Environmental Scan of Pediatric COVID-19 Vaccination: Clinical Provider Perspectives

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AIM Association of Immunization Managers

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Caveat

This report is based on data collected between June and September 2023, before the commercialization of COVID-19 vaccines. Some of the results, therefore, reflect previous guidance and processes and may no longer be relevant. To aid the reader in interpreting these findings, we have included footnotes with information available as of September 11, 2024, about new or modified policies and programs that affect pediatric COVID-19 vaccination efforts.

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I. Introduction

Vaccination has dramatically decreased childhood mortality and morbidity and remains one of the most important preventive health services in pediatric medicine in the United States (Ventola 2016). Health care providers typically administer pediatric vaccines; these providers include pediatric, family medicine, and internal medicine physicians; physician assistants; nurse practitioners; registered and licensed nurses; and medical assistants working in outpatient clinics of various sizes and ownership models, federally qualified health centers, hospitals, public health departments, and other settings (National Vaccine Advisory Committee 2016).

While pediatric vaccination rates in the US are generally high, challenges to achieving those rates exist, some of which were exacerbated by the COVID-19 pandemic. Although vaccination coverage rates meet or exceed the Healthy People 2020 targets for many of the vaccines recommended by the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP), there is still room for improvement. (Office of Disease Prevention and Health Promotion n.d.). During the 2020–2021 influenza season, only 58.6 percent of children 6 months through 17 years received at least one dose of influenza vaccine, a decrease of 5.1 percentage points compared to the 2019–2020 season (CDC n.d.[a]). COVID-19 vaccination rates for children are even lower; as of the end of June 2023, only 36.8 percent of children 6 months through 17 years had received at least one dose of COVID-19 vaccine. These figures are lower still among very young children (5.2 percent of children ages 6 months to 4 years), children whose parents or other caregivers have not been vaccinated against COVID-19 (2.4 to 11.2 percent, depending on whether those adults intend to get vaccinated), and among children who live in rural areas (23.0 percent), whose household incomes are below the federal poverty level (23.1 percent), or who are Black and non-Hispanic (28.3 percent). In addition, children who are insured by Medicaid or who are uninsured also have lower COVID-19 vaccination rates (29.9 and 30.9 percent, respectively, have received at least one dose) compared to children with private insurance (42.1 percent have received at least one dose) (CDC n.d.[b]).

Children do not receive recommended vaccines for many reasons, including parents' and caregivers' concerns about side effects, the influence of increasing amounts of misinformation and disinformation about vaccine safety or need, or the number of injections, moral and religious beliefs, and barriers to access, including costs and logistics related to scheduling and attending appointments (Ventola 2016; He et. al. 2021; Yasmin et. al. 2021). Additionally, the pandemic resulted in many children missing routinely recommended vaccinations due to lock down policies and medical provider capacity, (Vogt et al. 2020), and politicization that grew out of COVID-19 vaccination efforts has resulted in greater skepticism around all recommended vaccinations, including among health care workers (Shekhar et. al. 2021).

The Vaccines for Children (VFC) program, which began in 1994 partly in response to a measles epidemic in 1989–1991, is a critical effort in reducing cost as a barrier to pediatric vaccinations (CDC 2023). The CDC purchases ACIP-recommended vaccines and distributes them to more than 44,000 enrolled VFC program providers at no cost. Those providers then offer VFC vaccinations to children who are eligible for Medicaid, uninsured, underinsured, or American Indian or Alaska Native (CDC n.d.[c]).[1] The federal purchase of COVID-19 vaccines as part of the public health emergency ended in September 2023 and transitioned those vaccines to be acquired and distributed through the same systems as other vaccines, including through the VFC program (CDC n.d.[d]). All VFC providers are required to purchase a private stock of vaccines to offer children who are not eligible for vaccines through the VFC program. However, the CDC has waived the requirement to purchase private stock COVID-19 vaccines until August 31, 2025 (with some exceptions).[2]

This report summarizes the findings of a mixed-methods environmental scan supported by funding from the CDC and conducted by AIM and Mathematica prior to commercialization of COVID-19 vaccines. The purpose of the environmental scan was to investigate providers' experiences and perspectives in offering COVID-19 vaccinations and to better understand the potential impact of including COVID-19 vaccines in the VFC program. Our findings are based on data collected between June and September 2023, as the plans for the commercialization of the COVID-19 vaccines were still under development. As such, some results may no longer be relevant, and we have included footnotes with explanations about changes that have occurred since the data were collected.

II. Methods

Our environmental scan included three data sources: existing documents, survey, and interviews and focus groups with clinicians, practice administrators, and others involved in vaccine management. The Health Media Labs institutional review board approved this environmental scan before data collection activities began.

1. **Review of existing documents.** The team began by conducting background research to understand the COVID-19 vaccination and federal VFC program landscape before defining data collection plans. To this end, the team completed a targeted literature review of peer-reviewed publications and reports from organizations such as the CDC, the American Academy of Pediatrics, and the National Academy for State

[1] Although participating providers receive VFC vaccines at no cost, VFC does not cover the labor and equipment costs incurred when participating practices obtain, store, manage, administer, and report on VFC vaccines. Some costs, (such as those related to vaccine counseling and administration, can be covered through Medicaid for eligible patients when allowed by the policies of each state's Medicaid program.

[2] CDC's Vaccines for Children Program Addendum: Special Considerations for COVID-19 and Nirsevimab offers a one-time grace period to give providers who do not intend to vaccinate private pay patients extra time to purchase private vaccine stock (expires 8/31/25). VFC providers using this flexibility should share information with their privately insured patients about other ways to access COVID-19 vaccine in their area.

Health Policy. The team gathered summaries of key findings from these reviews in a spreadsheet and used the summaries to inform the next steps in data collection.

2. **Survey.** We fielded the Pediatric Vaccination Survey with members of the American Academy of Pediatrics' (AAP) Section on Administration and Practice Management (SOAPM). This Section includes pediatric clinicians (such as physicians, nurse practitioners, and physician assistants), nurses, practice administrators, and vaccine program coordinators who were familiar with their practice's pediatric vaccine management processes and, if relevant, their practice's involvement in the VFC program.

   SOAPM sent emails to its members asking them to complete the survey. SOAPM contacted 1,447 email addresses on its mailing list about the survey, with the goal of recruiting a maximum of 300 participants. SOAPM sent one invitation email and up to two reminder emails to providers to ask them to complete the survey.

   The survey sought to be informative but not necessarily representative of the broader population of pediatric clinicians. Because we recruited through SOAPM, non-pediatrician clinicians who also see children, such as family medicine physicians, were eligible but less likely to participate.

   The first section of the survey contained three sets of questions meant to engage current and former VFC program participants and non-VFC program participants (that is, they never participated in the VFC program). That section contained applicable questions related to perceptions of and experiences with the VFC program, as well as questions about the impact of the COVID-19 pandemic on participation decisions. The next section asked all respondents about routine childhood vaccines and pediatric COVID-19 vaccines, including factors that facilitated or hindered practices' provision of vaccines. The final section collected provider and practice information from all respondents. The entire survey instrument is included in Appendix D.

   The team used Confirmit survey software to field the web survey, which we designed to take about 10 minutes to complete. The survey was in the field from June 28 to July 12, 2023, before the U.S. Government began to phase out ordering of federally purchased COVID-19 vaccines in anticipation of commercialization.

   A total of 250 eligible participants completed the survey, close to the 300 participant goal (83 percent). This corresponds to a completion rate of 17 percent of all invited participants. Those who completed the survey were offered a $20 Amazon e-gift card.

   The team calculated frequency statistics to summarize descriptive survey results. To capture analytically meaningful trends, we stratified some survey data by VFC program participation status. We did not weight or otherwise adjust the results. Demographic information about the final survey sample is available in Appendix A.

3. **Interviews and focus groups.** We recruited clinicians and practice administrators who worked in practices or clinics that regularly provide vaccinations to children to participate in their choice of an interview or focus group. We contacted providers from a sample of 10 states (see Appendix B for demographic information about the interview and focus group sample). We selected states to represent all 10 U.S. Department of Health and Human Services regions while also providing a range of state COVID-19 vaccination rates and standard childhood vaccination rates (see Appendix C). To be eligible, participants had to be familiar with vaccination efforts for children at their practice site. Interviews relied on guides tailored to respondents' experiences with the VFC program, all of which are included in Appendix E.

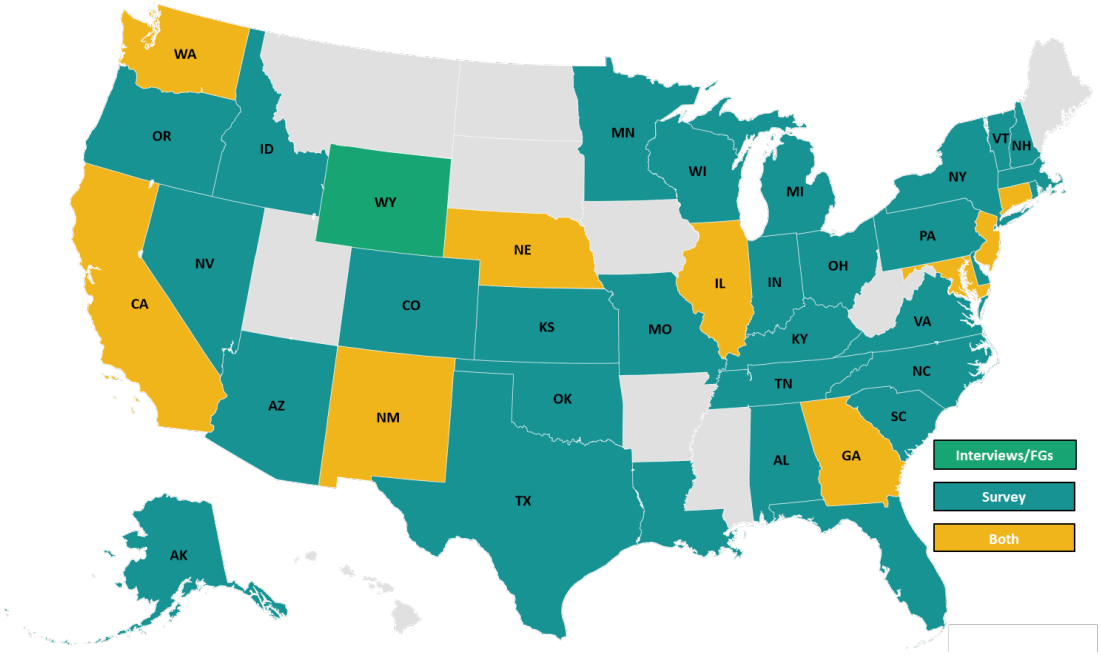
   We recruited provider participants by (1) calling provider contacts identified through the Vaccine Equity Planner (Vaccineplanner.org), an online tool that identifies COVID-19 vaccine "deserts" (i.e., geographic areas where a child cannot access a COVID-19 vaccination within a 15-minute drive) and potential new sites to address the gaps in vaccine access, (2) distributing information to identify individuals willing to participate in interviews or focus groups via the SOAPM mailing list, and (3) emailing providers who had participated in AIM-hosted Pediatric COVID-19 Vaccine Access Cooperative meetings held in-person between March and June 2023 or had collaborated with AIM or Mathematica staff through other recent engagements.

   Mathematica contacted 639 providers by email and phone to schedule interviews and focus groups, with the goal of recruiting a maximum of 50 participants. A total of 32 interviews and two focus groups (with a total of six participants) took place between July 17 and September 12, 2023, before and during the transition to vaccine commercialization. Interviews lasted 15 to 40 minutes and focus groups lasted 25 to 50 minutes. Providers who completed an interview or focus group were offered a $100 Amazon e-gift card. Information about interview participants is provided in Appendix B.

