Religious Identities and the Race Against the Virus: (Wave 2: June 2021). Retrieved at: https://www.prri.org/research/religious-vaccines-covid-vaccination/.

2 Ndugga, N., Hill, L., Artiga, S., and Parker, N. (August 18, 2021). Latest Data on COVID-19 Vaccinations by Race/Ethnicity. Retrieved at: https://www.kff.org/coronavirus-covid-19/issue-brief/latest-data-on-covid-19-vaccinations-race-ethnicity/

Using this Guide

This resource consists of three primary sections:

1. Common Barriers

This section of the guide tells about common barriers to vaccine confidence and uptake.

2. Understanding Your Community

This section offers tools you can use to identify and understand what barriers and facilitators may be factors in your community of focus. You may need only one of these tools, or several to increase your understanding of your community.

3. Vaccine Confidence and Uptake Strategies

Here you will find recommended strategies to increase vaccine confidence and uptake. The research that supports the strategy is provided along with case study examples. More information about the strategies, including guidance and implementation resources, are linked within the document and provided in **Appendix A**.

Real-world Considerations

need to be kept in mind when you implement any of these strategies in your community:

Factor in cost of implementing the strategy including dollars, time, level of effort, staffing.

Implement the strategy to have the most success by having relevant community members involved in planning and execution; obtain leadership buy-in.

Consider piloting the effort on a small scale to measure success before attempting wider implementation, especially if you are unsure about a strategy.

Common Barriers

There are several common barriers to COVID-19 vaccine confidence and uptake. Leaders should consider which barriers the people in their community are experiencing. Understanding the barriers can help identify strategies most likely to increase vaccine uptake. The Behavioral and Social Drivers (BeSD) framework described in **Appendix D** offers another way to view what drives or motivates COVID-19 vaccine uptake.

Structural Barriers

Equity: COVID-19 vaccines may not be equally distributed, administered, or accessed in communities nationwide, especially among under-resourced communities in urban and rural areas.

Cost: While COVID-19 vaccination is currently free, it requires time and resources. This includes figuring out where to get vaccinated, making an appointment (if necessary), traveling to the vaccination site, possibly taking time off from work, and recovery times for those who experience side effects. Some people will need childcare or transportation, or are unable to take time off work to get vaccinated or recover from side effects.

Access: Proximity and travel convenience to a vaccination site plays a large part in an individual's ability to get vaccinated. Vaccination clinic hours of operation may limit access for some as well. Some people do not have transportation access, internet access, or the technical skills required to search online for vaccination sites or appointments. People with disabilities, who are confined to their homes, or who live in a long-term care or correctional facility, cannot travel to get a vaccine.

Policy: Existing policies, such as health insurance requirements for most medical services and service restrictions for non-citizens and undocumented residents, can influence understanding of vaccine access. People may not know they are eligible to receive a vaccine for free or be aware of their employer's policies on paid and unpaid leave for vaccination purposes. Also, employers are encouraged, but not required, to have policies allowing employees to take paid leave to get vaccinated and to recover if they have temporary side effects.

Behavioral Barriers

Inertia: Getting vaccinated takes planning and effort. Many individuals have difficulty making decisions—especially large decisions—so instead of deciding, they do nothing. This tendency to do nothing leaves people unvaccinated.

Prevailing Social Norms: Community norms often drive individuals' actions. If trusted friends or leaders in one's community are against getting vaccinated, others will likely follow suit.

Forgetfulness: People may forget non-routine activities and procedures. They may forget to book their vaccination appointments or to keep them.

Friction: Complex, inconvenient, or effort-provoking processes often lead people to fulfill immediate wants and needs. If the process of booking or attending a vaccination appointment is too complicated, they will not do it.

Misperception: Individuals may have vaccine opinions and beliefs based on scientific inaccuracies, including that they are at low risk of getting severely sick with COVID-19, that the pandemic is being exaggerated, or that vaccines are not effective. These inaccuracies are often spread in communities and lead to fear, resistance, or mistrust.

Behavioral Barriers (Continued)

Mistrust: Lack of trust in institutions including government, medical institutions, and media, is sometimes based on individual or communal experiences, and affects decisions about vaccination.

Uncertainty: Due to the novelty of the vaccines, many individuals feel uncertain about the short- and long-term side effects, causing them to take a cautious "wait-and-see" approach to getting vaccinated. With the course of the pandemic uncertain, people may believe it will soon be over. So, they may believe they do not need a vaccine or want to wait to see if a different option will be approved to address COVID-19 variants. Changes in official guidance can also make people feel uncertain about their actions or decisions.

Politicization: COVID-19 vaccines have been politicized, making political affiliation a strong determinant of vaccination beliefs and behaviors.

Informational Barriers

Cultural Relevance: Information about the vaccines is not always communicated in ways that reflect sociocultural norms, beliefs, and realities. This can make information less relevant and confusing to some individuals. Language may also be a barrier for non-native English speakers, especially given the complexity and novelty of some vaccine information.

Health Literacy: Individuals may not fully understand the complex vaccine information being shared, such as the multiple types of vaccines offered or lack of a clear and simple call to action. Adding to confusion is changing guidance. People may lose trust or become confused when new information is conveyed frequently; possibly not understanding that changing data impacts guidelines. People may also have difficulty telling the difference between factual and false health information.

Mis- and Disinformation: Most mis- and disinformation that has circulated about COVID-19 vaccines has focused on vaccine development, safety, and effectiveness, as well as minimizing the severity of the pandemic and COVID-19 denialism.

Lack of Adequate Information: Some individuals lack the information they need to understand the risks, benefits, and background of vaccine development to make an informed decision about getting vaccinated. Information overload can also be a form of inadequate information as it can become difficult for people to know what is relevant or current.

Misinformation is false information shared by people who do not intend to mislead others.

Disinformation is false information deliberately created and disseminated with malicious intent.

Understanding Your Community

To effectively address common barriers, it is important to identify and understand your community of focus. Existing community data and previously conducted assessments, such as a health equity impact assessment, may be available and useful in this process. Several tools are available to help with this, including the Social Vulnerability Index, the "Walk a Mile" Exercise, the diagnostic tool, and the Rapid Community Assessment (RCA) Guide.

The Social Vulnerability Index

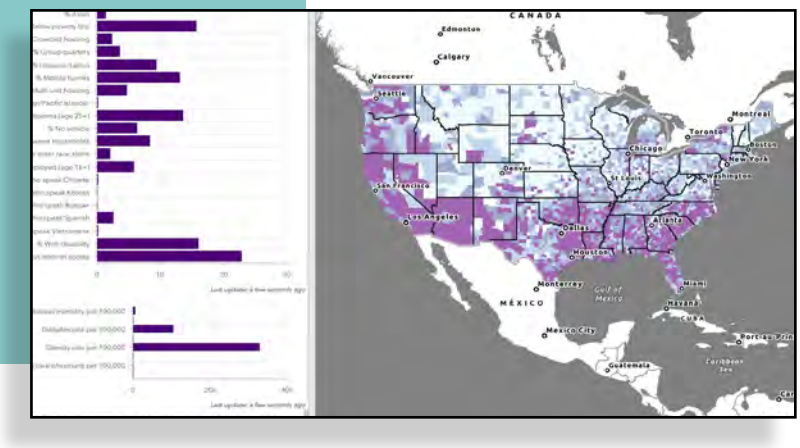
The Social Vulnerability Index (SVI) is a Centers for Disease Control and Prevention (CDC) database designed to help emergency response planners and public health officials identify and map communities that will most likely need support before, during, and after a public health emergency, including the COVID-19 pandemic. Data from the SVI can help local leaders identify and decide which populations to focus on.

About

Several factors, including poverty, lack of access to transportation, and crowded housing may weaken a community's ability to prevent human suffering and financial loss in a disaster. These factors are known as social vulnerability. Reducing social vulnerability can decrease human suffering and economic loss. The SVI ranks each county and census tract based on four themes:

1. Socioeconomic status
2. Household composition and disability
3. Minority status and language
4. Housing type and transportation

The higher the ranking, the more socially vulnerable the community is compared to other communities.



How to Use

The SVI data are displayed on an interactive map and can also be downloaded for a more granular look into what determines a county or census tract's SVI.

Applying the Data

Communities with higher SVI values have been disproportionately affected by COVID-19 both in terms of new cases and deaths. Often these communities face greater structural barriers to vaccination. Early in the vaccine rollout, counties with high social vulnerability had lower COVID-19 vaccination coverage than did counties with low social vulnerability. Efforts to increase vaccine access, confidence and demand can be prioritized for these communities to decrease inequities.

Walk a Mile Exercise

The Walk a Mile (WAM) interactive exercise invites participants to "walk a mile" in the shoes of the population of focus in their journey to vaccination, recognizing that each population may have unique context and experiences. Barriers and facilitators to COVID-19 vaccination for specific populations are identified.

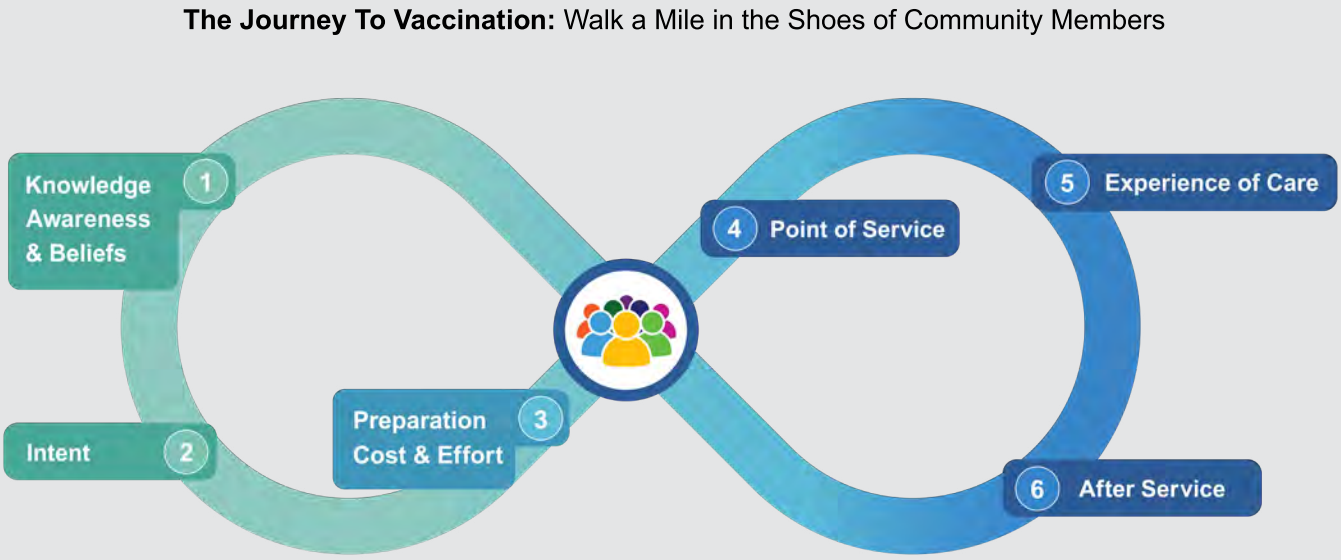
About

The WAM exercise identifies these key steps in the vaccination process:

1. Knowledge, awareness, and beliefs
2. Intent
3. Preparation, cost, and effort
4. Point of service
5. Experience of care
6. After service

Factors at the individual, community, societal, and political level impact vaccine access, confidence and demand at each of these stages and should be considered throughout the exercise.

