Vaccinating Children Against COVID-19 at Home

An Implementation Guide

AIM
Association of Immunization Managers

Overview

Over the course of the COVID-19 pandemic, the United States has seen diminished vaccine confidence and low COVID-19 vaccination coverage among children (Peck, 2022; Centers for Disease Control and Prevention, 2021). Differential access to services is a barrier to vaccine uptake. Parents' hesitancy about COVID-19 vaccines specifically and vaccines more broadly is another barrier to vaccine uptake (Alfieri et al., 2021; Ruiz & Bell, 2022; Albers et al., 2022; Corben & Leask, 2016). Addressing these trends and barriers and increasing the uptake of COVID-19 vaccines for children is essential to protecting public health and advancing health equity.

The Association of Immunization Managers (AIM) identified five promising practices for improving the uptake of COVID-19 vaccination and advancing vaccine equity for children ages 6 months to 11 years.

This guide is one in a series of five guides and tip sheets about promising practices to improve children's uptake of COVID-19 vaccines. Implementation guides and tip sheets can be found on AIM's website:

Conducting Targeted Outreach to Medicaid Beneficiaries for COVID-19 Vaccines by Linking Immunization Information System and Medicaid Data

Connecting Opportunities to Vaccinate Children Against COVID-19 with the Chance to Address Basic Needs of Children and Families

Using Mobile Clinics to Vaccinate Children Against COVID-19 at Community-Based Locations

Vaccinating Children Against COVID-19 at Home

Providing Operational Support to Help Pediatric Health Care Providers Vaccinate Children Against COVID-19

The information in these guides comes from participants in focus groups at the 2023 Great Lakes and Frontier/Southwest Vaccine Access Cooperative (VAC) meetings, interviews with immunization program managers and their partners, a literature review, input from AIM staff and AIM's Legacy Council, and Centers for Disease Control and Prevention (CDC) project officers' review of COVID-19 immunization progress reports and suggestions on potential promising practices. Thank you to all who contributed to this work.

Key findings and lessons learned in these guides are largely based on pediatric vaccination strategies implemented during the COVID-19 public health emergency. Some of the practices were implemented with support that was linked to one-time emergency federal funds. Practices were also supported with a mix of state and local government funds and private and philanthropic funds that were available during the public health emergency.

As such, the practices may not be identically replicated moving forward, as the vaccination landscape has changed due to commercialization of COVID-19 vaccines and other factors. However, we anticipate that lessons learned during the public health emergency can inform strategies for COVID-19 vaccination after the public health emergency, vaccinations for all age groups, routine vaccinations, and future pandemic response. Therefore, this guide also provides strategies and tips to implement the practice in the post-pandemic environment.

Implementation context during the public health emergency (PHE) versus post-PHE

During the COVID-19 PHE, the federal government paid for all COVID-19 vaccines. Moving forward after the PHE, both the federal government (through the Vaccines for Children [VFC] program) and health insurance plans will pay for vaccines. Jurisdictions implementing the practices after the PHE will need to consider how to support providers in billing multiple insurers and managing different stocks of vaccines when insurers only pay for certain COVID-19 vaccines.

How to Use This Guide

This guide is comprised of three chapters that answer the "what," "why," and "how" of delivering vaccines to children in their homes. Across these chapters, you will find examples from the field, resources and tools, considerations, and lessons learned to help implement this promising practice in your own jurisdiction.

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About AIM

AIM is a nonprofit membership association comprised of the directors of the 64 federally funded state, territorial, and local public health immunization programs. AIM is dedicated to working with its partners nationwide to reduce, eliminate, or eradicate vaccine-preventable diseases. AIM also works to ensure the success of its members by providing support in their programming interests. Since 1999, AIM has enabled collaboration among immunization managers to effectively control vaccine-preventable diseases and improve immunization coverage in the United States and affiliated territories. For more information on AIM, please visit www.immunizationmanagers.org/.

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Chapter 1: What?

This chapter provides an overview of the practice of providing in-home vaccinations to children.

Summary of Chapter 1: What?

Overview of the promising practice	In-home vaccination is when children receive vaccinations in their homes.
Implementing organizations	Local or state health departments, community-based organizations, and health systems or health care providers are among the entities that may have interest in implementing this practice.