   We conducted all interviews and focus groups virtually, using the Webex platform. When respondents provided verbal consent, we recorded the interviews and focus groups. A third-party transcription service, Way With Words, professionally transcribed all recordings for the team to use internally for analysis purposes. When we did not receive consent to record, the team took detailed notes of the responses. The team conducted qualitative coding of the transcripts (or notes) using NVivo software to identify key themes for analysis.

Figure 1 illustrates the states with survey, interview and focus group participants, and participants of both forms of data collection. To our knowledge, no single participant took part in both the survey and an interview or focus group. Not all individuals who completed the survey provided their email address to request an e-gift card incentive, however, so there is a small chance that such an instance occurred, given the overlap in sampling approaches.

Figure 1. States with interview, focus group, or survey participants



Note: Generated using GeoNames.

After data collection activities, we conducted analyses across each data collection method. We present cross-cutting themes that emerged from the data in the following section.

III. Findings

This section outlines our key findings from the environmental scan, including a discussion of the COVID-19 vaccine landscape, future directions for COVID-19 vaccines and other pediatric vaccinations, and a summary of providers' experiences with VFC program participation. Overall, providers were supportive of COVID-19 vaccines and motivated to contribute to the pediatric vaccination effort during the public health emergency. However, two key concerns emerged. First, providers had found **multidose vials** of COVID-19 vaccines raised waste and cost challenges.[3] Second, providers noted a **decreased demand for COVID-19 vaccines** as a disincentive to offering COVID-19 vaccinations at their practices. Most continued to offer COVID-19 vaccinations despite these concerns while the vaccines were federally funded, but many worried about how the commercialization of COVID-19 vaccines would affect their practices' resources, especially given that the specifics of the vaccines' commercialization were uncertain at the time of data collection. Ultimately, providers were divided in whether they would purchase pediatric COVID-19 vaccines for their privately insured patients, and nearly half of current VFC participants were unsure whether they would continue to participate

[3] Pediatric COVID-19 vaccines are now available in single-dose vials and prefilled syringes, but whether and to what extent such products would be available was not known at the time of this environmental scan.

in the VFC program once its requirements were applied to COVID-19 vaccines.[4]

a. COVID-19 vaccine landscape

Opinions on and experiences with COVID-19 vaccines

Most interviewed providers had a positive opinion about COVID-19 vaccines, citing that their entire staff agreed about offering COVID-19 vaccinations to their pediatric population.

Providers varied on how they approached recommending COVID-19 vaccines. For many, the recommendation was straightforward, even if they acknowledged some flexibility in their discussion with parents. As one provider said, "I think now some of the urgency has waned and some of that does reflect the epidemiology of what's going on right now. I'm frank with families about that. I highly recommend [COVID-19 vaccines]. It's safe. It's effective. [But] I understand if you don't feel pressed to get it today, and I often will see if they want to think about coming back before the school year."

Others, particularly in smaller communities or rural areas, described having more difficulty with recommending COVID-19 vaccines. These providers reported a significant increase in vaccine hesitancy and have tried to find a balance of educating parents without alienating them. As one provider put it, "We recommend [COVID-19 vaccines] but I'm not going to make someone feel bad if they choose not to do it, and I'm not going to make someone feel bad if they choose to not complete the series or if they want to do the primary but not the booster. I'm not the COVID vaccine police." Another noted the challenge of trying to respond to parents' concerns in an era of frequent misinformation: "It's a really hard sell and if you're a burnt-out practitioner, it's really hard to convey that information. It's hard to battle [misinformation]. I don't get into arguments, but I do have my [talking points]...There's all different combinations and so you never know. I try to give the same information, but you never know what chord it's going to hit with whoever that is that you're talking to."

Providing COVID-19 vaccinations

Eighty-three percent of survey respondents indicated their practice was providing pediatric COVID-19 vaccinations to at least some pediatric age groups at the time of the survey (June-July 2023), compared to more than 99 percent who reported providing routine (non-COVID-19) vaccinations. It is noteworthy that, even when COVID-19 vaccines were provided at no cost, nearly one in six providers surveyed were not offering the vaccines to their pediatric patients. Among those who provide COVID-19 vaccinations to their pediatric patients, some had also offered COVID-19 vaccinations to

[4] To help prevent fraud and abuse of VFC vaccines, the VFC program requires program participants to provide ALL ACIP-recommended vaccines (including COVID-19) to VFC-eligible patients and (2) to stock privately purchased inventory of COVID-19 vaccines for non-VFC-eligible patients. At the time of this environmental scan, the COVID-19 vaccine was approved by ACIP for children ages 6 months and older, but providers were receiving all COVID-19 vaccines at no cost from the federal government.

other populations, including young adult patients of the practice (older than age 19 years) (57.4 percent), adult family members of their pediatric patients (30.9 percent), and community members not associated with the practice (15.6 percent).

The survey results aligned closely with interviewees' reports of COVID-19 vaccination at their practices. Most providers said they were offering COVID-19 vaccinations to their pediatric patients. However, at the time of the interviews (July-September 2023), several providers were not offering COVID-19 vaccines, either because they were waiting for the newest preparation to come in (formulated for the XBB.1.5 variant, which was approved in mid-September and early October 2023 [Regan, Moulia, Link-Gelles et al. 2023]) or because the demand for the vaccines had declined so much that they feared wasting most doses. In the latter case, interviewed providers said they were aware of other places, such as health departments, to which they could refer pediatric patients for COVID-19 vaccinations.

Factors that facilitate COVID-19 vaccinations

When asked why they *did* offer COVID-19 vaccinations, or what made it easier to do so, providers said they offered them because the CDC recommended them, because the practice providers believe in offering the vaccinations, or because it was convenient for patients. Some providers said they offered COVID-19 vaccinations because they were the only place in the area where patients could get vaccinated. As one nurse working in a rural area put it, "If we don't [offer COVID-19 vaccines], then who is going to? … We've been the only facility that's had it in our area besides [the] public health [department] since it was released."

Factors that create barriers to COVID-19 vaccinations

Nearly one-third (30.8 percent, or 77 of 250 respondents) of surveyed providers were not providing COVID-19 vaccinations to all ages of their pediatric patients.[5] When asked why, most cited concerns about multidose vials (72.7 percent) and low demand (58.4 percent) leading to wastage (Table 1). While responses are not limited to those of VFC program providers, it should be noted that the VFC program requires providers to stock and administer all ACIP-recommended vaccines to VFC-eligible patients. As such, since COVID-19 vaccines were added to the VFC program and the routine childhood immunization schedule in September 2022, VFC providers are required to provide COVID-19 vaccines to all children ages 6 months and older. The VFC program has given providers until August 31, 2025, to comply with the private inventory requirement.

Table 1. Why practices were not providing COVID-19 vaccinations to children of all ages at the time of the survey (n=77*)

Reported Reason**	n	%
Only available in multi-dose vials (which can lead to increased vaccinator workload, wastage, administrative burden, and so on)	56	72.7%
Low demand for COVID-19 vaccinations	45	58.4%
Do not want to participate in quality assurance site visits	34	44.2%
Minimum order size too large	32	41.6%
Patients have access to the vaccine elsewhere in the community, so my practice is not needed as a vaccination provider	29	37.7%
Storage and handling requirements (that is, dorm-style units prohibited, must use digital data logger, temp monitoring documentation, ultra-cold storage requirements)	25	32.5%
Parent or caregiver hesitancy	24	31.2%
Practice staff resources too limited	23	29.9%
Other	15	19.5%
Not enough children in the practice to warrant participation	14	18.2%
Vaccine administration reporting requirements	13	16.9%
This practice has limited storage space for vaccines, supplies, or both	13	16.9%
Inventory reporting requirements	12	15.6%
The administration that manages this practice made the decision	10	13.0%
Payment for COVID-19 vaccine administration is too low	9	11.7%
Costs to the practice related to vaccinating the uninsured	6	7.8%
Lack of strong endorsement of COVID-19 vaccination for children by practice leaders	1	1.3%
Staff lack confidence to discuss or promote COVID-19 vaccination with parents and caregivers	1	1.3%
Security concerns (for example, from anti-vaccine activists, community pushback, or public harassment)	0	0.0%

Source: Pediatric Vaccination Survey, fielded by AIM and Mathematica in June and July 2023, prior to the commercialization of COVID-19 vaccines (250 total responses)

*n =77, number of respondents who were not providing COVID-19 vaccines to children of all ages

**The context and details of some of the stated reasons have changed since the time of data collection. For instance, pediatric COVID-19 vaccines are now available in single-dose vials and pre-filled syringes, COVID-19 vaccine administration payments vary by insurer, and vaccine ordering policies vary by manufacturer and are dependent upon whether the supply is procured commercially or through the VFC program.

Interview and focus group respondents placed similar emphasis on these two factors, such as one pediatrician who said:

> I have a big conflict with waste.… We generally open one vial per day of each age group and see if we can use it up, but inevitably we routinely waste a lot of vaccine. I could potentially give one dose of COVID in the morning and if nobody uses it, nine doses were wasted.… If somebody comes at 3:30 and they want a COVID vaccine, I feel very conflicted about offering it just because we live in an area where you can get it a lot of different places. I just don't know.

For some providers, low demand for COVID-19 vaccines was the deciding factor in discontinuing COVID-19 vaccination at their practice. One VFC provider who had previously but was no longer offering COVID-19 vaccinations noted, "Our population just didn't want it. We had it for a couple of months after schools and stuff stopped mandating it, and we found ourselves just throwing them out."

Interview and focus group respondents also cited the challenge of using extra storage, staff, and financial resources in the constrained schedules and budgets of pediatric practices. The uncertainty of what would be paid for COVID-19 vaccines post-commercialization was an important and related concern. As one provider said:

> We really don't have any idea at this point what our major insurance plans are going to pay us for. And if they're going to not pay us what we pay for the vaccine, and the time of my staff giving it, and storing it, and buying the fancy refrigerators to store it, it's not going to be worth our effort to do it. Which is just really a shame because we are very pro-vaccine.

One private practice pediatrician summed up the intersecting challenges her office has faced in providing COVID-19 vaccinations:

> The different [COVID-19] vaccinations, you can't just pull them out of the refrigerator or the freezer, they have to be at a certain temperature for a certain time. They have to be drawn up a certain way. Once they're drawn up, they can only be outside for a certain amount of time. There's wastage involved. There are different lot numbers. There are gray caps and maroon caps and pink caps and all different cap colors for different ages.… If someone starts with Pfizer and they're 4 [years old] and now they come back and they're 5, you've got to be able to figure out which vaccine to give them.… [Or] it's been a year, [should] they do a bivalent versus a monovalent booster? The level of complication, just in figuring out who needs what, one medical assistant can give three to four COVID vaccines in an hour. One medical assistant can easily give 20 to 30 flu vaccines in an hour. So, that's the difference in productivity and time efficiency with COVID vaccines and when someone is in the office for a visit and off the cuff spontaneously says, 'I'd like to have a COVID vaccine,' if it's not already drawn up, then it takes at least 30 to 40 minutes and then that entire vial gets wasted.

Reflective of these comments, most surveyed providers who did not provide COVID-19 vaccines to all ages of their pediatric patients responded that the availability of smaller vial sizes, higher demand for the vaccines, and better payment for COVID-19 vaccine administration would encourage participation in the pediatric COVID-19 vaccination effort. Table 2 provides a full list of factors.