FIGURE 1: Walk a Mile Graphic



Modified from UNICEF Journey to Health, ESARO Network Meeting 2019

How to Use

The exercise is designed to be completed in small groups that are familiar with the population of focus. This may include health department staff, community- or faith-based organizations, community leaders, and others. A facilitator guides a group conversation while people play the roles of members of the community of focus; brainstorming their enablers and barriers at each point along the vaccination journey. If you would like a guide to conduct the WAM exercise, please email confidenceconsults@cdc.gov.

FIGURE 2: Example of Completed WAM Exercise

Applying the Data

The responses from the WAM exercise give insight into how the vaccination journey is unique to each population. For each population, the exercise generates a list of perceived and actual barriers and facilitators. Understanding this can lead to identifying appropriate strategies to try to increase vaccine confidence and uptake.

Diagnostic Tool to Identify Factors and Strategies

About

The diagnostic tool (see **Appendix C**) can be used for guided conversations to assess factors related to vaccine confidence and uptake in a specific population and identify strategies to address challenges.

FIGURE 3: Example of Diagnostic Tool Questions

A Diagnostic Tool for Identifying & Addressing COVID-19 Vaccine Confidence Challenges in Specific Populations

Factors that Build Vaccine Intention	Assessment of Factors (they = communities of focus)	YES	IF NO: Questions/Considerations	Recommended Strategies
Vaccine Recommendation	Are they aware it is recommended for them?		Why not? What are the best ways to reach them with this information? If there is high demand and people can't get appointments, they may become frustrated. How can you address frustration or redirect people to do other things until they get vaccinated?	HCP & institutional Recommendations (including CDC/ACIP Guidance) Outreach through relevant communication channels/forums
Vaccine Availability	Are they aware it is available to them or when it will be? Is supply sufficient to meet demand?			
Vaccine Safety	Do they believe the vaccines are safe?		What questions/concerns do they have (in the short and long term)? Are concerns primarily about side effects or the speed of vaccine development (e.g., cutting corners)? How did they hear about these concerns? What information do they need? What would ease their concerns? Who are the trusted sources for this information? How can you increase their trust in information from your organization?	Clear communication about vaccine development process, safety data and monitoring, efficacy data Address misinformation Outreach through relevant communication channels Education through trusted sources
Vaccine Efficacy	Do they believe the vaccines are effective in protecting them from getting sick?			
Trust in Vaccination Institutions	Do they trust the institutions involved in the vaccination process? • Manufacturers/pharma • Approvers/recommenders and safety monitors (FDA/CDC) • Vaccinators (HCPs) • Program implementors (state/local health departments)		Why don't they trust the institution? Have there been issues in the past? What has been done to try to (re)build trust? What would they need to know to increase trust? Who are the best people to deliver that information?	Clear communication about the vaccine development and approval process Address misinformation Acknowledgement of past issues and explanation of how they are being addressed Engagement of trusted sources

How to Use

The factors that build vaccine confidence, intention, and demand are located in the left column of the tool. Questions related to the assessment of the factors are provided for each. If the answer to the assessment question is yes, move to the next factor. If the answer to the question is no, proceed to the "Considerations" column. If sufficient information is available to talk through the considerations, proceed to the "Recommended Strategies" column.

This tool is designed to be used by anyone working to increase vaccination in a specific population. The participants in the guided conversations could include health department staff, community- or faith-based organizations, community leaders, and others.

The tool can be used with large or small groups. The key is to have people involved in the discussion who know the most about the population of focus and the vaccination process.

Applying the Data

Once the recommended strategies have been identified, teams can think through how to design, implement, and evaluate these interventions.

Rapid Community Assessment

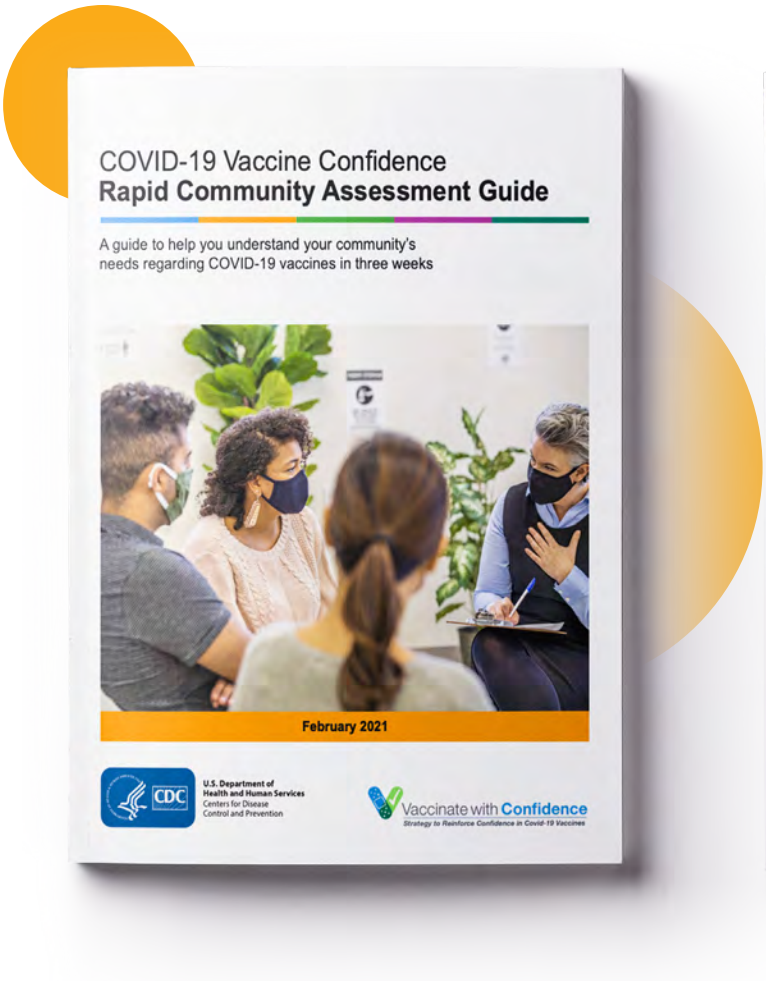
In attempting to apply the tools above, an organization might find that they do not have enough information to identify barriers and facilitators related to vaccine confidence or demand. An organization might also consider it necessary to conduct a more in-depth community assessment to determine the status of vaccine confidence or demand in their communities. In either case, the Rapid Community Assessment (RCA) Guide can help identify and address these challenges.

About

The RCA can be used by staff of any organization working to increase COVID-19 vaccine uptake who wish to better understand the needs of the population of focus.

Use of this tool will help an organization to:

- Identify populations of focus at risk for low COVID-19 vaccine uptake.
- Gain an understanding of what people in the community think about COVID-19 vaccines, as well as plan for potential solutions to increase confidence and uptake.
- Identify community leaders, trusted messengers, and other important channels to reach populations of focus.
- Identify areas of intervention and prioritize potential intervention strategies to increase confidence in and uptake of COVID-19 vaccine.



How to Use

The RCA consists of five steps:

1. Identifying objectives and community(ies) of focus
2. Planning for the assessment
3. Collecting and analyzing data
4. Reporting findings and identifying solutions
5. Evaluating your efforts

Given the urgency of the COVID-19 pandemic, the suggested timeframe to complete the assessment is three weeks. The RCA guide provides a step-by-step process for the assessment as well as tools and scripts. The guide is available in English and Spanish.

Applying the Data

The data collected through the RCA will increase your understanding of what communities are thinking about COVID-19 vaccines, and help you plan potential solutions to increase vaccine confidence and uptake. The data can also reveal previously unrecognized leaders and trusted messengers through whom you can reach community members.

Vaccine Confidence and Uptake Strategies

Below are selected strategies to increase vaccine confidence and uptake drawn from historical vaccination efforts and supported by positive outcomes from evaluation research. Examples from communities currently using the strategies to increase COVID-19 vaccine confidence and uptake are included.

State and local health departments, community- and faith-based organizations, and local nonprofits are encouraged to try a combination of these strategies to increase vaccination rates.

Links to learn more about how communities have addressed challenges and implemented the strategies are included in **Appendix A.**

Vaccine Ambassadors

Medical Provider Vaccine Standardization

Medical Reminders

Motivational Interviewing

Financial Incentives

School-Located Vaccination Programs

Home-Delivered Vaccination

Workplace Vaccination

Vaccination Requirements

Effective Messages Delivered by Trusted Messengers

Provider Recommendation

Combating Misinformation

Strategy 1

Vaccine Ambassadors

Vaccine ambassadors are a derivative of the lay health advisor (LHA) model, which trains community members to disseminate important health information in their communities. Ambassadors are most effective when they are trusted community members and share similar beliefs and characteristics with their peers.

Barriers Addressed: Equity, access, prevailing social norms, mistrust, misinformation, cultural relevance.

Research Base: Framing vaccine uptake as a prevailing social norm has a positive impact. A survey study showed that when people think that most people around them want to be vaccinated, they are more likely to be vaccinated as well. Discussing with peers the risk of contracting disease and the decision to vaccinate impacts one's decision. Endorsements from peers in one's own social network can also help spread credible information about the vaccines.

COVID-19 Application Examples

Location: San Francisco, CA

Population of Focus: Latino Persons

The "Motivate, Vaccinate, and Activate" campaign encouraged residents of the under-resourced, predominantly Latinx Mission District of San Francisco, California, to be vaccinated against COVID-19. The culturally tailored initiative was organized through a community-academic-city public health partnership among Unidos en Salud (United in Health), the University of San Francisco, and the City of San Francisco. They engaged trusted messengers, social networks, and used a convenient vaccination site to increase vaccination uptake and overcome hesitancy due to misinformation, distrust of institutions, and access to the vaccines. Community health workers educated the community about the vaccines, texted people to let them know of their eligibility, and used public media to spread the word about vaccination locations.

Vaccinated community members became ambassadors to recruit friends and family members to get vaccinated. Important steps in this strategy included:

- Two dedicated staff shared their personal experiences modeling how this could be done.
- Staff then encouraged others to share their own vaccination experiences with their unvaccinated friends and family to encourage them to become vaccinated.
- Staff provided tips on how to handle difficult conversations, provided myth-busting information, and role played.

Outcome: Of those who were fully vaccinated, 91% of survey respondents reported that they later recommended vaccination to one or more unvaccinated people they knew; 83% stated that they motivated one or more others to be vaccinated; and 19% reported that they motivated six or more others. During a 16-week period, the campaign administered 20,792 vaccines at the neighborhood site.

Where to Start: Learn more about how the community implemented this strategy to use social networks to boost vaccination coverage.

Location: Philadelphia, PA

Population of Focus: African American or Black Adults

A partnership between two health systems and community leaders in Philadelphia established COVID-19 vaccination clinics to overcome equity barriers among communities of color. Faith and other community leaders were engaged as vaccine ambassadors who helped design the intervention, activated their networks, and were trusted messengers to increase vaccinations. The strategy used other components in addition to the vaccine ambassadors including a no- to low-tech approach to vaccine scheduling, text or phone reminders of future vaccine appointments, and personal outreach.