Overview of the promising practice

Jurisdictions can provide vaccinations to children in their homes to serve families that may encounter challenges in obtaining vaccinations for their children at clinics or community locations. Although in-home programs might be part of larger mobile vaccination programs, this guide focuses on in-home operations. More information on mobile clinics that vaccinate children at community-based locations is available in the related guide, Using Mobile Clinics to Vaccinate Children Against COVID-19 at Community-Based Locations.

Implementing organizations

Those involved in providing in-home vaccinations include local or state health departments, community-based organizations, and health systems or health care providers. These entities can partner with mobile vendors, emergency and fire services, disability agencies, home health programs, and other community-based agencies to effectively provide in-home vaccination.

Example from the Field

Protect Chicago at Home Program Vaccinated Children and Their Families and Neighbors at Home

Description: The Chicago Department of Public Health's Protect Chicago at Home program offered in-home COVID-19 vaccination to all Chicago households and anyone 6 months and older.

Contacts: See the AIM Immunization Program Directory

Goal: To increase COVID-19 vaccination rates among Chicagoans.

Approach: The Protect Chicago at Home program, which coordinated operations with hospitals and community-based organizations, could vaccinate up to ten people at a time in their home. The program was initially intended for home-bound people, but it expanded to anyone 6 months and older to increase access. The program was offered free of charge to participants and encouraged Chicagoans to invite family, friends, or neighbors to their home to get vaccinated together. It offered COVID-19 vaccines and flu vaccines as long as one resident registered to receive the COVID-19 vaccine. As demand for the COVID-19 vaccine has decreased, the program reduced the number of days a week for which appointments are available, decreasing from five days a week to two days a week, specifically on Saturdays and Sundays.

Lessons learned:

- Hold regular check-in calls with partners to discuss issues.
- Scale program to meet demand.

Resources:

- The Chicago Department of Health used X (formerly Twitter) to advertise its program.
- To increase vaccine uptake around the holidays, the Chicago Department of Health advertised the program through local news outlets.

Chapter 2: Why?

This chapter reviews the benefits of implementing in-home vaccination to help vaccinate children in your jurisdiction.

Summary of Chapter 2: Why?

Why might my jurisdiction implement this promising practice?	Reach areas that are remote or medically underserved
	Support families with high-risk members
	Reduce travel and time burdens
	Promote social distancing during outbreaks
	Improve health and reduce costs for families and communities

Why might my jurisdiction implement this promising practice?

Reach areas that are remote or medically underserved. In-home vaccine services can serve communities that do not have medical centers or other health care facilities and can reach children and families who are unable to easily travel to receive COVID-19 vaccinations (CDC, 2022).

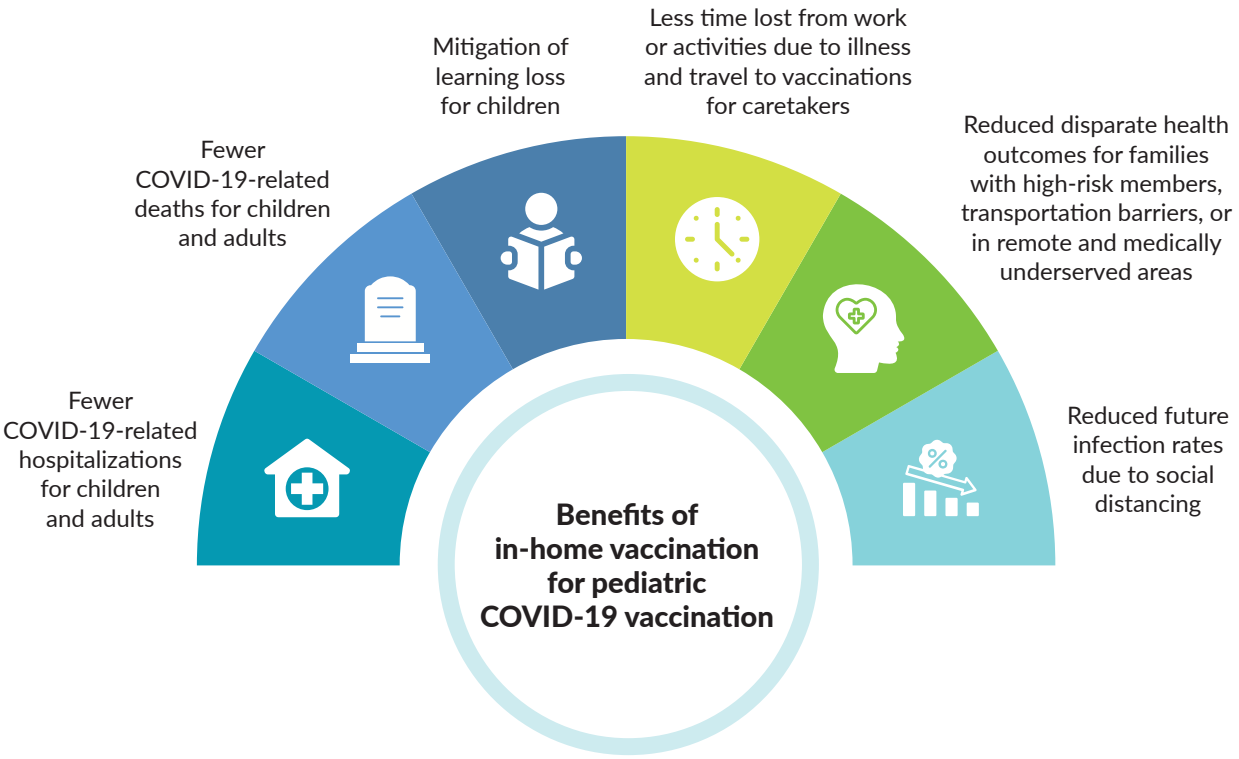
Support families with high-risk members. Households might have children and other members who are homebound (see Examples from the Field boxes about Mississippi and Michigan below) or who have underlying medical conditions that put them at risk of serious illness if they are exposed to COVID-19 or other infectious diseases. These families might be unable to leave the home or might feel safer receiving vaccinations at home than they would in a congregate setting.