Table 2. Factors that practices indicated would most encourage participation in the pediatric COVID-19 vaccination effort (n=77*)

Factors	n	%**
Availability of smaller vial size to minimize waste	58	75.3%
Higher demand for pediatric COVID-19 vaccination among parents and caregivers	34	44.2%
Better payment for COVID-19 vaccine administration	31	40.3%
Reduced inventory reporting requirements	20	26.0%
Simpler enrollment process	14	18.2%
Ability to hire or retain additional staff	14	18.2%
Reduced vaccine administration reporting requirements	12	15.6%
Other	5	6.5%
Greater number of children in the practice	4	5.2%
Support with reporting requirements (for example, doses administered data entry)	3	3.9%
None	3	3.9%
Availability of resources to help staff discuss and promote pediatric COVID-19 vaccination with parents and guardians	2	2.6%

Source: Pediatric Vaccination Survey, fielded by AIM and Mathematica in June and July 2023, prior to the commercialization of COVID-19 vaccines (250 total responses)

*n =77, number of respondents who were not providing COVID-19 vaccines to children of all ages

**Percentage sum is over 100% because respondents could select multiple response options (up to 3)

b. Participation in the VFC program

Most respondents to the survey were current VFC program participants (85.6 percent), with a much smaller subset representing former VFC program participants (4.4 percent) and those who had never participated in the VFC program (10 percent) at the time of the survey. We saw similar participation trends among interview participants, with more than 80 percent identifying as current VFC program participants at the time of the interview.

Among survey respondents who participated in the VFC program, most (85 percent) had participated for 10 or more years. This was similar in the interviews, in which many practices indicated they had begun participating at the inception of the VFC program, or since their practice first opened.

Benefits of VFC program participation

Providers generally had positive things to say about participating in the VFC program. Many appreciated not having to pay for VFC vaccines up front (as they do with private vaccine stock) and reported that VFC's vaccine buying policies alleviated a significant financial burden from the practices. Providers also noted that, although VFC inventory used to be unreliable, the problem had improved in recent years. As one provider told us, "The issues that we might have had in the past of running out of certain vaccines

because of shipment delays or poor inventory control, that has gone away. Our VFC stock has become very stable." Another provider theorized that the practice's VFC program participation enabled it to receive COVID-19 vaccines *earlier* than it would have if it had not been a VFC program participant.

In addition to the financial and inventory logistics of the VFC program, several respondents noted their states' VFC program leadership team effectively communicated expectations to providers and educated providers about the program. One respondent spoke about the positive impact of the state VFC program in ensuring her practice's good record-keeping: "I like the accountability it keeps for the vaccines given, honestly. Because we make mistakes all the time… and if the report is not right, you have to go back and figure out those mistakes."

When asked why their practice participated in the VFC program, the most common response among current participants was that they participate to provide vaccinations to their VFC-eligible patients, including Medicaid patients and the uninsured or underinsured, who otherwise could not afford vaccinations. Although not all practices had a large VFC-eligible population (28.8 percent of survey respondents reported that 0 to less than 10 percent of their population is VFC-eligible), 22.3 percent of survey respondents indicated that half to all of their patients are VFC-eligible.

Providers expressed the importance of providing equitable access to care for their patients, which they felt the VFC program enabled them to do. As one provider said, "Right from the start [of the practice], we were philosophically going to take care of Medicaid patients in the community. And there was no reason to not be on VFC for giving equal care to our patient population. We've been on it since basically the inception [of the program]." Others noted that by enabling them to provide vaccinations to all patients, VFC helped practices achieve a higher proportion of vaccinated patients. A provider explained that "We see it as a convenience for families to be able to get their vaccines the same place they're getting their check-up, rather than having to go make another stop at the health department. And it just ensures that more of our patients are fully vaccinated."

Barriers and challenges to VFC program participation

Despite these benefits, 16.9 percent of providers who were VFC program providers at the time of the survey had considered ending their participation in the program. When asked about the barriers or challenges to participating in the VFC program, these providers (current VFC participants who had considered ending participation), as well as former VFC participants and nonparticipants of the VFC program, most often cited concerns about the burden of vaccine inventory and administrative reporting requirements (Table 3). Interview participants cited similar administrative and logistical concerns.

Table 3. Reasons why current VFC participants had considering ending their participation, never VFC participants were not participating, and former VFC participants stopped participating in the VFC program (n=72)

	Current VFC participants who had considered ending participation (n=36)**	Never VFC participants (n=25)***	Former VFC participants (n=11)****	Overall (n=72)
Burden of inventory reporting requirements	31 (86.1%)	19 (76%)	11 (100%)	61 (84.7%)
Burden of vaccine administration reporting requirements	27 (75%)	17 (68%)	7 (63.6%)	51 (70.8%)
Costs to the practice related to program participation	18 (50%)	11 (44%)	2 (18.2%)	31 (43.1%)
Practice staff resources too limited	16 (44.4%)	13 (52%)	6 (54.5%)	35 (48.6%)
Not enough children in the practice to warrant participation	5 (13.9%)	13 (52%)	6 (54.5%)	24 (33.3%)
Impacts of the COVID-19 pandemic	2 (5.6%)	0	1 (9.1%)	3 (4.2%)
Other	13 (36.1%)	6 (24%)	2 (18.2%)	21 (29.2%)

Source: Pediatric Vaccination Survey, fielded by AIM and Mathematica in June and July 2023, prior to the commercialization of COVID-19 vaccines (250 total responses)

*Percentages are calculated out of n in each column: Current VFC participants [n=36, those who have considered ending participation]; Never VFC participants [n=25]; Former VFC participants [n=11]; Overall [n=72]. This question was not asked of current VFC participants who had not considered, or weren't sure whether their practice had considered, ending their participation in the VFC program [n=177]. Sum of column percentages is over 100% because respondents could select multiple response options.

**Current VFC participants responded to why their practice has considered ending participation

***Never VFC participants responded to why their practice has never participated in the VFC program

****Former VFC participants responded to why their practice has stopped participating in the VFC program

Many participating practices noted the stability of VFC vaccine supply, but several reported concerns about VFC program administration, stating they sometimes had to send VFC patients to the health department for their vaccinations when they were unable to obtain VFC vaccines through the VFC program in the timeframes needed (whether due to practice-related processes or state program processes is unclear). Some providers noted that when they placed an order for vaccines, they did not always receive the amount they ordered, leading the practice to run out of vaccines for VFC patients. A few providers had received VFC vaccines later than privately purchased vaccines.

Finally, a handful of providers described the financial burden associated with the administrative and logistical challenges noted previously. One provider, for example, noted that the Medicaid's vaccine administration fee was lower than their actual costs.

Despite these challenges, the majority of providers that participated in this environmental scan stated they had continued to participate in the VFC program because they believed the benefits of participation outweighed the challenges.

c. Future of COVID-19 vaccines and VFC program participation

From 2021 until September 2023, the federal government ensured Americans had access to COVID-19 vaccines free of charge. Some providers who participated in this environmental scan indicated concerns about how the movement of COVID-19 vaccines to the commercial market would affect their practice and their patients. To explore the scale and potential impacts of these concerns, participants were asked:

1. How likely their practice would be to purchase pediatric COVID-19 vaccines for privately insured patients once the federal government stopped providing COVID-19 vaccines at no cost *(asked of all respondents)*
2. Whether practices would continue to participate in the VFC program in light of the requirements to provide COVID-19 vaccines to VFC eligible patients and to stock privately purchased inventory for non-VFC eligible patients *(asked only of providers whose practices were participating in the VFC program at the time of data collection)*
3. How likely practices would be to enroll in the VFC program in order to offer COVID-19 vaccinations to VFC-eligible children *(asked only of surveyed providers whose practices were not participating in the VFC program at the time of data collection)*

At the time of the survey (June-July 2023), nearly half of providers (48.7 percent) said it was somewhat or very unlikely their practice would purchase pediatric COVID-19 vaccines for their privately insured patients (see Table 4).[6] Interviewed providers voiced similar sentiments. Many indicated that they were waiting for more information about

[6] The VFC program allowed a one-time grace period (recently extended through August 31, 2025) to give providers extra time to purchase private vaccine stock in accordance with the program's requirements. Given the timing and wording of this survey, it is unclear how the requirement to purchase private stock COVID-19 vaccines will impact VFC program participation.

commercialization before making a decision, but some had already decided not to offer COVID-19 vaccines.

Table 4. Likelihood of survey respondents to purchase pediatric COVID-19 vaccines for privately insured patients when the federal government stops providing COVID-19 vaccines at no cost (n=234)*

	Current VFC participants (n=198)*	Never VFC participants (n=25)	Former VFC participants (n=11)	Overall (n=234)
Very likely	36 (18.2%)	5 (20%)	2 (18.2%)	43 (18.4)
Somewhat likely	67 (33.8%)	10 (40%)	0	77 (32.9%)
Somewhat unlikely	46 (23.2%)	4 (16%)	3 (27.3%)	53 (22.6%)
Very unlikely	49 (24.7%)	6 (24%)	6 (54.5%)	61 (26.1%)
Total	198 (100%)	25 (100%)	11 (100%)	234 (100%)

Source: Pediatric Vaccination Survey, fielded by AIM and Mathematica in June and July 2023, prior to the commercialization of COVID-19 vaccines (250 total responses)

*Excludes respondents (all VFC participants at the time of data collection) who were not involved in decision-making about pediatric vaccine purchases, were in a universal vaccine purchase state, or didn't respond to the question.

Of providers who were participating in the VFC program at the time of the survey, 52 percent indicated they were very likely or somewhat likely to purchase COVID-19 vaccines for their privately insured patients. Those who indicated they were somewhat unlikely or very unlikely to purchase commercial COVID-19 vaccines (47.9 percent) raised concerns about their ability to continue participating in the VFC program once COVID-19 vaccines were subject to VFC program requirements. Nearly half of surveyed providers (45.3 percent) were unsure whether their practice would continue participating in the VFC program, and an additional 4 percent said their practice would drop out of the VFC program. Interviewed providers expressed similar concerns, though as with the prior question, many indicated they needed more information to reach a decision. As one interviewed provider noted, "If VFC requires us to stock COVID vaccines *and* they have been privatized and we will have to purchase them, we will have to consider ending VFC participation. Our office would likely be unable to offer COVID vaccines to our patients if we have to purchase them, as uptake is low, and many doses end up being wasted—it would become cost-prohibitive."

Survey respondents and interviewees alike were particularly concerned about the requirement that VFC program participants maintain a private stock of COVID-19 vaccines for non-VFC patients. One interviewed pediatrician who participates in the VFC program anticipated significant challenges for practices trying to stock private COVID-19 vaccines along with VFC inventory, though this providers' concerns may be mitigated now that single dose vials are available and minimum ordering requirements are smaller:

> This is going to be one huge fiasco if every practice that participates in VFC is going to be required to stock, privately, the COVID vaccine.… Generally, it's been easy to give the COVID-19 vaccine because it was a free vaccine, it wasn't much in the way of a liability on the part of the practice. Now, number one, there are no single-dose vials for the children, so you're going to have to buy a 10-dose vial. If you have to buy that for every age group, the 6 months to 4, the 5 to 11, the 12 to 17, that's going to be a huge burden on the practices, especially when we're not seeing a huge uptake on the part of practices that have private patients wanting to get the COVID vaccine. So that's going to be huge. For those practices, like mine, where we're 75 percent Medicaid, and we're lucky if we're giving, maybe, five private vaccines a week, I don't see how that's going to work."

Others provided similar feedback, such as one provider who stated, "I don't like the demand that I have to purchase private stock. We have no idea if we can afford those vaccines." Another said if they had to stock COVID-19 vaccines it might "hasten [their] decision to retire."

Among surveyed *and* interviewed providers whose practices were not current VFC program participants, *none* of them thought their practice would enroll in the VFC program to offer COVID-19 vaccinations to VFC-eligible children. For instance, one interviewed provider who had never participated in the VFC program explained, "… when the government stops paying for it, we won't provide it. We are not willing to take the financial gamble of the cost of having to purchase them. We felt it was important [to offer COVID-19 vaccines during the public health emergency] as a community service."