Outcome: The program was designed and launched with just 2 weeks of planning. Three 7-hour clinics vaccinated 2,821 people, 85% of whom were Black. Second dose clinics operated with an overall 0.6% no-show rate.

Key components of this effort included:

- Health system leaders met virtually with area pastors to ensure they felt comfortable recommending the COVID-19 vaccines.
- The pastors led by example and received their first doses at the clinic.
- During a virtual event held by two faith leaders for their congregations, Black physicians shared their vaccination stories, provided scientific information about the vaccines, and answered people's questions and concerns. The event was recorded for future use by new partners, including community organizations and health workers, senior centers, salons and barbershops with predominantly African American or Black customers and staff, as well as WURD, a Black-owned and operated talk radio station that aired segments about the COVID-19 vaccines and the community clinic initiative.

Where to Start: Learn how this effort was implemented in Philadelphia including details on all the components and lessons learned.

Strategy 2

Medical Provider Vaccine Standardization

Medical provider vaccine standardization refers to offering vaccination as a default option during patient visits and integrating vaccination into medical practice procedures.

Barriers Addressed: Policy, mistrust, health literacy

Research Base: Medical practices and hospitals can take steps to increase vaccine uptake through standard practice measures, including default scheduling and presumptive announcements. In one study, scheduling patients by default increased flu vaccination by 10 percentage points. Another study showed patients with standing orders received flu and pneumococcal vaccines significantly more often than those with reminders. For patients with standing orders, the hospital's computerized system identified eligible patients and automatically produced vaccine orders directed to nurses at the time of discharge. Even standardizing what the doctor says when entering the room can impact vaccine uptake. Doctors trained to announce human papilloma virus (HPV) vaccines during visits with a brief statement that assumed parents were ready to vaccinate (the presumptive approach) increased uptake by 5.4% over the approach of engaging parents in open-ended conversations about vaccinating their child.

COVID-19 Application Examples

Location: Arizona

Population of Focus: Adults

In Arizona, a local 10-physician practice received detailed guidance from their county health department that helped them obtain vaccine supply and establish a protocol for administration. The county health department provided both supplies and instructional webinars on a weekly basis to guide practices through the process of becoming vaccinators. The Arizona physician office trained their staff to provide accurate information to patients who call with questions and developed a new scheduling system to standardize outreach and scheduling for eligible patients. Because their office space was too small to monitor patients for post-vaccine allergic reactions during normal business hours, they organized special weekend vaccination clinic hours. Yet, the groundwork has been laid for integrating vaccination into routine practice.

Standardization measures could become routine practice. Currently, many primary care and specialty physician offices are not offering COVID-19 vaccines. That is expected to change as logistical barriers are overcome and more physician practices become involved in the "last mile" effort to vaccinate everyone eligible, particularly in states where state and local health departments provide support. As the vaccines become more available in medical practices and hospitals, standardizing COVID-19 vaccination into routine practice will help reduce missed opportunities for vaccination, which are encounters during which a person eligible for a vaccine receives health services that do not result in them getting vaccinated.

Where to Start: The Arizona Department of Health Services Immunization Program in partnership with The Arizona Partnership for Immunization, a non-profit coalition, has a free training series to improve vaccination practices in providers' offices. Trainings cover areas including vaccine friendly office practices, vaccine handling and storage, shot administration.

Strategy 3

Medical Reminders

Medical reminders are messages sent to patients to remind them of recommended or upcoming treatment. Messages can be sent by autodialed phone calls, text messages, or post-cards, for example.

Barriers Addressed: Equity, access, forgetfulness, friction, health literacy, lack of adequate information

Research Base: Reminders of upcoming vaccination appointments can increase vaccination rates. This intervention is often part of a multi-pronged approach combined with removing access barriers to optimize uptake. Duval County Health Department in Florida successfully increased vaccination rates by using data from the Florida Shots Registry to identify families with upcoming vaccinations due or who were behind on their child's vaccinations and sending them reminders and educational materials through phone calls, letters, and home visits.

A study in Rochester, New York, showed that when interventions were combined to include patient reminders, provider reminders, and telephone outreach, older adults in the intervention group were up to six times as likely to be vaccinated against flu.

A University of Pennsylvania study found that simple reminder text messages sent to 47,306 patients in two health systems increased flu vaccinations by around 5%. Of the 19 different messages tested, those most likely to "nudge" patients to be vaccinated were presented in a professional format and tone—not casual, surprising, or interactive. The most successful messages reminded patients twice to get their shot at their upcoming doctor's appointment and stated that a vaccine was already reserved for them.

COVID-19 Application Examples

Location: Multiple U.S. Locations

Population of Focus: Adults

Several state and local health departments, including in Michigan, Oklahoma, and Baltimore, Maryland, are using text messages to:

- Help people schedule their vaccine appointments
- Provide education and vaccination site information
- Gauge views on vaccination

Certain populations can be reached with messaging, either based on race, ethnicity, or age, or used in geographic locations with lower vaccination uptake. In most cases, texts are provided in English and Spanish, but health departments or other entities sending texts can translate and customize to any language spoken in their community of focus. This can also be used to remind people of their second vaccination appointment, if applicable.

Many text-based services are available. Some, like CareMessage, offer a free model for nonprofits to help with COVID-19 vaccination. CDC recommends that providers without a text-message system offer their

patients the COVID-19 text reminder service, VaxText℠, which is free to providers and patients.

After enrolling in VaxText℠, people who have received the first COVID-19 vaccine dose receive weekly text reminders in English or Spanish about their second dose or a reminder that they are overdue, if applicable.

Well-crafted emails containing behavioral nudges can also be used as reminders to get vaccinated. A large Pennsylvania health system found that after a five-week effort to have employees vaccinated against COVID-19, 41% still had not scheduled their vaccination. They found through a study that individually addressed emails containing behaviorally informed messages increased vaccination registration.

The emails had three important components:

- Told the healthcare worker that vaccines would soon be available more broadly, thus, reducing employees' access and emphasizing scarcity.
- Contained a message either about social norms, saying that many fellow employees had already chosen to be vaccinated; or about risks, comparing the risk of vaccination with the risk of COVID-19.
- Asked employees to make an active choice by clicking through to schedule their vaccination appointment.

Where to Start: Learn the details on how this reminder effort was implemented.

Strategy 4

Motivational Interviewing

Motivational interviewing refers to patient-centered conversations designed to increase patient motivation and likelihood of health behavior uptake.

Barriers Addressed: Misperception, health literacy, uncertainty

Research Base: Motivational interviewing aims to support decision making by strengthening a person's intention to vaccinate based on their own arguments. The healthcare professional informs about vaccination in alignment with the individual's specific informational needs and with respect for their beliefs. Motivational interviewing has been shown to decrease parental vaccine hesitancy. A pilot study of using motivational interviewing in maternity wards during postpartum stays found the strategy led to a 15% increase in mothers' intention to get their child vaccinated, a 7% increase in infants' vaccination coverage at seven months, and a 9% greater chance of complete vaccination at 2 years. Motivational interviewing was also found to significantly improve HPV vaccination completion among adolescent patients in a study that employed an intervention of using a presumptive vaccine recommendation with motivational interviewing follow up for parents who remained resistant. Some healthcare providers have concerns that this approach takes too long and that such a conversation is not billable.

COVID-19 Application Examples

Location: Western Pennsylvania

Population of Focus: Adults

Motivational interviewing can be a strategy to promote COVID-19 vaccine uptake. A demonstration project in the Pittsburgh area showed that innovative notification and motivational interviewing strategies at a regional chain supermarket pharmacy increased the number of herpes zoster, flu, pertussis, and pneumococcal vaccines given to adults. Community pharmacies are accessible and able to provide COVID-19 vaccinations to many customers, along with their other patient-centered products and services and may be able to model programs similar to this.

Pharmacy staff identified the patient, who then received an automated notification about their vaccination status. The staff used motivational interviewing techniques face-to-face or by telephone to engage patients in conversation about getting vaccinated.

Outcome: The 99 pharmacies in western Pennsylvania that took part in the project saw a 33% increase in vaccinations over the prior year: 45% for flu, 31% for pertussis, and 7% for pneumococcal vaccinations, while herpes zoster vaccinations dropped by 5%.

Where to Start: Scripts for using motivational interviewing with those who may be COVID-19 vaccine hesitant are available.

Strategy 5

Financial Incentives

Financial incentives aim to motivate people to participate in a health behavior by providing a tangible reward, or a chance at a tangible reward, for completion of the behavior.

Barriers Addressed: Inertia

Research Base: While evidence supporting the use of incentives to increase vaccine uptake is overall limited, the type that appears effective is of a guaranteed gift incentive. For example, offering a $30 incentive increased vaccination rates at college campus clinics according to one study. Recent studies of the Ohio COVID-19 vaccine lottery have been less positive, showing the likelihood that the approach has not increased vaccine uptake. Clearly, these are two different approaches—one is a guaranteed gift and the other a chance at winning. Also, the audiences differ with the first comprised of young adult college students and the latter a general population.

COVID-19 Application Examples

Location: Multiple U.S. Locations

Population of Focus: Adults and Youth

- West Virginia state government is offering residents ages 16 to 35 who have been vaccinated a choice of receiving either a $100 savings bond or a $100 gift card. The governor estimates this might cost the state up to $20 million.
- California offered $50 in the form of a virtual Mastercard or grocery gift card to residents who started their vaccination series between May 27 and July 18. The money is limited to the first 2 million requests, which limits the total cost to the state.
- Employers are also offering cash incentives to their staff. Maryland state employees will receive $100 and the Colorado Department of Corrections will provide $500 to staff who elect to get vaccinated.
- Many large private corporations are also providing cash incentives to employees, often ranging from $75 to $500 including Amazon, Kroger, PetCo, AutoZone, and Bolthouse Farms.
- Many businesses are offering free products to those who have been vaccinated, including the well-publicized free Krispy Kreme donut. Several states are offering free admission to state parks or similar incentives for vaccinated visitors. Offers like these non-monetary guaranteed incentives have not been well-studied for effectiveness.

Where to Start: The Equal Employment Opportunity Commission (EEOC) provides guidance to employers on offering incentives to employees for becoming vaccinated.

For ideas on incentives to offer, see the list of state and local government incentives maintained by the National Governors Association.

Strategy 6

School-Located Vaccination Programs

School-located vaccination programs are events held at a school campus to remove logistical barriers and increase vaccine uptake. These can be open to students only, or offered to faculty, families, and the greater community as well.

Barriers Addressed: Access, friction, prevailing social norms, uncertainty, lack of adequate information

Research Base: Voluntary school-located vaccination programs have demonstrated high coverage, though they are not without challenges. One of the major challenges is obtaining informed parental consent when needed. School-located programs can be effective even with "controversial" vaccinations such as for HPV. The setting also has been shown to yield higher completion rates of multi-dose vaccine series as compared to community health center settings.

