

Best Practices for COVID-19 Testing and Vaccination

Findings from the COVID-19 Best Practices National
Survey

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Executive Summary

This report presents findings from the National Survey on Best Practices for COVID-19 Vaccination and Testing, part of the Best Practices for COVID-19 Testing and Vaccination Study sponsored by the Office of the Assistant Secretary for Planning and Evaluation (ASPE) and the Office of the Assistant Secretary for Health (OASH). Mathematica, ASPE, and OASH designed the survey to gather information from local organizations about their efforts to improve COVID-19 testing and vaccination in populations that are medically or socially at disproportionate risk for COVID-19 or related adverse outcomes.

Mathematica administered the survey from September to November 2023 to five types of local organizations: local health departments (LHDs); Federally Qualified Health Centers (FQHCs); community-based organizations (CBOs); community pharmacies; and Indian Health Service, tribal, and Urban Indian Organization (I/T/U) health facilities. These organizations were located in 22 states, which we selected on the basis of geographic diversity, vulnerability to COVID-19, and high rates of series vaccination (see Methods section). We then constructed a sample of organizations in each state by stratifying the LHDs, FQHCs, CBOs, and pharmacies between urban areas and all other areas and selecting randomly within each stratum. For the I/T/U facilities, we implicitly stratified the sample by service unit to ensure that the sample was broadly representative of I/T/U facilities across the state, then randomly selecting facilities.

We invited 507 representatives in 22 states to complete the survey and 475 of them were found to be eligible for the study. We received 164 completed surveys, for an overall response rate of 35% among those eligible. Response rates are similar for most organization types (32% – 41%) but notably lower for Indian Health Services facilities (0%) and tribal facilities (26%). Because we did not receive any responses from Indian Health Services facilities, this report refers to tribal and Urban Indian Organization (T/U) facilities only.

Findings from this analysis of survey data are primarily descriptive and serve to broaden our understanding of the testing and vaccination strategies that local organizations used most frequently, their populations of focus, the challenges they experienced in helping those populations, and other attributes of their efforts that address our research questions and provide context for data from site visits.

Findings do not generalize to all organizations of a given type included in this study or to other organizations within survey states. All descriptions of findings refer to organizations that responded to the survey rather than all organizations of a given type. We present unweighted results because findings are exploratory and descriptive, rather than representative of the population of organizations.

Key findings

- **The vast majority (72%) of respondents worked on both COVID-19 testing and vaccination.** Similarities between their testing and vaccination strategies, partnerships, and populations of focus suggest that respondents applied strategies from testing to vaccination, or they bundled services.
- **Respondents used roughly seven testing or vaccination strategies on average; some reported using large numbers of strategies, up to 17 out of 18 possible response options.** Respondents from FQHCs and LHDs reported the largest number of different strategies, and pharmacies reported the fewest. Because respondents summarized their organizations' experiences over more than three years, it is not clear from the survey data which strategies they used simultaneously versus sequentially, as the pandemic unfolded.
- **The most commonly reported strategies were similar across organization types.** Partnering with community organizations and trusted leaders was a common strategy for both testing and vaccination.
- **Partnerships with government, medical, and community organizations were more common than partnerships with businesses or faith-based organizations,** but there were key exceptions by organization type. LHDs tended to use partnerships the most, and with the greatest range of partners, while pharmacies partnered the least.
- **LHDs and FQHCs reported the broadest range of populations of focus for services, whereas pharmacies and T/U facilities reported the fewest.** Respondents from all organization types focused on serving older adults, while incarcerated persons were the least commonly reported population of focus. Focusing on younger adults was also common.
- **Respondents focused on specific populations in line with their organizational missions.** For example, CBOs and FQHCs focused on people facing economic insecurity, including people without health insurance and people with low income.
- **Staffing was the most common challenge overall, by a substantial margin,** consistent with widely reported shortages in the health care and public health workforces during and after the pandemic.
- **Respondents more commonly reported challenges internal to their organizations and facilitators that were external to their organizations,** reflecting that many organizations might not have been well set up internally to deliver testing or vaccination services, at least right away, and therefore needed supports from outside.
- **Federal funding was the most commonly reported source of funding overall.** Within organization types, the most commonly reported source aligned with typical funding sources, such as local or state funding for LHDs and private insurance for pharmacies. Common testing and vaccination strategies were largely the same regardless of funding source.
- **The most commonly reported sources of information for planning were community guides, community-level data (about COVID-19 disease, testing, or vaccination rates), and information or best practices from federal programs.** LHDs, FQHCs, and CBOs used the most sources of information to develop their COVID-19 testing or vaccination strategies, whereas pharmacies used the fewest.
- **Respondents typically assessed their success by looking at outputs rather than health outcomes.** Commonly reported outputs included numbers of vaccine doses and tests delivered, adherence to CDC guidelines, and participants' satisfaction.

I. Introduction

This report presents findings from the National Survey on Best Practices for COVID-19 Vaccination and Testing, part of the Best Practices for COVID-19 Testing and Vaccination Study sponsored by the Office of the Assistant Secretary for Planning and Evaluation (ASPE) and the Office of the Assistant Secretary for Health (OASH). The survey was designed to gather information from local organizations about their efforts to improve COVID-19 testing and vaccination in populations that are medically or socially at disproportionate risk for COVID-19 or related adverse outcomes.¹ Findings from this analysis of survey data are primarily descriptive and serve to broaden our understanding of the testing and vaccination strategies that local organizations used most frequently, their populations of focus, the challenges they experienced in helping those populations, and other attributes of their efforts that address our research questions and inform subsequent study phases. Following the completion of the survey, the research team conducted virtual site visits with public health leaders, program staff and partners, and community members participating in COVID-19 vaccination and testing programs in 7 US states and 2 tribal organizations. The findings described in this report were used to provide context for qualitative data gathered through these site visits.

Overview of initial survey sample. As described in the survey plan (finalized and submitted to ASPE on May 18, 2023), we administered the survey to representatives of five organization types: local health departments (LHDs); Federally Qualified Health Centers (FQHCs); community-based organizations (CBOs); community pharmacies (herein, pharmacies); and Indian Health Service, tribal, and Urban Indian Organization health facilities (collectively, I/T/U facilities). We administered the survey over a 10-week fielding period from September 19, 2023, to November 27, 2023. We invited 507 representatives from the organizations to complete the survey. See Section VI for additional details on the sample and survey administration.

Overview of respondents. We received 164 completed surveys, with an overall response rate of 35%. Exhibit I.1 shows the number of respondents for each organization type and how they compared to the initial sample. Response rates are similar for most organization types but notably lower for Indian Health Services and tribal facilities. Because we did not receive any responses from Indian Health Service facilities, the following analysis refers to tribal and Urban Indian Organization (T/U) facilities only.

Exhibit I.1. Response rates by organization type

Survey status	LHDs (n = 101)	FQHCs (n = 100)	CBOs (n = 103)	I/T/U facilities (n = 100)			Pharmacies (n = 103)	Total (n = 507)
				IHS	Tribal	UIO		
Eligible survey completes	40	31	39	0	19	4	31	164
Ineligible	4	3	9	1	6	0	9	32
Refusal	0	0	4	0	1	0	3	8
Incomplete	57	66	51	10	53	6	60	302

¹ The definition of the population of focus encompasses groups with medical conditions that increase their risk of infection and adverse outcomes, groups that face greater risk of COVID-19 exposure because of where they live and work, and groups facing barriers to services, such as restrictive work schedules, low transportation access, language barriers, or low levels of income. Throughout this report, we refer to these groups as “populations at disproportionate risk.”

Survey status	LHDs (n = 101)	FQHCs (n = 100)	CBOs (n = 103)	I/T/U facilities (n = 100)			Pharmacies (n = 103)	Total (n = 507)
				IHS	Tribal	UIO		
Total invitations	101	100	103	11	79	10	103	507
Eligible sample	97	97	94	10	73	10	94	475
Response rate	41%	32%	41%	0%	26%	40%	33%	35%

Note: Ineligibles included organizations that are no longer in operation, are a duplicate of another organization in the sample, or did not provide COVID-19 testing, vaccinations, or information about testing or vaccination. Most ineligible respondents are a duplicate of another already in the sample or are no longer in operation.

CBO = community-based organization; FQHC = Federally Qualified Health Center; IHS = Indian Health Services; I/T/U = Indian Health Service, tribal, and Urban Indian Organization; LHD = local health department; UIO = Urban Indian Organization.

The survey asked separate sets of questions about testing and vaccination activities (see the survey instrument in the Appendix). Therefore, we present most findings separately for organizations that worked on testing (alone or in combination with vaccination; n = 136) and vaccination (alone or in combination with testing, n = 146). Out of 164 total respondents to the survey, 118 delivered testing and vaccination services, 18 delivered testing only, and 28 delivered vaccination only, totaling 136 organizations delivering testing and 146 delivering vaccination. Of the organizations that reported testing or vaccination services, LHDs comprised the largest proportion of the respondents overall (38 and 39 respondents, respectively). The next most common organization types reporting either testing or vaccination services were FQHCs and CBOs, followed by T/U facilities and community pharmacies. Exhibit I.2 shows the distribution of organizations that provided testing versus vaccination by organization type and by state. Exhibit I.3 shows the percentage of each organization type that worked on testing versus vaccination.

Exhibit I.2. Characteristics of organizations that provided testing versus vaccination (N = 164)

Organization type	Testing	Vaccination
LHDs	38 (27.9%)	39 (26.7%)
FQHCs	31 (22.8%)	30 (20.5%)
CBOs	30 (22.1%)	30 (20.5%)
T/U facilities	20 (14.7%)	18 (12.3%)
Community pharmacies	17 (12.5%)	29 (19.9%)
All organization types	136 (100%)	146 (100%)
State		
AK	5 (3.7%)	7 (4.8%)
AL	6 (4.4%)	8 (5.5%)
AZ	8 (5.9%)	8 (5.5%)
CA	7 (5.1%)	9 (6.2%)
FL	2 (1.5%)	2 (1.4%)
IL	7 (5.1%)	6 (4.1%)
IN	6 (4.4%)	6 (4.1%)
KS	7 (5.1%)	6 (4.1%)
MA	7 (5.1%)	8 (5.5%)
MI	8 (5.9%)	8 (5.5%)
MO	9 (6.6%)	9 (6.2%)
MS	4 (2.9%)	4 (2.7%)
NC	10 (7.4%)	9 (6.2%)

Organization type	Testing	Vaccination
NJ	5 (3.7%)	5 (3.4%)
NM	5 (3.7%)	7 (4.8%)
NV	8 (5.9%)	7 (4.8%)
NY	6 (4.4%)	7 (4.8%)
OK	6 (4.4%)	7 (4.8%)
OR	4 (2.9%)	5 (3.4%)
RI	5 (3.7%)	5 (3.4%)
TX	3 (2.2%)	6 (4.1%)
WV	8 (5.9%)	7 (4.8%)
All states	136 (100%)	146 (100%)

Note: Ns and percentages include only those that responded to the survey; of those, n = 18 respondents provided testing only, n = 28 respondents provided vaccination only, and n = 118 respondents provided both testing and vaccination.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Exhibit 1.3. Proportion of each organization type delivering COVID-19 testing versus vaccination (N = 164)

Reported focus	LHDs (n = 40)	FQHCs (n = 31)	CBOs (n = 39)	T/U facilities (n = 23)	Pharmacies (n = 31)	Overall (n = 164)
Promoted or delivered COVID-19 testing	38 (95.0%)	31 (100%)	30 (76.9%)	20 (87.0%)	17 (54.8%)	136 (82.9%)
Promoted or delivered COVID-19 vaccination	39 (97.5%)	30 (96.8%)	30 (76.9%)	18 (78.3%)	29 (93.5%)	146 (89.0%)

Note: Percentages sum to more than 100 because most organizations worked on both testing and vaccination.

Presentation of results. We present all survey data in the exhibits and make comparisons in the text only where there was a difference of at least 10 percentage points, a common practice for evaluating meaningful differences in public health research.² This helps to mitigate the risk that we overemphasize differences based on a limited number of survey responses. Findings may not generalize to all organizations of a given type included in this study or to other organization types. All descriptions of findings refer to organizations that responded to the survey rather than all organizations of a given type. All results are unweighted because findings are exploratory and descriptive, rather than representative of the population of organizations, and we did not test differences for statistical significance. In addition, because the sample is not large and was not random, weighting may present misleading findings by suggesting the results might generalize to a broader set of states and organizations.

Organization of the report. Sections II and III describe strategies, populations served by surveyed organizations, barriers and facilitators to program implementation, and funding sources separately for respondents providing COVID-19 testing and vaccination. Because many respondents promoted or provided testing and vaccination services, they responded to separate survey questions on both testing and vaccination, and their responses are reflected in both sections. Section IV presents results of the survey that were asked of all respondents, regardless of whether they provided vaccination or testing services. When appropriate, we likewise stratify these results by testing versus vaccination. Section V

² See Jewell, N.P. *Statistics for Epidemiology, 1st Edition*. Chapman and Hall/CRC, 2003.

discusses implications of the survey findings for site selection and site visits. Section VI summarizes the survey methods.

II. Findings on COVID-19 Testing

A. Strategies respondents used to deliver COVID-19 testing

In this section, we describe findings on the strategies respondents reported using to promote or deliver COVID-19 testing. We describe the most prevalent strategies, summarize respondents' perceptions of which strategies were effective, and describe the partnerships that organizations used to deliver testing strategies.

Key findings

- Many respondents that promoted or provided testing services reported using a large number of strategies to do so, up to 17 out of 18 possible response options, and roughly seven on average. Respondents from FQHCs and LHDs reported the largest number of different strategies, and pharmacies reported the fewest. Because respondents summarized their organizations' experiences over more than three years, it is not clear from the survey data which strategies they used simultaneously versus sequentially as the pandemic unfolded.
- The most commonly reported strategies were similar across organization types. They included conducting educational outreach using broad tools or media (such as phone calls, text messages, emails, social media, or mass media (TV or radio)), partnering with community organizations and trusted leaders, distributing home tests in community locations, and reducing financial barriers. Open-ended responses confirmed that organizations perceived these strategies as effective.
- Partnerships with government, medical, and community organizations were very common for most organizations delivering COVID-19 testing. Partnerships with businesses, employers or workplaces, and faith-based organizations were less commonly reported overall, but there were key exceptions by organization type. Many respondents reported engaging multiple partners and, in open-ended responses, emphasized the importance of these partnerships, particularly for building trust with communities.
- We did not find evidence that strategies typically fell into certain clusters or combinations.

1. COVID-19 testing strategies

Exhibit II.1 shows the number of different strategies³ survey respondents reported using to promote or deliver COVID-19 testing to communities at disproportionate risk, by organization type.

³ We use the word strategies for all activities related to testing (and vaccination) for consistency with the word used in the survey instrument. Note, however, that we characterized some strategies as approaches in the environmental scan report because they referred to the primary mechanisms that organizations use to achieve intended COVID-19 vaccination and testing access, awareness, and confidence. They include educational campaigns and in-person educational events, mobile testing/vaccination, community-based testing/vaccination, and mass-testing/vaccination. Strategies, in contrast, describe the activities designed to make primary approaches effective and further engage their effectiveness by focusing on the needs of participants, such as expanding hours or providing translation services.

Exhibit II.1. Number of different testing strategies used by organizations

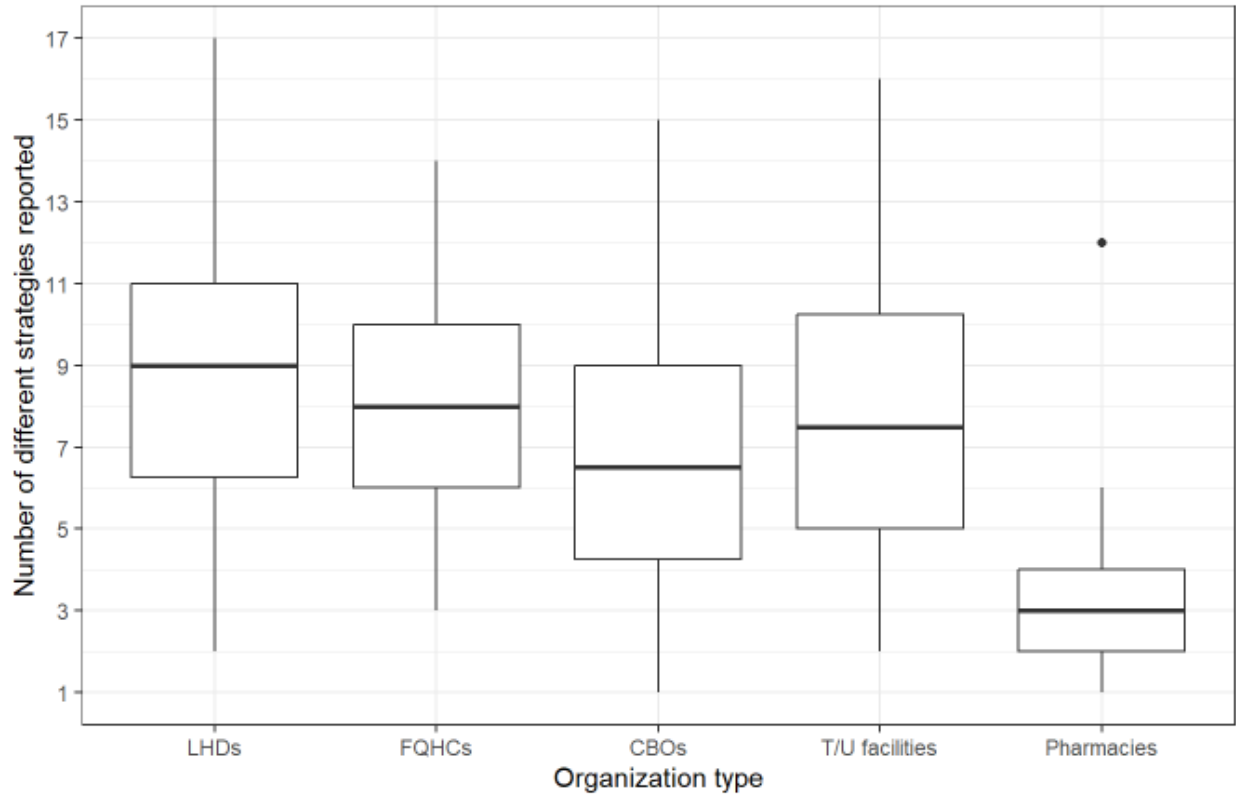
Number of different strategies reported	LHDs (n = 38)	FQHCs (n = 31)	CBOs (n = 30)	T/U facilities (n = 20)	Pharmacies (n = 17)	Overall (n = 136)
Min, Max	2, 17	3, 14	1, 15	2, 16	1, 12	1, 17
Mean (SD)	9 (3)	8 (3)	7 (4)	8 (4)	4 (3)	8 (4)

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Most organizations reported using multiple testing strategies; the average number was seven (7.47) out of 18 strategies listed as response options. The use of multiple strategies in combination is consistent with guidance from the Community Guide to Preventive Services.⁴ It is not clear from the survey data, however, which strategies organizations used simultaneously versus sequentially over the pandemic period. For example, a respondent selecting three strategies could have used all three in combination throughout their pandemic response effort or one strategy at a time. LHDs and FQHCs reported using the most strategies (averages of nine and eight, respectively). Pharmacies reported using the fewest (average of four), including four out of 17 pharmacies (23%) that reported using only one strategy (four different single strategies, results not shown). This reflects the fact that pharmacies have traditionally offered more specialized services than LHDs and FQHCs, although many pharmacies broadened their COVID-19 offerings in response to the pandemic and changes in their authority brought about by the Public Readiness and Emergency Preparedness Act. Exhibit II.2 shows this information graphically.