IV. Considerations

In September 2023, pediatric COVID-19 vaccines transitioned from being provided universally by the federal government to being provided to eligible children through the VFC program and through the commercial market for children with private insurance coverage. With this transition, most COVID-19 vaccines manufactured by Pfizer and Moderna became available in single-dose vials and in smaller minimum order sizes, alleviating some provider concerns. However, Pfizer vaccines for children ages 6 months through 4 years are still supplied in multi-dose vials as of the publication date of this report[7], and overall demand for pediatric COVID-19 vaccinations remains low. Providers continue to face financial hardship due to the need to purchase multiple preparations of COVID-19 vaccines for different populations and the slow recoup of capital invested in vaccine purchase. Providers participating in the VFC program have benefited from VFC guidance that granted providers flexibility related to the introduction of COVID-19 vaccines, including a one-time grace period through August 31, 2025, to give providers

[7] Current information about COVID-19 vaccine formulations are available at https://www.fda.gov/vaccines-blood-biologics/coronavirus-covid-19-cber-regulated-biologics/moderna-covid-19-vaccine, https://www.fda.gov/vaccines-blood-biologics/coronavirus-covid-19-cber-regulated-biologics/pfizer-biontech-covid-19-vaccine, and https://www.fda.gov/vaccines-blood-biologics/coronavirus-covid-19-cber-regulated-biologics/novavax-covid-19-vaccine-adjuvanted.

extra time to purchase private vaccine stock in accordance with the program's requirements.[8] These changes may have helped to protect access to provider-based pediatric COVID-19 vaccination services by allowing providers participating in the VFC program more time to determine how to navigate the post-commercialization environment, but access after the expiration of this grace period should be watched closely. There may also be additional opportunities to improve provider participation in pediatric COVID-19 vaccination efforts based on the findings of this environmental scan.

- **Implement strategies to reduce wastage and make privately purchasing COVID-19 vaccines financially viable.** The possibility of wasting COVID-19 vaccines, particularly those that manufacturers continue to offer in multidose vials or that are purchased by providers in communities where demand for pediatric COVID-19 vaccines is lower than the current minimum order sizes (which range from 10-30 doses), may still present a substantial financial risk for providers and be a major factor in their concerns about the VFC program requirement to stock private vaccine inventory effective September 1, 2025. It would help if vaccine manufacturers offered all COVID-19 vaccines in single-dose vials, reduced the number of preparations, extended vaccine shelf-life, and/or further reduced minimum order sizes. Groups of providers could also combine their purchases so each practice receives a quantity it can use or coordinate with one another to make use of vaccines that are close to expiring.
- **Help providers improve vaccine confidence.** Low demand for pediatric COVID-19 vaccines is a notable barrier to continuing to offer pediatric vaccinations. The reasons for this low demand are multifaceted, but vaccine mis- and disinformation are definite contributors (Khaira, Zou, and Adler-Milstein 2022). Providers interviewed for this environmental scan believed educating the public on vaccine safety and efficacy was important, and that clear and consistent messaging from trusted sources, as well as data to back up guidelines, have the power to build vaccine confidence. Providers remain one of parents' most trusted source of vaccine information, and many of the providers who were interviewed in this environmental scan described building rapport with patients, sometimes over the course of multiple conversations, with this goal in mind. This education effort must be multipronged, however, as communities and families differ in how much they rely on and trust different sources of information. Also, providers would like better education on how to have conversations with patients and families about COVID-19 vaccines so they can provide the most accurate and effective information possible, which could build off of recent research, such as that from the CDC's Prevention Research Centers Vaccine Confidence Network. All sectors involved in COVID-19 and other pediatric vaccination efforts can continue to give providers easy-to-use resources for educating families about the benefits of vaccinations and identifying vaccine mis- and disinformation. Immunization programs

[8] For more information, refer to *CDC's Vaccines for Children Program Addendum: Special Considerations for COVID-19 and Nirsevimab*, available at https://www.cdc.gov/vaccines-for-children/media/pdfs/2024/08/operations-guide-covid-19-addendum-2024-4-2_002-508.pdf.

and other local partners can also facilitate sharing of best practices and effective strategies between providers serving similar communities.

- **Support existing VFC providers so they can remain in the program.** Incorporating COVID-19 vaccines into the VFC program is not likely to incentivize new providers to join the VFC program and may make it more challenging for current participants to remain with the program because of the financial and administrative challenges described earlier. The one-time grace period for purchasing private stock described above should help alleviate some financial concerns in the short term, as should the availability of single-dose vials and syringes. However, the financial impacts of purchasing private COVID-19 vaccine stock and their implications for VFC program participation should be monitored closely. Alternatively, manufacturers could allow practices to purchase quantities as small as one vial to ensure vaccine is on hand without imposing significant financial burden. Additionally, immunization programs extending the ability of VFC program providers to "borrow" from VFC vaccine doses (when ample supply exists) to vaccinate privately insured patients and then purchase and "pay back" the VFC doses once insurance payment for administered vaccines is received could further allay the financial burden and ordering challenges, at least temporarily. Immunization programs can also help providers to improve their ordering practices to match the level of demand in their communities, and to account for potential delays in distribution. In this way, vaccinating providers can maximize opportunities to vaccinate by ensuring they have pediatric COVID-19 doses available for patients who are ready and willing to receive them.

V. Limitations

Although we believe this environmental scan provides useful insights, several limitations might affect the degree to which our findings represent all providers who participate, or could participate, in pediatric COVID-19 vaccination efforts or the VFC program. First, by distributing the survey through a section of the AAP, those findings include only the perspectives of pediatricians and other staff of pediatric practices, particularly those who are highly involved in AAP and in the financial aspects of their pediatric medical practice. Similarly, very few of the providers that we contacted in vaccine deserts agreed to participate in an interview or focus group, sometimes because of numbers that were no longer in service or because their practice did not provide pediatric vaccination services. Although we were able to supplement this with email outreach through SOAPM and vaccinating providers known to AIM and Mathematica, and we monitored our recruitment efforts in an effort to get a mix of providers who administer pediatric vaccines, such as family and internal medicine physicians and staff at federally qualified and community health centers, most of the interview and focus group sample ultimately came from pediatric practices. In addition, our sample (particularly for interviews and focus groups) slightly overrepresents VFC program providers and underrepresents non-VFC and former VFC program providers, compared to national VFC program participation trends. Our virtual data collection methods might have also been biased

against those who do not engage frequently with such technology. Finally, we collected data prior to commercialization of COVID-19 vaccines. Some findings are no longer relevant or of uncertain impact based on changes to guidelines and policies.

VI. Conclusions

The findings from this environmental scan highlight most pediatric clinicians and administrators' were motivated to continue administering pediatric COVID-19 vaccines as part of providing comprehensive and equitable care to the children and families in their practices and communities. Post-commercialization, some of the barriers to achieving this intention have been addressed, but practices still face substantial challenges, including low demand for COVID-19 vaccines, the high commercial cost of COVID-19 vaccines, and vaccine management costs that are not covered by the payments they receive for vaccine administration. The impact of these remaining challenges on pediatric COVID-19 vaccination rates and VFC program participation remains to be seen, but the findings of this environmental scan suggest both may be negatively affected by the vaccines' commercialization. **At the time of data collection, about half of providers involved in this environmental scan said that they were unlikely to purchase pediatric COVID-19 vaccines on their own, and nearly half of current VFC program participants said they might consider dropping out of the program when vaccines moved to the VFC program and the requirement to stock private inventory of COVID-19 vaccines was enforced. Upon commercialization, the federal VFC Program provided considerations that included temporarily waiving the requirement for providers to purchase private stock of COVID-19 vaccines, which was recently extended through August 31, 2025.** It will be important to closely monitor VFC program participation (particularly after the grace period for purchasing private stock of the COVID-19 vaccines ends), to ensure access to not only COVID-19 vaccines, but all childhood vaccines, is not diminished by provider attrition from the VFC program.

Providers remain at the forefront of pediatric vaccination initiatives and play a critical role in increasing vaccination rates by strongly recommending vaccines to their patients and addressing vaccine mis- and dis-information. Federal, state, and local agencies involved in pediatric vaccination efforts have an opportunity to collaborate with providers and other partners to address the challenges that affect pediatric COVID-19 vaccination rates. These collaborations, along with continued monitoring of impacts on provider practices associated with offering pediatric COVID-19 vaccines, will be important to ensure continued access to pediatric COVID-19 vaccines.

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Appendix A.

Demographic Characteristics: Survey

Table A.1. Survey participants by type of provider (n=245)

Provider Type	n	%
Physician	212	86.5%
Office manager or other practice administrator	23	9.4%
Nurse, nurse manager, or vaccine coordinator	6	2.4%
Nurse practitioner	4	1.6%
Physician assistant	0	0.0%
Total	**245**	**100.0%**

Table A.2. Survey participants by type of practice (n=245)

Practice Type	n	%
Private practice	225	91.8%
Hospital or health system-owned practice	13	5.3%
Rural Health Clinic	5	2.0%
Community health center	2	0.8%
Federally Qualified Health Center	0	0.0%
Public health department clinic (state/local)	0	0.0%
Urgent care center	0	0.0%
Total	**245**	**100.0%**

Table A.3. Survey participants by size of practice (n=244)

Number of clinicians that provide direct care at the practice	n	%
1-20	227	93.0%
21-50	15	6.1%
51-100	2	0.8%
Total	**244**	**100.0%**

Table A.4. Survey participants by VFC program participation status (n=249)

VFC program participation status (n=249)	n	%
Current VFC participants	**213**	**85.5%**
Less than 1 year	6	2.8%
1 year to less than 5 years	13	6.1%
5 years to less than 10 years	11	5.2%
10 years or more	181	85.0%
Don't know	2	0.9%
Former VFC participants	**11**	**4.4%**
Less than 1 year ago	1	9.1%
1 year to less than 5 years ago	2	18.2%
5 years to less than 10 years ago	2	18.2%
10 years ago or more	6	54.5%
Don't know	0	0.0%
Never VFC participants	**25**	**10.0%**
Total	249	100.0%

*Non-bolded percentages are calculated out of n for each VFC status group: Current VFC participants [n=213]; Former VFC participants [n=11]. Bolded percentages are calculated out of the total [n=249].