COVID-19 Application Example

Location: St. Louis County, Missouri

Population of Focus: School-age Youth

School districts of many sizes across the country are holding COVID-19 vaccination events. One of the first school districts to do so was the Parkway School District in St. Louis County, Missouri, which held their event on April 26, 2021. The event was held in partnership with a local pharmacy. In a survey, 350 parents said they were interested, and the 204 students who were vaccinated at the event represented about 5% of eligible students in the district.

Timing of the event may have affected turnout because some expressed concern about the second dose occurring during the week of finals for some students, according to the Interim Health Services Director who led the effort. The director also noted that school nurses are trusted sources of health information and play an important role in educating students and families about the COVID-19 vaccines. Two additional vaccination clinics have been held, one just days after the U.S. Food and Drug Administration authorized the Pfizer-BioNTech vaccine for those 12 years and older.

While this strategy has focused on vaccinating students through school-located vaccination programs, school settings may also be ideal locations for community vaccination events. Much for the same reason schools are often used as voting locations, they generally are easily accessible, have ample parking, have both indoor and outdoor spaces available, and are familiar places.

Outcome: So far, Parkway School District has vaccinated nearly 3,000 students through their three on-site clinic events. This was made possible, in part, due to their excellent relationship with a local pharmacy, which will pave the way for possible future student vaccination events should a vaccine be approved for younger school-age children.

Where to Start: The school district documented their lessons learned as guidance for other school districts noting the importance of details such as:

- Ensuring Ample Parking
- Working Around Educational Schedules
- Obtaining Consent
- Training Staff
- Managing Vaccine Delivery and Storage

Strategy 7

Home-Delivered Vaccination

Home-delivered vaccination efforts reach populations where they are; traditionally used when barriers to transportation and access exist.

Barriers Addressed: Equity, access, inertia, friction

Research Base: Bringing vaccines to where people are, including in their homes, is an effective means to reach several hard-to-reach populations. This strategy can be applied to people who are bound to their homes as well as to neighborhoods with low vaccination rates. In an effective effort in New York City, individuals canvassed specific communities to educate people about the flu vaccine and offered it to people on the spot. They focused on those with substance use disorders, immigrant populations, older adults, sex workers, and people experiencing homelessness. Both appointment-based home delivery and canvassing methods may be effective ways to deliver COVID-19 vaccines.

COVID-19 Application Example

Location: Multnomah County, Oregon

Population of Focus: Adults

As the COVID-19 vaccination effort progresses, shifts are occurring from mass vaccination sites to smaller neighborhood and community clinics, and now to home-based efforts to do everything possible to give all individuals the opportunity to get vaccinated. The Emergency Operations Center in Multnomah County, Oregon, has partnered with the Public Health Division and County Human Services to provide COVID-19 vaccinations through a mobile program reaching people where they live. Initially vaccinating those in adult care homes, they have expanded the project's scope to include other adults who are homebound.

The county's mobile door-to-door COVID-19 response team pairs Medical Reserve Corps volunteers, who are licensed medical practitioners, and other volunteers to assist in providing COVID-19 vaccinations to people in their homes. The goal of the response, launched in February 2021, is to vaccinate up to 5,000 people. "Getting to meet people 'where they are at' and administering a life-saving vaccine is an incredibly powerful experience. It truly brought people hope. The coordination it takes to make this kind of outreach happen is no small feat – but it's precisely the kind of work we need to do in order to respond quickly to inequalities and gaps in vaccine distribution, especially for those who are most vulnerable," said Dr. Sharon Meieran, a Medical Reserve Corps volunteer.

Where to Start: CDC provides guidance for implementing home-bound and residential living COVID-19 vaccination including consideration for training requirements, planning, storage and handling, and administration.

Strategy 8

Workplace Vaccination Programs

A vaccination event held on-site at a workplace to remove logistical barriers and create norms. This can be open to employees only or extended to family members or the greater community.

Barriers Addressed: Access, cost, prevailing social norms, friction

Research Base: Numerous studies have shown that vaccination programs at the worksite can increase vaccination rates among workers and their families. In one study, where flu vaccination rates increased significantly after the intervention, 90% of vaccinated employees received a vaccine at employer-sponsored events. The most important reasons employees reported for being vaccinated at work were not related to health, but that the vaccine was free, convenient, and would help them avoid being absent from work.

There is evidence on-the-job COVID-19 vaccines may have similar uptake success. A recent Kaiser Family Foundation study found that 23% of Americans would be more likely to get a vaccine if it was available at their workplace. Another recent survey of employees by McKinsey & Company found an even greater potential return with 83% of those surveyed saying offering on-site vaccinations would significantly (49%) or moderately (34%) increase the likelihood that they would get a COVID-19 vaccine. According to a 2020 Gallup poll, small businesses are one of the most trusted institutions in the U.S.

COVID-19 Application Example

Location: Midwest; Jackson, Mississippi

Population of Focus: Adults

Tyson Foods is offering on-site vaccination at many of their facilities. In Iowa and Illinois, the company partnered with the Midwest grocery chain Hy-Vee and state and local public health departments to vaccinate food processing workers at four locations in the two states. Workers in that industry have been hit hard by COVID-19 and were extremely excited for the opportunity. The workers are diverse, with one facility requiring vaccine education information translation in 18 languages. Tyson Foods also offered workers up to four hours of regular pay if they needed to get their vaccine(s) outside of a normal shift or away from the jobsite.

Outcome: By early March 2021, Hy-Vee staff had vaccinated over 2,400 employees in one of the states.

Small businesses can also support on-site vaccination efforts. In Jackson, Mississippi, the Broad Street Baking Company partnered with the Mississippi State Department of Health and the G.A. Carmichael Family Health Center to hold mobile vaccination events in a parking lot near the restaurant in April and June 2021.

Outcome: At both events, vaccines were given to all employees and other attendees who requested them.

Where to Start: CDC offers guidance to state, tribal, and local jurisdictions on reaching out to worker populations to increase vaccine uptake. This includes how to talk with small businesses and special considerations for rural communities and migratory workers. CDC also has information for employers on how they can support vaccination of their workforce.

Strategy 9

Vaccination Requirements

Vaccination requirements are policies that require employees, students, or patrons to be vaccinated and provide proof of vaccination in order to be in compliance.

Barriers Addressed: Policy, inertia, prevailing social norms, politicization

Research Base: Vaccine requirements at the organizational level may be an effective way to increase vaccination rates and decrease disease incidence. Requirements by employers or schools ask that employees or students provide proper documentation of vaccination to comply with the organization's vaccination policy. Exemptions can be offered for specific circumstances, such as medical and religious reasons. Vaccination requirements have not often been used for adult populations, with the exception of military requirements and for healthcare workers to receive flu shots. There is evidence showing school mandates positively impact uptake for routine childhood vaccines and some studies suggest that vaccination for children and workers, including mandatory vaccination, decreases absenteeism.

COVID-19 Application Example

Location: Multiple U.S. Locations

Population of Focus: Adults

Many employers and institutes of higher education such as universities are requiring staff and students to be vaccinated against COVID-19. Large companies have most recently required staff to be vaccinated to return to the office. A number of federal, state and local governments are also requiring vaccination for employees; some with an alternate option for weekly testing for COVID-19 and some without that option. Examples of early adopters of vaccination requirements are provided below.

Houston Methodist Health System: Houston Methodist was the first health system in the country to mandate COVID-19 vaccination for all employees to protect their patients and workforce. The health system is made up of an academic medical center and six community hospitals employing over 26,000 people. The first phase of the policy included managers and new hires and was gradually rolled out to all staff. Those not in compliance received a two-week suspension during which they could get vaccinated. Several employees pushed back on the requirement and took the hospital system to federal court. The Texas court dismissed the lawsuit and upheld the vaccine requirement stating that the requirement does not break any laws and is in line with public policy.

Outcome: Houston Methodist achieved nearly 100% compliance with 24,947 workers being vaccinated. Medical and religious exemptions were granted to over 600 employees and only 153 employees out of 26,000 (.5%) resigned or were fired for not complying.

Morgan Stanley Office Vaccine Policy: Morgan Stanley created a policy requiring all employees returning to their offices to be vaccinated. It also extends to clients and visitors to their two New York offices. The company views this policy as a way to create a safe and normal office environment that allows employees to forgo masks and social distancing. Employees who remain unvaccinated have the option of working from home, but the company is strongly encouraging employees to come back into the office.

Where to Start: The policy and procedures Houston Methodist put in place is publicly available and can be used as a model for other employers wanting to require COVID-19 vaccines. Other legal organizations also have templates available online as found in **Appendix A**.

Strategy 10

Effective Messages Delivered by Trusted Messengers

Effective messages are messages that have undergone testing with the intended population and were shown to produce the desired outcome. Trusted messengers are people seen as credible sources of information by specific populations. Trusted messengers can be trained to be vaccine ambassadors (see Strategy 1) and may include experts.

Barriers Addressed: Mistrust, health literacy, misinformation, lack of adequate information

Research Base: The messengers and messages used to convey information about vaccines are important to improving vaccine confidence.

The COVID-19 States Project Report evaluates results from two experiments designed to test effective communication strategies for increasing COVID-19 vaccine confidence and intent. The first experiment tested five messages and a control message for the effect it had on participants' willingness to receive a COVID-19 vaccine. The messages involved themes of patriotism, harm reduction, social norms, scientist recommendation, and physician recommendation. The study found that messages involving a personal physician or a scientist recommending vaccination were the most compelling. The second experiment looked at messenger effectiveness and found that messages delivered by politicians increased resistance to vaccination while those delivered by physicians or scientists showed increased vaccine confidence and intent.

Messages and messengers should be continually evaluated for effectiveness and tested across populations with different demographics. Continued evaluation of messages allows communication campaigns to tailor messages to specific concerns and demographic populations, which is shown to be more effective than generalized messaging.

COVID-19 Application Example

Location: Multiple U.S. Locations

Population of Focus: Adults

The Black Coalition Against COVID, The Kaiser Family Foundation, and Esperanza Hope for All created a COVID-19 vaccine communications campaign called "The Conversation," which uses the hashtag #BetweenUsAboutUs. The campaign features 50 videos of Black and Latino doctors, nurses, and scientists talking about vaccine facts and dispelling misinformation. In addition to the videos, the campaign offers graphics, print media, social media content, and TV and radio PSAs. The content is free for educational use and communities and organizations are invited to download and utilize their materials in English and Spanish. Some content features doctors sharing why they got vaccinated. One graphic shows a female Black doctor with the quote, "When we get enough people vaccinated, we're going to see the death rates go down. Then we're going to see the hospitalization rates go down." Currently, the campaign's videos have over 21,000,000 views on YouTube.

Where to Start: For specific messaging language tips based on COVID-19 messaging research, see the deBeaumont Foundation's Tip Sheet.

Strategy 11

Provider Recommendation

Provider recommendation refers to healthcare professionals suggesting that a patient receive a COVID-19 vaccination.