⁴ See [Vaccination Programs: Health Care System-Based Interventions Implemented in Combination | The Community Guide](#).

Exhibit II.2. Box and whisker plot of minimum, maximum, and median number of different testing strategies reported by respondents of different organization types



Note: Vertical lines in the box and whisker plot (the whiskers) show the range of the number of testing strategies reported by each organization type. If the range includes outliers, such as for pharmacies, they are represented as dots. The horizontal lines within boxes show the median number, and the height of the boxes denotes the middle two quartiles (in which around 50% of the observations fall for each organization type).

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Exhibit II.3 shows the proportion of each organization type that reported using different strategies to deliver or promote COVID-19 testing, in order of how common each strategy was overall. The top five most commonly reported strategies for each organization type are shaded (or top six when there was a tie).

Exhibit II.3. Testing strategies used by organizations that responded to the survey

Strategy	LHDs (n = 38)	FQHCs (n = 31)	CBOs (n = 30)	T/U facilities (n = 20)	Pharmacies (n = 17)	Overall (n = 136)
Conducted educational outreach or campaigns using communication tools or media such as phone calls, text messages, emails, social media, or mass media (TV or radio)	86.8%*	83.9%*	80.0%*	70.0%*	41.2%*	76.5%*
Partnered with CBOs such as food banks, churches, or schools or people trusted by community such as religious leaders, school staff, or community health workers	81.6%*	77.4%*	83.3%*	60.0%*	23.5%	70.6%*
Distributed home tests in community locations such as at a church, mall, library, community center, school, public housing, or shelter	81.6%*	61.3%	63.3%*	95.0%*	41.2%*	69.9%*
Reduced financial barriers such as not requiring health insurance or connecting people with financial resources	73.7%*	87.1%*	33.3%	55.0%*	41.2%*	61.0%*
Held community-based testing clinics such as at a church, mall, library, community center, school, public housing, or shelter or events	71.1%*	74.2%*	43.3%	65.0%*	29.4%*	59.6%*
Held mass testing clinics sometimes called mega-testing sites, intended to provide a high volume of tests in locations such as stadiums or parking lots or events	63.2%	67.7%*	33.3%	55.0%*	29.4%*	52.2%
Delivered messaging or provided services in multiple languages	60.5%	61.3%	60.0%*	20.0%	11.8%	48.5%
Provided testing services outside of typical business hours or offered walk-in appointments	63.2%	64.5%	16.7%	50.0%	35.3%*	47.8%
Paired testing services with other medical or social services	39.5%	54.8%	43.3%	45.0%	23.5%	42.6%
Held in-person educational events such as a town hall	28.9%	29.0%	56.7%*	50.0%	23.5%	37.5%
Trained partners on how to provide tests or outreach, such as staff in provider organizations	63.2%	16.1%	30.0%	30.0%	23.5%	35.3%
Provided mobile testing services such as with a van	42.1%	32.3%	23.3%	25.0%	11.8%	29.4%
Provided in-home testing services, including mail-in testing programs that allow people to self-test and visited people's homes to provide testing services there	36.8%	25.8%	23.3%	35.0%	11.8%	27.9%
Eliminated identification requirements to potentially reach people who might be undocumented	44.7%	9.7%	30.0%	15.0%	23.5%	26.5%
Gave out financial incentives such as cash, gift cards, vouchers, or coupons	13.2%	12.9%	36.7%	35.0%	0.0%	19.9%
Gave out non-financial incentives such as food or merchandise	10.5%	22.6%	33.3%	25.0%	5.9%	19.9%
Provided transportation services to testing sites	13.2%	19.4%	10.0%	45.0%	0.0%	16.9%
Other strategy	5.3%	3.2%	10.0%	0.0%	5.9%	5.1%

* Indicates the top five most commonly reported strategies for each organization type (or top six when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization;

LHD = local health department.

The most commonly reported strategies were largely the same across all organization types, with a few exceptions. The following were the top five overall:

- 1. Educational outreach via diverse messaging strategies** (such as phone calls, social media, text messages, or TV or radio mass media) (77% of all respondents). This was in the top five most common strategies for all organization types and the most common strategy among LHDs (87%) and pharmacies (41%).
- 2. Partnering with CBOs** such as food banks, churches, or schools or people trusted by community such as religious leaders (71% overall). This was the most common strategy reported by CBOs (83%) and in the top five strategies for all organization types except pharmacies.
- 3. Distributing home tests in community locations** (70% overall). This was the most commonly reported strategy among respondents from T/U facilities (95%) and pharmacies (41%) and was among the top five strategies for all organization types except for FQHCs.
- 4. Reducing financial barriers** by not requiring health insurance or connecting people with financial resources⁵ (61% overall). This was most commonly reported among FQHC (87%) and pharmacy (41%) respondents and among the top five strategies for all organization types except CBOs.
- 5. Community-based testing clinics** (60%) was in the top five for all organization types except for CBOs.

Some strategies were more commonly reported by certain organization types. Respondents from LHDs, FQHCs, and CBOs more commonly offered **testing services in multiple languages** (each about 60% compared with 20% among T/U and 12% among pharmacies). CBOs and T/U respondents more commonly held **in-person educational events** such as town halls (57% and 50%, respectively, compared with 24% to 29% among the other organization types.) **Mass testing** was commonly reported by respondents from LHDs (63%), FQHCs (68%), and T/Us (55%), but it was less common for CBO and pharmacy respondents (33% and 29%). Finally, **providing transportation** to testing sites was uncommon among most organization types (17% overall), except for T/U respondents (45%). In open-ended responses, respondents described other novel strategies such as providing refreshments and creating a welcoming and culturally responsive testing environment.

We did not observe meaningful clusters of testing strategies used in combination, overall or by organization type. To determine whether respondents tended to use certain strategies in combination, we conducted a hierarchical cluster analysis (described in more detail in Section VI). The hierarchical cluster analysis results showed little evidence of an underlying data structure indicating that certain strategies were typically used in combination by different organization types.⁶ This finding suggests that respondents used many varying strategies in combination or they shifted the way they combined strategies over the three years of the pandemic to adapt to changing circumstances. Because the survey

⁵ In open-ended responses, respondents described reducing financial barriers by offering testing free of charge or by not requiring insurance to be tested. Respondents did not elaborate on connecting people to financial resources, however roughly 20% of respondents reported giving out financial incentives.

⁶ The average silhouette width for all possible clusters (ranging from 1 to 20) among each organization type was less than 0.5, indicating that “the structure is weak and could be artificial” (see Rouseeuw 1987).

did not separately ask about strategies used early or late in the pandemic, or about strategies used when COVID-19 was peaking in certain communities, some respondents might have summarized their organizations' experiences over a fairly long period to respond to the survey.

2. Partnerships for delivering COVID-19 testing

Exhibit II.4 shows the types of organizational partnerships that respondents engaged in to promote or deliver COVID-19 testing, organized by how commonly they were reported overall. (Partnerships were also a survey response option for testing strategies (Exhibit II.3); this exhibit shows responses to a separate question about partnerships that helped respondents carry out any or all of their testing strategies.) The top three most commonly reported partnerships for each organization type are shaded (or top four when there was a tie).

Exhibit II.4. Types of partnerships used to deliver testing services, by organization type

Partner organizations	LHDs (n = 38)	FQHCs (n = 31)	CBOs (n = 26)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 131)
Local, state, or federal government offices or programs	84.2%*	80.6%*	73.1%*	73.7%*	41.2%*	74.0%*
Community-based organizations	73.7%	74.2%*	84.6%*	52.6%*	35.3%*	67.9%*
Medical providers or facilities	84.2%*	54.8%*	88.5%*	42.1%*	23.5%	64.1%*
Educational institutions	76.3%*	51.6%	42.3%	31.6%	35.3%*	51.9%
Businesses, employers, or workplaces	71.1%	45.2%	30.8%	42.1%*	47.1%*	49.6%
Faith-based organizations	50.0%	48.4%	65.4%	15.8%	17.6%	43.5%
Other partnership	0.0%	0.0%	0.0%	0.0%	5.9%	0.8%
Did not partner with other organizations	5.3%	3.2%	3.8%	0.0%	29.4%	6.9%

* Indicates the top three most commonly reported partnerships for each organization type (or top four when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question.

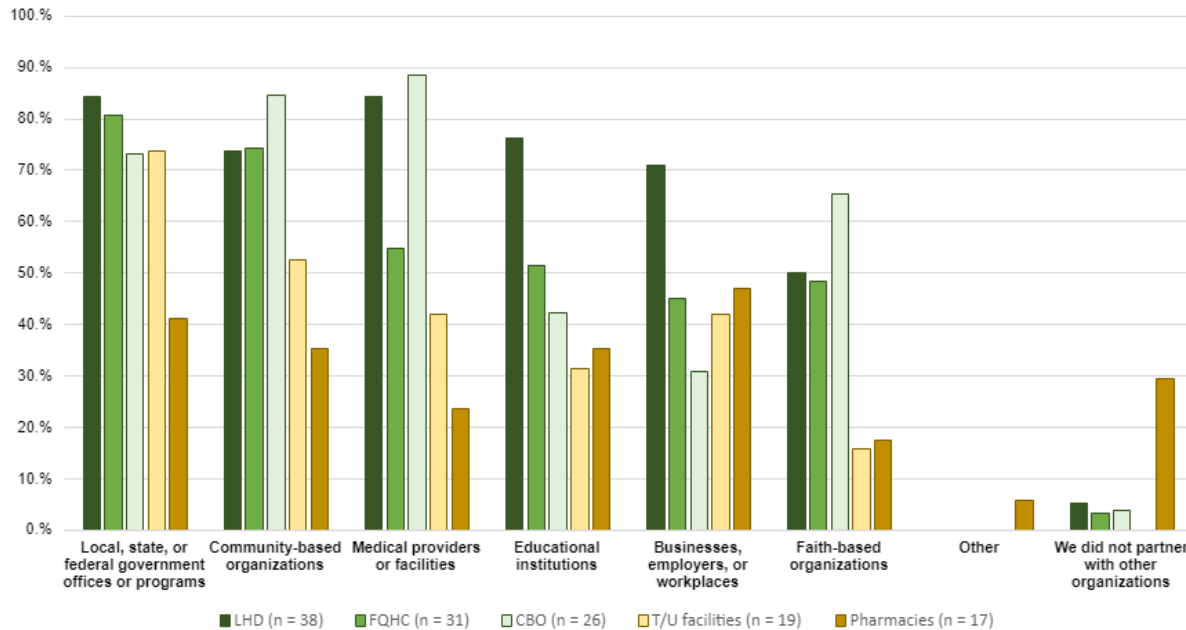
CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Partnerships that supported testing were nearly universal among survey respondents. Nearly all (93%) organizations that reported promoting or delivering testing worked in partnership with other organizations (just 7% reported not partnering). LHDs and CBOs reported the greatest variety of partnerships of all organization types (with five different types of partnerships for LHDs and four for CBOs out of a possible six; results not shown). It was also notable that 100% of T/U facilities reported engaging in at least one form of partnership. Respondents elaborated on the effectiveness and importance of partnerships in their open-ended responses about effective strategies (see next section).

A smaller proportion of pharmacies reported engaging in partnerships than the other organization types in the survey. Of the pharmacies that responded to the partnerships question on the survey, 29% reported not partnering with other organizations to promote or deliver testing services. The remaining pharmacy respondents reported partnerships, the most common of which were with businesses, employers, or workplaces (47%).

Exhibit II.5 shows the proportion of respondents that reported engaging in each type of partnership, ordered by how often respondents reported that partnership type overall. The bars represent the proportion of respondents of each organization type that stated they engaged in each form of partnership.

Exhibit II.5. Types of organizations that survey respondents reported partnering with to deliver testing services



CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department

As shown in Exhibit II.5., more LHDs, FQHCs, and CBOs engaged in most types of partnerships than T/U facilities and pharmacies. One exception to this pattern is that a relatively large proportion of T/U facilities reported partnering with local, state, or federal government offices or programs (74%, similar to other organization types). Another is that a larger proportion of pharmacies partnered with businesses and employers than the proportion of CBOs that did so (47% compared to 31%).

Partnerships with businesses, employers, or workplaces, and faith-based organizations were less commonly reported overall (50% and 44%, respectively), but there were key exceptions. For example, business partnerships were relatively common for LHDs (71%), and partnerships with faith-based organizations were relatively common for CBOs (65%).

3. Perceived effectiveness of COVID-19 testing strategies

When asked about the most effective testing strategies used by their organization,⁷ respondents provided free text answers that overwhelmingly focused on strategies to remove barriers to testing

⁷ The survey question was: “From the strategies you previously selected, please choose the most effective COVID-19 testing strategies your organization used to increase testing awareness, access, or uptake for populations who are medically or socially at disproportionate risk for COVID-19 or adverse outcomes.” A follow-up question asked: “Please describe how the COVID-19 testing strategies you selected were effective.”

and make testing more accessible and convenient, including mass testing and community-based testing events. Drive-through and home testing promoted accessibility and convenience while allowing organizations to “meet people where they are.” Several respondents also mentioned pairing testing with social or medical services, such as testing for people picking up prescriptions or medical supplies or pairing COVID-19 tests with flu shots.

Multiple respondents highlighted the importance of partnerships, noting the importance of identifying local trusted partners and messengers that helped the organization build trust and relationships with community members. A common theme from respondents was that building trust and rapport was key to testing uptake.

A few respondents mentioned additional strategies that they saw as effective. These included providing child care to increase convenience, calling everyone in a community to provide testing information, leveraging community health workers or lay health advisors to provide education and information, distributing tests at gas stations, and using a local radio station to provide updates to remote communities.

Finally, some respondents noted the effectiveness or importance of focusing on specific populations or community members through events and messaging. These included populations identified by respondents as minority groups, underserved groups, working class and low-income people, and unhoused people. Respondents described the importance of using multilingual approaches, culturally relevant or culturally adapted materials and communication, and appropriate literacy levels. Some respondents also noted that word of mouth was a quick way to spread messaging and education.

B. Populations of focus for COVID-19 testing strategies

In this section, we describe findings about the populations of focus for respondents’ testing efforts. We also describe patterns in the strategies respondents used to promote or provide testing to these populations.

Key findings

- LHDs and FQHCs reported the broadest range of populations of focus, whereas pharmacies and T/U facilities reported the fewest.
- Respondents from all organization types focused on serving older adults, while incarcerated persons were the least commonly reported population of focus.
- Some organization types more commonly provided testing to specific populations. For example, LHDs focused on people with underlying medical conditions, CBOs and FQHCs focused on people facing economic insecurity, T/U facilities focused on serving American Indian and Alaska Native populations, and pharmacies focused on testing frontline workers.
- Most organizations reported similar strategies regardless of their primary populations of focus; these strategies tended to be broad and adaptable to the needs of different populations, like promoting services via multiple communication streams and engaging trusted community leaders. Some organizations serving specific populations reported strategies that may have helped people overcome barriers, for example related to English language or transportation.

1. Populations of focus for testing strategies

Exhibit II.6 shows the populations of focus⁸ among respondents that worked on testing, in order of how commonly each population was reported overall. We shade table cells in which at least 75% of respondents of each organization type reported a population of focus (this is a data-driven cutoff that we chose to aid analysis and comprehension). The table also summarizes the total number of different populations of focus that each organization type reported. Note that we cannot determine whether organizations focused on all populations simultaneously or at different points in the pandemic. Table cells in which at least 75% of respondents of each organization type reported a population of focus are shaded.

Exhibit II.6. Populations of focus, by organization type

Population	LHDs (n = 37)	FQHCs (n = 31)	CBOs (n = 26)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 130)
Older adults (older than age 65)	97.3%*	96.8%*	92.3%*	100.0%*	100.0%*	96.9%*
Young adults (ages 18 to 24)	83.8%*	87.1%*	92.3%*	94.7%*	64.7%	85.4%*
People without health insurance	75.7%*	96.8%*	76.9%*	63.2%	64.7%	77.7%*
People or communities with low income	70.3%	90.3%*	88.5%*	63.2%	64.7%	76.9%*
People with specific underlying medical conditions	94.6%*	87.1%*	50.0%	63.2%	70.6%	76.2%*
Frontline workers or other people at increased risk of COVID-19 because of their occupation such as migratory and seasonal agricultural workers	81.1%*	80.6%*	53.8%	78.9%*	82.4%*	75.4%*
Children (ages 0 to 17)	86.5%*	74.2%	53.8%	89.5%*	47.1%	72.3%
Communities in a specific geographic area (for example, neighborhoods, wards, or towns, or areas defined by high need)	64.9%	71.0%	73.1%	84.2%*	41.2%	67.7%
Hispanic communities	81.1%*	80.6%*	80.8%*	5.3%	41.2%	64.6%
People with disabilities (for example, physical disabilities, intellectual disabilities, visual impairments)	67.6%	71.0%	42.3%	84.2%*	52.9%	63.8%
Rural communities	70.3%	54.8%	61.5%	68.4%	52.9%	62.3%
People or communities with low education or literacy	54.1%	87.1%*	73.1%	31.6%	47.1%	61.5%
People with limited English proficiency	70.3%	80.6%*	69.2%	15.8%	35.3%	60.0%
Black or African American communities	64.9%	67.7%	73.1%	10.5%	47.1%	56.9%
People with substance use disorder	43.2%	71.0%	34.6%	52.6%	41.2%	49.2%
American Indian or Alaska Native communities	45.9%	45.2%	38.5%	94.7%*	29.4%	49.2%
Immigrant communities, including refugees and people without documentation	59.5%	64.5%	53.8%	5.3%	29.4%	47.7%
People in multigenerational housing	29.7%	64.5%	57.7%	52.6%	23.5%	46.2%

⁸ The survey question was: "Who were the populations or communities of focus for your organization's COVID-19 testing strategies during the COVID-19 public health emergency?" A parallel question was asked of respondents who worked on vaccination.