*Current VFC participants responded to how long their practice has participated in the VFC program

*Former VFC participants responded to when their practice stopped participation in the VFC program

Table A.5. Survey participants by percentage of practice's patient population eligible for VFC vaccines (n=243)

Percent of practice's population eligible for VFC	n	%
0 to less than 10 percent	70	28.8%
10 to less than 25 percent	61	25.1%
25 to less than 50 percent	57	23.5%
50 to less than 75 percent	42	17.3%
75 to 100 percent	13	5.3%
Total	**243**	**100.0%**

Table A.6. Survey participants by state and HHS Region (n=239)

States and Health and Human Services (HHS) Regions	n	%
HHS Region 1		**4.6%**
Connecticut	5	2.1%
Massachusetts	2	0.8%
New Hampshire	1	0.4%
Rhode Island	1	0.4%
Vermont	2	0.8%
HHS Region 2		**15.9%**
New Jersey	10	4.2%
New York	27	11.3%
United States Virgin Islands	1	0.4%
HHS Region 3		**19.7%**
Delaware	3	1.3%
Maryland	19	7.9%
Pennsylvania	10	4.2%
Virginia	15	6.3%
HHS Region 4		**20.1%**
Alabama	4	1.7%
Florida	8	3.3%
Georgia	13	5.4%
Kentucky	4	1.7%
North Carolina	11	4.6%
South Carolina	4	1.7%
Tennessee	4	1.7%
HHS Region 5		**9.2%**
Illinois	6	2.5%
Indiana	1	0.4%
Michigan	7	2.9%
Minnesota	2	0.8%
Ohio	5	2.1%
Wisconsin	1	0.4%
HHS Region 6		**13.0%**
Louisiana	1	0.4%
New Mexico	1	0.4%
Oklahoma	2	0.8%
Texas	27	11.3%
HHS Region 7		**3.3%**
Kansas	3	1.3%
Missouri	4	1.7%
Nebraska	1	0.4%

States and Health and Human Services (HHS) Regions	n	%
HHS Region 8		**1.7%**
Colorado	4	1.7%
HHS Region 9		**10.0%**
Arizona	5	2.1%
California	15	6.3%
Hawaii	3	1.3%
Nevada	1	0.4%
HHS Region 10		**2.5%**
Alaska	1	0.4%
Idaho	1	0.4%
Oregon	3	1.3%
Washington	1	0.4%
Grand Total	239	100.0%

*Percentages calculated out of the total (n=239)

*States not represented: Arkansas, District of Columbia, Iowa, Maine, Mississippi, Montana, North Dakota, South Dakota, Puerto Rico, Utah, West Virginia, Wyoming

*US territories not represented: American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Marshall Islands, Puerto Rico, and Republic of Palau

Appendix B.

Demographic Characteristics: Interviews and Focus Groups

Table B.1. Interview and focus group participants by type of provider

Provider Type	Pediatricians	Family Med Providers	Nurses	Non-Clinicians	Medical Assistants
Number of participants	25	2	6	4	1
State					
Connecticut	2	0	1	0	0
New Jersey	3	0	1	0	0
Maryland	3	1	0	0	0
Georgia	4	0	1	2	0
Illinois	6	0	1	0	0
New Mexico	0	0	0	1	0
Nebraska	2	0	2	0	0
Wyoming	1	0	0	0	0
California	4	1	0	1	0
Washington	0	0	0	0	1

Table B.2. Interview and focus group participants by type of practice

Practice Type	Hospital Owned	Privately Owned, Multispecialty	Privately Owned, Single Specialty	Federally Qualified Health Center (FQHC)	Health Department
Number of participants	8	1	24	2	3
State					
Connecticut	0	0	2	0	1
New Jersey	0	1	2	1	0
Maryland	1	0	3	0	0
Georgia	1	0	6	0	0
Illinois	3	0	3	0	1
New Mexico	0	0	1	0	0
Nebraska	0	0	3	0	1
Wyoming	0	0	1	0	0
California	3	0	2	1	0
Washington	0	0	1	0	0

Table B.3. Interview and focus group participants by VFC program participation status

VFC Program Participation Status	VFC Current Participant	VFC Former Participant	VFC Never Participant
Number of participants	34	1	3
State			
Connecticut	3	0	0
New Jersey	3	0	1
Maryland	4	0	0
Georgia	7	0	0
Illinois	7	0	0
New Mexico	1	0	0
Nebraska	4	0	0
Wyoming	1	0	0
California	3	1	2
Washington	1	0	0

Appendix C.

Vaccination Rates by State (Informed Interview/Focus Group Sample)

Table C.1. Routine childhood and pediatric COVID-19 vaccination rates by state

State	% Vax at 35 mos., 7 series, 2017 (CDC*)	% Vax ages 6mos-4yrs , COVID-19 first dose, 2023 (AAP**)
Alabama***	79.9	4
Alaska***	64.6	12
Arizona***	78	11
Arkansas	73.6	6
California***	73.1	17
Colorado***	74.8	22
Connecticut***	84	18
Delaware***	86	12
District of Columbia	72	45
Florida***	72.8	5
Georgia***	71	7
Hawaii	74.5	15
Idaho***	77	6
Illinois***	75.2	17
Indiana***	72.3	8
Iowa	82.7	12
Kansas***	78.8	13
Kentucky***	79	7
Louisiana***	68.2	3
Maine	78.4	23
Maryland***	80	20
Massachusetts***	92.3	28
Michigan***	74.9	12
Minnesota***	80.3	23
Mississippi	75.4	3
Missouri***	78.4	10
Montana	74.1	10
Nebraska***	81.1	12
Nevada***	76.3	5
New Hampshire***	84.6	16
New Jersey***	75.5	12

State	% Vax at 35 mos., 7 series, 2017 (CDC*)	% Vax ages 6mos-4yrs , COVID-19 first dose, 2023 (AAP**)
New Mexico***	71.4	16
New York***	76.4	13
North Carolina***	80.4	12
North Dakota	79.1	12
Ohio***	76.2	11
Oklahoma***	71	5
Oregon***	74	20
Pennsylvania***	80.3	17
Rhode Island***	78.1	18
South Carolina***	71	8
South Dakota	78.8	12
Tennessee***	72.3	6
Texas***	71	9
Utah	82.3	13
Vermont***	83	37
Virginia***	75.7	18
Washington***	76.1	22
West Virginia	79.8	5
Wisconsin***	75.2	16
Wyoming***	72	5

*Source: CDC ChildVaxView, "Combined 7-vaccine Series Vaccination coverage among children 19-35 months by State, HHS Region, and the United States, National Immunization Survey-Child (NIS-Child), 2017." (URL: https://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/7-series/trend/index.html.)

**Source: AAP analysis of data series titled "COVID-19 Vaccinations in the United States, Jurisdiction". CDC COVID -19 Data Tracker (URL:https://data.cdc.gov/Vaccinations/COVID-19-Vaccinations-in-the-United-States-Jurisdi/unsk-b7fc).

***A provider from this state participated in the survey, interview, or focus group.

Appendix D.

Survey Instrument

PROGRAMMER BOX
• PROGRAM AS AN OPEN GENERIC LINK. • OPTIMIZE FOR WEB AND MOBILE. • ADD "BACK," AND "NEXT" BUTTONS ON THE BOTTOM OF EACH PAGE. • SHOW JUST ONE QUESTION PER SCREEN (EXCEPTION- D8/D9). • THE MATHEMATICA AND AIM LOGOS SHOULD BE AT THE TOP OF ALL SCREENS.

Pediatric Vaccination Survey

This survey, sponsored by the Association of Immunization Managers with funding from the Centers for Disease Control and Prevention, is meant to better understand your practice's perceptions of and experiences with pediatric COVID-19 vaccination. We also want to get your thoughts on the potential impact of commercialization of COVID-19 vaccines on pediatric vaccination efforts.

We will ask some brief screening questions to make sure you are eligible to complete this survey. The survey will take about ten minutes to complete. **If you are eligible and complete the survey, you will receive a $20 electronic Amazon gift card.** We will keep all responses confidential.

This survey should be completed by a clinician (such as a physician, nurse practitioner, or physician assistant), nurse, practice administrator, or vaccine program coordinator who is familiar with your practice's pediatric vaccine management practices and, if relevant, your practice's involvement in the Vaccines for Children program. If you are not familiar with these aspects of your practice, please share this survey with someone at your practice who is. This survey should be completed by ONE person at your practice. Please do not forward this survey to anyone outside your practice.

If you work at multiple practice locations, please think of your *primary* practice location where you spend the most time when answering this survey.

Your participation in this survey is voluntary. By continuing, you are consenting to participate in this study. You can decide not to answer any question and can stop the survey at any time for any reason. Your participation in this survey might not benefit you directly but could benefit others, as your responses may help inform COVID-19 vaccination efforts for children. We do not anticipate any risks associated with your participation.

If you have any questions or concerns about this survey, want more information, or want a copy of the information found on this screen, please contact the project team at PediatricVaccineScan@mathematica-mpr.com.

PROGRAMMER BOX
PLEASE DO NOT DISPLAY THE HEADER IN THIS SECTION. PLEASE DO DISPLAY LEAD-IN TEXT ON THE SAME SCREEN AS S1.

S. Screening Section

Please answer these initial questions about your practice.

ALL
IF S1 = 0, ROUTE TO 'CLOSE1'

S1. Does your practice provide health care services to children and youth younger than age 19?

m Yes 1

m No 0

PROGRAMMER BOX
IF S1 = 0, ROUTE TO 'CLOSE1'
HARD CHECK: IF S1 = NO RESPONSE; You have left the question blank. Please provide an answer before proceeding.

S1=1
IF S2=1, SKIP S3 AND ROUTE TO S4 IF S2=0, ASK S3

S2. Does your practice provide routine (non-COVID-19) vaccinations to children and youth younger than age 19?

m Yes 1

m No 0

PROGRAMMER BOX
IF S2=1, SKIP S3 AND ROUTE TO S4 IF S2=0, ASK S3
HARD CHECK: IF S2 = NO RESPONSE; You have left the question blank. Please provide an answer before proceeding.

S2 = 0
AFTER S3 IS ANSWERED, ROUTE TO 'CLOSE1'

S3. Which of the following are reasons why your practice is not providing routine (non-COVID-19) childhood vaccinations to children and youth younger than age 19? *Please select all that apply.*

o	Cost of routine vaccines and supplies	1
o	Administrative burden of administering vaccinations (for example, chart documentation, reporting to immunization information systems, vaccine storage and handling, and so on)	2
o	Vaccine hesitancy from parents and children	3
o	Vaccine hesitancy from clinicians at the practice	4
o	The practice is not a primary care provider and does not administer vaccinations	5
o	There are not enough children in the practice to warrant offering vaccines	6
o	Pediatric patients can get vaccinated elsewhere, so vaccination services are not needed at the practice	7
o	Other, please specify	99

Specify [ ] (STRING 100)

NO RESPONSE M

PROGRAMMER BOX
AFTER S3 IS ANSWERED, ROUTE TO 'CLOSE1'
SOFT CHECK: IF S3= NO RESPONSE; You have left the question blank. Please provide an answer before proceeding.

S2 =1
IF S4 = 1, GO TO A1 IF S4 = 2, GO TO B1 IF S4 = 3, GO TO C1 IF S4 = d, ROUTE TO CLOSE1

S4. Is your practice currently participating in the Vaccines for Children (VFC) program? VFC is a federally funded program that provides vaccines at no cost to eligible children, including those eligible for Medicaid, those who are underinsured or uninsured, and children who are American Indian or Alaska Native.

❍	Yes	1
❍	No, and the practice has *never* participated in the program	2
❍	No, but the practice has participated in the past	3
❍	Don't know	d

PROGRAMMER BOX
IF S4 = 1, GO TO A1

IF S4 = 2, GO TO B1 IF S4 = 3, GO TO C1 IF S4 = d, ROUTE TO CLOSE1
HARD CHECK: IF S4 = NO RESPONSE; You have left the question blank. Please provide an answer before proceeding.

S1=0, S2=0 OR S4=d

CLOSE1. **Thank you for your answers to these questions. Based on the answers provided, you are not eligible for this survey. We appreciate your time!**

PROGRAMMER BOX
IF RESPONDENT RECEIVES 'CLOSE1', STATUS CASE AS SCREENED

PROGRAMMER BOX
PLEASE DO NOT DISPLAY THE HEADER IN THIS SECTION. PLEASE DO DISPLAY LEAD-IN TEXT ON THE SAME SCREEN AS A1.

A. VFC PROGRAM PARTICIPANTS

The next several questions ask about your practice's experience participating in the VFC program.

S4 = 1

A1. How long has your practice participated in the VFC program?

❍ Less than 1 year	1
❍ 1 year to less than 5 years	2
❍ 5 years to less than 10 years	3
❍ 10 years or more	4
❍ Don't know	d
NO RESPONSE	M

S4 = 1

IF A2 = 1 OR M, ASK A3

IF A2 = 0 OR d, SKIP TO D1

A2. Has your practice ever considered ending its participation in the VFC program?