Barriers Addressed: Inertia, friction, mistrust, uncertainty, mis- and disinformation, lack of adequate information

Research Base: Provider recommendations have strong support for increasing vaccination. The Advisory Committee on Immunization Practices includes this strategy in their recommendations for improving vaccination rates. Some people may have more trust in their own doctor than in the medical community in general. Research on vaccinations in pregnant people found that provider recommendation shows increases in vaccination rates and when coupled with offering the vaccination during doctor's office visits, doubles the likelihood of uptake. In a study of flu vaccination in adults, patients who received provider recommendations with an offer of vaccination were 1.76 times more likely than those who did not receive a recommendation to be vaccinated. Those receiving only a recommendation were 1.72 times more likely than those who did not receive a recommendation to be vaccinated. The HPV vaccine, which relies on healthcare professionals for distribution, depends on provider recommendations for adequate coverage. A study on low HPV vaccination rates in North Carolina, found that lack of provider recommendations contributed to under vaccination in the population.

COVID-19 Application Example

Location: New York, New York; Philadelphia, Pennsylvania

Population of Focus: Adults

The New York City Department of Health and Mental Hygiene created a resource called Vaccine Talks that emphasizes the importance of healthcare professional recommendations in increasing COVID-19 vaccination rates. Vaccine Talks offers resources for healthcare providers and their staff to recommend and offer COVID-19 vaccination at multiple points of interaction with patients. The health commissioner released a statement promoting Vaccine Talks that places emphasis on the trust patients have in their healthcare providers and says that their strong recommendations for COVID-19 vaccines will help drive vaccination rates in the city.

Vaccine Talks includes a resource called the "Use Every Opportunity" tool instructing healthcare offices on how to integrate COVID-19 vaccine education and offers into all healthcare settings. Vaccine Talks also includes a link to a form the provider can complete to request that the public health system contact the patient to schedule their vaccination at a clinic or in their home if needed.

Emergency departments and urgent care facilities are important locations for COVID-19 vaccine provider recommendations due to the high number of patients seeking routine care in these settings. The Philadelphia Department of Public Health put out a call to emergency facilities in the city to begin recommending and administering COVID-19 vaccines to patients upon discharge. The notice focused on postpartum discharges and patients being discharged to long-term care facilities as key demographics for provider recommendations and offers. They provided best practices for vaccination during patient discharge.

Where to Start: The Vaccine Talks resources include scripts for physicians to talk to their patients about COVID-19 vaccines, including talking to parents of eligible children, and other tools for physicians to support vaccine confidence building with staff and patients.

Strategy 12

Combating Misinformation

Tactics used to address and dismantle misinformation and disinformation. Misinformation refers to the sharing of false information and disinformation refers to information that is deliberately misleading and intended to manipulate a narrative.

Barriers Addressed: Misperception, mis- and disinformation, lack of adequate information

Research Base: Believing incorrect information can act as a barrier to vaccine uptake. Vaccine myths are particularly difficult to combat, in part because people tend to believe information that is in line with their existing attitudes and worldview. Fact-checking and debunking appear to be effective tools to counteract the effects of misinformation, particularly when the correct information sources are universities and health institutions. Debunking incorrect information with messages that reflect the worldview and affirm the values of the intended audience may be the most successful approach. Debunking misinformation is challenging. Misinformation is often simple and more cognitively attractive than fact, and refuting a falsehood often requires repeating it, which reinforces the falsehood in the believer. Techniques that help dispel falsehoods include warning the audience upfront that misleading information is coming, using fewer arguments to refute the myth, and keeping the factual statements simple.

Everyday social media users can play an important part in correcting misinformation. While the person originally expressing the misinformation may not be moved because the correction does not align with their world view, others see the correct information and are impacted by it. Responding with empathy and providing facts, rather than simply saying something is wrong, are tips for effective corrections.

COVID-19 Application Examples

Location: Multiple U.S. Locations

Population of Focus: Adults

Public Good Projects (PGP) is a public health non-profit organization with a mission to stop the spread of vaccine misinformation through evidence-based media monitoring, behavioral interventions, and cross-sector initiatives. In the beginning of the COVID-19 pandemic, PGP created a misinformation tracking system to monitor misinformation being shared about COVID-19 and later about the vaccines.

Using this tracking system, PGP pinpointed ideas that could pose a threat to public health measures and worked with scientists to create evidence-based responses. To combat the misinformation, PGP identifies micro-influencers with audiences who have high rates of vaccine hesitancy and equips them with science-backed messages to share with their social networks. Their vaccine-hesitant followers are more likely to accept this information when it comes from someone they trust rather than from a health expert.

Where to Start: Dissemination of factual and easy to understand information combats mis- and disinformation. This can be done in a variety of ways including identifying and training social media micro-influencers in your community as PGP is doing nationally or using your own social media to promote accurate information. To keep your finger on the pulse of social media misinformation nationally you can refer to the Virality Project's weekly briefing. To monitor your local social media, you can utilize the RCA's Social Listening and Monitoring Tool.

Conclusion

Reaching universal COVID-19 vaccination coverage in the United States is a monumental challenge. There are barriers impeding both vaccine confidence and uptake. Structural barriers, such as time costs and transportation, lead to inequitable vaccine distribution, often negatively affecting populations that have been disproportionately affected by the pandemic. People's behaviors and beliefs, often based on misinformation or low health literacy, can obstruct their willingness to get vaccinated, while other human nature factors make it difficult to motivate people to do something difficult, new, or unfamiliar. COVID-19 vaccination and pandemic-related information can be perceived as complex and sometimes contradictory, adding yet another barrier. Compounding all of this is the current politicization of getting vaccinated.

Understanding the specific barriers your community of focus faces will help you identify and initiate activities that will help overcome those barriers. Tools, including the SVI, WAM Exercise, and the diagnostic tool, can help to identify populations disproportionately affected by the pandemic and the barriers and facilitators to vaccination they face. The RCA Guide offers in-depth resources to help you quickly learn more about needs related to COVID-19 vaccination in your community of focus.

While the COVID-19 vaccination effort is unique in many ways, applying best practices and lessons learned from previous vaccination efforts increases the likelihood of overcoming vaccine hesitancy and improving vaccine uptake. There is no magic formula to addressing vaccination barriers—communities need to employ multiple tailored strategies and tactics. The examples offered in this guide can serve as inspiration as well as practical guidance. Each community will need to customize its approaches to harness available resources to meet local needs.

Appendix A
References and Resources

To learn more about each of the strategies discussed in this guide, the research supporting them, and information on how to implement them in your community, see the resources below.

Common Barriers

The Behavioral and Social Drivers (BeSD) of COVID-19 Vaccination Uptake

The Behavioral and Social Driver (BeSD) expert working group.
https://journals.sagepub.com/doi/full/10.1177/1529100618760521

Brewer, N. T., Chapman, G. B., Rothman, A. J., Leask, J., & Kempe, A. (2017). Increasing vaccination: Putting psychological science into action. *Psychological Science in the Public Interest, 18(3)*, 149-207.

Understanding Your Community

Social Vulnerability Index

The CDC/ATSDR Social Vulnerability Index (CDC/ATSDR SVI) uses 15 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters.
https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

SVI data is displayed on an interactive map.
https://svi.cdc.gov/map.html

RCA Guide and Tools

COVID-19 Vaccine Confidence Rapid Community Assessment Guide and tools.
https://www.cdc.gov/vaccines/covid-19/vaccinate-with-confidence/rca-guide/index.html

Vaccine Confidence and Uptake Strategies

Strategy 1: Vaccine Ambassadors

Research Base

The influence of social norms on flu vaccination among African American and White adults.
https://doi.org/10.1093/her/cyx070

Quinn, S. C., Hilyard, K. M., Jamison, A. M., An, J., Hancock, G. R., Musa, D., & Freimuth, V. S. (2017). The influence of social norms on flu vaccination among African American and White adults. *Health education research*, *32(6)*, 473-486.

Attention, intentions, and follow-through in preventive health behavior: Field experimental evidence on flu vaccination.
https://www.swarthmore.edu/sites/default/files/assets/documents/user_profiles/ebronch1/JEBO_2015.pdf

Bronchetti, E. T., Huffman, D. B., & Magenheim, E. (2015). Attention, intentions, and follow-through in preventive health behavior: Field experimental evidence on flu vaccination. *Journal of Economic Behavior & Organization*, 116, 270-291.

More Information About the COVID-19 Examples

A multi-component, community-based strategy to facilitate COVID-19 vaccine uptake among Latinx populations: from theory to practice
https://www.medrxiv.org/content/10.1101/2021.06.07.21258230v1.full.pdf

Marquez, C., Kerkhoff, A. D., Naso, J., Contreras, M. G., Castellanos, E., Rojas, S., ... & Havlir, D. V. (2021). A multi-component, community-based strategy to facilitate COVID-19 vaccine uptake among Latinx populations: from theory to practice. *MedRxiv*.

Operationalizing Equity: A rapid-cycle innovation approach to COVID-19 vaccination in Black neighborhoods.
https://catalyst.nejm.org/doi/full/10.1056/CAT.21.0094
Lee, K. C., Al-Ramahi, N., Hahn, LO., Donnell, T., Schonewolf, L. J., Khan, N., O'Malley, C., Ghatri, U. G., Pearlman, E., Balachandran, M., et al. (April 7, 2021). Operationalizing Equity: A rapid-cycle innovation approach to COVID-19
vaccination in Black neighborhoods. *NEJM Catalyst*.

Additional Resources for Implementing this Strategy

San Francisco Department of Public Health's community COVID-19 vaccine communication training for ambassadors slide presentation.
https://www.sfdph.org/dph/files/ig/vaccine/vaccine-ambassador-training-pdf.pdf

Strategy 2: Medical Provider Vaccine Standardization

Research Base

Default clinic appointments promote influenza vaccination uptake without a displacement effect.
https://behavioralpolicy.org/wp-content/uploads/2017/06/chapman-web.pdf
Chapman, G. B., Li, M., Leventhal, H., & Leventhal, E. A. (2016). Default clinic appointments promote influenza vaccination uptake without a displacement effect. *Behavioral Science & Policy, 2*(2), 40-50.

Inpatient computer-based standing orders vs physician reminders to increase influenza and pneumococcal vaccination rates: a randomized trial.
https://jamanetwork.com/journals/jama/article-abstract/199810
Dexter, P. R., Perkins, S. M., Maharry, K. S., Jones, K., & McDonald, C. J. (2004). Inpatient computer-based standing orders vs physician reminders to increase influenza and pneumococcal vaccination rates: a randomized trial. *Jama, 292*(19), 2366-2371.

Announcements versus conversations to improve HPV vaccination coverage: a randomized trial.
https://pediatrics.aappublications.org/content/pediatrics/139/1/e20161764.full.pdf
Brewer, N. T., Hall, M. E., Malo, T. L., Gilkey, M. B., Quinn, B., & Lathren, C. (2017). Announcements versus conversations to improve HPV vaccination coverage: a randomized trial. *Pediatrics, 139*(1).

More Information About the COVID-19 Examples

The Room Where It Happens: Primary Care and COVID-19 Vaccinations.
https://www.commonwealthfund.org/publications/2021/jul/room-where-it-happens
Klein, S., Hostetter, M. (7 July 2021). The Room Where It Happens: The role of primary care in the next phase of the COVID-19 vaccination campaign. The Commonwealth Fund.