Population	LHDs (n = 37)	FQHCs (n = 31)	CBOs (n = 26)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 130)
Residents of public housing	43.2%	54.8%	57.7%	26.3%	29.4%	44.6%
People experiencing homelessness or housing insecurity	45.9%	54.8%	50.0%	26.3%	17.6%	42.3%
Lesbian, gay, bisexual, transgender, queer/questioning, intersex, asexual/agender, and two-spirit (LGBTQIA2S+) populations	32.4%	67.7%	34.6%	26.3%	29.4%	40.0%
Asian communities	54.1%	48.4%	34.6%	0.0%	29.4%	37.7%
Residents of shelters	51.4%	41.9%	34.6%	10.5%	17.6%	35.4%
Veterans	32.4%	45.2%	23.1%	31.6%	41.2%	34.6%
Residents of nursing homes or long-term care facilities	59.5%	22.6%	11.5%	10.5%	41.2%	31.5%
Native Hawaiian or other Pacific Islander communities	40.5%	35.5%	26.9%	5.3%	23.5%	29.2%
Incarcerated populations	48.6%	6.5%	3.8%	5.3%	0.0%	16.9%
Other populations or communities of focus	2.7%	0.0%	3.8%	0.0%	0.0%	1.5%
Number of different populations of focus reported						
Min, Max	6, 27	3, 27	5, 25	3, 24	1, 26	1, 27
Mean (SD)	16.5 (6.4)	17.5 (5.9)	14.5 (6.1)	12.0 (4.8)	11.7 (8.3)	15.04 (6.6)

* Indicates table cells in which at least 75% of respondents of each organization type reported a population of focus.

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Nearly all organizations that responded to this survey question reported focusing on older adults; most also focused on young adults, and relatively few focused on incarcerated persons. Older adults were the most commonly reported population of focus overall (97%) and among all organization types. At least 75% of respondents across all organization types reported focusing on **younger adults ages 18 to 24**, with the exception of pharmacies. **Incarcerated persons** were the least commonly reported population of focus overall (17%), though 49% of LHD respondents offered testing services to this population.

Aside from older and young adults, populations of focus reported by at least 75% of respondents differed by organization type and largely aligned with each organization type’s typical mission. We present these results in order of the number of different populations of focus each organization type reported.

- **FQHCs reported the greatest number and variety of populations of focus (18 on average).** In addition to focusing on a relatively large number of different patient groups, FQHCs reported focusing on several groups that could be characterized as facing economic insecurity, including people without health insurance, people with low income, people with low education, and people with limited English proficiency. FQHCs also more commonly reported serving LGBTQI2S+ populations compared with other organization types (68% compared with 45% overall).

- **LHDs also reported many populations of focus, similar to FQHCs (17 on average).** Similar to FQHCs, LHDs commonly served people with underlying medical conditions, frontline workers, people without health insurance, and Hispanic communities. LHDs were distinguished from FQHCs by their greater focus on children (87% versus 74%), residents of nursing homes (60% versus 23%), and incarcerated populations (48% versus 7%).
- **Similar to FQHCs and LHDs, CBOs tended to focus on people facing economic insecurity.** CBOs reported 14 populations of focus on average, but only five were reported by at least 75% of respondents; they included people without health insurance or low income.
- **T/U facilities were unique in some of their populations of focus.** T/U facilities reported 12 populations of focus on average. Compared with other organization types, T/U facilities overwhelmingly focused on American Indian and Alaska Native populations (95% versus 49% overall) and communities in a defined geographic region (84% versus 67% overall), which is unsurprising because of these organizations' mission and reach. American Indian and Alaska Native respondents also more commonly focused on children and people with disabilities than other organization types did. Similar to FQHCs and LHDs, T/U also respondents focused on frontline workers.
- **Pharmacies reported the fewest populations of focus.** Similar to T/U respondents, pharmacies reported 12 populations of focus on average, but only two were reported by at least 75% of respondents: older adults and frontline workers. It is possible that this finding reflects that many pharmacies simply serve as many customers or community members as they can without distinguishing specific groups.

2. Patterns of strategies used and populations of focus

Here, we describe the most commonly reported testing strategies among organizations that reported focusing on each specific population (our analytic approach is described in Section VI). For example, among the 126 respondents serving older adults, 76% also reported conducting educational outreach campaigns. These results do not reveal whether an organization used a given approach to serve a specific population. For example, the above finding does not necessarily mean that the educational outreach campaigns were offered to or accessed by older adults, but it does reveal that organizations serving older adults commonly also provided educational outreach. We do not include the exhibit of results because of its large size.

The most common strategies were the same among respondents focusing on many diverse populations. For example, **conducting educational outreach or campaigns using diverse media and communication tools** was the most commonly reported strategy overall and among respondents focusing on children, young adults, older adults, Hispanic communities, Black communities, LGBTQI2S+ populations, and many others. Partnering with CBOs and trusted community members was the second most commonly reported strategy overall and the most common among respondents serving immigrants, people with limited English proficiency, people in multigenerational housing, and others. Other common strategies, such as distributing tests in community locations and reducing financial barriers, were the most commonly reported strategies among organizations focusing on the remaining populations, such as people with disabilities, people with substance use disorder, and certain racial and ethnic groups.

Top strategies such as conducting educational outreach and partnering with other organizations may have been tailored to meet the needs of diverse populations. The top strategies used by respondents serving diverse populations were broadly worded to encompass multiple variations, such as communication through phone calls or mass media, engaging different kinds of trusted leaders, and distributing testing in various community locations. The encompassing nature of the response option wording—and the inherent adaptability of these strategies—likely explains why they were so commonly reported, and suggests they might have helped organizations reach diverse populations with different needs, resources, risk factors, and circumstances.

Some strategies, although less commonly reported overall, were substantially (greater than 10%) more commonly reported among respondents focusing on particular populations; they tended to be strategies to overcome barriers. For example, delivering testing or providing services in multiple languages was more commonly reported by organizations that focused on Hispanic communities (66%); people with limited English proficiency (67%); and immigrants, refugees, and people without documentation (69% compared with 48% overall; results not shown). **Providing in-home testing** was reported by 42% of respondents who focused on residents of nursing homes and 41% of respondents who focused on residents of public housing (compared with 28% of overall respondents to this question).

We did not observe meaningful archetypes or organizations of certain types that tended to use certain testing strategies for specific populations of focus. We used cluster analysis to assess whether organization type, testing strategy, and population of focus clustered together in any meaningful patterns. As with the simple cluster analysis of strategies (described in Section II.B.1), we did not identify archetypes. Although organizations that responded to the survey used many different strategies, and served many populations, there was no meaningful pattern of combinations of strategies used for specific populations by certain organization types.

C. Barriers to, facilitators of, and funding for COVID-19 testing strategies

Here, we describe findings on the factors that made testing strategies more difficult or easier for respondents to deliver. Following the Consolidated Framework for Implementation Research (CFIR, Damschroder et al. 2022), one of the theoretical frameworks guiding our analysis for the overall study, we categorize implementation challenges as operating in inner or outer settings. The CFIR is useful for understanding whether challenges and facilitators fall within the responding organization (referred to as the “inner-setting”) or in their external context (referred to as the “outer setting”). This information can help funders, partners, and policymakers provide the most useful supports to organizations. We also discuss findings on funding for testing strategies.

Key findings

- Respondents across organization types reported challenges to delivering COVID-19 testing, both internal and external to the organizations. *Inner setting* challenges were slightly more common, and included things like staffing and supply shortages. Our finding that staffing was the most common challenge overall, by a substantial margin, is consistent with widely reported shortages in the health care and public health workforces during and after the pandemic. *Outer setting* challenges were slightly less common, except for misinformation, which was among the top challenges reported by most respondents.
- In contrast, organizations more commonly reported facilitators of COVID-19 testing that were external to their organizations. Taken together with the finding that challenges with the inner setting were more common than with the outer setting, this reflects that many organizations were not well set up internally to deliver testing services, at least right away, and therefore needed supports from outside.
- Most organizations that reported working on testing were funded through multiple sources; and federal funding was the most commonly reported source overall. Within organization types, the most commonly reported source aligned with typical funding sources, such as local or state funding for LHDs and private insurance for pharmacies. Common testing strategies were largely the same regardless of funding source.

1. Challenges to implementing testing strategies

Exhibit II.7 shows the distribution of challenges faced by organizations working on testing, in order of how commonly each challenge was reported overall within inner- versus outer-setting domains of the Consolidated Framework for Implementation Research (CFIR, Damschroder et al. 2022). Nearly all respondents that worked on testing reported facing at least some challenges (96%). Inner-setting challenges are internal to an organization, such as those related to staffing, time, supplies, and infrastructure. Outer-setting challenges occur in the context surrounding an organization, such as those related to funding, local connections, community attitudes, and external pressures. This framework is useful because it suggests the need for different types of solutions to help organizations improve their effectiveness. The table also presents the total number of challenges (mean, SD, and range) reported by each organization type. Top three most commonly reported challenges for each organization type are shaded (or top four when there was a tie).

Over half of all reported challenges were internal to the organizations delivering testing (55%). The most prevalent inner-setting challenges overall were limited staffing (69%), testing supplies (49%), and limited time (41%). Our finding that staffing was the largest challenge across the board is consistent with well known and widely reported health care and public health staffing shortages during and after the pandemic; it is striking that CBOs reported the same thing.⁹ The organization types reporting the highest

⁹ See, for example, findings from larger surveys on decreases on the public health workforce during the pandemic: [The Exodus Of State And Local Public Health Employees: Separations Started Before And Continued Throughout COVID-19 | Health Affairs](#), and on pharmacy staffing shortages: [Three-quarters of pharmacists say lack of staff is hindering their job performance - The Pharmaceutical Journal \(pharmaceutical-journal.com\)](#).

proportion of challenges in the inner setting were pharmacies and FQHCs, with 62% and 59% of all challenges characterized as inner setting challenges (results not shown).

Exhibit II.7. Challenges to testing strategies, by organization type

Challenge to testing strategies	LHDs (n = 37)	FQHCs (n = 31)	CBOs (n = 26)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 130)
Inner-setting challenges						
Limited staffing	78.4%*	58.1%*	69.2%*	78.9%*	58.8%*	69.2%*
Testing supplies	48.6%*	48.4%*	61.5%*	31.6%	47.1%*	48.5%*
Limited time	45.9%	29.0%	38.5%	36.8%*	58.8%*	40.8%
Personal protective equipment (PPE) supplies	40.5%	54.8%	30.8%	15.8%	23.5%	36.2%
Tracking or following up with people	37.8%	48.4%	34.6%	31.6%	5.9%	34.6%
Data challenges (for example, accessing, collecting, reporting, or tracking data)	32.4%	29.0%	23.1%	5.3%	17.6%	23.8%
Limited expertise	18.9%	22.6%	34.6%	15.8%	5.9%	20.8%
Total inner-setting challenges as a proportion of all challenges	52.3%	59.2%	53.5%	52.6%	63.8%	55.3%
Outer-setting challenges						
Misinformation	59.5%*	48.4%*	61.5%*	31.6%	29.4%	49.2%*
Limited funding	29.7%	25.8%	61.5%*	15.8%	41.2%	34.6%
Lack of community trust	40.5%	38.7%	34.6%	10.5%	0.0%	29.2%
Constraints on use of funding	32.4%	22.6%	34.6%	42.1%*	11.8%	29.2%
Managing multiple sources of funding	40.5%	22.6%	19.2%	36.8%	5.9%	26.9%
Challenges collaborating or coordinating with partners	21.6%	12.9%	15.4%	31.6%	11.8%	18.5%
Low demand from the community for these services	21.6%	19.4%	19.2%	21.1%	0.0%	17.7%
Lack of support from local officials	21.6%	6.5%	3.8%	0.0%	11.8%	10.0%
Lack of support from state officials	8.1%	3.2%	3.8%	5.3%	11.8%	6.2%
Total outer-setting challenges as a proportion of all challenges	47.7%	40.8%	46.5%	47.4%	36.2%	44.7%
Other						
Other challenges	2.7%	0.0%	0.0%	0.0%	5.9%	1.5%
Did not face any challenges	2.7%	0.0%	3.8%	10.5%	5.9%	3.8%

* Indicates the top three most commonly reported challenges for each organization type (or top four when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question. Proportions of total inner and outer setting challenges were calculated by tallying challenges for each organization type reported (the denominator), classifying them as either inner-setting or outer-setting (numerators), and calculating a percentage. "Other" challenges are not included in the count of total challenges reported.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Challenges with tracking or following up with people and limited expertise stood out as relatively rare inner-setting challenges for pharmacies. Only 5.9% of pharmacies reported difficulty following up with people, although it is not clear whether pharmacies did less of this overall or simply did not experience challenges doing it. The same proportion of pharmacies (5.9%) reported limited staff expertise, which could reflect the fact that staff provided a narrower scope of services more in line with their training, compared to staff in other organizations who may have been required to do new things to meet new demands. It was also notable that only 5.3% of T/U facilities reported challenges with data.

Outer-setting challenges were less commonly reported overall but were more common among some organization types. The most commonly reported outer-setting challenges were misinformation (49% overall and up to roughly 60% among CBOs and LHDs) and limited funding (35% overall but 62% among CBOs and 60% among LHDs). Other outer-setting challenges included constraints on use of funding, which was more commonly reported among T/U facilities (41%) compared with other organization types (29% overall) and lack of community trust, which was higher among LHD and FQHC respondents (41% and 35%) than among respondents from other organization types such as T/Us (only 11% of which reported this challenge). No pharmacy respondents reported challenges related to community trust or demand for their services. Four of the five least commonly reported challenges were related to the outer setting, including coordinating with partners, low demand for services, and lack of support from local or state officials (all less than 20% overall). In open-ended responses, respondents additional challenges such as the community’s frustration with vaccine eligibility.

2. Facilitators to implementing testing strategies

Exhibit II.8 shows the factors that respondents said helped them promote or deliver testing strategies in order of how commonly each facilitator was reported overall. The table is organized by inner- versus outer-setting domains of the Consolidated Framework for Implementation Research (CFIR, Damschroder et al. 2022). Top three most commonly reported facilitators for each organization type are shaded (or more when there was a tie).

Exhibit II.8. Facilitators of testing strategies, by organization type

Facilitator of testing strategies	LHDs (n = 38)	FQHCs (n = 31)	CBOs (n = 26)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 131)
Inner-setting facilitators						
Staff resources	47.4%	48.4%	50.0%	52.6%*	41.2%*	48.1%
Training or education for staff and volunteers	52.6%	51.6%*	53.8%	36.8%	35.3%	48.1%
Careful planning before rollout	50.0%	48.4%	26.9%	47.4%	29.4%	42.0%
Use of data to identify trends and disparities	55.3%	32.3%	53.8%	31.6%	0.0%	38.9%
Monitoring or quality improvement	47.4%	48.4%	19.2%	26.3%	11.8%	34.4%
Volunteer hours or resources	57.9%	16.1%	42.3%	5.3%	11.8%	31.3%
Total inner-setting facilitators as a proportion of all facilitators	45.9%	42.7%	43.2%	40.9%	46.8%	44.0%

Facilitator of testing strategies	LHDs (n = 38)	FQHCs (n = 31)	CBOs (n = 26)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 131)
Outer-setting facilitators						
Free supplies	97.4%*	87.1%*	69.2%*	94.7%*	52.9%*	83.2%*
Local, state, or federal policies or guidelines	73.7%*	74.2%*	42.3%	63.2%*	64.7%*	64.9%*
Community or organizational partners	73.7%*	51.6%*	84.6%*	47.4%	11.8%	58.8%*
Flexibility in the way funding could be used	50.0%	51.6%*	42.3%	36.8%	11.8%	42.0%
Guidance, information, or best practices from funders, associations, or communities of practice such as learning collaboratives among grantees or program participants	36.8%	45.2%	61.5%*	36.8%	5.9%	39.7%
Other organizations' infrastructure, such as physical space or refrigeration	34.2%	19.4%	23.1%	10.5%	0.0%	20.6%
Total outer-setting facilitators as a proportion of all facilitators	54.1%	57.3%	56.8%	59.1%	53.2%	56.0%
Other						
Other facilitators	2.6%	6.5%	0.0%	0.0%	0.0%	2.3%

* Indicates the top three most commonly reported facilitators for each organization type (or more when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question. Proportions of total inner and outer setting facilitators were calculated by tallying facilitators for each organization type reported (the denominator), classifying them as either inner-setting or outer-setting (numerators), and calculating a percentage. "Other" facilitators are not included in the count of total facilitators reported. We classify free supplies as an external facilitator, even though supply shortages are an internal challenge, because specifying "free" relates to the provision of supplies from external parties (including the federal government) and the ability of respondents to obtain those supplies from external parties.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

More than half of all facilitators were external to the organizations working on testing, potentially reflecting that many organizations were engaging in new and demanding work during the pandemic and needed external support. Because of the disruptive nature of the pandemic, many organizations might not have been well set up internally to deliver testing services, at least right away. The three most commonly reported facilitators overall and for most organization types were free supplies (83%); local, state, or federal policies or guidelines (65%); and community or organizational partners (59%). Pharmacies were an exception to this pattern; they did not commonly report community or organizational partnerships as a facilitator (12% compared with 59% overall). Outer-setting facilitators were most commonly reported among respondents from FQHCs, CBOs, and T/Us.

Inner-setting facilitators were slightly less common but still prevalent. Just under half of all facilitators identified among respondents that delivered testing were internal to organizations. The most commonly reported inner-setting facilitators included staff resources (48%), training or education for staff and volunteers (48%), and careful planning before rollout (42%).

3. Funding sources for testing strategies

Exhibit II.9 shows the proportion of respondents indicating their organization received funding from each of four funding sources in order of how commonly each funding source was reported overall. Cell shading indicates the most commonly reported funding source for each organization type.

Exhibit II.9. Funding sources for testing, by organization type

Funding sources	LHDs (n = 37)	FQHCs (n = 31)	CBOs (n = 24)	T/U facilities (n = 19)	Pharmacies (n = 17)	Overall (n = 128)
Federal funding, such as grants, contracts, or awards	75.7%	93.5%*	66.7%*	100.0%*	35.3%	76.6%*
Local or state funding, such as grants, contracts, or awards	89.2%*	74.2%	62.5%	52.6%	23.5%	66.4%
Private insurance or reimbursement	27.0%	45.2%	16.7%	15.8%	70.6%*	33.6%
Philanthropy, foundation, or other nongovernment funding	0.0%	22.6%	58.3%	10.5%	17.6%	20.3%
Other funding source	0.0%	0.0%	0.0%	0.0%	5.9%	0.8%

* Indicates the most commonly reported funding source for each organization type.

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question. The item response rate for this question was lower for CBO respondents than for other organization types (80% versus 94% overall).

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

The most common funding source for testing for each organization type aligns with their typical funding sources, such as local or state funding for LHDs (89%) and private insurance for pharmacies (71%).

CBOs reported the most even distribution of funding sources, across federal (67%), local and state (63%), and philanthropic funding (58%), and other organization types reported using one source substantially more than others.

Federal funding was the most common source of funding for testing overall (77%).