❍ Yes	1
❍ No	0
❍ Don't know	d
NO RESPONSE	M

A2 = 1 OR M

IF A3 = 6, ASK A4

IF A3 DOES NOT = 6, SKIP TO D1

A3. For which of the following reasons has your practice considered ending its participation in the VFC program? *Please select all that apply.*

o Burden of inventory reporting requirements	1
o Burden of vaccine administration reporting requirements	2
o Costs to the practice related to program participation	3
o Practice staff resources too limited	4

o Not enough children in the practice to warrant participation	5
o Impacts of the COVID-19 pandemic	6
o Other, please specify	99
Specify [ ] (STRING 300)	
NO RESPONSE	M

A3 = 6

A4. How did the COVID-19 pandemic affect your practice's consideration to end its participation in the VFC program?

[ ]

NO RESPONSE M
(String 3,000)

PROGRAMMER BOX

PLEASE DO NOT DISPLAY THE HEADER IN THIS SECTION. PLEASE DO DISPLAY LEAD-IN TEXT ON THE SAME SCREEN AS B1.

B. Non-VFC Program Participants (have never participated in the VFC program)

This section asks about your practice's non-participation in the VFC program.

S4 = 2

B1. Has your practice ever considered participating in the VFC program?

❍ Yes	1
❍ No	0
❍ Don't know	d
NO RESPONSE	M

S4 = 2

IF B2 = 6, ASK B3

IF B2 DOES NOT = 6, SKIP TO D1

B2. For which of the following reasons has your practice not participated in the VFC program?
Please select all that apply.

o Burden of inventory reporting requirements	1
o Burden of vaccine administration reporting requirements	2
o Costs to the practice related to program participation	3
o Practice staff resources too limited	4
o Not enough children in the practice to warrant participation	5
o Impacts of the COVID-19 pandemic	6
o Other, please specify	99

Specify [ ] (STRING 300)

NO RESPONSE M

B2 = 6

B3. How did the COVID-19 pandemic impact your practice's decision to not participate in the VFC program?

[ ]

NO RESPONSE M

(String 3,000)

PROGRAMMER BOX
PLEASE DO NOT DISPLAY THE HEADER IN THIS SECTION. PLEASE DO DISPLAY LEAD-IN TEXT ON THE SAME SCREEN AS C1.

C. Former VFC Program Participants

The next several questions ask about your practice's previous participation in the VFC program.

S4 = 3

C1. When did your practice stop participating in the VFC program?

❍ Less than 1 year ago	1
❍ 1 year to less than 5 years ago	2
❍ 5 years to less than 10 years ago	3
❍ 10 years ago or more	4
❍ Don't know	d
NO RESPONSE	M

S4 = 3

IF C2 = 6, ASK C3

IF C2 DOES NOT = 6, SKIP TO D1

C2. For which of the following reasons did your practice stop participating in the VFC program?
Please select all that apply.

o Burden of inventory reporting requirements	1
o Burden of vaccine administration reporting requirements	2
o Costs to the practice related to program participation	3
o Practice staff resources too limited	4
o Not enough children in the practice to warrant participation	5
o Impacts of the COVID-19 pandemic	6
o Other, please specify	99
Specify ☐ (STRING 300)	
NO RESPONSE	M

C2 = 6

C3. How did the COVID-19 pandemic affect your practice's decision to stop participating in the VFC program?

☐

NO RESPONSE (String 3,000)	M

PROGRAMMER BOX
PLEASE DO NOT DISPLAY THE HEADER IN THIS SECTION. PLEASE DO DISPLAY LEAD-IN TEXT ON THE SAME SCREEN AS D1.

D. Vaccinations

This next section asks about your practice's experience with all childhood vaccinations.

S4=1, 2, OR 3

D1. For what ages does your practice currently provide routine (non-COVID-19) childhood vaccinations? *Please select all that apply.*

o	Newborn through 4 years	1
o	5 through 11 years	2
o	12 through 18 years	3
	NO RESPONSE	M

S4=1, 2, OR 3

IF D2 = 1, 4 OR M, ASK D3

IF D2 =2,3, OR 5, SKIP TO D4

D2. Does your practice currently provide COVID-19 vaccines to the following groups? *Please select all that apply.*

o	Current pediatric patients of the practice (6 months through 18 years)	1
o	Young adult patients of the practice (age 19 and older)	2
o	Adult family members of current pediatric patients	3
o	Community members (adults or children who are *not* associated with the practice)	4
❍	We do not administer COVID-19 vaccines	5
	NO RESPONSE	M

D2 = 1, 4 OR M

D3. For what ages does your practice currently provide COVID-19 vaccines? *Please select all that apply.*

o	6 months through 4 years	1
o	5 through 11 years	2
o	12 through 18 years	3
	NO RESPONSE	M

IF D2 = 2, 3 , 5 AND D2=1, 4, M ARE NOT SELECTED OR D3=IS NOT ALL SELECTED OR M

D4. You have indicated that your practice does not provide COVID-19 vaccinations to some or all pediatric age groups. Which of the following are reasons that your practice does not provide COVID-19 vaccinations to children of all ages? *Please select all that apply.*

o Only available in multi-dose vials (which can lead to increased vaccinator workload, wastage, administrative burden, and so on)	1
o Minimum order size too large	2
o Inventory reporting requirements	3
o Vaccine administration reporting requirements	4
o Storage and handling requirements (that is, dorm-style units prohibited, must use digital data logger, temp monitoring documentation, ultra-cold storage requirements)	5
o The administration that manages this practice made the decision	6
o Payment for COVID-19 vaccine administration is too low	7
o Costs to the practice related to vaccinating the uninsured	8
o This practice has limited storage space for vaccines, supplies, or both	9
o Not enough children in the practice to warrant participation	10
o Parent or caregiver hesitancy	11
o Lack of strong endorsement of COVID-19 vaccination for children by practice leaders	12
o Practice staff resources too limited	13
o Staff lack confidence to discuss or promote COVID-19 vaccination with parents and caregivers	14
o Do not want to participate in quality assurance site visits	15
o Security concerns (for example, from anti-vaccine activists, community pushback, or public harassment)	16
o Low demand for COVID-19 vaccinations	17
o Patients have access to the vaccine elsewhere in the community, so my practice is not needed as a vaccination provider	18
o Other, please specify	99

Specify ☐ (STRING 100)

NO RESPONSE M

IF D2 = 2, 3 , 5 AND D2=1, 4, M ARE NOT SELECTED OR D3=IS NOT ALL SELECTED OR M
SHOW ALL RESPONSE OPTIONS ON ONE SCREEN.
DO NOT ALLOW RESPONDENT TO SELECT MORE THAN 3 OPTIONS

D5. Which of the following would *most* encourage your practice's participation in the pediatric COVID-19 vaccination effort? *Please select up to three.*

o Simpler enrollment process	1
o Reduced inventory reporting requirements	2
o Reduced vaccine administration reporting requirements	3
o Support with reporting requirements (for example, doses administered data entry)	4
o Better payment for COVID-19 vaccine administration	5
o Availability of resources to help staff discuss and promote pediatric COVID-19 vaccination with parents and guardians	6
o Availability of smaller vial size to minimize waste	7
o Ability to hire or retain additional staff	8
o Higher demand for pediatric COVID-19 vaccination among parents and caregivers	9
o Greater number of children in the practice	10
o Other, please specify	99
Specify [ ] (STRING 100)	
❍ None of the above	0
NO RESPONSE	M

S4=1, 2, OR 3

D6. When the federal government stops providing COVID-19 vaccines at no cost, how likely or unlikely is it that your practice will purchase pediatric COVID-19 vaccines for privately insured patients?

❍ Very likely	1
❍ Somewhat likely	2
❍ Somewhat unlikely	3
❍ Very unlikely	4
❍ I am not involved in decision making to purchase pediatric vaccines	5
❍ Not applicable: My practice is in a universal vaccine purchase state	6
NO RESPONSE	M

S4 = 2 OR 3

D7. How likely or unlikely is it that your practice will enroll in the VFC program in order to offer COVID-19 vaccinations to VFC-eligible children?

❍ Very likely	1

❍ Somewhat likely	2
❍ Somewhat unlikely	3
❍ Very unlikely	4
NO RESPONSE	M

S4 = 1
IF D8= 1, MAKE D9 APPEAR ON SAME SCREEN AS D8 ONCE D8 IS SELECTED IF D8 DOES NOT EQUAL 1, GO TO D10

D8. The COVID-19 vaccine was recently added to the list of Advisory Committee on Immunization Practices (ACIP)-recommended childhood vaccines and approved for the VFC program. To help prevent fraud and abuse of VFC vaccines, the VFC program requires program participants to (1) provide ALL ACIP-recommended vaccines (including COVID-19) to VFC-eligible patients and (2) to stock privately purchased inventory of COVID-19 vaccines for non-VFC-eligible patients.

In light of the above requirements, will your practice continue participation in the VFC program?

❍ Yes	1
❍ No	0
❍ Unsure	d
❍ Not applicable: My practice is in a universal vaccine purchase state	2
NO RESPONSE	M

D8= 1
DYNAMIC QUESTION- IF D8 = 1, D9 SHOULD APPEAR ON THE SAME SCREEN AS D8.

D9. Please explain why these requirements will affect your practice's decision to participate in VFC.

NO RESPONSE M

(String 3,000)

S4=1, 2, OR 3

D10. Please provide any additional thoughts or comments you have about COVID-19 vaccinations for children, either in your practice or in general.

NO RESPONSE	M
(String 3,000)	

PROGRAMMER BOX
PLEASE DO NOT DISPLAY THE HEADER IN THIS SECTION. PLEASE DO DISPLAY LEAD-IN TEXT ON THE SAME SCREEN AS E1.

E. Practice and Professional Characteristics

In this last section, we will ask about aspects of your practice and your professional experience.

S4=1, 2, OR 3

E1. What is your profession?

❍ Physician	1
❍ Nurse practitioner	2
❍ Physician assistant	3
❍ Nurse, nurse manager, or vaccine coordinator	4
❍ Office manager or other practice administrator	5
❍ Other	99
Specify ☐ (STRING 100)	
NO RESPONSE	M

S4=1, 2, OR 3

PLEASE BOLD "PRIMARY" IN QUESTION STEM
PLEASE ITALICIZE "BEST" IN QUESTION STEM

E2. Which of the following *best* describes your practice's primary specialty?

❍ Family medicine	1
❍ General practice	2
❍ Internal medicine and pediatrics	3
❍ Pediatrics	4
❍ Other, please specify	99
Specify ☐ (STRING 100)	
NO RESPONSE	M

S4=1, 2, OR 3

PLEASE ITALICIZE "BEST" IN QUESTION STEM

E3. Which of the following *best* describes your practice?

❍ Private practice	1
❍ Community health center	2
❍ Federally Qualified Health Center	3

❍ Hospital or health system-owned practice	4
❍ Public health department clinic (state/local)	5
❍ Rural Health Clinic	6
❍ Urgent care center	7
❍ Other, please specify	99
Specify [ ] (STRING 100)	
NO RESPONSE	M

S4=1, 2, OR 3
NUMERIC. RANGE IS 0–99.

E4. **How many clinicians provide direct patient care at your practice?** *Please include all physicians, nurse practitioners, and physician assistants at your practice.*

_____ Clinicians

NO RESPONSE ..... M

S4=1, 2, OR 3
NUMERIC. RANGE IS 0–99.

E5. **How many full-time equivalents (FTEs) do these clinicians represent?** *Please include all physicians, nurse practitioners, and physician assistants at your practice.*

_____ FTEs

NO RESPONSE ..... M

S4=1, 2, OR 3
INCLUDE SOFT CHECK FOR VALID 5-DIGIT RESPONSES: "Please provide a valid zip code with 5 digits."