Reduce travel and time burdens. By bringing vaccines to families' homes, jurisdictions make COVID-19 vaccination more convenient and help families avoid the burden of arranging for transportation or taking off time from work or school to get vaccinated.

Promote social distancing during outbreaks. Going door-to-door to provide vaccinations allows families to avoid public vaccination settings and increased risk of exposure to respiratory viruses when there may be outbreaks.

Improve health and reduce costs for families and communities. By implementing this practice, jurisdictions could save money. See the figure below for an overview of the promising practice's potential benefits to families and communities.

Implementing in-home vaccination can lead to better health and cost savings



Promising Practices to Improve Pediatric COVID-19 Immunization Rates Toolkit

Find more resources, including tip sheets and slide decks, to implement mobile clinics and other strategies to improve vaccination rates

AIM Association of Immunization Managers

Example from the Field

Mississippi Health Department Provided Homebound Children COVID-19 Vaccines at Home

Description: The Mississippi Health Department connected providers enrolled in the COVID-19 Community Vaccination Program (CCVP) with homebound residents, including children, who needed a COVID-19 vaccination and wished to receive it in their home.

Contacts: See the AIM Immunization Program Directory

Goal: Vaccinate all homebound residents and their families who called the Mississippi Health Department requesting a COVID-19 vaccine.

Approach: The Mississippi Health Department began providing vaccines to residents at home after community members called the department to express interest in the idea. The program was first open to adults who were eligible for the vaccine. In addition to responding to calls from interested residents, the Mississippi Health Department conducted outreach by sending postcards with contact information about in-home vaccines to eligible adults from a file of Medicare beneficiaries. When children became eligible for the vaccine, the program expanded to include them. The Mississippi Health Department connected homebound residents and families requesting a vaccine with a provider that was participating in Mississippi's COVID-19 Community Vaccination Program (CCVP), which was created to focus on underserved communities. The program was funded by supplemental grants from the CDC and offered CCVP providers a $75 reimbursement per vaccination to cover overhead costs of delivering the COVID-19 vaccine.

Lessons learned:

- Vaccinate entire families while providing in-home vaccinations to patients.
- Determine which providers are willing to provide in-home vaccinations.
- Schedule in-home vaccinations by geographic location to other patients so providers are not driving for a long time.

Resource: Mississippi developed a PowerPoint presentation that describes their CCVP program and homebound services.

Chapter 3: How?

This chapter lists important resources that jurisdictions need to operate in-home programs, common challenges and potential solutions, and key considerations.

Summary of Chapter 3: How?