The Arizona Department of Health Services Immunization Program in partnership with TAPI, a non-profit coalition, has a free training series to improve vaccination practices in providers' offices. Trainings cover areas including setting up vaccine friendly office practices, vaccine handling and storage, shot administration.

https://whyimmunize.org/covid-19-vaccine-t-i-p-s/

Additional Resources for Implementing this Strategy

The Community Guide: Vaccination: Provider Reminders
The Community Guide: Vaccination: Standing Orders

Standing orders templates for administering vaccines
https://www.immunize.org/standing-orders/

CDC COVID-19 Vaccination Program Provider Requirements and Support
https://www.cdc.gov/vaccines/covid-19/vaccination-provider-support.html

The COVID-19 Vaccine Use Every Opportunity implementation tool provides strategies for ensuring COVID-19 vaccination is offered to every eligible patient during their encounters with your organization. The Use Every Opportunity framework is an adaptable tool for implementing workflows to achieve the highest level of COVID-19 vaccine coverage possible in all health care settings.
https://www1.nyc.gov/assets/doh/downloads/pdf/covid/providers/covid-19-vaccine-use-every-opportunity-tool.pdf

Strategy 3: Medical Reminders

Research Base

The Community Guide in Action - A Good Shot: Reaching Immunization Targets for two-year-old's in Duval County, Florida.
https://www.thecommunityguide.org/sites/default/files/assets/Vaccinations-FL_0.pdf

Increasing inner-city adult influenza vaccination rates: a randomized controlled trial.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3113429/pdf/phr126s20039.pdf
Humiston, S. G., Bennett, N. M., Long, C., Eberly, S., Arvelo, L., Stankaitis, J., & Szilagyi, P. G. (2011). Increasing inner-city adult influenza vaccination rates: a randomized controlled trial. *Public Health Reports, 126*(2_suppl), 39-47.

A megastudy of text-based nudges encouraging patients to get vaccinated at an upcoming doctor's appointment.
https://www.pnas.org/content/118/20/e2101165118
Milkman, K. L., Patel, M. S., Gandhi, L., Graci, H. N., Gromet, D. M., Ho, H., ... & Duckworth, A. L. (2021). A megastudy of text-based nudges encouraging patients to get vaccinated at an upcoming doctor's appointment. *Proceedings of the National Academy of Sciences, 118*(20).

More Information about the COVID-19 Examples

Pennsylvania health system email reminders
Santos HC, Goren A, Chabris CF, Meyer MN. Effect of Targeted Behavioral Science Messages on COVID-19 Vaccination Registration Among Employees of a Large Health System: A Randomized Trial. *JAMA Netw Open*. 2021;4(7):e2118702. doi:10.1001/jamanetworkopen.2021.18702

Additional Resources for Implementing this Strategy

VaxText is a free text messaging platform that providers can offer to their patients. Patients can opt in to conveniently receive text message reminders to get their second dose of COVID-19 vaccine.
https://www.cdc.gov/vaccines/covid-19/reporting/vaxtext/index.html

Strategy 4: Motivational Interviewing

Research Base

Motivational interviewing: A promising tool to address vaccine hesitancy.
https://pubmed.ncbi.nlm.nih.gov/32281992/
Gagneur, A., Gosselin, V., & Dubé, È. (2018). Motivational interviewing: A promising tool to address vaccine hesitancy. *Vaccine, 36*(44), 6553-6555.

Effects of a Health Care Professional Communication Training Intervention on Adolescent Human Papillomavirus Vaccination: A Cluster Randomized Clinical Trial.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5875329/
Dempsey, A. F., Pyrznawoski, J., Lockhart, S., Barnard, J., Campagna, E. J., Garrett, K., Fisher, A., Dickinson, L. M., & O'Leary, S. T. (2018). Effect of a Health Care Professional Communication Training Intervention on Adolescent Human Papillomavirus Vaccination: A Cluster Randomized Clinical Trial. *JAMA pediatrics*, 172(5), e180016. https://doi.org/10.1001/jamapediatrics.2018.0016

More Information about the COVID-19 Examples

Increasing adult vaccinations at a regional supermarket chain pharmacy: A multi-site demonstration project
Increasing adult vaccinations at a regional supermarket chain pharmacy: A multi-site demonstration project - ScienceDirect
Coley, K.C., Gessler,C., McGivney, M., Richardson, R., DeJames, J., Berenbrok, L. A. (2020). Increasing adult vaccinations at a regional supermarket chain pharmacy: A multi-site demonstration project. *Vaccine*, 38(24), 4044-4049. https://doi.org/10.1016/j.vaccine.2020.02.040.

Additional Resources for Implementing this Strategy

Communication Skills for Talking About COVID-19 Vaccines - These communication skills are designed for clinicians to use with patients and families, using an approach adapted from motivational interviewing and research on vaccine hesitancy.
https://www.capc.org/covid-19/communication-skills-for-talking-about-covid-19-vaccines/

Strategy 5: Financial Incentives

Research Base

Attention, intentions, and follow-through in preventive health behavior: Field experimental evidence on flu vaccination.
https://www.sciencedirect.com/science/article/abs/pii/S0167268115001079?via%3Dihub#abst0005
Bronchetti, E. T., Huffman, D. B., & Magenheim, E. (2015). Attention, intentions, and follow-through in preventive health behavior: Field experimental evidence on flu vaccination. *Journal of Economic Behavior & Organization*, 116, 270-291.

Lottery-Based Incentive in Ohio and COVID-19 Vaccination Rates.
https://jamanetwork.com/journals/jama/fullarticle/2781792
Walkey, A. J., Law, A., & Bosch, N. A. (2021). Lottery-Based Incentive in Ohio and COVID-19 Vaccination Rates. *JAMA*.

Did Ohio's Vaccine Lottery Increase Vaccination Rates? A Pre-Registered, Synthetic Control Study.
https://osf.io/a6de5/

More Information about the COVID-19 Examples

The Equal Employment Opportunity Commission (EEOC) provides guidance to employees regarding offering COVID-19 vaccine incentives.
https://www.eeoc.gov/wysk/what-you-should-know-about-covid-19-and-ada-rehabilitation-act-and-other-eeo-laws#K

The National Governors Association maintains a list of state and local government incentives being offered for COVID-19 vaccination.
https://www.nga.org/center/publications/covid-19-vaccine-incentives/

Additional Resources for Implementing this Strategy

Vaccination Programs: Client of Family Incentive Rewards
https://www.thecommunityguide.org/findings/vaccination-programs-client-or-family-incentive-rewards

Strategy 6: School-Located Vaccination Programs

Research Base

Voluntary school-based human papillomavirus vaccination: an efficient and acceptable model for achieving high vaccine coverage in adolescents.
https://www.jahonline.org/article/S1054-139X1000318-6/fulltext
Skinner, S. R., & Robbins, S. C. C. (2010). Voluntary school-based human papillomavirus vaccination: an efficient and acceptable model for achieving high vaccine coverage in adolescents. *Journal of Adolescent Health*, *47*(3), 215-218.

HPV vaccine uptake in a school-located vaccination program.
https://www.tandfonline.com/doi/full/10.1080/21645515.2016.1208326
Middleman, A. B., Won, T., Auslander, B., Misra, S., & Short, M. (2016). HPV vaccine uptake in a school-located vaccination program. *Human vaccines & immunotherapeutics, 12*(11), 2872-2874.

Addressing adolescent immunization disparities: a retrospective analysis of school-based health center immunization delivery.
https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2009.176628
Federico, S. G., Abrams, L., Everhart, R. M., Melinkovich, P., & Hambidge, S. J. (2010). Addressing adolescent immunization disparities: a retrospective analysis of school-based health center immunization delivery. *American journal of public health, 100*(9), 1630-1634.

More Information about the COVID-19 Examples

Preparing for a school-located COVID-19 vaccination clinic.
https://journals.sagepub.com/doi/full/10.1177/1942602X21991643
Park, K., Cartmill, R., Johnson-Gordon, B., Landes, M., Malik, K., Sinnott, J., ... & Wallin, R. (2021). Preparing for a school-located COVID-19 vaccination clinic. *NASN School Nurse, 36*(3), 156-163.

Additional Resources for Implementing this Strategy

Lessons learned about the need for careful and thorough planning for school-located vaccination programs are shared.
Lott, J., & Johnson, J. (2012). Promising Practices for School-located Vaccination Clinics—Part I: Preparation. *Pediatrics*, 129(Supplement 2), S75-S80.
Promising Practices for School-located Vaccination Clinics—Part I: Preparation | American Academy of Pediatrics (aappublications.org)

Lessons learned about clinic operations based on experience of a school-located mass vaccination program for influenza.
Lott, J., & Johnson, J. (2012). Promising Practices for School-located Vaccination Clinics—Part II: Clinic Operations and Program Sustainability. *Pediatrics*, 129(Supplement 2), S81-S87.
Promising Practices for School-located Vaccination Clinics— | American Academy of Pediatrics (aappublications.org)

Guidance for consideration when planning school-located vaccination clinics for COVID-19.
https://www.cdc.gov/vaccines/covid-19/planning/school-located-clinics.html#additional

Resources for school-based vaccines and immunizations for kids and teens.
https://www.sbh4all.org/resources/school-based-vaccines-and-immunizations/

Strategy 7: Home-Delivered Vaccination

Research Base

Project VIVA: a multilevel community-based intervention to increase influenza vaccination rates among hard-to-reach populations in New York City.
https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2007.119586
Coady, M. H., Galea, S., Blaney, S., Ompad, D. C., Sisco, S., & Vlahov, D. (2008). Project VIVA: a multilevel community-based intervention to increase influenza vaccination rates among hard-to-reach populations in New York City. *American Journal of Public Health, 98*(7), 1314-1321.

More Information about the COVID-19 Examples

Door-to-door teams reach nearly all care homes within a week in Multnomah County, Oregon to distribute the COVID-19 vaccine.
https://www.multco.us/novel-coronavirus-covid-19/news/door-door-teams-reach-nearly-all-care-homes-within-week

Additional Resources for Implementing this Strategy

Guidance for implementing home-bound and residential living vaccination.
Centers for Disease Control: Vaccinating Homebound Persons With COVID-19 Vaccine
https://www.cdc.gov/vaccines/covid-19/clinical-considerations/homebound-persons.html

How the Medical Reserve Corps is assisting with COVID-19 vaccination.
https://www.phe.gov/mrc

Strategy 8: Workplace Vaccination Programs

Research Base

Effectiveness of worksite interventions to increase influenza vaccination rates among employees and families.
https://journals.lww.com/joem/Abstract/2013/02000/Effectiveness_of_Worksite_Interventions_to.8.aspx
Ofstead, C. L., Sherman, B. W., Wetzler, H. P., Langlay, A. M. D., Mueller, N. J., Ward, J. M., ... & Poland, G. A. (2013). Effectiveness of worksite interventions to increase influenza vaccination rates among employees and families. *Journal of occupational and environmental medicine, 55*(2), 156-163.