E6. **What is the zip code of your primary practice location?**

_____

NO RESPONSE M

S4=1, 2, OR 3
PLEASE BOLD "QUALIFY" IN THE QUESTION STEM

E7. **About what percentage of your practice's pediatric patients qualify for VFC (regardless of whether you give them VFC vaccines)?** *This includes patients who are uninsured, underinsured, covered by Medicaid, and Alaska Native or American Indian. Your best estimate is OK.*

❍ 0 to less than 10 percent	1
❍ 10 to less than 25 percent	2
❍ 25 to less than 50 percent	3

❍ 50 to less than 75 percent 4

❍ 75 to 100 percent 5

NO RESPONSE M

S4=1, 2, OR 3

E8. Thank you for your responses! As a token of our appreciation, we are pleased to offer you a $20 electronic Amazon gift card. If you would like to receive the gift card, please check the box below and provide your email address.

❑ Yes, please send a $20 electronic Amazon gift card to the email address below.

NO RESPONSE M

PROGRAMMER BOX
FOR EMAIL, ALLOW A STRING OF 60.
INCLUDE HARD CHECK FOR INVALID EMAILS AND BLANK: "Please provide a valid email address."

E8_Email.

Email address_____

For more information about the VFC program, please visit
https://www.cdc.gov/vaccines/programs/vfc/index.html

Appendix E.

Interview and Focus Group Guides

Provider Interview Guide: VFC Participant (CDC approved 6/7/23)

Consent

Introduction
Hello, my name is [*INSERT FACILITATOR/INTERVIEWER'S NAME*] and I am a [*INSERT POSITION*] at [*MATHEMATICA*]. I am joined by *[INTRODUCE NOTETAKER]*. Thank you for taking the time to meet with us today. As you know we are conducting a study for the Association of Immunization Managers (AIM) with funding from the Centers for Disease Control and Prevention. Our call today is to discuss your perceptions of and experiences with pediatric COVID-19 vaccination and to get your thoughts on the potential impact of the inclusion of COVID-19 vaccines in the Vaccines for Children program. We hope that the information gathered from these interviews may help inform COVID-19 immunization efforts for children.

Time Commitment
We'll spend about [*FOR FOCUS GROUPS:* one hour*/FOR INTERVIEWS:* 30-45 minutes*]* together for this [*FOCUS GROUP/INTERVIEW*].

Voluntary Participation
Your participation in this [*FOCUS GROUP/INTERVIEW*] is voluntary. If you don't want to participate, it is OK. If you agree to participate, you can decide not to answer any question and can stop the interview at any time for any reason.

Confidentiality
The information you provide will be strictly confidential and never connected to you. No one outside of the research team will know that you participated in the interview or focus group or what you have said. [FOCUS GROUP ONLY: To respect participants' confidentiality, please do not share information we discuss with people outside the group.]

Uses of the Data
Only the researchers from the Mathematica-AIM team will have access to the information you provide. We will share the combined information we gather with AIM in a summary report but will never use your name and no one will ever know what answers you gave. All the information we gather will be stored securely under the care of the lead researcher. We will destroy the information at the end of the study.

Risks & Benefits
Your participation in this [*FOCUS GROUP/INTERVIEW]* may not benefit you directly, but it may benefit others, as your responses may help inform COVID-19 immunization efforts for children. We do not see any risks associated with your participation.

Verbal Consent and Contact Information
We're happy to answer any questions you have about participating in this [*FOCUS GROUP/INTERVIEW*]. You can ask questions at any time [*FOR FOCUS GROUPS:* by private chat] during this discussion.

- Do you have any questions now?
- Do you understand everything I have explained?
- Do you agree to participate in this [*FOCUS GROUP/INTERVIEW*]?
    - [*FOR FOCUS GROUPS ONLY]* Please indicate your agreement with a thumbs up or down.
- You may also contact [facilitator name] at [email]@mathematica-mpr.com if you have any questions or concerns after our discussion.

Recording
We would like to record this discussion as a backup to our notes. The recording will not be shared with anyone beyond the researchers conducting this study and will be destroyed after we complete our summary report.

- Is it okay with you if we record? [*FOR FOCUS GROUPS ONLY]* Please indicate your agreement with a thumbs up or down.

We will share a copy of this information by email following our meeting.

Discussion Questions

1) Before we jump in, can you tell me a bit about your practice?
    a. What kind of practice are you in?
        i. PROMPT: For example, FQHC, community health center, hospital-owned practice, privately owned multispecialty practice, privately owned single specialty practice, health department?
        ii. What insurance types does your practice accept?
            1. PROMPT: Does your practice accept Medicaid?
    b. How large is your practice?
        i. PROMPT: Approximately how many MDs, DOs, NPs, and PAs do you have?
    c. Please tell me a little about your patient population.
        i. PROMPT: For example, roughly what proportion of patients are children aged 6 months through 11 years? What proportion of patients are uninsured, underinsured, covered by Medicaid, Alaska Native/American Indian?

I'd like to start out by learning about your relationship to the Vaccines for Children program.

2) Are you currently participating in the Vaccines for Children program?
    a. If yes, for how long? ➞ GO TO VFC PARTICIPANT [GREEN HEADING] QUESTIONS
    b. If no, have you ever participated?
        i. If yes, for how long? When did you stop?
            1. To help me determine which topics we should discuss today, can you tell me briefly why you stopped participating? For example, because you moved practices, because your practice decided to end participation, or some other reason? IF OPTED TO END PARTICIPATION, GO TO PREVIOUS VFC PARTICIPANT [YELLOW HEADING] QUESTIONS

➞ IF MOVED PRACTICES, GO TO VFC PARTICIPANT [GREEN HEADING] QUESTIONS, ADJUST QUESTIONS AS NEEDED

        ii. If no ➞ GO TO NON VFC PARTICIPANT [RED HEADING] QUESTIONS

PARTICIPANT QUESTIONS START HERE

Section 1. Now I'd like to discuss your experience with the VFC program.

3) Do you know why your practice first decided to participate in the VFC program?
    a. PROMPT: What about the VFC program made you or your practice partners think it would be beneficial for your practice?
    b. *[IF TIME ALLOWS]* What about the program works well for you and your practice?
4) Has your practice considered, or is it likely to consider, ending its participation in the VFC program? If yes, why?
    a. PROMPT: What about the VFC program presents challenges?
    b. *[IF TIME ALLOWS]* What strategies has your practice used to address some of those challenges?

Section 2. The next few questions are about how your practice handles COVID vaccines.

5) Does your practice currently offer the COVID-19 vaccine to your pediatric patients? Why or why not?

IF YES

a. What ages do you currently vaccinate?
b. How many different preparations do you stock? Do you stock more than one manufacturer?
c. Do you, your partners and your staff agree on whether or not to recommend COVID-19 vaccines to your pediatric patients?
d. Is there anything that makes it difficult to offer COVID-19 vaccines to your pediatric patients?
e. Is there anything that would make it easier to offer COVID-19 vaccines to your pediatric patients?
    i. [If not vaccinating children ages 6 months – 4 years]: What would need to change for you to consider providing COVID-19 vaccines to children as young as 6 months?
f. The COVID-19 vaccine was recently added to the list of ACIP-recommended childhood vaccines and approved for the VFC Program. To help prevent fraud and/or abuse of VFC vaccines, the VFC program requires program participants to stock private inventory for all ACIP-recommended vaccines for the non-VFC-eligible patients in their practice. Will this requirement as it applies to COVID vaccines have any impact on your decision to continue participating in the VFC program?
    a. PROMPT: Please tell me more about why this will or will not affect your practice's participation in VFC.
    b. PROMPT: Do you have concerns about how this requirement might affect your practice?

GO TO SECTION 3

IF NO

a. Do you, your partners and your staff agree on whether or not to recommend COVID-19 vaccines to your pediatric patients?
b. What would need to change for you to consider providing COVID-19 vaccines to children?
c. The COVID-19 vaccine was recently added to the list of ACIP-recommended childhood vaccines and approved for the VFC Program. To help prevent fraud and/or abuse of VFC vaccines, the VFC program requires program participants to stock private inventory for all ACIP-recommended vaccines for the non-VFC-eligible patients in their practice. Will this requirement as it applies to COVID vaccines have any impact on your decision to continue participating in the VFC program?
    a. PROMPT: Please tell me more about why this will or will not affect your practice's participation in VFC.
    b. PROMPT: Do you have concerns about how this requirement might affect your practice?

Section 3. I'd like to wrap up by hearing any final thoughts you have about COVID-19 vaccination for children or the VFC program.

6) If you could change one thing to increase COVID-19 immunization among children in the United States, what would it be?
    a. PROMPT: For example, continue making COVID-19 vaccines free, combat vaccine hesitancy among parents, reduce the number of doses per vial, something else?
7) Would you like to share any other thoughts about COVID-19 vaccines for children or their inclusion in the VFC program?

Thank you for your participation! We appreciate your candid input. Please feel free to reach out anytime if you have any questions or think of additional information you'd like to share. Our contact information can be found on the consent and information sheet you received via email.

Provider Interview Guide: VFC Former Participant (CDC approved 6/7/23)

Consent

Introduction

Hello, my name is [*INSERT FACILITATOR/INTERVIEWER'S NAME*] and I am a [*INSERT POSITION*] at [*MATHEMATICA*]. I am joined by *[INTRODUCE NOTETAKER]*. Thank you for taking the time to meet with me/us today. As you know, we are conducting a study for the Association of Immunization Managers (AIM) with funding from the Centers for Disease Control and Prevention. Our call today is to discuss your perceptions of and experiences with pediatric COVID-19 vaccination and to get your thoughts on the potential impact of the inclusion of COVID-19 vaccines in the Vaccines for Children program. We hope that the information gathered from these interviews may help inform COVID-19 immunization efforts for children.

Time Commitment

We'll spend about [*FOR FOCUS GROUPS*: one hour/*FOR INTERVIEWS*: 30-45 minutes] together for this [*FOCUS GROUP/INTERVIEW*].

Voluntary Participation

Your participation in this [*FOCUS GROUP/INTERVIEW*] is voluntary. If you don't want to participate, it is OK. If you agree to participate, you can decide not to answer any question and can stop the interview at any time for any reason.

Confidentiality

The information you provide will be strictly confidential and never connected to you. No one outside of the research team will know that you participated in the interview or focus group or what you have said. [FOCUS GROUP ONLY: To respect participants' confidentiality, please do not share information we discuss with people outside the group.]

Uses of the Data

Only the researchers from the Mathematica-AIM team will have access to the information you provide. We will share the combined information we gather with AIM in a summary report but will never use your name and no one will ever know what answers you gave. All the information we gather will be stored securely under the care of the lead researcher. We will destroy the information at the end of the study.

Risks & Benefits

Your participation in this [*FOCUS GROUP/INTERVIEW]* may not benefit you directly, but it may benefit others, as your responses may help inform COVID-19 immunization efforts for children. We do not see any risks associated with your participation.

Verbal Consent and Contact Information
We're happy to answer any questions you have about participating in this [*FOCUS GROUP/INTERVIEW*]. You can ask questions at any time [*FOR FOCUS GROUPS:* by private chat] during this discussion.

- Do you have any questions now?
- Do you understand everything I have explained?
- Do you agree to participate in this [*FOCUS GROUP/INTERVIEW*]?
    - [*FOR FOCUS GROUPS ONLY]* Please indicate your agreement with a thumbs up or down.
- You may also contact [facilitator name] at [email]@mathematica-mpr.com if you have any questions or concerns after our discussion.

Recording
We would like to record this discussion as a backup to our notes. The recording will not be shared with anyone beyond the researchers conducting this study and will be destroyed after we complete our summary report.