Funding from local or state sources was also commonly reported overall (66%). Private insurance was less commonly reported overall (34%) with the exception of pharmacies (71%).

Philanthropy, foundation, or other

nongovernmental funds was the least commonly reported funding source (20% overall and 0% among LHDs). The exception was CBOs (58%).

Respondent insights: Plans for continued funding

When asked how they plan to continue funding their organization's COVID-19 testing efforts, multiple respondents that provided free-text answers said they will continue to provide testing through federal, state, and grant funding, including funding for Indian Health Service facilities and FQHCs. Many of these respondents noted that they will receive tests rather than funding directly from these sources. Some respondents noted shifting from a public health approach to normal health care system operations by shifting testing costs to insurance or self-pay. A few respondents noted they are no longer providing testing services or will stop soon, with one explaining that they are instead focused on education and others citing high costs or no available funding at all.

Common testing strategies were the same regardless of funding source, with a few exceptions. For example, organizations funded by all sources typically conducted educational outreach or campaigns using diverse tools or media or partnered with CBOs (results not shown). There were a few exceptions in which certain strategies were more common among organizations receiving specific funding streams: those receiving private insurance more commonly reported operating community-based clinics, and those receiving local and federal funding more commonly distributed home tests in community locations. Finally, those receiving philanthropic funding most commonly reported delivering testing services in multiple languages. These findings might be driven by organization type (for example, CBOs were more commonly funded by philanthropies and also more commonly offered services in multiple languages than other organization types).

III. Findings on COVID-19 Vaccination

A. Strategies respondents used to deliver COVID-19 vaccinations

This section describes strategies used to promote or provide COVID-19 vaccinations for populations at disproportionate risk of COVID-19 or related adverse outcomes. As with testing, the survey asked about vaccination services for populations at disproportionate risk of COVID-19 or related adverse outcomes (see the instrument in the appendix), although it is also possible that respondents generalized to other populations they worked with when they responded to survey questions. We also describe the most prevalent vaccination strategies, summarize respondents’ perceptions of which strategies were effective, and describe the partnerships that organizations engaged to deliver vaccination strategies.

Key findings

- As with testing, many respondents that promoted or provided vaccinations used more than one strategy, and some used as many as 15. On average, LHDs reported using the most strategies and pharmacies the least. Because respondents summarized their organizations’ experiences over more than three years, it is not clear from the survey data which strategies they used simultaneously versus sequentially as the pandemic unfolded.
- Community-based vaccination clinics and events were used more than any other strategy by all organization types. As with testing, partnering with organizations or people trusted by the community was the second most-commonly reported strategy; providing vaccination services outside of typical business hours was another common vaccination strategy. Holding mass vaccination clinics was more common than mass testing, whereas conducting educational outreach about vaccination was less common than educational outreach for testing.
- As with testing, partnerships were common across all organization types, particularly partnerships with government offices, CBOs, and medical providers. LHDs tended to use partnerships the most, and with the greatest range of partners, while pharmacies partnered the least. Partnerships with businesses, faith-based organizations, and educational institutions were less common overall, with a few exceptions.
- As with testing, we did not find evidence that strategies typically fell into certain clusters or combinations.

1. COVID-19 vaccination strategies

Exhibit III.1 shows the number of different vaccination strategies respondents reported using to promote or administer COVID-19 vaccinations to communities at disproportionate risk.

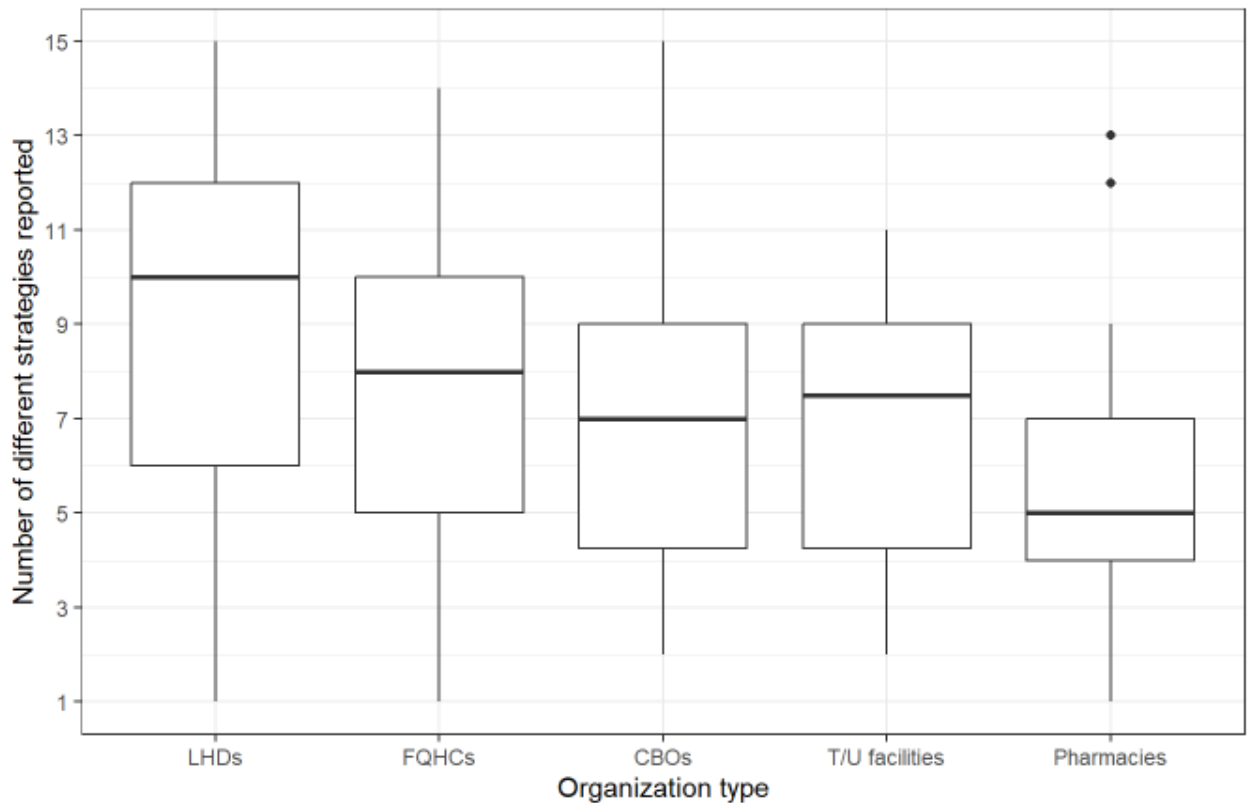
Exhibit III.1. Number of different vaccination strategies used by organizations

Number of different strategies reported	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 30)	T/U facilities (n = 18)	Pharmacies (n = 29)	Overall (n = 146)
Min, Max	1, 15	1, 14	2, 15	2, 11	1, 13	1, 15
Mean (SD)	9 (4)	8 (3)	7 (4)	7 (3)	6 (3)	7 (4)

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Similar to testing, most respondents reported that their organization used multiple vaccination strategies, up to 15 out of a possible 18. The median number of vaccination strategies for each organization type was also very similar to the median numbers of testing strategies. As noted in the testing section, however, it is not clear which strategies organizations used simultaneously versus sequentially over the pandemic period. The average number of vaccination strategies used was seven. LHDs used the most strategies, with an average of nine, and pharmacies used the least, with an average of six. Exhibit III.2 shows this information graphically. These findings might reflect that LHDs typically offer a wider range of services overall than pharmacies.

Exhibit III.2. Box and whisker plot of different vaccination strategies reported by respondents



Note: Vertical lines in the box and whisker plot (the whiskers) show the range of the number of vaccination strategies reported by each organization type. If the range includes outliers, such as for pharmacies, they are represented by dots. The horizontal lines within boxes show the median number, and the height of the boxes denotes the middle two quartiles (in which around 50% of the observations fall for each organization type).

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Exhibit III.3 shows the proportion of each organization type that reported using different strategies to promote or deliver COVID-19 vaccinations, in order of how commonly they were reported overall. The top five most commonly reported strategies for each organization type are shaded.

Exhibit III.3. Vaccination strategies used by organizations that responded to the survey

Strategies	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 30)	T/U facilities (n = 18)	Pharmacies (n = 29)	Overall (n = 146)
Held community-based vaccination clinics such as at a church, mall, library, community center, school, public housing, or shelter or events	89.7%*	80.0%*	76.7%*	77.8%*	65.5%*	78.8%*
Partnered with organizations such as food banks, churches, or schools or people trusted by community such as religious leaders, school staff, or community health workers	76.9%*	73.3%*	90.0%*	55.6%*	37.9%	68.5%*
Provided vaccination services outside of typical business hours or offered walk-in appointments	89.7%*	76.7%*	26.7%	61.1%*	72.4%*	67.1%*
Held mass vaccination clinics, sometimes called mega-vaccination sites, intended to provide a high volume of vaccines in locations such as stadiums or parking lots or events	87.2%*	70.0%*	43.3%	72.2%*	51.7%*	65.8%*
Conducted educational outreach or campaigns using communication tools or media such as phone calls, text messages, emails, social media, or mass media (TV or radio)	79.5%*	60.0%	80.0%*	66.7%*	37.9%	65.8%*
Paired COVID-19 vaccination services with routine vaccination services	69.2%	66.7%	23.3%	44.4%	72.4%*	56.8%
Paired vaccination services with other medical or social services	48.7%	80.0%*	40.0%	38.9%	37.9%	50.0%
Delivered messaging or provided services in multiple languages	61.5%	53.3%	60.0%*	16.7%	24.1%	46.6%
Provided mobile vaccination services such as with a van	59.0%	46.7%	43.3%	22.2%	34.5%	43.8%
Held in-person educational events such as a town hall	30.8%	30.0%	53.3%*	38.9%	20.7%	34.2%
Provided in-home or door-to-door vaccination services	64.1%	10.0%	10.0%	27.8%	44.8%*	33.6%
Trained partners on how to provide vaccines or outreach, such as staff in provider organizations	41.0%	23.3%	30.0%	16.7%	20.7%	28.1%
Gave out financial incentives such as cash, gift cards, vouchers, or coupons	33.3%	20.0%	40.0%	44.4%	3.4%	27.4%
Eliminated identification or documentation requirements to reach people who might be undocumented or uninsured	38.5%	20.0%	30.0%	16.7%	20.7%	26.7%
Provided transportation services to vaccination sites	17.9%	30.0%	23.3%	50.0%	3.4%	22.6%
Gave out non-financial incentives such as food or merchandise	15.4%	13.3%	40.0%	16.7%	3.4%	17.8%
Other	0.0%	0.0%	10.0%	5.6%	6.9%	4.1%

* Indicates the top five most commonly reported strategies for each organization type.

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

The five most commonly reported strategies were largely consistent across organization types.

Similar to testing strategies, partnering with other organizations was the second most common vaccination strategy overall. Although some testing and vaccination strategies are inherently different, it is unsurprising that we see parallels in the responses to these and other survey questions because most organizations responding to the survey completed the sections on both testing and vaccination. Holding mass vaccination clinics was more common than mass testing clinics (66% for vaccination versus 52% for testing), whereas conducting educational outreach about vaccination was less common than educational outreach for testing (66% for vaccination versus 77% for testing). **The five most commonly reported vaccination strategies were:**

- 1. Offering community-based vaccination clinics** (79% of all respondents). This was in the top five most common strategies for all organization types and was most prevalent among LHDs (90%). This was also a top five strategy among testing respondents.
- 2. Partnering with organizations or people trusted by the community** (69% overall) was among the top five strategies for all organization types except pharmacies. CBOs most commonly reported this strategy (90%).
- 3. Providing vaccination services outside of typical business hours or offering walk-in appointments** (67% overall) was in the top five for all organization types except CBOs. LHDs most frequently reported this strategy (90%).
- 4. Mass vaccination clinics** (66% overall) was a top five strategy for all organization types except CBOs. LHDs reported using this strategy most (87%).
- 5. Conducting educational outreach or campaigns using communication tools or media** (66% overall) was a top five strategy for CBOs (80%), LHDs (80%), and T/U facilities (67%).

Some strategies were reported more commonly by certain organization types. For example, **pairing COVID-19 vaccinations with routine vaccinations** was more commonly reported by LHD, FQHC, and pharmacy respondents (each about 70%) and less commonly by CBOs (23%) and T/U facilities (44%).

Delivering messaging or providing services in multiple languages was reported more often by LHD (62%), FQHC (53%), and CBO (60%) respondents (compared with 24% and 17% among pharmacies and T/U facilities, respectively). **Providing in-home or door-to-door vaccination services** was most commonly reported among LHD respondents (64%) and least commonly by FQHCs and CBOs (10% each). Finally, the strategies more commonly reported by T/U facilities than other organization types included giving out **financial incentives** (44% versus 27% overall) and **providing transportation services to vaccination sites** (50% versus 23% overall).

As with testing, we did not see meaningful clusters of activities among vaccination respondents.

We conducted a hierarchical cluster analysis to assess whether organizations tend to group certain strategies, but we did not find clusters, likely for the same reasons noted in the testing section. We also did not observe meaningful archetypes of organizations of different types that tended to deliver certain strategies for certain populations.

2. Partnerships for delivering COVID-19 vaccination

Exhibit III.4 shows the types of organizational partnerships that supported vaccination strategies, in order of how commonly they were reported overall, and stratified by organization type. (Partnerships were also a survey response option for vaccination strategies (Exhibit III.3); this exhibit shows responses to a separate question about partnerships that helped respondents carry out any or all their vaccination strategies.). The top three most commonly reported partnerships for each organization type are shaded (or top four when there was a tie).

Exhibit III.4. Types of partnerships used to deliver vaccination services, by organization type

Partner organizations	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 27)	T/U facilities (n = 16)	Pharmacies (n = 28)	Overall (n = 140)
Local, state, or federal government offices or programs	84.6%*	93.3%*	88.9%*	87.5%*	57.1%*	82.1%*
Community-based organizations	79.5%*	83.3%*	85.2%*	50.0%*	42.9%	70.7%*
Medical providers or facilities	82.1%*	33.3%	85.2%*	50.0%*	64.3%*	65.0%*
Businesses, employers, or workplaces	71.8%	40.0%	44.4%	31.3%	50.0%*	50.7%
Faith-based organizations	66.7%	53.3%*	66.7%	12.5%	21.4%	48.6%
Educational institutions	79.5%	50.0%	40.7%	25.0%	17.9%	47.1%
We did not partner with other organizations	2.6%	0.0%	0.0%	0.0%	7.1%	2.1%

* Indicates the top three most commonly reported partnerships for each organization type (or top four when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question.

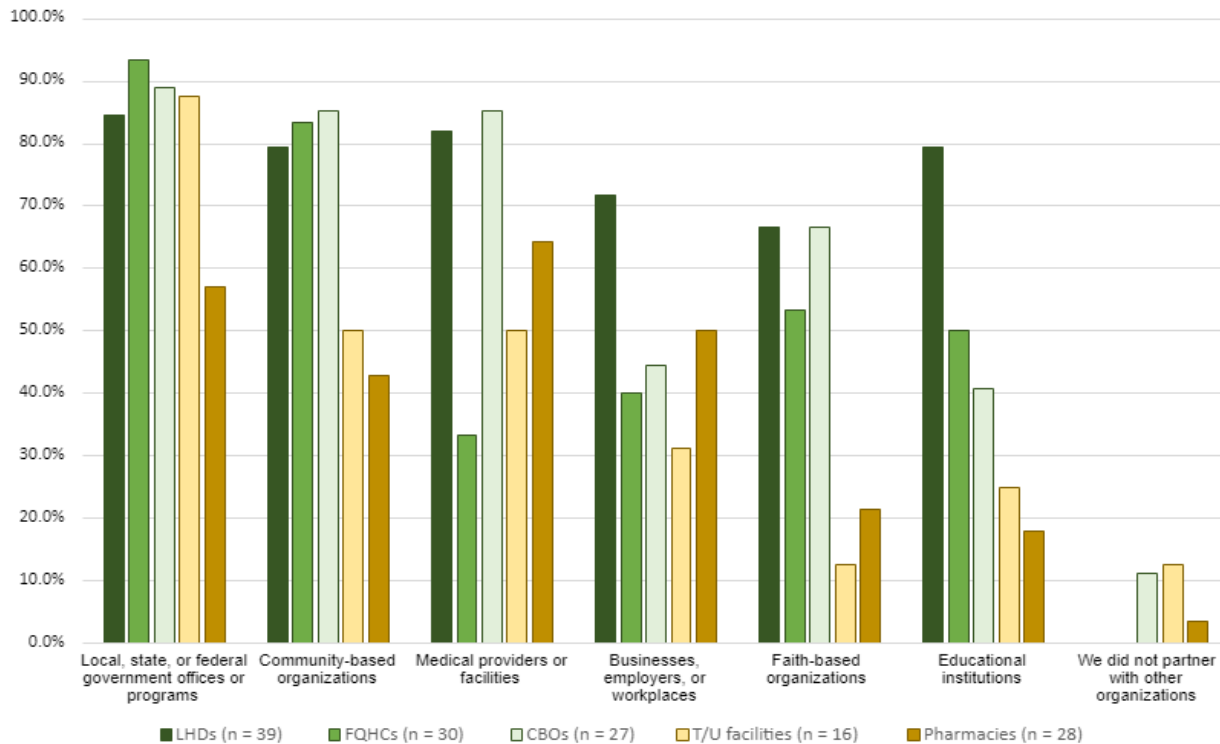
CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Nearly all (98%) respondents worked in partnership with other organizations to deliver vaccination services. Vaccination partnerships were most common among FQHC, CBO, and T/U respondents, all of which reported engaging in at least one form of partnership. As with testing, LHD and CBO respondents reported the greatest number of different partnership types (five and four on average, respectively, out of a possible six, results not shown).

As with testing, pharmacies were the organization type that least commonly reported engaging in partnerships. In all, 7% of the pharmacy respondents who answered this survey question said they did not engage in any partnerships to promote or deliver vaccinations. This proportion is lower than for testing, where 29% of pharmacy respondents said they did not partner to promote or deliver testing services. When pharmacies did partner with other organizations, they most commonly did so with medical providers or facilities (64%), which differs from testing.

Exhibit III.5 shows the proportion of vaccination respondents that reported engaging in each type of partnership ordered by how commonly they were reported overall. The bars represent the proportion of respondents of each organization type reporting each type of partnership.

Exhibit III.5. Types of organizations that survey respondents reported partnering with to deliver vaccination services



CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Exhibit III.5 shows that, as with testing, partnerships with government offices or programs, CBOs, and medical providers and facilities were more common than partnerships with the other three types of partners, but there was variation by respondent type. This variation was similar to testing, but a noticeably smaller proportion of FQHCs reported partnering with medical providers to deliver vaccination (33%) than to deliver testing (55%). In contrast to testing, no vaccination respondents reported engaging in “other” types of partnerships.