Step 1: Prepare resources	In-home vaccinations require staff and supplies for vaccinating children, transportation, and clinical operations.
Step 2: Establish partnerships	Partnerships can increase community trust, increase capacity, and support planning and operations.
Step 3: Identify operational challenges and action steps	Operational challenges such as patient and staff safety and costs can be avoided with standardized processes and phased outreach approaches.
Step 4: Determine key considerations for implementation	
Feasibility	Partnerships can help start up and sustain this practice that can potentially improve vaccine equity.
Costs	Consider administrative and actual costs upfront.
Environmental factors	Policies on providers' scope of practice, minor consent, and the activities of anti-vaccine groups could affect the implementation of in-home programs.
Other resources to implement this practice	See the list of existing resources to support implementation of this practice.

Step 1: Prepare resources

Jurisdictions need significant resources to vaccinate people outside brick-and-mortar clinics. Before committing to in-home vaccinations, jurisdictions may consider the scope or focus population for the in-home vaccination effort; create a plan for procuring the mobile unit, staff, and supplies; and create processes for referring and scheduling patients. During the planning phase, in-home vaccination providers will also need to work with their software vendor to ensure their electronic health record, or other software, is set up to document consent and doses administered and to securely share data with other providers and the immunization information system (IIS). To bring vaccines to patients' homes, jurisdictions must also consider the supplies they need to support administration of vaccines, including proper vaccine storage and handling and data entry for patient records and the immunization registry. These steps are summarized below:

Before	During	After
• Decide the focus population for in-home vaccination efforts • Secure staff, partners, and supplies • Create processes for referring and scheduling patients • Identify and test methodology for collecting and sharing data on doses administered	• Transport staff and vaccines to patients' homes, ensuring proper vaccine cold chain monitoring • Collect registration information, such as patient and insurance information • Administer vaccines	• Securely store and take inventory of supplies • Ensure documentation, such as documentation of temperature, vaccine information, doses administered, and filing with insurance is complete • Re-connect with patients for follow-up doses and care

The resources needed to provide vaccinations in patients' homes fall into three broad categories:

1. Vaccine storage, handling, and administration supplies
2. Mobile unit supplies
3. Clinical administration and office supplies

Vaccine storage, handling, and administration supplies	Mobile unit supplies	Clinical administration supplies
• Vaccine • Digital data logger thermometers • Transport coolers • Needles, syringes, bandages, alcohol swabs, etc. • Emergency response supplies (epinephrine, etc.)	• Mobile unit or van • Insurance for mobile unit or van • Utilities	• Patient paperwork (Vaccine Information Sheet, consent forms) • Wi-Fi hotspot • Laptops • Software to collect and share data

In-home vaccination programs also need clinical and administrative staff. These staff and their possible roles are described below:

Staff	Description of possible role(s)
Nurse, emergency medical technician, or other personnel approved to administer vaccines	• Obtain consent • Administer vaccines • Answer medical questions • Provide guidance for decision-making • Provide other medical services • Respond to acute adverse events
Physician	• Approve standing orders • Be available for consultation
Administrative staff	• Schedule appointments • Manage billing • Field requests from families who would benefit from in-home vaccination • Manage vendors and vendor contracts • Provide education and training • Record vaccinations in IIS and provide a paper copy to the patient

Step 2: Establish partnerships

Partnering with the local community-based organizations, mobile vendors, and other local medical providers can support in-home program operations by:

- Increasing community trust in in-home vaccinators and healthcare staff
- Increasing capacity to serve patients
- Identifying providers willing to vaccinate patients in their homes
- Identifying people who need to receive vaccinations in their home
- Improving planning and operations

Michigan's Department of Health and Human Services hired mobile vaccination vendors to increase its capacity to reach homebound people and partnered with local health departments and community-based organizations (see the Example from the Field box about Michigan below).

Louisiana partnered with community health centers to have 14 nurses go door-to-door in neighborhoods with low COVID-19 vaccination coverage rates to offer in-home vaccinations, eliminating one obstacle for individuals who were unable to attend community events where vaccinations were being offered.

Key Partners to Consider When Implementing this Practice

The key to implementing this practice is to identify and engage entities that can help with the planning, promotion, and/or execution of the practice

- Community-based agencies
- Home health programs
- Nurse-family partnership
- Disability agencies and support services
- Emergency and fire services
- Mobile vendors

Step 3: Identify operational challenges and action steps

Jurisdictions might run into challenges when planning and operating in-home programs. The following action steps can help jurisdictions overcome these challenges and meet patients' needs.