The KFF COVID-19 Vaccine Monitor is an ongoing research project tracking the public's attitudes and experiences with COVID-19 vaccinations, where this topic is about vaccine attitudes among essential workers.
https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-vaccine-attitudes-among-essential-workers/

Getting to work: Employers' role in COVID-19 Vaccination.
https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/getting-to-work-employers-role-in-covid-19-vaccination

More Information about the COVID-19 Examples

Hy-Vee brings mobile units directly to Midwestern food workers.
https://www.cdc.gov/vaccines/covid-19/retail-pharmacy-program/retail-stories.html

U.S. Chamber of Commerce: Small Businesses Host Vaccine Clinics to Speed Up Shots.
https://www.uschamber.com/series/above-the-fold/small-businesses-host-vaccine-clinics-speed-shots

Additional Resources for Implementing this Strategy

CDC guidance for state, tribal, and local jurisdictions on promoting workplace vaccination efforts.
https://www.cdc.gov/vaccines/covid-19/health-departments/essential-workers/index.html

CDC guidance for employers to promote employee COVID-19 vaccination.
https://www.cdc.gov/coronavirus/2019-ncov/vaccines/toolkits/essential-workers.html

Guidance for planning Vaccination Clinics Held at Temporary, Satellite, or Off-Site Locations
https://www.cdc.gov/vaccines/hcp/admin/mass-clinic-activities/index.html

Strategy 9: Vaccine Requirements

Research Base

Increasing Appropriate Vaccination: Vaccination Requirements for Child Care, School, and College Attendance (2009 Archived Review).
https://www.thecommunityguide.org/sites/default/files/Vaccination-Requirements-Schools-Archive.pdf

Nudges or mandates? The ethics of mandatory flu vaccination.
Nudges or mandates? The ethics of mandatory flu vaccination - ScienceDirect
Dubov, A., & Phung, C. (2015). Nudges or mandates? The ethics of mandatory flu vaccination. *Vaccine, 33*(22), 2530-2535.

Systematic review of the effect of immunization mandates on uptake of routine childhood immunizations.
https://www.sciencedirect.com/science/article/abs/pii/S0163445316300299
Lee, C., & Robinson, J. L. (2016). Systematic review of the effect of immunization mandates on uptake of routine childhood immunizations. *Journal of Infection, 72*(6), 659-666.

More Information about the COVID-19 Examples

The complete list of higher education institutions requiring vaccination for the fall 2021-2022 semester.
https://universitybusiness.com/state-by-state-look-at-colleges-requiring-vaccines/

List of hospitals and health systems that are requiring vaccines for workers.
https://www.beckershospitalreview.com/workforce/hospitals-health-systems-mandating-vaccines-for-workersjune17.html

Morgan Stanley to Require Vaccinations to Enter N.Y. Offices.
https://www.bloomberg.com/news/articles/2021-06-22/morgan-stanley-tells-staff-they-ll-need-vaccines-to-enter-office

The deadline for Houston Methodist's vaccine mandate was June 7. How did it go?
https://www.beckershospitalreview.com/workforce/the-deadline-for-houston-methodist-s-vaccine-mandate-was-june-7-how-did-it-go.html#:~:text=Post%2DAcute-,The%20deadline%20for%20Houston%20Methodist's%20vaccine%20mandate%20was%20June,How%20did%20it%20go%3F&text=Houston%20Methodist%20employees%20had%20a,24%2C947%20workers%20being%20fully%20vaccinated.

Mandatory Vaccination Policy Lawsuit Update: Nurses Take a Shot Against Hospital, But Judge Jabs Back in Texas.
https://www.natlawreview.com/article/mandatory-vaccination-policy-lawsuit-update-nurses-take-shot-against-hospital-judge

Additional Resources for Implementing this Strategy

Several legal organizations offer guidance and templates for crafting vaccine requirement policies:
https://www.fisherphillips.com/services/emerging-issues/vaccine-resource-center/index.html?tab=overview
https://www.shrm.org/resourcesandtools/tools-and-samples/policies/pages/vaccination-policy-mandatory-covid19-coronavirus.aspx
https://www.themcdispatch.com/wp-content/uploads/2021/02/HUB-SAMPLE-Employee-COVID-19-Vaccine-Policy.pdf

Houston Methodist Vaccine Requirement Policy
https://hrportal.ehr.com/LinkClick.aspx?fileticket=WbwcMj8SRPg%3d&portalid=78

Strategy 10: Effective Messages Delivered by Trusted Messengers

Research Base

Assessing the state of vaccine confidence in the United States: recommendations from the National Vaccine Advisory Committee.
https://journals.sagepub.com/doi/abs/10.1177/003335491513000606
Committee, N. V. A. (2015). Assessing the state of vaccine confidence in the United States: recommendations from the National Vaccine Advisory Committee: approved by the National Vaccine Advisory Committee on June 10, 2015. *Public Health Reports, 130*(6), 573-595.

The COVID-19 States Project: A 50-State COVID-19 Survey Report #36: Evaluation of COVID-19 Vaccine Communication Strategies.
https://news.northeastern.edu/wp-content/uploads/2021/01/COVID19-CONSORTIUM-REPORT-36-VACCINE-COMM-Jan-2021.pdf

Examining the effect of information channel on COVID-19 vaccine acceptance.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0251095
Piltch-Loeb, R., Savoia, E., Goldberg, B., Hughes, B., Verhey, T., Kayyem, J., ... & Testa, M. (2021). Examining the effect of information channel on COVID-19 vaccine acceptance. *Plos one, 16*(5), e0251095.

More Information about the COVID-19 Examples

Greater Than COVID helps individuals take charge of their health during the evolving COVID-19 public health crisis. Tailored media messages and community tools will address information needs about the new vaccines.
https://www.greaterthancovid.org/theconversation/

Additional Resources for Implementing this Strategy

Resources for building vaccine confidence and CDC vaccine confidence insight reports.
https://www.cdc.gov/vaccines/covid-19/vaccinate-with-confidence.html#reports

Vaccine communication tips from deBeaumont Foundation.
https://debeaumont.org/changing-the-covid-conversation/vaccineacceptance/covid-vaccine-poll-vaccine-communications-tips/

Strategy 11: Provider Recommendation

Research Base

Recommendations and offers for adult influenza vaccination, 2011–2012 season, United States.
https://doi.org/10.1016/j.vaccine.2016.04.061
Benedict, K. M., Santibanez, T. A., Black, C. L., Ding, H., Graitcer, S. B., Bridges, C. B., & Kennedy, E. D. (2017). Recommendations and offers for adult influenza vaccination, 2011–2012 season, United States. *Vaccine, 35*(9), 1353-1361.

Longitudinal predictors of human papillomavirus vaccine initiation among adolescent girls in a high-risk geographic area.
https://doi.org/10.1097/OLQ.0b013e3181f12dbf
Brewer, N. T., Gottlieb, S. L., Reiter, P. L., McRee, A. L., Liddon, N., Markowitz, L., & Smith, J. S. (2011). Longitudinal predictors of human papillomavirus vaccine initiation among adolescent girls in a high-risk geographic area. *Sexually transmitted diseases, 38*(3), 197–204.

More Information about the COVID-19 Examples

The New York City Department of Health and Human Hygiene created a resource called Vaccine Talks which emphasizes the importance of healthcare provider recommendations in increasing COVID-19 vaccination rates.
https://www1.nyc.gov/site/doh/covid/covid-19-providers-vaccines-communication.page

The statement the NY health commissioner released promoting Vaccine Talks that place emphasis on the trust patients have in their healthcare providers.
https://www1.nyc.gov/assets/doh/downloads/pdf/covid/providers/coh-letter-vaccine-communication-04272021.pdf

COVID-19 Vaccine Use Every Opportunity Campaign Implementation Tool.
https://www1.nyc.gov/assets/doh/downloads/pdf/covid/providers/covid-19-vaccine-use-every-opportunity-tool.pdf

Here is an example of the Philadelphia Department of Public Health putting a call out to emergency facilities in the city to begin recommending and administering COVID-19 vaccines to patient upon discharge.
https://vax.phila.gov/index.php/notices/vaccinate-patients-upon-discharging/

Here is an example of the Philadelphia Department of Public Health using CDC Best Practices for Vaccinating

Upon Discharge in addition to Vaccine eligibility.
https://vax.phila.gov/index.php/notices/cdc-best-practices-for-vaccinating-upon-discharge/

Additional Resources for Implementing this Strategy

CDC offers 5 suggestions on how to talk to your patients about COVID-19 vaccine.
https://www.cdc.org/vaccines/covid-19/hcp/engaging-patients.html

The American Medical Association's (AMA) COVID-19 Vaccine FAQs includes statements physicians can use when talking with patients.
https://www.ama-assn.org/system/files/2020-12/covid-19-vaccine-physician-faqs.pdf

Strategy 12: Combating Misinformation

Research Base

Debunking: A meta-analysis of the psychological efficacy of messages countering misinformation.
https://journals.sagepub.com/doi/full/10.1177/0956797617714579
Chan, M. P. S., Jones, C. R., Hall Jamieson, K., & Albarracín, D. (2017). Debunking: A meta-analysis of the psychological efficacy of messages countering misinformation. *Psychological science, 28*(11), 1531-1546.

Effects of fact-checking social media vaccine misinformation on attitudes toward vaccines.
https://doi.org/10.1016/j.ypmed.2020.106408
Zhang, J., Featherstone, J. D., Calabrese, C., & Wojcieszak, M. (2021). Effects of fact-checking social media vaccine misinformation on attitudes toward vaccines. *Preventive Medicine, 145*, 106408.

Misinformation and its correction: Continued influence and successful debiasing.
https://journals.sagepub.com/doi/pdf/10.1177/1529100612451018
Lewandowsky, S., Ecker, U. K., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformation and its correction: Continued influence and successful debiasing. *Psychological science in the public interest, 13*(3), 106-131.

The Swiss cheese model for mitigating online misinformation.
https://www.tandfonline.com/doi/full/10.1080/00963402.2021.1912170
Bode, L., & Vraga, E. (2021). The Swiss cheese model for mitigating online misinformation. *Bulletin of the Atomic Scientists, 77*(3), 129-133.