Exhibit III.5 also shows that small proportions of T/U facilities and pharmacies partnered with faith-based organizations and educational institutions relative to other organizations. In contrast, there were roughly equal proportions of LHDs that partnered with all partner types, including with faith-based organizations and educational institutions.

3. Perceived effectiveness of COVID-19 vaccination strategies

When asked about most effective vaccination strategies, respondents provided free text answers that were similar to answers about effective testing strategies. As with testing, multiple respondents noted that their organizations’ most effective vaccination strategies were those that reduced time, transportation, and child care barriers by increasing convenience and access.

Successful strategies also made vaccination more appealing through activities or events, reached many people at once, and went directly to individuals, including at schools and in the workplace. The finding that partnerships with schools were effective appears to contrast with the finding that educational

partnerships were less common than other partnership types; this apparent contrast could be due to the fact that many schools were closed for part of the pandemic but partnerships were effective when they were possible. It also suggests, however, that additional partnerships with educational institutions could pay dividends. Some respondents made vaccinations available during patient encounters, including when picking up prescriptions and medical supplies (such as clean syringes) or getting other vaccines.

As with testing, many respondents saw the use of local partners to build trust as essential to increasing vaccinations. Partners helped to destigmatize getting the vaccination by providing culturally appropriate education and information. Community health navigators and workers also helped to connect organizations with community members.

Other effective but less common strategies included providing vaccinations and vaccine information at non-traditional settings, such as bars and breweries; providing vouchers for ride services; and allowing public transport vehicles at vaccine drive-thru sites. One respondent described the provision of motivational interviewing training to vaccine providers as effective. This involved coaching people into making pro-health decisions rather than using fear as motivation.

Many respondents described the need to tailor outreach and service delivery to reach specific populations to ensure that vaccination efforts were effective overall. Respondents described tailoring outreach (such as where, when, and from whom messaging was disseminated) and service delivery to overcome barriers and meet needs for people experiencing homelessness, Hispanic/Latino populations, rural communities, individuals with developmental/intellectual disabilities, vulnerable or historically marginalized populations, public housing residents, and people who are undocumented. For example, one respondent noted: "Speaking with people in their native language and using trusted messengers was key to our success."

B. Populations of focus for COVID-19 vaccination strategies

Here, we describe the populations and communities that responding organizations focused on when promoting or delivering COVID-19 vaccination services. We also describe patterns between populations of focus and the strategies used by organizations serving certain population groups.

Key findings

- As with testing, FQHCs and LHDs reported the most populations of focus and pharmacies and T/U facilities reported the fewest.
- As with testing, the most commonly reported populations of focus across organization types were older adults and younger adults, and the least reported was incarcerated populations.
- Other common populations of focus differed by organization type. For example, FQHCs tended to focus more on populations in unique or vulnerable housing situations—such as people in multigenerational housing, residents of public housing, people experiencing homelessness or housing insecurity, and residents of shelters—than other organization types.
- Like with testing, the most common vaccination strategies--holding community vaccination clinics or events, partnering with CBOs and community members, expanding hours, and holding mass vaccination events —were commonly reported regardless of population of focus, likely due to their broad scope. Unlike with testing, there was a weaker relationship between specific populations of focus and specific strategies.

1. Populations of focus for vaccination strategies

Exhibit III.6 shows the populations of focus among respondents that worked on vaccination in order of how commonly each population was reported overall. As with testing, we shaded the exhibit cells in which at least 75% of respondents among each organization type reported a population of focus. The exhibit also summarizes the total number of different populations of focus that each organization type reported. Note that we cannot determine whether organizations focused on all populations simultaneously or at different points in the pandemic.

Exhibit III.6. Populations of focus, by organization type

Populations of focus	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 27)	T/U facilities (n = 18)	Pharmacies (n = 28)	Overall (n = 142)
Older adults older than age 65	97.4%*	100.0%*	92.6%*	94.4%*	100.0%*	97.2%*
Young adults ages 18 to 24 years old	87.2%*	86.7%*	96.3%*	83.3%*	82.1%*	87.3%*
People or communities with low income	84.6%*	96.7%*	88.9%*	55.6%	67.9%	81.0%*
People with specific underlying medical conditions	89.7%*	90.0%*	51.9%	83.3%*	71.4%	78.2%*
Frontline workers or other people at increased risk of COVID-19 because of their occupation such as migratory and seasonal agricultural workers	87.2%*	80.0%*	51.9%	77.8%*	89.3%*	78.2%*
People without health insurance	76.9%*	93.3%*	66.7%	50.0%	78.6%*	75.4%*
Communities in a specific geographic area for example, neighborhoods, wards, or towns, or areas defined by high need	71.8%	80.0%*	85.2%*	61.1%	53.6%	71.1%
Children ages 0 to 17	79.5%*	80.0%*	66.7%	72.2%	42.9%	69.0%
People with disabilities, for example, physical disabilities, intellectual disabilities, visual impairments	76.9%*	80.0%*	48.1%	55.6%	75.0%*	69.0%

Section III Findings on COVID-19 Vaccination

Populations of focus	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 27)	T/U facilities (n = 18)	Pharmacies (n = 28)	Overall (n = 142)
People with limited English proficiency	71.8%	83.3%*	77.8%*	11.1%	60.7%	65.5%
People or communities with low education or literacy	59.0%	93.3%*	74.1%	27.8%	57.1%	64.8%
Hispanic communities	74.4%	80.0%*	77.8%*	5.6%	53.6%	63.4%
Rural communities	64.1%	63.3%	59.3%	55.6%	46.4%	58.5%
Black or African American communities	59.0%	73.3%	66.7%	11.1%	50.0%	55.6%
Immigrant communities, including refugees and people without documentation	66.7%	60.0%	63.0%	5.6%	50.0%	53.5%
People with substance use disorder	46.2%	70.0%	37.0%	44.4%	42.9%	48.6%
People in multigenerational housing	35.9%	70.0%	59.3%	44.4%	28.6%	47.2%
Residents of public housing	43.6%	60.0%	48.1%	38.9%	39.3%	46.5%
American Indian or Alaska Native communities	38.5%	46.7%	37.0%	88.9%*	28.6%	44.4%
People experiencing homelessness or housing insecurity	48.7%	63.3%	51.9%	22.2%	17.9%	43.0%
Residents of nursing homes or long-term care facilities	64.1%	26.7%	22.2%	16.7%	53.6%	40.1%
Lesbian, gay, bisexual, transgender, queer/questioning, intersex, asexual/agender, and two-spirit (LGBTQIA2S+) populations	35.9%	63.3%	40.7%	22.2%	21.4%	38.0%
Residents of shelters	48.7%	50.0%	40.7%	16.7%	14.3%	36.6%
Asian communities	46.2%	50.0%	33.3%	0.0%	35.7%	36.6%
Veterans	35.9%	43.3%	22.2%	22.2%	28.6%	31.7%
Native Hawaiian or other Pacific Islander communities	35.9%	40.0%	22.2%	5.6%	25.0%	28.2%
Incarcerated populations	41.0%	20.0%	3.7%	5.6%	0.0%	16.9%
Number of different populations of focus reported						
Min, Max	1, 27	7, 27	4, 25	1, 25	3, 26	1, 27
Mean (SD)	16.7 (7.8)	18.4 (5.4)	14.9 (5.9)	10.8 (6.0)	13.1 (6.7)	15. (6.9)

* Indicates table cells in which at least 75% of respondents of each organization type reported a population of focus.

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

As with testing, nearly all vaccination respondents reported serving older adults, most focused on young adults, and few focused on incarcerated populations. Older adults were the most commonly reported population of focus across all organization types except CBOs, and more than 90% of respondents in each organization type reported this population of focus (ranging from 93% to 100%). This is parallel to the finding for testing, reflecting that either most organizations responding to the survey provided both testing and vaccination services and might have done so together or that these organizations simply prioritized one of the most medically at-risk populations at different points in the

pandemic. More than 75% of respondents among every organization type reported focusing on adults ages 18 to 24 (87% overall). The least commonly reported population of focus was incarcerated persons (17% overall). Similar to testing, a larger proportion of LHD vaccination respondents reported this population of focus (41%).

Other populations of focus reported by at least 75% of respondents varied by organization type and, similar to testing, largely aligned with each organization type’s typical mission and operations. We present these results in order of the greatest number of different populations of focus each organization type reported to the least.

- FQHCs reported focusing on the greatest number of different populations, in parallel to the finding for testing.** FQHC vaccination respondents reported an average of 18 populations of focus. Similar to FQHCs that provided testing services, those that provided vaccinations reported focusing on several groups facing economic insecurity. In contrast to testing, FQHCs also reported focusing on populations in specific housing situations—such as people in multigenerational housing, residents of public housing, and people experiencing homelessness or housing insecurity—to a greater extent than other organization types, with the exception of residents of shelters.
- Like FQHCs, LHDs often reported focusing on people with underlying medical conditions, frontline workers, people without health insurance, children, and people with disabilities.** As with testing, LHDs were distinguished from FQHCs by their greater focus on residents of nursing homes (64% versus 27%) and incarcerated populations (41% versus 20%).
- CBOs, like FQHCs, commonly reported focusing on communities in a specific geographic area, people with limited English proficiency, Hispanic populations, and people or communities with low education or literacy.** This finding is different from the one in testing, in which the focus on serving people in defined geographic areas was more prevalent among T/U facilities.
- Similar to FQHCs and LHDs, pharmacies focused on frontline workers, people without health insurance, and people with disabilities.** Similar to LHDs, pharmacies reported focusing on residents of nursing homes at a higher rate than most other organization types (54% compared with 40% overall). As with testing, pharmacies focused on children less frequently than other organization types (43% compared with 69% overall).
- Unlike testing, T/U facilities reported the fewest populations of focus for vaccination efforts.** But like testing, T/U facilities overwhelmingly and unsurprisingly focused on American Indian and Alaskan Native populations (89%) compared with other organization types (44% overall). Similar to

Respondent insights: Serving specific communities

The survey data do not reveal which strategies were used to support specific populations of focus, only the proportion of organizations that reported using each strategy, among those focusing on different populations. Yet open-ended responses provide additional context. When asked about their most effective vaccination strategies, respondents noted that developing culturally adapted messaging and engaging local partnerships were particularly useful strategies for serving specific populations, including people experiencing homelessness, Hispanic/Latino populations, rural communities, people with developmental/intellectual disabilities, and people who are undocumented or living in public housing.

FQHCs and LHDs, T/U facilities also focused on people with underlying medical conditions and frontline workers, in addition to children.

2. Patterns of strategies used and populations of focus

As with testing, we use this section to describe the most commonly reported vaccination strategies among organizations that reported each population of focus. We do not include the exhibit of results because of its large size.

As with testing, respondents reporting the most common vaccination strategies also reported focusing on a wide range of populations. For example, **community-based vaccination clinics** was the most commonly reported strategy, reported among 80% of all respondents working to promote or deliver vaccinations, regardless of the population of focus. The next two most-common vaccination strategies, **partnering with community organizations and trusted community leaders** (68.3%) and **providing vaccination services outside of typical business hours or offering walk-in appointments**, each were reported by 68% of respondents working on vaccination. These strategies were commonly reported by organizations focused on people of all ages, people with limited English proficiency, residents of nursing homes and public housing, rural communities, and more. The high frequency with which these strategies were reported among respondents serving different populations suggests that they may have been widely applicable and possibly essential for reaching diverse populations with different needs and circumstances.

Some strategies were reported substantially more often (greater than 10%) among respondents focusing on specific populations; however, these relationships were weaker than for testing. For example, the strategy of **delivering vaccinations in multiple languages** was reported more commonly among organizations that focused on immigrant populations (69%), people with limited English proficiency (66%), and Hispanic people (68%) compared with overall (47%). Yet unlike testing, this strategy was also commonly reported by respondents that focused on Black or African American populations (62%), Asian populations (65%), and Native Hawaiian or other Pacific Islander populations (63%) as well as several other populations of focus such as residents of shelters (73%) and LGBTQI2S+ populations (59%). This finding highlights the fact that we cannot say for sure what strategies were used for which populations of focus; it is possible that the organizations that provided translation services to Hispanic communities also served LGBTQI2S+ populations but not necessarily that the latter group was the recipient of the translation. More research is needed to unpack whether and how different strategies were most relevant and useful for various populations of focus.

As with testing, we did not observe meaningful archetypes, or organizations of certain types that tended to use certain testing strategies for specific populations of focus. Although responding organizations used several different strategies and served many populations, there was no meaningful pattern of combinations of strategies used for specific populations by certain organization types.

C. Barriers to, facilitators of, and funding for COVID-19 vaccination strategies

Here, we share findings on the barriers and facilitators organizations experienced when delivering COVID-19 vaccination services. We also discuss findings on the sources of funding organizations used for vaccination strategies.

Key findings

- As with testing, *inner setting* challenges were more commonly reported across all organization types with the exception of LHDs. The most commonly reported inner setting challenges were limited staffing, limited time, and limited supplies. Supplies posed less of a challenge for vaccination compared to testing. Certain organization types more commonly faced distinct challenges, such as pharmacies facing time constraints and FQHCs lacking refrigeration, suggesting potential ways to support them in providing vaccination services.
- As with testing, the most commonly reported facilitators to vaccination were external to their organizations. The most commonly reported *outer setting* facilitators for organizations delivering vaccination were free supplies and local, state, or federal policies or guidelines.
- As with testing, grants, contracts, and awards from federal and state sources were the most commonly reported sources of funding for vaccination efforts across most organization types. Philanthropy and foundation funding was least commonly reported, except by CBOs.

1. Challenges implementing vaccination strategies

Exhibit III.7 shows the challenges that survey respondents faced when delivering COVID-19 vaccination services, ordered by how commonly they were reported overall, and organized inner and outer setting domains. Top three most commonly reported challenges for each organization type are shaded (or top four when there was a tie).

Exhibit III.7. Challenges to vaccination strategies, by organization type

Challenge to vaccination strategies	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 27)	T/U facilities (n = 17)	Pharmacies (n = 28)	Overall (n = 141)
Inner-setting challenges						
Limited staffing	71.8%*	60.0%*	74.1%*	70.6%*	75.0%*	70.2%*
Limited time	35.9%	26.7%	37.0%	23.5%	67.9%*	39.0%*
Vaccine supplies	53.8%*	36.7%	44.4%	17.6%	17.9%	36.9%
Tracking or following up with people	38.5%	30.0%	29.6%	35.3%*	14.3%	29.8%
Personal protective equipment (PPE) supplies	35.9%	40.0%	29.6%	5.9%	21.4%	29.1%
Data challenges (for example, accessing, collecting, reporting, or tracking data)	35.9%	26.7%	25.9%	23.5%	25.0%	28.4%
Limited expertise	12.8%	20.0%	48.1%*	11.8%	7.1%	19.9%
Ability to refrigerate vaccines	12.8%	23.3%	0.0%	11.8%	10.7%	12.1%
Total inner-setting challenges as a proportion of all challenges	47.0%	55.6%	51.0%	56.7%	71.3%	53.7%
Outer-setting challenges						
Misinformation	76.9%*	50.0%*	77.8%*	41.2%*	39.3%*	59.6%*
Lack of community trust	51.3%	46.7%*	37.0%	17.6%	17.9%	36.9%
Constraints on use of funding	48.7%	16.7%	37.0%	29.4%	3.6%	28.4%

Challenge to vaccination strategies	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 27)	T/U facilities (n = 17)	Pharmacies (n = 28)	Overall (n = 141)
Managing multiple sources of funding	51.3%	26.7%	18.5%	17.6%	3.6%	26.2%
Limited funding	20.5%	30.0%	40.7%	5.9%	14.3%	23.4%
Low demand from the community for these services	25.6%	26.7%	25.9%	11.8%	3.6%	19.9%
Challenges collaborating or coordinating with partners	20.5%	3.3%	22.2%	23.5%	7.1%	14.9%
Lack of support from local officials	28.2%	6.7%	7.4%	0.0%	3.6%	11.3%
Lack of support from state officials	12.8%	3.3%	11.1%	5.9%	3.6%	7.8%
Total outer-setting challenges as a proportion of all challenges	53.0%	44.4%	49.0%	43.3%	28.7%	46.3%
Other						
Other challenges	5.1%	0.0%	0.0%	11.8%	10.7%	5.0%
We did not face any challenges	2.6%	3.3%	0.0%	11.8%	0.0%	2.8%

* Indicates the top three most commonly reported challenges for each organization type (or top four when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question. Proportions of total inner and outer setting challenges were calculated by tallying challenges for each organization type reported (the denominator), classifying them as either inner-setting or outer-setting (numerators), and calculating a percentage. "Other" challenges are not included in the count of total challenges reported.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Inner-setting challenges were reported more frequently than outer-setting challenges by all organization types except LHDs. As with testing, the most frequently reported inner-setting challenges were limited staffing (70% overall), and limited time (39%). Limited staffing was reported most by pharmacies (75%) and least by FQHCs (60%). Limited supplies were also a commonly reported challenge for organizations delivering vaccination (37% overall), but less so than for testing (49% overall among testing respondents). Limited expertise and ability to refrigerate vaccines were the least common inner-setting challenges overall (20% and 12%, respectively).

Certain inner-setting challenges differed by organization type, suggesting potential ways to support specific organization types in providing vaccination services. Pharmacies experienced limited time as a challenge at a higher rate than other organizations (68% compared with 39% overall), perhaps related to the challenges they experienced with staffing. CBOs more frequently reported limited expertise as a challenge than other organization types did (48% compared with 20% overall). FQHCs more frequently reported the challenge of being able to refrigerate vaccines than other organization types (23% compared with 12% overall).

Outer-setting challenges were reported less frequently overall but were more prevalent among some organization types. The most prevalent outer-setting challenges were misinformation (60% overall) and lack of community trust (37%). Misinformation was most commonly reported by LHDs (77%) and CBOs (78%), and lack of community trust was reported most by pharmacies (68%). Misinformation

and lack of community trust were both more commonly reported among respondents working on vaccination compared to testing, suggesting the populations that respondents worked with were more confident in tests than in vaccines.

Pharmacies did not experience certain outer-setting challenges to the extent other organization types did, especially funding-related challenges. Pharmacies less commonly reported constraints on the use of funding and managing multiple sources of funding than other organization types did (4% compared with 26% to 28% overall). They also less frequently reported challenges with limited funding compared with LHDs, FQHCs, and CBOs (although this was even less common among T/U respondents: 6% compared with 23% overall). Relatively few pharmacies also reported lack of demand for vaccines and lack of federal and local support compared with other organization types.

2. Facilitators to implementing vaccination strategies

Exhibit III.8 shows the factors vaccination respondents said helped them promote or deliver vaccination strategies in order of how commonly they were reported overall, within inner- versus outer-setting domains. Top three most commonly reported facilitators for each organization type are shaded (or more when there was a tie).