Category	Possible challenge	Suggested action step(s)
Safety	Staff might feel unsafe entering patients' homes.	○ Ask vaccination staff to check in with centralized administrative staff when entering and leaving the home and any time they feel unsafe (Small, 2020). ○ Have staff visit homes in pairs or small teams (Small, 2020). ○ Schedule appointments during daylight hours (Small, 2020). ○ Ask staff to complete data entry in a safe location (Small, 2020).
	Patients and families might not feel safe letting staff into their homes.	○ Have staff wear uniforms and name tags to establish credibility. ○ Train staff and ensure they follow standard operating procedures. ○ Leverage Nurse-Family Partnership or similar programs that have existing relationships with families.
	Staff might be unprepared to evaluate or treat possible adverse events outside of clinical settings.	○ Consider hiring emergency medical services staff to accompany the provider on home visits. ○ Have staff carry medical emergency supplies, such as a blood pressure monitor, epinephrine, and H1 anti-histamine (e.g., diphenhydramine), and ensure they know the location of the nearest emergency department.
Resource use	Vaccinating people in their homes is resource intensive because of the costs of vaccine transport and staff time (Community Preventive Services Task Force, 2016).	○ Conduct in-home vaccination as a later step of phased outreach, beginning with less intensive forms such as reminder/recall (Small, 2020). ○ Offer in-home vaccinations to a subset of patients who might especially benefit from the intervention, such as homebound children, or in large apartment complexes or public housing where staff can go door-to-door.
	Patients and families might forget about appointments and might not be home when staff arrive.	○ Send patient reminders.
	Local health departments might not have the capacity to organize in-home vaccination programs.	○ Contract with mobile vaccination clinic providers at the jurisdiction level to implement in-home vaccination.

Example from the Field

Michigan Department of Health and Human Services (DHHS) Operated a Homebound Program

Description: Michigan DHHS partnered with vendors to deliver vaccinations to homebound people, including children.

Contacts: See the AIM Immunization Program Directory

Goal: Deliver vaccinations to homebound people who are at high-risk of COVID-19 infection.

Approach: Michigan's administration wanted to ensure access to vaccines for homebound people who were high-risk. To support this charge, Michigan DHHS set aside some of its federal COVID-19 funds to reach homebound people. DHHS hired mobile vendors that could support the homebound program and increase the capacity of local health departments that otherwise lacked bandwidth to be able to vaccinate homebound people. DHHS' contract team vetted each vendor and asked whether the vendors would be willing to vaccinate children once the vaccine became available for them. DHHS trained selected vendors on COVID-19 vaccine storage and handling requirements and on how to vaccinate children since many vendors had less experience in this area. DHHS' partners, including local health departments, the Council on Aging, Disability Rights Michigan, the Children's Special Healthcare Program, and others, alerted DHHS of homebound people by completing a form to schedule the homebound visit. The vendor was deployed to their homes to vaccinate the homebound individuals and their family members. Although DHHS' mobile clinics and homebound programs have ended, DHHS maintains agreements with vendors who could support operations if there is an increase in demand for COVID-19 vaccinations.

Lessons learned:

- Set aside resources to fund a homebound program.
- Train program staff on giving vaccinations to children.
- Develop a network of local and community-based organization partners to find people who are homebound, coordinate resources, and understand local needs.
- Conduct one-on-one meetings with vendors to understand vendor needs, support needs, and learn more about the local needs.

Resource: Michigan DHHS released a request for proposals to solicit vendors.

Step 4: Determine key considerations for implementation

When jurisdictions are planning initiatives to vaccinate children against COVID-19 at home, it is important to consider the: feasibility of the practice to start up, scale, and sustain the practice over time, costs related to implementing the practice in the post-pandemic environment, and environmental factors which include the policy, environment, and funding landscape.

Feasibility

The in-home vaccination practice requires high levels of resources to both start up and sustain but can potentially improve vaccine equity by reaching children who are medically and/or socially underserved. Because the practice administers vaccines in locations outside of traditional health care settings, it requires significant investments in the physical infrastructure required to transport, store, and administer vaccines (start-up). The investment includes refrigeration and freezer units, digital data logger thermometers, vehicles, and mobile technology (such as laptops, tablets, and mobile wireless internet devices) for accessing and updating patient records. Moreover, the practice requires a high level of ongoing resources, given the need to maintain or retain the vehicles, vaccine stock and related supplies, technology, and staff who administer vaccines and run operations (sustain). The figure below summarizes the level of resources and complexity required to start up, sustain, and scale the practice, and includes information on how the practice can advance vaccine equity.