- Is it okay with you if we record? [*FOR FOCUS GROUPS ONLY]* Please indicate your agreement with a thumbs up or down.

We will share a copy of this information by email following our meeting.

Discussion Questions

8) Before we jump in, can you tell me a bit about your practice?
    a. What kind of practice are you in?
        i. PROMPT: For example, FQHC, community health center, hospital-owned practice, privately owned multispecialty practice, privately owned single specialty practice, health department?
        ii. What insurance types does your practice accept?
            1. PROMPT: Does your practice accept Medicaid?
    b. How large is your practice?
        i. PROMPT: Approximately how many MDs, DOs, NPs, and PAs do you have?
    c. Please tell me a little about your patient population.
        i. PROMPT: For example, roughly what proportion of patients are children aged 6 months through 11 years? What proportion of patients are uninsured, underinsured, covered by Medicaid, Alaska Native/American Indian?

I'd like to start out by learning about your relationship to the Vaccines for Children program.

9) Are you currently participating in the Vaccines for Children program?
    a. If yes, for how long? ➞ GO TO VFC PARTICIPANT [GREEN HEADING] QUESTIONS
    b. If no, have you ever participated?
        i. If yes, for how long? When did you stop?
            1. To help me determine which topics we should discuss today, can you tell me briefly why you stopped participating? For example, because you moved practices, because your practice decided to end participation, or some other reason? IF OPTED TO END PARTICIPATION, GO TO PREVIOUS VFC PARTICIPANT [YELLOW HEADING] QUESTIONS

➞ IF MOVED PRACTICES, GO TO VFC PARTICIPANT [GREEN HEADING] QUESTIONS, ADJUST QUESTIONS AS NEEDED

        ii. If no ➞ GO TO NON VFC PARTICIPANT [RED HEADING] QUESTIONS

FORMER PARTICIPANT QUESTIONS START HERE

Section 1. Now I'd to hear more about your experience with the VFC program and what contributed to your decision not to participate.

10) I'd like to hear about how you decided to participate in VFC and how you eventually decided to end your participation.
    a. Do you know why your practice first decided to participate in the VFC program?
        i. What about the VFC program made you think it would be beneficial for you or your practice?
    b. Do you know why your practice stopped participating in the program?
    c. What role did your practice partners and/or staff play in the decision to start – and end – VFC participation?
11) Has your practice considered, or is it likely to consider, re-joining the VFC program? Why or why not?

Section 2. The next few questions are about how your practice handles COVID vaccines.

12) Does your practice currently administer all ACIP/CDC recommended vaccines for pediatric patients in your office (excluding COVID-19 vaccines)? Why or why not?
13) Does your practice currently recommend COVID-19 vaccines to your pediatric patients? Why or why not?
14) Does your practice currently offer the COVID-19 vaccine to your pediatric patients? Why or why not?

IF YES

a. What age range do you currently vaccinate?
b. How many different preparations do you stock? Do you stock more than one manufacturer?
c. Do you, your partners and your staff agree on whether or not to recommend COVID-19 vaccines to your pediatric patients?
d. Is there anything that makes it difficult to offer COVID-19 vaccines to your pediatric patients?
e. Is there anything that would make it easier to offer COVID-19 vaccines to your pediatric patients?
    i. [If not vaccinating children ages 6 months – 4 years]: What would need to change for you to consider providing COVID-19 vaccines to children as young as 6 months?

GO TO SECTION 3

IF NO

a. Do you, your partners and your staff agree on whether or not to recommend COVID-19 vaccines to your pediatric patients?
b. What would need to change for you to consider providing COVID-19 vaccines to children?
c. Thinking about the upcoming movement of COVID-19 vaccines to the commercial market and the end of the federal government providing those vaccines at no charge, how likely is it that you will purchase pediatric COVID-19 vaccines to give to your patients in the future?

Section 3. I'd like to wrap up by hearing any final thoughts you have about COVID-19 vaccination for children.

15) If you could change one thing to increase COVID-19 immunization among children in the United States, what would it be?
    a. PROMPT: For example, continue making COVID-19 vaccines free, combat vaccine hesitancy among parents, reduce the number of doses per vial, something else?
16) Would you like to share any other thoughts about COVID-19 vaccines for children or their inclusion in the VFC program?

Thank you for your participation! We appreciate your candid input. Please feel free to reach out anytime if you have any questions or think of additional information you'd like to share. Our contact information can be found on the consent and information sheet you received via email.

Provider Interview Guide: VFC Non-Participant (CDC approved 6/7/23)

Consent

Introduction

Hello, my name is [INSERT FACILITATOR/INTERVIEWER'S NAME] and I am a [INSERT POSITION] at [MATHEMATICA]. I am joined by [INTRODUCE NOTETAKER]. Thank you for taking the time to meet with us today. As you know, we are conducting a study for the Association of Immunization Managers (AIM) with funding from the Centers for Disease Control and Prevention. Our call today is to discuss your perceptions of and experiences with pediatric COVID-19 vaccination and to get your thoughts on the potential impact of the inclusion of COVID-19 vaccines in the Vaccines for Children program. We hope that the information gathered from these interviews may help inform COVID-19 immunization efforts for children.

Time Commitment

We'll spend about [*FOR FOCUS GROUPS:* one hour*/FOR INTERVIEWS:* 30-45 minutes*]* together for this [*FOCUS GROUP/INTERVIEW*].

Voluntary Participation

Your participation in this [*FOCUS GROUP/INTERVIEW*] is voluntary. If you don't want to participate, it is OK. If you agree to participate, you can decide not to answer any question and can stop the interview at any time for any reason.

Confidentiality

The information you provide will be strictly confidential and never connected to you. No one outside of the research team will know that you participated in the interview or focus group or what you have said. [FOCUS GROUP ONLY: To respect participants' confidentiality, please do not share information we discuss with people outside the group.]

Uses of the Data

Only the researchers from the Mathematica-AIM team will have access to the information you provide. We will share the combined information we gather with AIM in a summary report but will never use your name and no one will ever know what answers you gave. All the information we gather will be stored securely under the care of the lead researcher. We will destroy the information at the end of the study.

Risks & Benefits

Your participation in this [*FOCUS GROUP/INTERVIEW]* may not benefit you directly, but it may benefit others, as your responses may help inform COVID-19 immunization efforts for children. We do not see any risks associated with your participation.

Verbal Consent and Contact Information
We're happy to answer any questions you have about participating in this [*FOCUS GROUP/INTERVIEW*]. You can ask questions at any time [*FOR FOCUS GROUPS:* by private chat] during this discussion.

- Do you have any questions now?
- Do you understand everything I have explained?
- Do you agree to participate in this [*FOCUS GROUP/INTERVIEW*]?
    - [*FOR FOCUS GROUPS ONLY]* Please indicate your agreement with a thumbs up or down.
- You may also contact [facilitator name] at [email]@mathematica-mpr.com if you have any questions or concerns after our discussion.

Recording
We would like to record this discussion as a backup to our notes. The recording will not be shared with anyone beyond the researchers conducting this study and will be destroyed after we complete our summary report.

- Is it okay with you if we record? [*FOR FOCUS GROUPS ONLY]* Please indicate your agreement with a thumbs up or down.

We will share a copy of this information by email following our meeting.

Discussion Questions

1) Before we jump in, can you tell me a bit about your practice?
    a. What kind of practice are you in?
        i. PROMPT: For example, FQHC, community health center, hospital-owned practice, privately owned multispeciality practice, privately owned single specialty practice, health department?
        ii. What insurance types does your practice accept?
            1. PROMPT: Does your practice accept Medicaid?)
    b. How large is your practice?
        i. PROMPT: Approximately how many MDs, DOs, NPs, and PAs do you have?
    c. Please tell me a little about your patient population.
        i. PROMPT: For example, roughly what proportion of patients children aged 6 months through 11 years? What proportion of patients are uninsured, underinsured, covered by Medicaid, Alaska Native/American Indian?

I'd like to start out by learning about your relationship to the Vaccines for Children program.

2) Are you currently participating in the Vaccines for Children program?
   a. If yes, for how long? ➞ GO TO VFC PARTICIPANT [GREEN HEADING] QUESTIONS
   b. If no, have you ever participated?
      i. If yes, for how long? When did you stop?
         1. To help me determine which topics we should discuss today, can you tell me briefly why you stopped participating? For example, because you moved practices, because your practice decided to end participation, or some other reason? IF OPTED TO END PARTICIPATION, GO TO PREVIOUS VFC PARTICIPANT [YELLOW HEADING] QUESTIONS

➞ IF MOVED PRACTICES, GO TO VFC PARTICIPANT [GREEN HEADING] QUESTIONS, ADJUST QUESTIONS AS NEEDED

      ii. If no ➞ GO TO NON VFC PARTICIPANT [RED HEADING] QUESTIONS

NON-PARTICIPANT QUESTIONS START HERE

Section 1: Now I'd to hear more about your thoughts about the VFC program and how you decided not to participate.

3) How much would you say you know about the VFC program?

IF RESPONDENT DOES NOT KNOW ABOUT THE VFC PROGRAM:

   a. The Vaccines for the Children program, or VFC, is a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay. Just to be sure I understand, you don't recall making a decision about whether or not to participate in that kind of program?

GO TO SECTION 2

IF RESPONDENT IS FAMILIAR WITH VFC BUT DECIDED NOT TO PARTICIPATE:

   a. Do you know why your practice decided not to participate in the program?
      i. What about the VFC program made you or your practice partners think it would not be a good fit for your practice?

   ii. What role did your practice partners and/or staff play in the decision not to participate?
b. Has your practice considered, or is it likely to consider, joining the VFC program? If yes, why?

Section 2: The next few questions are about how your practice handles pediatric vaccines, particularly those for COVID-19.

4. Does your practice currently administer all ACIP/CDC recommended vaccines for your pediatric patients in your office (excluding COVID-19 vaccines)? Why or why not?
5. Does your practice currently recommend COVID-19 vaccines to your pediatric patients? Why or why not?
6. Does your practice currently offer the COVID-19 vaccine to your pediatric patients? Why or why not?

IF YES

f. What ages do you currently vaccinate?
g. How many different preparations do you stock? Do you stock more than one manufacturer?
h. Do you, your partners and your staff agree on whether or not to recommend COVID-19 vaccines to your pediatric patients?
i. Is there anything that makes it difficult to offer COVID-19 vaccines to your pediatric patients?
j. Is there anything that would make it easier to offer COVID-19 vaccines to your pediatric patients?
   i. [If not vaccinating children ages 6 months – 4 years]: What would need to change for you to consider providing COVID-19 vaccines to children as young as 6 months?

GO TO SECTION 3

IF NO

a. Do you, your partners and your staff agree on whether or not to recommend COVID-19 vaccines to your pediatric patients?
b. What would need to change for you to consider providing COVID-19 vaccines to children?
c. Thinking about the upcoming movement of COVID-19 vaccines to the commercial market and the end of the federal government providing those vaccines at no charge, how likely is it that you will purchase pediatric COVID-19 vaccines to give to your patients in the future?

Section 3: I'd like to wrap up by hearing any final thoughts you have about COVID-19 vaccination for children or the VFC program.

7. If you could change one thing to increase COVID-19 immunization among children in the United States, what would it be?
    a. PROMPT: For example, continue making COVID-19 vaccines free, combat vaccine hesitancy among parents, reduce the number of doses per vial, something else?
8. Would you like to share any other thoughts about COVID-19 vaccines for children or their inclusion in the VFC program?

Thank you for your participation! We appreciate your candid input. Please feel free to reach out anytime if you have any questions or think of additional information you'd like to share. Our contact information can be found on the consent and information sheet you received via email.