Exhibit III.8. Facilitators of vaccination strategies, by organization type

Facilitator of vaccination strategies	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 26)	T/U facilities (n = 16)	Pharmacies (n = 27)	Overall (n = 138)
Inner-setting facilitators						
Careful planning before rollout	64.1%	50.0%	30.8%	50.0%*	33.3%	47.1%
Staff resources	51.3%	50.0%	34.6%	50.0%*	40.7%*	45.7%
Training or education for staff and volunteers	46.2%	46.7%	38.5%	50.0%*	33.3%	42.8%
Volunteer hours or resources	69.2%*	20.0%	34.6%	12.5%	18.5%	35.5%
Use of data to identify trends and disparities	53.8%	30.0%	46.2%	18.8%	7.4%	34.1%
Monitoring or quality improvement	38.5%	33.3%	23.1%	25.0%	11.1%	27.5%
Pilot testing or small-scale test before large-scale rollout	17.9%	6.7%	11.5%	6.3%	7.4%	10.9%
Total inner-setting facilitators as a proportion of all facilitators	48.0%	42.3%	38.0%	45.3%	36.3%	42.9%
Outer-setting facilitators						
Free supplies	84.6%*	86.7%*	69.2%*	87.5%*	88.9%*	83.3%*
Local, state, or federal policies or guidelines	69.2%*	73.3%*	61.5%*	56.3%*	70.4%*	67.4%*
Community or organizational partners	76.9%*	53.3%*	88.5%*	25.0%	25.9%	58.0%*
Guidance, information, or best practices from funders, associations, or communities of practice such as learning collaboratives among grantees or program participants	48.7%	46.7%	61.5%*	50.0%*	40.7%*	49.3%

Facilitator of vaccination strategies	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 26)	T/U facilities (n = 16)	Pharmacies (n = 27)	Overall (n = 138)
Flexibility in the way funding could be used	35.9%	36.7%	50.0%	25.0%	25.9%	35.5%
Other organizations' infrastructure, such as physical space or refrigeration	53.8%	26.7%	26.9%	12.5%	14.8%	30.4%
Total outer-setting facilitators as a proportion of all facilitators	52.0%	57.7%	62.0%	54.7%	63.7%	57.1%
Other						
Other facilitators	2.6%	0.0%	0.0%	0.0%	0.0%	0.7%

* Indicates the top three most commonly reported facilitators for each organization type (or more when there was a tie).

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question. Proportions of total inner and outer setting facilitators were calculated by tallying facilitators for each organization type reported (the denominator), classifying them as either inner-setting or outer-setting (numerators), and calculating a percentage. "Other" facilitators are not included in the count of total facilitators reported. We classify free supplies as an external facilitator, even though supply shortages are an internal challenge, because specifying "free" relates to the provision of supplies from external parties (including the federal government) and the ability of respondents to obtain those supplies from external parties.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Outer-setting facilitators were reported more frequently than inner-setting facilitators across all organization types, and they were similar to testing facilitators, potentially reflecting again the need for external support. As with testing, the most common outer-setting facilitator for vaccination overall was free supplies (83%), followed by local, state, or federal policies or guidelines (67%) and community partners (58%). Yet there is some variation across organization types in reporting other facilitators:

- Pharmacies and T/U facilities less commonly reported partners as a facilitator.
- CBOs more commonly reported flexibility in the way funding could be used as a facilitator than other organization types did (50% vs 36% overall).
- Although other organizations' infrastructure, such as physical space or refrigeration, was the least commonly reported outer-setting facilitator overall (30%), 54% of LHD respondents reported this as a facilitator.

Inner-setting facilitators were less commonly reported overall, and vary by organization type to a larger extent, than outer-setting facilitators. Careful planning before rollout was the most commonly reported inner-setting facilitator overall (47%), followed by staff resources (46%) and training or education for staff and volunteers (43%). CBOs and pharmacies reported these facilitators less often (31% to 41%).

A higher proportion of LHDs reported several inner-setting facilitators than other organization types, potentially reflecting their greater organizational readiness to deliver COVID-19 vaccinations or the similarity of COVID-19 vaccination services to services they provided before the pandemic. These inner-setting facilitators include using data to identify trends and disparities, monitoring quality improvement, pilot testing before large-scale rollout, and especially volunteer hours or resources (69% compared with 36% overall).

3. Funding sources for vaccination strategies

Exhibit III.9 shows the proportion of respondents indicating their organization received funding from four different funding sources, plus an “other” category. We organize results by how commonly each funding source was reported overall. Cell shading indicates the most commonly reported funding source for each organization type.

Exhibit III.9. Funding sources for vaccination, by organization type

Funding sources	LHDs (n = 39)	FQHCs (n = 30)	CBOs (n = 26)	T/U facilities (n = 17)	Pharmacies (n = 28)	Overall (n = 140)
Federal funding, such as grants, contracts, or awards	79.5%	96.7%*	73.1%*	94.1%*	71.4%	82.1%*
Local or state funding, such as grants, contracts, or awards	89.7%*	83.3%	65.4%	58.8%	53.6%	72.9%
Private insurance or reimbursement	33.3%	53.3%	11.5%	29.4%	82.1%*	42.9%
Philanthropy, foundation, or other nongovernment funding	0.0%	20.0%	61.5%	5.9%	7.1%	17.9%
Other funding source	2.6%	0.0%	0.0%	0.0%	0.0%	0.7%

* Indicates the top three most commonly reported funding sources for each organization type.

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question.

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

The most common funding source for COVID-19 vaccinations for each organization type aligns with their typical funding sources, such as local or state funding for LHDs (90%) and private insurance for pharmacies (82%). These findings are similar to those for testing, but an even higher proportion of pharmacies reported use of private insurance for vaccinations than for testing (82% versus 71%).

There are slight but non-substantive differences in the overall proportion of organizations reporting each funding source for vaccination compared with testing. As with testing, federal funding was the most common source of funding for vaccination strategies overall (82%). Funding from local or state sources was also commonly reported overall (73%). Private insurance was less commonly reported overall (43%) other than by pharmacies. Philanthropy, foundation, or other nongovernmental funds was the least commonly reported funding source, reported by 18% of overall respondents and 0% of LHD respondents. The exception was CBOs (62%).

Respondent insights: Shifts in funding sources and demand for vaccines

As with testing, when asked an open-ended question about how they plan to continue funding their organization’s COVID-19 vaccination efforts, most respondents said they will continue to provide vaccines through federal and state funding, including CDC Bridge Access and Section 317 programs. Also similar to testing, many respondents highlighted that vaccination costs will now shift to insurers and private payers for those who are covered. A few respondents noted that they ceased operation because of low demand for the vaccine, staffing issues, or funding challenges (particularly, the high cost of COVID-19 vaccines).

The most common vaccination strategy overall (community-based vaccination clinics) was also most common among organizations reporting all funding sources except for philanthropic funding. For those receiving philanthropic funds, partnering with CBOs was the most common strategy, and respondents tended to be CBOs themselves.

IV. Information to Support Planning and Evaluation

This section describes the sources of information that respondents used to plan their COVID-19 vaccination and testing strategies and the metrics respondents used to assess their success. Questions in this section were asked of all survey respondents, whether their focus was on vaccination or testing.

Key findings

- Most respondents reported using information from multiple sources to develop their COVID-19 testing or vaccination strategies. LHDs, FQHCs, and CBOs used the most sources whereas pharmacies used the fewest. The most commonly reported sources of information for planning were community guides, community-level data (about COVID-19 disease, testing, or vaccination rates), and information or best practices from federal programs.
- Respondents typically assessed their success by looking at *outputs* rather than *outcomes*. Commonly reported outputs included numbers of vaccine doses and tests delivered, adherence to CDC guidelines, and participants' satisfaction. Organizations that did track outcomes tended to focus on vaccination rates more commonly than testing rates.

A. Information to support planning for COVID-19 vaccination and testing strategies

Exhibit IV.1 describes the sources of information that survey respondents used to plan their strategies. We present results for all organization types, whether they provided vaccination or testing; this survey question was asked only once of all respondents, whether they worked on testing, vaccination, or both. We also summarize the number of different sources of information reported among respondents to this question. The top three most commonly reported sources of information for each organization type are shaded.

Exhibit IV.1. Sources of information used to develop COVID-19 testing or vaccination strategies

Information sources	LHDs (n = 40)	FQHCs (n = 31)	CBOs (n = 31)	T/U facilities (n = 18)	Pharmacies (n = 30)	Overall (n = 150)
Community guides, such as the Centers for Disease Control and Prevention's (CDC's) Community Guide	75%*	96.8%*	83.9%*	83.3%*	83.3%*	84%*
Community-level data about COVID-19 disease, testing, or vaccination rates	85.0%*	80.6%*	90.3%*	83.3%*	70.0%*	82.0%*
Information or best practices from federal programs such as CDC's Partnering for Vaccine Equity program or the National Institutes of Health's RADx-UP program	57.5%	67.7%*	54.8%	77.8%*	60.0%*	62.0%*
Internal staff expertise or experience	77.5%*	61.3%	45.2%	55.6%	30.0%	55.3%
Learning from peers at other organizations	62.5%	51.6%	58.1%	38.9%	36.7%	51.3%

Information sources	LHDs (n = 40)	FQHCs (n = 31)	CBOs (n = 31)	T/U facilities (n = 18)	Pharmacies (n = 30)	Overall (n = 150)
Guidance, information, or best practices from associations (for example, from the Association for State and Territorial Health Officials or the National Association of County and City Health Officials)	47.5%	38.7%	64.5%	44.4%	50.0%	49.3%
Input from community groups or community members	60.0%	41.9%	77.4%*	33.3%	13.3%	47.3%
Guidance (for example, from CDC for grantees or information in notices of funding opportunity)	45.0%	51.6%	51.6%	22.2%	13.3%	38.7%
Communities of practice such as the Rockefeller Foundation's Equity-First Vaccine Initiative or CDC's Partnering for Vaccine Equity program	20.0%	22.6%	29.0%	11.1%	16.7%	20.7%
Other information source	0.0%	3.2%	0.0%	0.0%	0.0%	0.7%
Number of different sources of information reported						
Min, Max	1, 9	1, 9	1, 9	2, 9	1, 8	1, 9
Mean (SD)	5.3 (2.2)	5.2 (2.2)	5.6 (2.1)	4.5 (2.2)	3.7 (2.0)	4.9 (2.2)

* Indicates the top three most commonly reported sources of information for each organization type.

Note: This question was asked of all survey respondents and results are not disaggregated by testing versus vaccination. Percentages sum to more than 100% because survey respondents were prompted to select all that apply. Ns for each organization type reflect only those that answered each question. The item response rate for this question was lower among CBO and T/U respondents compared to other organization types (79% and 78%, respectively, compared to 91% overall).

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Most respondents reported using information from multiple sources, but some organization types used more data than others. On average, respondents referenced five different information sources when developing COVID-19 vaccination or testing strategies, with a range of one to nine of the possible 10 options. LHDs, FQHCs, and CBOs referenced the most sources (about five to six on average), whereas pharmacies referenced the fewest (fewer than four on average).

Community guides (such as from the Centers for Disease Control and Prevention [CDC]), community-level data (about COVID-19 disease, testing, or vaccination rates), and information or best practices from federal programs (such as CDC'S P4VE or RADx initiative) were most commonly used for planning, suggesting that these information sources are broadly useful for organizations with varying scopes and missions. In particular, FQHCs commonly reported using community guides (97%), CBOs frequently leveraged community-level data (90%), and T/U facilities commonly referenced best practices information (78%).

Use of grantee guidance from funders or communities of practice for planning was less common and depended on the organization type. Grantee guidance (for example, from CDC for grantees or information in notices of funding opportunity) was more common among LHDs, FQHCs, and CBOs (45% to 52%) than among T/U facilities (22%) and pharmacies (13%). Relatively few respondents overall reported using information from communities of practice such as the Rockefeller Foundation's Equity-First

Vaccine Initiative or CDC’s P4VE to plan testing or vaccination strategies (ranging from 29% for CBOs to 11% for T/U facilities).

B. Information to support COVID-19 testing and vaccination evaluation

Exhibit IV.2. Information used to evaluate how well testing or vaccination strategies worked, by organization type

Metrics	LHD (n = 40)	FQHC (n = 31)	CBO (n = 31)	ITU (n = 18)	CP (n = 30)	Overall (n = 150)
Number of vaccine doses delivered	85.0%	90.3%	45.2%	61.1%	73.3%	72.7%
Vaccination rates*	92.5%	80.6%	51.6%	61.1%	33.3%	66.0%
Number of tests delivered	57.5%	80.6%	41.9%	61.1%	46.7%	57.3%
Adherence to CDC or other guidelines	60.0%	61.3%	35.5%	61.1%	40.0%	51.3%
Participants’ satisfaction	47.5%	29.0%	38.7%	44.4%	60.0%	44.0%
Testing rates*	65.0%	67.7%	9.7%	50.0%	23.3%	44.0%
Outputs of outreach and education strategies, such as number of phone calls made or user engagement with social media	47.5%	22.6%	71.0%	27.8%	23.3%	40.0%
Test positivity rate*	65.0%	61.3%	9.7%	44.4%	13.3%	40.0%
Reach of outreach and education strategies, such as geographic reach or people contacted	52.5%	25.8%	71.0%	22.2%	6.7%	38.0%
Geographic reach of testing services, such as number of counties served or homes visited	47.5%	19.4%	29.0%	16.7%	10.0%	26.7%
Assessment of the organization’s partnerships at community, local, state, or federal levels	32.5%	19.4%	35.5%	16.7%	10.0%	24.0%
Qualitative assessment based on program or community knowledge (not based on metrics)	30.0%	12.9%	35.5%	11.1%	20.0%	23.3%
Measured improvements in knowledge or attitudes about COVID-19 testing or vaccines*	25.0%	16.1%	32.3%	11.1%	20.0%	22.0%
Other (please specify)	0.0%	6.5%	0.0%	0.0%	0.0%	1.3%
We did not evaluate our testing and vaccination strategies	5.0%	0.0%	3.2%	5.6%	3.3%	3.3%

* Indicates outcome metrics.

Note: Percentages sum to more than 100% because survey respondents were prompted to select all that apply.

Ns include only those that answered this question. The item response rate for this question was lower among CBO and T/U respondents compared to other organization types (79% and 78%, respectively, compared to 91% overall). Responses reflect metrics used to assess testing and vaccination because this question was asked of all survey respondents (not separately of those working on testing or vaccination).

CBO = community-based organization; FQHC = Federally Qualified Health Center; T/U = Tribal and Urban Indian Organization; LHD = local health department.

Exhibit IV.2 shows the metrics that respondents used to assess the effectiveness of their strategies, by organization type and ordered by how commonly reported each metric was overall. Shaded rows denote outcome metrics, and all other rows are output metrics. Program outputs refer to measures of the quantity and quality of program activities and service delivery, whereas program outcomes are measures of changes among program recipients, such as changes to COVID-19 testing and vaccination awareness and confidence and changes in testing and vaccination rates. As we note in Section I, most respondents worked on testing and vaccination, either in parallel or at various points in the pandemic, and this survey question was asked only once of all respondents, whether they worked on testing, vaccination, or both.

Nearly all respondents reported assessing the success of their testing and vaccination strategies.

Of the organizations working to deliver COVID-19 testing and vaccination that responded to this survey question, about 97% used at least one of the metrics in Exhibit IV.2.

Outputs were more frequently used than outcomes, consistent with findings from our environmental scan.

Outputs refer to measures of the quantity and quality of organizational activities and service delivery, and outcomes are measures of changes among service recipients, such as changes to COVID-19 testing and vaccination awareness and confidence and changes in testing and vaccination rates. For example, 73% of respondents monitored the number of vaccines administered, and 57% monitored the number of tests delivered. Many respondents also reported monitoring the outputs of educational strategies (such as the number of phone calls made) or the reach of those outreach activities (about 40% for both metrics, overall). Other commonly monitored outputs included adherence to CDC guidelines (most commonly reported among FQHCs and T/U facilities) and participant satisfaction (most commonly reported among pharmacy respondents).

Respondents across all organization types commonly reported monitoring vaccination outcomes, whereas only LHDs and FQHCs commonly monitored testing outcomes. Vaccination rates were the most commonly reported outcome metric, reported by 72% of overall respondents. Outcomes related to testing, including testing rates or test positivity rates, were less common overall and among most organization types. The exception was LHDs, with 65% of respondents reporting monitoring these testing outcomes.

Respondents from organizations that delivered both testing and vaccination services tended to report more metrics overall than those that worked on testing only or vaccination only (not shown). For example, the use of certain metrics was much lower for organizations offering testing only, without a vaccination component. It is possible that organizations offering vaccination and testing services had more resources for service delivery as well as monitoring and evaluation activities.

Respondent insights: metrics used to identify and assess implementation and evaluation outcomes

When asked to elaborate on the metrics they used to identify and assess implementation and evaluation outcomes, many respondents confirmed that they looked at testing and vaccination rates, positivity rates, and customer satisfaction to assess how well their strategies worked. A few respondents said they have population health departments or academic partners to specifically handle program evaluations. A few organizations also noted using geographic mapping to evaluate their strategies.

V. Implications for Site Visits

Findings from this survey provide an overview of the range of strategies that respondents used to promote or provide COVID-19 testing and vaccination to communities with disproportionate risks during the first three and a half years of the COVID-19 pandemic. The survey findings will provide helpful context for the detailed information we collect through site visits, and they will give site visit interviewers background information that will enhance their use of the discussion guides. The findings also point to several information gaps that we may be able to address through qualitative interviews. For example, the survey results showed that many organizations used multiple strategies to deliver services, but it could not determine whether these strategies were used concurrently, sequentially, or both over the three-year study period, and it could not specifically tie them to certain populations. In the site visit interviews, we will be able to learn about how strategies or programs changed over time, and what they did to help specific populations.

As we note in the site visit program selection memo, the survey has suggested fewer organizations to select for site visits than we initially expected, for a few reasons. First, many survey respondents did not provide enough information describing which strategies worked well to help us confidently select them for further research that will yield new, unique, or promising practices for the field. Second, among those that provided qualitative information, many were not in the pre-selected site visit states. Lastly, a higher-than-expected number of survey respondents (36%) indicated they are not willing to be contacted for a telephone interview. The survey did, however, make several contributions to the preliminary list of site visit programs, and this is a valuable starting point for conversations with public health leaders about programs or organizations that would be valuable to visit.

VI. Methods

Here, we describe sampling methods, survey administration, and analysis methods. More details about sampling methods and survey administration are in the final survey plan submitted to ASPE on May 10, 2023. We received IRB approval for the survey on May 17, 2023, and clearance by the Office of Management and Budget (OMB) under the Paperwork Reduction Act on September 12th, 2023 (OMB control number 0990-0421).

A. Sampling methods

1. Sample frame

To develop the sample frame, we first selected 22 states. We prioritized (1) geographic diversity based on census regions and divisions; (2) states most vulnerable to the impacts of COVID-19 as reflected by high scores for the overall COVID-19 Community Vulnerability Index score; and (3) high rates of series vaccination as of August 31, 2021, using CDC COVID-19 Vaccination Trends data. These state characteristics allowed us to select a geographically diverse sample. We gave some preference to states with I/T/U facilities.