More Information about the COVID-19 Examples

PGP (The Public Good Projects) is a public health nonprofit specializing in large-scale media monitoring programs, social and behavior change interventions, and cross-sector initiatives.
https://publicgoodprojects.org/about

How data scientists and influencers are joining forces to fight against dangerous COVID-19 conspiracy theories online.
https://www.msn.com/en-us/money/other/how-influencers-are-fighting-dangerous-conspiracy-theories-about-covid-19-as-people-shun-experts-warnings/ar-BB1c8Zf6

Additional Resources for Implementing this Strategy

Weekly briefings highlighting trends in vaccine misinformation.
https://www.viralityproject.org/weekly-briefings

Additional Resource

The Guide to Community Preventive Services (The Community Guide) lists evidence-based interventions to improve vaccination rates in an easy-to-use table.
https://www.thecommunityguide.org/sites/default/files/assets/What-Works-Factsheet-Vaccination.pdf

Appendix B
Strategy Matrix Table

Common Barriers			
Strategy	**Barriers**	**Population**	**Location**
1. Vaccine Ambassadors	Equity, access, prevailing social norms, mistrust, misinformation, cultural relevance	Hispanic or Latino Adults and Black Adults	San Francisco, CA Philadelphia, PA
2. Medical Providers Standardize Vaccination	Policy, mistrust, health literacy	Adults	Multiple U.S. locations
3. Medical Reminders	Equity, access, forgetfulness, friction, health literacy, lack of adequate information	Adults	Multiple U.S. locations
4. Motivational Interviewing	Misperception, health literacy, uncertainty	Adults	Western Pennsylvania
5. Financial Incentives	Inertia	College Students	Multiple U.S. locations
6. School-Located Vaccination Programs	Access, friction, prevailing social norms, uncertainty, lack of adequate information	School-aged Youth	St. Louis County, MO
7. Home-Delivered Vaccination	Equity, access, inertia, friction	Adults	Multnomah County, OR
8. Workplace Vaccination	Access, cost, prevailing social norms, friction	Adults	Midwest; Jackson, MS
9. COVID-19 Vaccine Requirements	Policy, inertia, prevailing social norms, politicization	Adults	Multiple U.S. locations
10. Effective messages delivered by trusted messengers	Mistrust, health literacy, misinformation, lack of adequate information	Adults	Multiple U.S. locations
11. Provider Recommendations and Offers	Inertia, friction, mistrust, uncertainty, mis- and disinformation, lack of adequate Information	Adults	New York, NY; Philadelphia, PA
12. Combating Misinformation	Misperception, mis- and disinformation, lack of adequate information	Adults	Multiple U.S. locations

Appendix C
Diagnostic Tool

A Diagnostic Tool for Identifying & Addressing COVID-19 Vaccine Confidence Challenges in Specific Populations

Factors that Build Vaccine Intention	Assessment of Factors (they = communities of focus)	YES	IF NO: Questions/Considerations	Recommended Strategies
COVID-19 Susceptibility	Do they believe that they are at high risk of getting the disease?		What do they think? Why do they think that? How can these perceptions/beliefs be changed? Who can influence them to reconsider their perceptions/ beliefs? *If vaccination isn't a norm yet, how can influencers be convinced to get vaccinated to serve as role models? Are there examples of individuals in their communities who accepted the vaccines after initially being hesitant? Profiling these cases can signal that it's OK to change your mind even if you said no initially.	Risk communication Outreach through relevant communication channels/forums Address misinformation Strengthen HCP & institutional recommendations Education, encouragement, and example through trusted messengers/influencers
COVID-19 Severity	Do they understand that the disease can be very serious for them and those around them?			
Vaccine Risks	Is their understanding of vaccine risks accurate?			
Vaccination Norms	Do they think their family, friends, and neighbors are getting vaccinated? Do they think their coworkers are getting vaccinated?			
Vaccine Benefits	Do people understand the protective benefit that COVID-19 vaccines may have against developing severe disease? Do they understand that vaccination along with non-pharmaceutical interventions such as mask wearing and distancing can help get back to work, school, gatherings, and entertainment sooner?		Does your communication highlight the benefits that matter most to them? How do you know? If you're not sure, how can you get a better understanding of what matters most to them? Is there evidence that people may not be adhering to mitigation measures after vaccination (e.g., wearing masks) because they believe they are protected from COVID-19 transmission? How can this be addressed?	Align messaging with motivations/values and deliver through influencers

COVID-19 Vaccine Confidence Consults

A Diagnostic Tool for Identifying & Addressing COVID-19 Vaccine Confidence Challenges in Specific Populations

Factors that Build Vaccine Intention	Assessment of Factors (they = communities of focus)	YES	IF NO: Questions/Considerations	Recommended Strategies
Vaccine Recommendation	Are they aware it is recommended for them?		Why not? What are the best ways to reach them with this information? If there is high demand and people can't get appointments, they may become frustrated. How can you address frustration or redirect people to do other things until they get vaccinated?	HCP & institutional Recommendations (including CDC/ACIP Guidance) Outreach through relevant communication channels/forums
Vaccine Availability	Are they aware it is available to them or when it will be? Is supply sufficient to meet demand?			
Vaccine Safety	Do they believe the vaccines are safe?		What questions/concerns do they have (in the short and long term)? Are concerns primarily about side effects or the speed of vaccine development (e.g., cutting corners)? How did they hear about these concerns? What information do they need? What would ease their concerns? Who are the trusted sources for this information? How can you increase their trust in information from your organization?	Clear communication about vaccine development process, safety data and monitoring, efficacy data Address misinformation Outreach through relevant communication channels Education through trusted sources
Vaccine Efficacy	Do they believe the vaccines are effective in protecting them from getting sick?			
Trust in Vaccination Institutions	Do they trust the institutions involved in the vaccination process? • Manufacturers/pharma • Approvers/recommenders and safety monitors (FDA/CDC) • Vaccinators (HCPs) • Program implementors (state/local health departments)		Why don't they trust the institution? Have there been issues in the past? What has been done to try to (re)build trust? What would they need to know to increase trust? Who are the best people to deliver that information?	Clear communication about the vaccine development and approval process Address misinformation Acknowledgement of past issues and explanation of how they are being addressed Engagement of trusted sources

COVID-19 Vaccine Confidence Consults

A Diagnostic Tool for Identifying & Addressing COVID-19 Vaccine Confidence Challenges in Specific Populations

Factors Related to Getting Vaccinated	Assessment of Factors	YES	IF NO: Questions/Considerations	Recommended Strategies
Appointment Scheduling	Do they know where to go to get vaccinated? Do they know how to schedule an appointment? Is it easy and quick to do?		Why not? What are the challenges? Are challenges different for specific populations? (e.g., for persons 65+ or those people who do not speak English or who live far from vaccination sites) Are there any specific challenges for obtaining the doses? How can challenges and costs be minimized? Are there innovative partnerships that could be leveraged to help address access issues?	Outreach for appointment scheduling Provide appointment reminders and phone calls Employer on-site vaccination or community vaccination sites Incentives
Appointment Cost	Do they know that doses are free even if they don't have insurance?			
Appointment Logistics	Can they make arrangements to get to/from the appointment?			
Appointment Time	Can they afford to spend the time to be at the appointment? (considering employment, childcare, etc.)			
Factors During Vaccination	**Assessment of Factors**	**YES**	**IF NO: Questions/Considerations**	**Recommended Strategies**
Convenience	Is the vaccination process convenient?		Why not? How can the experience be improved? How can you capture patient perspectives on their journey to vaccination? How can they be better prepared for post-vaccination so they know what to expect and do?	COVID-19 safety measures Disability accommodations Healthcare personnel and staff training Educational materials
Accessibility	Is the vaccination site physically accessible?			
Safety	Do they feel safe from COVID-19 risks during the vaccine administration? Do they feel their medical information will be confidential?			
Communication	Are their questions answered at the time of vaccination?			

COVID-19 Vaccine Confidence Consults

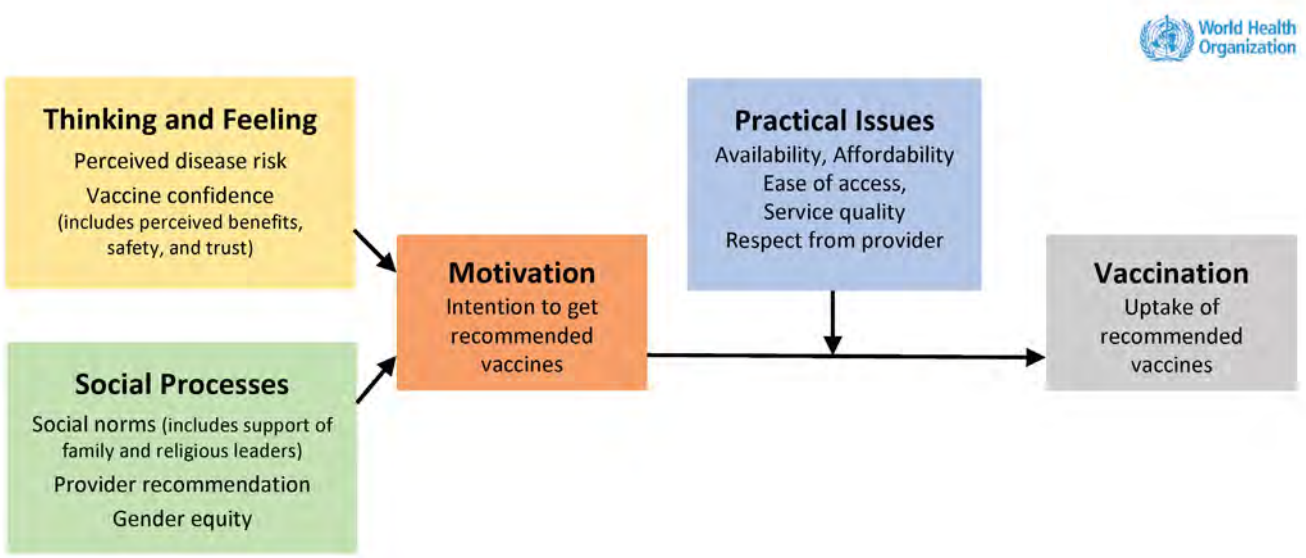
A Diagnostic Tool for Identifying & Addressing COVID-19 Vaccine Confidence Challenges in Specific Populations

Factors Post Vaccination	Assessment of Factors	YES	IF NO: Questions/Considerations	Recommended Strategies
Experience Between Doses	Are they easily able to get an appointment for doses? Are they returning for doses?		How are patients recalled for doses? How can this process be made easier? What concerns or barriers are they facing in getting the doses? How can these be addressed? Are they experiencing or hearing about side effects and adverse events?	Provide appointment reminders and phone calls Follow up with patients to understand and address Education regarding common side effects and how adverse events are monitored
Adverse Event Monitoring	Are vaccine recipients registered in v-safe? Were they made aware of vaccine safety information during the visit?		How can you improve communication about vaccine safety monitoring and encourage people to sign up for v-safe? Can people reach out to a specific hotline or point of contact to report an adverse event following immunization (AEFI)? If so, what happens once they file a report?	Educational materials posted in vaccination and waiting rooms on v-safe and adverse event monitoring Set up hotline or other point of contact to report AEFIs
Positive Reinforcement	Are they sharing their vaccination experiences with others?		How can you facilitate positive reinforcement? How can you make vaccination a positive and visible social norm?	Positive norms campaign Incentives Appreciation/celebration

COVID-19 Vaccine Confidence Consults

Appendix D
BeSD Framework

The Behavioral and Social Drivers (BeSD) Framework



Source: The WHO BeSD working group. Based on Increasing Vaccination Model (Brewer et al., 2017)

An expert working group chaired by the World Health Organization (WHO) developed a behavioral framework specific to COVID-19 vaccination uptake titled the Behavioral and Social Drivers (BeSD) of COVID-19 Vaccination Uptake. The framework demonstrates that the following drivers are associated with COVID-19 vaccination:

- What people think and feel
- Social process
- Motivation
- Practical issues

Each driver can be measured through regular data collection to understand and act on individuals' barriers and enablers to COVID-19 vaccine uptake. Factors at many levels—individual, community, societal, and policy—affect someone's decision to get vaccinated. Some of these factors are within control to address, and some are not. Understanding this framework provides an additional way to understand people's thoughts and behaviors related to their decision about receiving the COVID-19 vaccine.

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The Little Jab Book: 18 Behavioral Science Strategies for Increasing Vaccination Uptake, developed by Busara, Common Thread, and Save the Children, was the inspiration to develop a U.S.-oriented resource and became the template for this work.

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