We then developed a sample of LHDs, FQHCs, CBOs, I/T/U facilities, and community pharmacies to invite to participate in the study. We worked with ASPE, the Office of the Assistant Secretary for Health (OASH), and the project's expert panel to help identify the appropriate organizations using the following sources:

- **LHDs.** We programmatically extracted the LHD information from the National Association of County and City Health Officials LHD directory website (<https://www.naccho.org/membership/lhd-directory>) to build a database of all LHDs in the selected states. This directory provides an exhaustive list of all LHDs. Rhode Island has no LHDs, and therefore, we invited the Rhode Island Department of Health to participate.
- **FQHCs.** We accessed a database of FQHCs and FQHC look-alikes for each selected state from the Health Resources and Services Administration website (<https://data.hrsa.gov/data/reports/datagrid?gridName=FQHCs>). This database provides an exhaustive list of FQHCs and FQHC look-alikes.
- **CBOs.** We joined lists of CBOs from CDC and the CDC Foundation's Partnering for Vaccine Equity grantees,¹⁰ the Rockefeller Foundation's Equity First Vaccination Initiative,¹¹ and the Health Resources and Services Administration's Community-Based Outreach to Build COVID-19 Vaccine Confidence

¹⁰ The Partnering for Vaccine Equity program provides funding and support to national, state, local, and community-level partners that are prioritizing equity in vaccination access and uptake for those groups that experience disparities in immunization, with a particular focus on racial and ethnic communities. This program has awarded 250 grants to CBOs. See <https://web.archive.org/web/20240518223224/https://www.cdc.gov/vaccines/health-equity/index.html>.

¹¹ The Rockefeller initiative invested in hyperlocal community-led programs to improve vaccination access and accurate information for communities that identify as Black, Latinx, Indigenous, and people of color. See <https://www.rockefellerfoundation.org/covid-19-response/creating-vaccine-equity/>.

grantees¹² to form our sample frame of CBOs that provided or promoted vaccinations. These sources provide a diverse list of CBOs but is not exhaustive of all CBOs providing or promoting testing and vaccination.

- **I/T/U facilities.** We used a list that included Indian Health Service facilities, tribal facilities, and Urban Indian Organizations that was from the Indian Health Service web site. This site provides an exhaustive list of Indian Health Service facilities, tribal facilities, and Urban Indian Organizations.
- **Pharmacies.** We used the member organizations of the National Community Pharmacists Association as the source of our sample frame. The association’s member list is exhaustive of all members (over 19,400 independent pharmacies), however not all independent pharmacies are members.

2. Sampling organizations

The total invited sample of 507 organizations was divided among the five organization types and 22 selected states. Before drawing the sample, we stratified the LHDs, FQHCs, CBOs, and pharmacies between urban areas and all other areas. Within each stratum defined by organization type and urban/all other areas, we randomly selected organizations. For the I/T/U facilities, we implicitly stratified the sample by service unit to ensure that the sample was broadly representative of I/T/U facilities across the state. I/T/U facilities were randomly selected.

Exhibit IV.1 shows the distribution of sampled organizations by state and Exhibit IV.2 shows the sample frame in each state, or the total number of organizations of each type in each state from which we drew the sample.

Exhibit VI.1 Distribution of sampled organizations by state

State	LHDs	FQHCs	CBOs	I/T/U facilities	Pharmacies	Total
AK	2	4	3	17	7	33
AL	4	4	4	2	4	18
AZ	5	5	5	8	5	28
CA	5	5	6	9	5	30
FL	5	5	5	5	5	25
IL	5	5	5	1	5	21
IN	5	5	6	0	5	21
KS	4	4	4	4	4	20
MA	10	5	5	3	5	28
MI	5	5	5	6	5	26
MO	5	5	5	1	5	21
MS	4	4	4	4	4	20
NC	5	5	5	6	5	26

¹² As part of the American Rescue Plan, the U.S. Department of Health and Human Services and Health Resources and Services Administration have awarded grants to develop and support a community-based workforce that will engage in locally tailored efforts to build vaccine confidence and bolster COVID-19 vaccinations in underserved communities. See <https://www.hrsa.gov/coronavirus/community-based-outreach>.

State	LHDs	FQHCs	CBOs	I/T/U facilities	Pharmacies	Total
NJ	6	5	5	0	5	21
NM	4	4	4	6	4	22
NV	4	4	4	5	4	21
NY	5	5	5	5	5	25
OK	4	4	5	7	4	24
OR	4	4	4	5	4	21
RI	1	4	5	2	4	16
TX	5	5	5	4	5	24
WV	4	4	4	0	4	16
Total	101	100	103	100	103	507

Exhibit VI.2. Total organizations in the sample frame

State	LHDs	FQHCs	CBOs	I/T/U facilities	Pharmacies	Total
AK	2	28	3	288	7	328
AL	72	19	17	2	314	424
AZ	15	22	13	67	92	209
CA	62	206	90	106	501	965
FL	66	54	33	5	366	524
IL	95	50	53	1	224	423
IN	94	39	8	0	117	258
KS	100	21	5	9	148	283
MA	353	37	16	3	94	503
MI	45	40	33	23	353	494
MO	114	30	10	1	245	400
MS	84	21	15	8	160	288
NC	86	43	28	16	280	453
NJ	109	24	38	0	228	399
NM	58	19	4	38	26	145
NV	17	8	5	23	9	62
NY	58	69	45	11	414	597
OK	71	21	5	70	206	373
OR	32	34	10	22	36	134
RI	1	8	5	2	5	21
TX	109	73	47	4	586	819
WV	49	30	19	0	118	216
Total	1692	896	502	699	4529	8318

Note: The number of each organization type varies across states because each state's health and social services system is different. The numbers in the sample frame therefore reflect the universe of organizations in each state. For example, there are many I/T/U facilities in Alaska and few CBOs compared to other states.

We selected a backup sample for all five organization types for each state in the strata (urban and all other areas) in case we needed to replace a sampled organization. Ultimately, we decided not to release the backup sample because the response by organization type was relatively equal and the level of response was on target (see Exhibit I.1 on page 1 of the Introduction section).

B. Survey administration

1. Survey mode, length, and fielding procedures

Mathematica designed and administered the National Survey on Best Practices for COVID-19 Vaccination and Testing survey as a web survey and a paper survey, estimated to take 15 minutes to complete based on pretesting feedback. We used Confirmat, a state-of-the-art survey platform, to manage survey administration. After programming the survey, the survey team comprehensively tested the web instrument, checking the content, skip-logic, and overall flow to ensure that it operated as intended. We entered data from the paper instruments into the Confirmat application.

We administered the survey over a 10-week fielding period from September 19, 2023, to November 27, 2023. We identified a point of contact at each sampled organization and located mailing and email addresses through the data sources used to select the sample and other online sources.

In September, we mailed an invitation letter to potential respondents with an identified address (n = 495) to request their participation in the survey. The invitation letter included a link to the web survey and a unique survey login ID and password so respondents could easily access the web survey. We also included a QR code that respondents could scan instead of entering their username and password.

Along with the invitation letter, we sent an invitation email to potential respondents with an identified email address (n = 507) inviting them to complete the survey. The email referenced the invitation letter, so respondents knew to look for it in the mail. Instead of a QR code, the email invitation included a link to the survey unique to each respondent. We sent seven reminder emails during weeks two, three, five, six, nine, and two in week 10. During week four, we mailed a paper questionnaire, reminder letter, and informational one-pager, along with a prepaid return envelope, to nonrespondents. During week six, we mailed a reminder letter accompanied by an informational one-pager to nonrespondents. Finally, telephone interviewers conducted reminder calls to encourage nonrespondents to complete the web or paper survey from week seven through week 10. Interviewers made three attempts to reach each nonrespondent by phone. We provided a \$50 check to nongovernmental respondents that completed the survey. Exhibit VI.3 presents the full communication plan.

Exhibit VI.3. Survey communication plan

Fielding week	Dates	Survey communications
Week 1	September 19 to September 25	Invitation mailing Email invitation
Week 2	September 26 to October 2	Email reminder #1
Week 3	October 3 to October 9	Email reminder #2
Week 4	October 10 to October 16	Hard copy mailing
Week 5	October 17 to October 23	Email reminder #3

Fielding week	Dates	Survey communications
Week 6	October 24 to October 30	Email reminder #4 Reminder mailing
Week 7	October 31 to November 6	Reminder calls
Week 8	November 7 to 13	Reminder calls
Week 9	November 14 to 20	Reminder calls Email reminder #5
Week 10	November 21 to 27	Reminder calls Email reminders #6 and #7

2. Survey response rates

We obtained a 35% response rate, or 164 completed surveys. Exhibit VI.4 shows response rates by organization type. All organization types completed at least one survey, with the exception of Indian Health Service facilities. Therefore, all completed I/T/U surveys are from representatives of T/U health facilities.

Exhibit VI.4. Response rates by organization type

Survey status	LHDs (n = 101)	FQHCs (n = 100)	CBOs (n = 103)	I/T/U facilities (n = 100)			Pharmacies (n = 103)	Total (n = 507)
				IHS	Tribal	UIO		
Eligible survey completes	40	31	39	0	19	4	31	164
Ineligibles	4	3	9	1	6	0	9	32
Refusals	0	0	4	0	1	0	3	8
Incompletes	57	66	51	10	53	6	60	302
Initial invitations	101	100	103	11	79	10	103	507
Eligible sample	97	97	94	10	73	10	94	475
Response rate	41%	32%	41%	0%	26%	40%	33%	35%

Note: Ineligibles included organizations that are no longer in operation, are a duplicate of another organization in the sample, or did not provide COVID19 testing, vaccinations, or information about testing/vaccination. Most ineligible respondents were a duplicate of another already in the sample or no longer in operation. The overall response rate across I/T/U facilities was 25%.

CBO = community-based organization; FQHC = Federally Qualified Health Center; IHS = Indian Health Services; I/T/U = Indian Health Service, tribal, and Urban Indian Organization; LHD = local health department; UIO = Urban Indian Organization.

C. Analysis methods

1. Descriptive analyses

All respondents that reported using at least one strategy to deliver or promote COVID-19 testing or vaccination services were included in the analysis. Those respondents may not have completed other questions, such as questions about sources of funding or partnerships. Moreover, some respondents did not answer all questions. Accordingly, the sample frequencies and denominators for reported proportions vary throughout this report depending on the number of respondents that answered the specific survey question(s). Each survey question had a response rate ranging from 91% to 100%. We used R to conduct all quantitative analyses.

For each survey question, we calculated the number and proportion of respondents that selected each response option. Most survey questions allowed respondents to select all response options that applied to them (for example, they could select all the strategies they used to promote or deliver COVID-19 testing). The proportion statistics in most exhibits therefore sum to more than 100% because respondents could select multiple options. When appropriate, we calculated the mean, standard deviation, and range to summarize the number of distinct options selected. We stratified most analyses on organization type and present findings disaggregated by respondents from LHDs, FQHCs, CBOs, T/U facilities, and pharmacies. Because of relatively small sample sizes, we highlight differences in item response rate among certain organization types only if they differ from the overall rate by at least 10 percentage points.

We also stratified some survey questions by responses to other questions (for example, in Sections II.B.2 and III.B.2, in which we stratify strategies on populations of focus). As described in these sections, we were unable to determine with certainty which strategies respondents used to help specific populations of focus. We therefore analyzed the most common testing and vaccination strategies among respondents serving each population of focus. First, we assessed the strategies reported among respondents focusing on a specific population. For example, among all 126 respondents serving older adults, we calculated the proportion that reported using each strategy. Next, we ranked the strategies in order of how commonly they were reported among respondents focusing on each population. In addition, we explored whether certain strategies were more commonly reported (by more than 10%) among respondents serving specific populations of focus (in contrast to how commonly reported they were overall). We calculated these differences and reported examples in Sections II.B.2 and III.B.2. (Full results are available upon request.)

2. Hierarchical cluster analysis

To assess whether respondents typically used certain strategies in combination, we performed a complete-linkage agglomerative hierarchical cluster analysis of responses to question 2 and question 9 for testing and vaccination respondents, respectively. Agglomerative hierarchical clustering seeks to cluster respondents by iteratively combining respondents with other respondents into clusters based on the similarity of their responses to the question. Between two respondents, their similarity is measured directly based on how many strategies they both used or both didn't use. After there are already clusters of respondents, complete-linkage defines how clusters of respondents are compared to continue the iterative combining process. Complete-linkage measures the similarity between clusters based on the largest distance between any pair of respondents where one respondent was selected from each cluster. The clusters that are closest together out of all possible cluster pairings are the next to be combined, and so on.

We then evaluated the quality of clusterings using average silhouette width, a metric that considers both cluster cohesion and separation for each cluster in the clustering (Rouseeuw 1987). Average silhouette width is a metric between -1 and 1 that compares the similarity of respondents within clusters and between cluster, where values closer to 1 indicate that the clustering truly separates respondents into distinct identifiable groups, and lower values indicate less distinction between clusters (Exhibit VI.5). We interpret average silhouette width using thresholds from the literature (Kauffman and Rouseeuw 1990).

Exhibit VI.5. Interpretation of average silhouette width values in hierarchical cluster analysis

Value	Interpretation
0.71 to 1.00	Strong structure
0.51 to 0.70	Reasonable structure
0.26 to 0.50	Weak or artificial structure
≤ 0.25	No structure

We further investigated the most promising clusterings by average silhouette width using descriptive statistics. Manually investigating the clusterings that way allowed us to directly assess the cohesion of the clusters and potentially dissect themes that may have led to their formation. Ideally, this process would have either directly yielded identifiable cluster profiles, such as “focused on strategies that created distribution hubs” or “focused on strategies that shortened or eliminated commute time to receive services,” or pointed us in a new direction. For example, if one cluster had a clearly identifiable profile or some of the data were severely skewed, a slight change in methods could have enabled us to boost interpretability of the other clusters and raise the overall value of the clustering. But even through manual investigation of the most promising clusterings, we were not able to discover meaningful profile themes for developed clusters or hidden data constructs. This is not a surprise because the majority of the average silhouette widths of our clusterings were less than 0.25, which made the possibility of meaningful profile presence very low. All of our average silhouette widths across clusterings, including sensitivity checks, were less than or equal to 0.33 for clusterings of three or more clusters. We also investigated whether clusters were visible after stratifying strategies by organization type. One could imagine that sufficient overlap among all respondents could lead to a “cloud” of respondents that was difficult to separate but that divides well after applying a logical filter, such as organization type. For this analysis, we separated the data into one bucket per organization type and applied the clustering methodology to each bucket individually. That did not yield more promising results, reflecting that meaningful clusters within organization type were not obfuscated by clustering with all of the respondents together.

We also used the clustering analysis strategy to investigate organization archetypes, or whether organizations of different types typically used certain strategies for certain populations of focus. Using similar logic, it is possible that giving the clustering more information to work with (two questions plus organization type) could lead to meaningful clusterings that were obfuscated when analyzing the strategies alone. For this analysis, we operationalized organization type for clustering by creating a dichotomous variable for each type to include with the question response data. We also ran the analysis for strategy and population of focus, stratified on organization type. The additional information did not yield any more promising results.

Finally, we performed a sensitivity test of these results using an average-linkage agglomerative hierarchical clustering method instead of complete-linkage. Average-linkage defines the distance between clusters as the average distance between all pairs of respondents where one respondent was selected from each cluster. As a result, it may create different clusters at each iteration of the algorithm such that the overall clustering looks different than when using complete-linkage clustering. This sensitivity test showed that our lack of results remained even when a substantial change to the underlying clustering

methodology was applied and minimizes concern that misspecification bias is the reason for the non-result.

3. Qualitative analysis of open-ended responses

To identify themes that emerged from open-ended survey questions (3b, 6b, 10b, 13b, 17b, 25), we used an inductive thematic coding approach. That is, we reviewed responses to identify themes that were unique from categorical responses already identified by the respondent in leading questions. We then summarized these unique themes for each question. We used Microsoft Excel to conduct all thematic analyses.

We report these findings in Sections II.A.3 and III.A.3 and in call-out boxes in other sections. When we describe qualitative themes, we use quasi-quantitative terms to give the reader a sense of proportion or how many respondents made statements supporting the theme. Typically, we use “a few” to denote two to four, “some” to denote less than half but more than a few, “many” for more than half but less than an overwhelming majority, and “most” if there was a clear or overwhelming majority.

We reviewed all “Other, specify” responses and coded them to existing answer choices when necessary. Responses were left as “Other” if they did not fit into an existing category. No new response codes were created because of this review (that is, we did not observe significant numbers of “Other, specify” responses that we could group together into a new code representing a frequent response). This suggests that our list of response options, which we developed in collaboration with ASPE and OASH based on an environmental scan of published COVID-19 testing and vaccination strategies, was complete enough to reflect most of the strategies respondents used.

D. Limitations

As noted, findings do not generalize to all organizations of a given type included in this study or to other organizations within survey states. The survey was not intended to be representative but rather exploratory. We do not have respondents of each organization type in each survey state, and the response rate of 35 percent was lower than typical response rates for surveys where there is an existing organizational relationship with respondents (for example, surveys of an organization’s grantees or intervention participants, which have a greater incentive or even an obligation to respond). Because the response rate is 35 percent, there is also the potential for nonresponse bias resulting from systematic differences between respondents and nonrespondents. However, we do not have information about characteristics of sampled organizations, such as size or level of experience, that would enable us to assess differences between responding and nonresponding organizations. The response rate across organization type is relatively uniform, except for I/T/U facilities. Because no Indian Health Services facilities responded to the survey, we do not know what Indian Health Services facilities did or think, and results for T/U facilities do not extend to Indian Health Services facilities.

The survey asked about testing and vaccination services for populations at disproportionate risk of COVID-19 or related adverse outcomes (see the instrument in the Appendix), although it is also possible that respondents described approaches used more broadly, including to serve other populations they worked with, when they responded to survey questions.

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Appendix

Survey Instrument

The development of the survey instrument was informed by findings from the environmental scan of best practices for delivering COVID-19 vaccination and testing to underserved communities during the pandemic. It contains 25 items including a mix of select-all-that-apply style questions and space for open-ended responses. The first half of the survey asked questions to respondents who indicated they provided testing services, and the second half asked questions to respondents who indicated they provided vaccination services. There was also a set of questions at the end that were administered to all respondents, regardless of whether they provided COVID-19 testing, vaccination, or both.

NATIONAL SURVEY ON BEST PRACTICES FOR COVID-19 VACCINATION AND TESTING

September 2023

Sponsored by

The Office of the Assistant Secretary for Planning and Evaluation and the Office of the Assistant Secretary for Health, Parts of the U.S. Department of Health and Human Services

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0990-0421. The time required to complete this information collection is estimated to average 15 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, to review and complete the information collection. If you have comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to: U.S. Department of Health & Human Services, OS/OCIO/PRA, 200 Independence Ave., S.W., Suite 336-E, Washington D.C. 20201, Attention: PRA Reports Clearance Officer

INTRODUCTION

The National Survey on Best Practices for COVID-19 Vaccination and Testing aims to understand the strategies that organizations used to promote and deliver vaccination and testing services during the COVID-19 public health emergency. On behalf of the Office of the Assistant Secretary for Planning and Evaluation, part of the U.S. Department of Health and Human Services, Mathematica is collecting information to help identify best practices to increase (1) **COVID-19 testing** awareness, access, and uptake and (2) **COVID-19 vaccination** confidence, access, and uptake. We are especially interested in learning about efforts to increase testing and vaccination for populations that are medically or socially at disproportionate risk for COVID-19 or adverse outcomes.

As someone who knows about your organization's COVID-19 operations, you can share your experiences of delivering testing and vaccination services. Sharing your experiences can help shape future efforts to deliver these services equitably.

If you decide to participate in this survey, we encourage you to respond candidly. Your responses to this survey will only be reported in aggregate (that is, with other organization's responses combined), are collected in a confidential manner, and will be anonymous in all reports (that is, your responses will never be linked to your name or your organization). Your participation in the survey is voluntary but very important. You may skip any questions that you choose not to answer. We anticipate that the survey will take 15 minutes for you to complete.

For those who are able to accept, you will receive a \$50 check as a token of our appreciation for completing the questionnaire, which should take about 15 minutes. Should you choose not to participate in the study, we respect your decision and appreciate your consideration.

Questions? Contact Mathematica's toll-free helpline at 833-310-3857 or email at COVIDStudy@Mathematica-mpr.com.

Do you agree to participate in this survey?

1 Yes

0 No

Definitions

- 1) **COVID-19 public health emergency.** The Secretary of the Department of Health and Human Services, under section 319 of the Public Health Service Act, declared a public health emergency as the result of the 2019 novel coronavirus from January 31, 2020, to May 11, 2023.
- 2) **COVID-19 testing.** Nucleic Acid Amplification Tests (NAATs), such as polymerase chain reaction (PCR) tests, are most often performed in a laboratory. They are typically the most reliable tests for people with or without symptoms. These tests detect viral genetic material, which can stay in your body for up to 90 days after you test positive. Antigen tests are rapid tests that produce results in 15 to 30 minutes. They are less reliable than NAATs, especially for people who do not have symptoms. A single negative antigen test result does not rule out infection. Sometimes a follow-up NAAT might be recommended to confirm an antigen test result. Throughout this questionnaire, we refer to education, outreach, and provision of PCR or antigen tests.
- 3) **Vaccine confidence.** The trust that people have in recommended vaccines and in how they are administered and developed. Without some level of confidence, people will not move toward receiving a vaccine.

1. Which of the following activities did your organization do during the COVID-19 public health emergency, either independently or with a partner?

SELECT ALL THAT APPLY

- 1 Conduct education or outreach related to COVID-19 testing, or provide or administer COVID-19 tests
- 2 Conduct education or outreach related to COVID-19 vaccinations, or provide or administer COVID-19 vaccinations
- 3 None of the above

If you answered number 1, go to question 2 on page 4.

If you answered only number two, go to question 9 on page 9.

If you answered number 3, go to question 25 on page 17.

The next set of questions is about your organization's experience with COVID-19 testing.

2. Which of the following strategies did your organization use to deliver or promote COVID-19 tests for populations who are medically or socially at disproportionate risk for COVID-19 or of adverse outcomes during the public health emergency?

SELECT ALL THAT APPLY

- 1 Held mass testing clinics or events [sometimes called mega-testing sites, intended to provide a high volume of tests in locations such as stadiums or parking lots]
- 2 Held community-based testing clinics or events [such as at a church, mall, library, community center, school, public housing, or shelter]
- 3 Distributed home tests in community locations [such as at a church, mall, library, community center, school, public housing, or shelter]
- 4 Provided mobile testing services [such as with a van]
- 5 Provided in-home testing services [including mail-in testing programs that allow people to self-test and visiting people's homes to provide testing services there]
- 6 Provided transportation services to testing sites
- 7 Provided testing services outside of typical business hours or offered walk-in appointments
- 8 Reduced financial barriers for test recipients [such as not requiring health insurance or connecting people with financial resources]
- 9 Eliminated identification requirements [to potentially reach people who might be undocumented]
- 10 Paired testing services with other medical or social services
- 11 Partnered with community-based organizations [such as food banks, churches, or schools] or people trusted by community [such as religious leaders, school staff, or community health workers]
- 12 Conducted educational outreach or campaigns using communication tools or media [such as phone calls, text messages, emails, social media, or mass media (TV or radio)]
- 13 Held in-person educational events [such as a town hall]
- 14 Delivered messaging or provided services in multiple languages
- 15 Trained partners on how to provide tests or outreach, such as staff in provider organizations
- 16 Gave out financial incentives [such as cash, gift cards, vouchers, or coupons]
- 17 Gave out non-financial incentives [such as food or merchandise]
- 18 Other strategy (*Please specify*) _____

3. From the strategies you previously selected, please choose the most effective COVID-19 testing strategies your organization used to increase testing awareness, access, or uptake for populations who are medically or socially at disproportionate risk for COVID-19 or adverse outcomes.

3b. Please describe how the COVID-19 testing strategies you selected were effective.

4. Who were the populations or communities of focus for your organization's COVID-19 testing strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

AGE:

- 1 Children (ages 0 to 17)
- 2 Older adults (older than age 65)
- 3 Young adults (ages 18 to 24 years old)

HEALTH STATUS OR ACCESS:

- 4 Immigrant communities, including refugees and people without documentation
- 5 People with disabilities (for example, physical disabilities, intellectual disabilities, visual impairments)
- 6 People with limited English proficiency
- 7 People with specific underlying medical conditions
- 8 People with substance use disorder
- 9 People without health insurance

RACE, ETHNICITY, OR NATIONALITY:

- 10 Asian communities
- 11 American Indian or Alaska Native communities
- 12 Black or African American communities
- 13 Hispanic communities
- 14 Native Hawaiian or other Pacific Islander communities

HOUSING STATUS OR LOCATION:

- 15 Communities in a specific geographic area (for example, neighborhoods, wards, or towns, or areas defined by high need)
- 16 Incarcerated populations
- 17 People experiencing homelessness or housing insecurity
- 18 People in multigenerational housing
- 19 Residents of nursing homes or long-term care facilities
- 20 Residents of public housing
- 21 Residents of shelters
- 22 Rural communities

OTHER CHARACTERISTICS:

- 23 Frontline workers or other people at increased risk of COVID-19 because of their occupation (such as migratory and seasonal agricultural workers)
- 24 Lesbian, gay, bisexual, transgender, queer/questioning, intersex, asexual/agender, and two-spirit (LGBTQIA2S+) populations
- 25 People or communities with low education or literacy
- 26 People or communities with low income
- 27 Veterans
- 28 Other (*Please specify*) _____

5. What challenges did your organization face when implementing COVID-19 testing strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Limited time
- 2 Limited staffing
- 3 Limited expertise
- 4 Limited funding
- 5 Constraints on use of funding
- 6 Managing multiple sources of funding
- 7 Personal protective equipment (PPE) supplies
- 8 Testing supplies
- 9 Tracking or following up with people
- 10 Challenges collaborating or coordinating with partners
- 11 Data challenges (for example, accessing, collecting, reporting, or tracking data)
- 12 Low demand from the community for these services
- 13 Misinformation
- 14 Lack of community trust
- 15 Lack of support from local officials
- 16 Lack of support from state officials
- 17 We did not face any challenges
- 18 Other (*Please specify*) _____

6. What funding sources did your organization use for COVID-19 testing strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Private insurance or reimbursement
- 2 Local or state funding, such as grants, contracts, or awards
- 3 Federal funding, such as grants, contracts, or awards
- 4 Philanthropy, foundation, or other non-government funding
- 5 Other (*Please specify*) _____

6b. Please describe how you plan to continue funding your organization's COVID-19 testing efforts.

7. Which organizations did your organization partner with to carry out COVID-19 testing strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Medical providers or facilities
- 2 Local, state, or federal government offices or programs
- 3 Educational institutions
- 4 Faith-based organizations
- 5 Community-based organizations
- 6 Businesses, employers, or workplaces
- 7 Other (*Please specify*) _____
- 8 We did not partner with other organizations

8. Other than funding, what factors helped your organization implement COVID-19 testing activities during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Local, state, or federal policies or guidelines
- 2 Free supplies
- 3 Flexibility in the way funding could be used
- 4 Guidance, information, or best practices from funders, associations, or communities of practice [such as learning collaboratives among grantees or program participants]
- 5 Community or organizational partners
- 6 Other organizations' infrastructure, such as physical space or refrigeration
- 7 Staff resources
- 8 Volunteer hours or resources
- 9 Training or education for staff and volunteers
- 10 Careful planning before rollout
- 11 Use of data to identify trends and disparities
- 12 Monitoring or quality improvement
- 13 Other (*Please specify*) _____

The next set of questions is about your organization's experience with COVID-19 vaccinations.

9. Which of the following strategies did your organization use to deliver COVID-19 vaccination programs for populations who are medically or socially at disproportionate risk for COVID-19 or of adverse outcomes during the public health emergency?

SELECT ALL THAT APPLY

- 1 Held mass vaccination clinics or events [sometimes called mega-vaccination sites, intended to provide a high volume of vaccines in locations such as stadiums or parking lots]
- 2 Held community-based vaccination clinics or events [such as at a church, mall, school, library, community center, public housing, or shelter]
- 3 Provided mobile vaccination services [such as with a van]
- 4 Provided in-home or door-to-door vaccination services
- 5 Provided transportation services to vaccination sites
- 6 Provided vaccination services outside of typical business hours or offered walk-in appointments
- 7 Eliminated identification or documentation requirements [to reach people who might be undocumented or uninsured]
- 8 Paired COVID-19 vaccination services with routine vaccination services
- 9 Paired vaccination services with other medical or social services
- 10 Partnered with organizations [such as food banks, churches, or schools] or people trusted by community [such as religious leaders, school staff, or community health workers]
- 11 Conducted educational outreach or campaigns using communication tools or media [such as phone calls, text messages, emails, social media, or mass media (TV or radio)]
- 12 Held in-person educational events [such as a town hall]
- 13 Delivered messaging or provided services in multiple languages
- 14 Trained partners on how to provide vaccines or outreach, such as staff in provider organizations
- 15 Gave out financial incentives [such as cash, gift cards, vouchers, or coupons]
- 16 Gave out non-financial incentives [such as food or merchandise]
- 17 Other strategy (*Please specify*) _____

10. From the strategies you previously selected, please choose the most effective COVID-19 vaccination strategies your organization used to increase vaccination confidence, access, or uptake for populations who are medically or socially at disproportionate risk for COVID-19 or adverse outcomes.

10b. Please describe how the COVID-19 vaccination strategies you selected were effective.

11. Who were the populations or communities of focus for your organization's COVID-19 vaccination strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

AGE:

- 1 Children (ages 0 to 17)
- 2 Older adults (older than age 65)
- 3 Young adults (ages 18 to 24)

HEALTH STATUS OR ACCESS:

- 4 Immigrant communities, including refugees and people without documentation
- 5 People with disabilities (for example, physical disabilities, intellectual disabilities, visual impairments)
- 6 People with limited English proficiency
- 7 People with specific underlying medical conditions
- 8 People with substance use disorder
- 9 People without health insurance

RACE, ETHNICITY, OR NATIONALITY:

- 10 Asian communities
- 11 American Indian or Alaska Native communities
- 12 Black or African American communities
- 13 Hispanic communities
- 14 Native Hawaiian or other Pacific Islander communities

HOUSING STATUS OR LOCATION:

- 15 Communities in a specific geographic area (for example, neighborhoods, wards, or towns, or areas defined by high need)
- 16 Incarcerated populations
- 17 People experiencing homelessness or housing insecurity
- 18 People in multigenerational housing
- 19 Residents of nursing homes or long-term care facilities
- 20 Residents of public housing
- 21 Residents of shelters
- 22 Rural communities

OTHER CHARACTERISTICS:

- 23 Frontline workers or other people at increased risk of COVID-19 because of their occupation (such as migratory and seasonal agricultural workers)
- 24 Lesbian, gay, bisexual, transgender, queer/questioning, intersex, asexual/agender, and two-spirit (LGBTQIA2S+) populations
- 25 People or communities with low education or literacy
- 26 People or communities with low income
- 27 Veterans
- 28 Other (*Please specify*) _____

12. What challenges did your organization face when implementing COVID-19 vaccination strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Limited time
- 2 Limited staffing
- 3 Limited expertise
- 4 Limited funding
- 5 Constraints on use of funding
- 6 Managing multiple sources of funding
- 7 Personal protective equipment (PPE) supplies
- 8 Vaccine supplies
- 9 Tracking or following up with people
- 10 Challenges collaborating or coordinating with partners
- 11 Data challenges (for example, accessing, collecting, reporting, or tracking data)
- 12 Low demand from the community for these services
- 13 Misinformation
- 14 Lack of community trust
- 15 Lack of support from local officials
- 16 Lack of support from state officials
- 17 Ability to refrigerate vaccines
- 18 We did not face any challenges
- 19 Other (*Please specify*) _____

13. What funding sources did your organization use for COVID-19 vaccination strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Private insurance or reimbursement
- 2 Local or state funding, such as grants, contracts, or awards
- 3 Federal funding, such as grants, contracts, or awards
- 4 Philanthropy, foundation, or other non-government funding
- 5 Other (*Please specify*) _____

13b. Please describe how you plan to continue funding your organization's COVID-19 vaccination efforts.

14. Which other organizations did your organization partner with to carry out COVID-19 vaccination strategies during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Medical providers or facilities
- 2 Local, state, or federal government offices or programs
- 3 Educational institutions
- 4 Faith-based organizations
- 5 Community-based organizations
- 6 Businesses, employers, or workplaces
- 7 Other (*Please specify*) _____
- 8 We did not partner with other organizations

15. Other than funding, what factors helped your organization implement COVID-19 vaccination activities during the COVID-19 public health emergency?

SELECT ALL THAT APPLY

- 1 Local, state, or federal policies or guidelines
- 2 Free supplies
- 3 Flexibility in the way funding could be used
- 4 Guidance, information, or best practices from funders, associations, or communities of practice [such as learning collaboratives among grantees or program participants]
- 5 Community or organizational partners
- 6 Other organizations' infrastructure, such as physical space or refrigeration
- 7 Staff resources
- 8 Volunteer hours or resources
- 9 Training or education for staff and volunteers
- 10 Careful planning before rollout
- 11 Use of data to identify trends and disparities
- 12 Monitoring or quality improvement
- 13 Pilot testing or small-scale test before large-scale rollout
- 14 Other (*Please specify*) _____

The next set of questions is about your organization's overall experience with COVID-19 testing and vaccination programs.

16. Please select the sources of information that your organization used to develop COVID-19 testing or vaccination program(s) during the COVID-19 public health emergency.

SELECT ALL THAT APPLY

- 1 Community-level data about COVID-19 disease, testing, or vaccination rates
- 2 Community guides, such as the Centers for Disease Control and Prevention's (CDC's) Community Guide
- 3 Guidance for grantees (for example, from CDC) or information in notices of funding opportunity
- 4 Communities of practice (such as the Rockefeller Foundation's Equity-First Vaccine Initiative or CDC's Partnering for Vaccine Equity program)
- 5 Guidance, information, or best practices from associations (for example, from the Association for State and Territorial Health Officials or the National Association of County and City Health Officials)
- 6 Information or best practices from federal programs (such as CDC's Partnering for Vaccine Equity program or the National Institutes of Health's RADx Underserved Populations program)
- 7 Internal staff expertise or experience
- 8 Input from Community groups or community members
- 9 Learning from peers at other organizations
- 10 Other (*Please specify*) _____

17. What information did your organization use to assess how well your COVID-19 testing or vaccination strategies worked?

SELECT ALL THAT APPLY

- 1 Outputs of outreach and education strategies, such as number of phone calls made or user engagement with social media
- 2 Geographic reach of testing services, such as number of counties served, or homes visited
- 3 Reach of outreach and education strategies, such as geographic reach or people contacted
- 4 Measured improvements in knowledge or attitudes about COVID-19 testing or vaccines
- 5 Number of tests delivered
- 6 Testing rates
- 7 Test positivity rate
- 8 Number of vaccine doses delivered
- 9 Vaccination rates
- 10 Adherence to CDC or other guidelines
- 11 Participants' satisfaction
- 12 Qualitative assessment based on program or community knowledge (not based on metrics)
- 13 Assessment of the organization's partnerships at community, local, state, or federal levels
- 14 Other metrics or method (*Please specify*) _____
- 15 We did not evaluate our testing and vaccination strategies

17b. Please tell us more about how your organization assessed or evaluated your COVID-19 testing or vaccination strategies.

18. [*This question is for community-based organizations*] What is the primary focus of your organization?

SELECT ALL THAT APPLY

- 1 Health
- 2 Food
- 3 Housing
- 4 Social services
- 5 Other (*Please specify*) _____

The following questions are about the person who completed this survey. This information will be kept confidential. We will only use this information if we have questions about your organization's survey responses.

19. What is your name?

20. What is your role or title at your organization?

21. How long have you worked at your organization?

- 1 Less than one year
- 2 One year up to two years
- 3 Two years up to five years
- 4 More than five years up to 10 years
- 5 More than 10 years

22. As a thank you for completing this survey, we will mail you a \$50 check. Please let us know whether you are able and wish to accept this token of appreciation.

- 1 Yes, I am able and wish to accept a \$50 check
- 0 No, I am **not** able or do not wish to accept a \$50 check

22b. If you are able and would like to receive a \$50 check, please provide your mailing address below.

Mailing address: _____

23. We will be conducting phone interviews from January to April 2024 to supplement the information we will gather in this survey about best practices around COVID-19 testing and vaccination. Please let us know if we may contact your organization about participating in a phone interview.

- 1 Yes, you may contact our organization about participating in a phone interview
- 0 No, please do not contact our organization about participating in a phone interview

24. What is your email address? We will only use this to contact you about your survey responses, to schedule a phone interview, or to share findings from this project.

25. If you have more to share that you think might be of interest to this study, please feel free to add it here.

Thank you very much for completing this survey.

Your participation is appreciated, and your responses will help us better understand how organizations worked to increase COVID-19 testing and vaccinations for populations that are medically or socially at disproportionate risk for COVID-19 during the public health emergency.

Please return this questionnaire in the envelope provided. No postage is necessary.

If you no longer have the envelope, please mail this questionnaire to:

MATHEMATICA
ATTN: RECEIPT CONTROL - Project 51690
P.O. Box 2393
Princeton, NJ 08543-2393

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