	Start up	Scale	Sustain	
Practice 4: At-home vaccination	⊖	⊖	⊖	• **Resources:** Similarly high levels to start up, scale, and sustain. The level of resources (such as staff and equipment) needed remains relatively constant, even as more vaccinations at home are given over time. • **Complexity:** The level of complexity of the practice does not change as vaccinations are administered in more homes over time. • **Equity:** Both practices can increase access to vaccination in medically underserved communities.

⊖ = Qualitative analysis of literature, interview, and focus group data indicate that the practice requires a high level of resources and is complex to implement.

☑ = Qualitative analysis of literature, interview, and focus group data indicate that the practice requires a low level of resources and is not complex to implement.

Jurisdictions can mitigate the cost and resources needed by using existing infrastructure and local partnerships to implement, sustain, and scale the practices. Jurisdictions might partner with health care organizations or other entities that already have infrastructure to deliver vaccinations to children in their homes. Partners may also be able to provide resources to operate mobile in-home vaccination programs, for example by donating vehicles or supporting outreach. Rather than take purchased vehicles, jurisdictions can also consider whether staff can use ridesharing services to visit patients' homes. Capitalizing on existing resources, networks, and partnerships will aid in making this practice feasible in the post-pandemic environment.

Consider having staff take a ridesharing service to conduct home visits.

Costs

The COVID-19 public health emergency (PHE) greatly affected the cost of implementing practices such as vaccinating children against COVID-19 at home. For example, during the COVID-19 pandemic, the federal government paid for most or all COVID-19 vaccines, jurisdictions experienced high staff turnover and increased labor costs, and some needed to make new investments in vaccine infrastructure to meet urgent need and high demand for vaccines. During the COVID-19 PHE, government funding was available that offered a large number of allowances and flexibility for spending, including spending on the leasing, rental, and purchase of vehicles.

In the post-PHE environment, jurisdictions will have less of this type of government funding and will likely need to find new ways to fund practice implementation. For example, government funding is now available for the leasing of vehicles, but not purchase.

Cost categories

Below are the categories of costs immunization program managers may consider as they are calculating the cost of the promising practice for their own jurisdiction. This includes the cost of vaccine, staff time for vaccine administration, and vaccine storage and handling.

1. Program administration
2. Vaccinations
3. Staff time
4. Transportation
5. Refrigeration and storage
6. Scheduling and logistics
7. Training
8. Outreach

The tables that follow provide considerations and factors that affect cost for each category.

Program administration

Costs may include: salaries for program director and/or managers

Considerations	Factors that affect cost
? How many managers will you need based on the size of your program? **? What is the current demand for qualified staff?**	• Hourly rates for staff time will vary by jurisdiction. • The Bureau of Labor Statistics estimates the salary of a manager in the United States to be approximately $62.50/hour, or $93.75/hour when accounting for fringe benefits (BLS, 2022). Rates may be higher during periods of increased demand.

Vaccinations

Costs may include: vaccine purchase for non-VFC eligible, vials, syringes

Considerations	Factors that affect cost
? What is the expected VFC eligibility of the population? **? For the non-VFC population, are there other funding mechanisms to cover vaccines? Is there a mechanism to purchase private stock and bill for reimbursement?** **? What ancillary supplies will you need to buy or acquire through partnerships to offer vaccinations?**	• Medicaid and CHIP programs cover all Advisory Committee on Immunization Practices (ACIP)-recommended vaccines for children and vaccine administration without cost sharing (including COVID-19 vaccines). • Other ancillary supplies related to vaccinations, such as bandages and alcohol wipes, might affect the total cost of vaccinations.

Staff time

Costs may include: staff time to prepare and administer vaccinations, staff time for intake, staff time for IIS data entry, security, and to test methodology for collecting and sharing data

Considerations	Factors that affect cost
? How many staff will you need for vaccination administration based on your vaccination goals? **? How many staff will you need for data entry based on your vaccination goals?** **? What is the current demand for qualified staff?**	• Based on feedback from AIM's Legacy Council Staff average staff time for vaccine administration is 20 minutes/vaccination for two staff, including time for IIS entry. • Hourly rates for staff time will vary by jurisdiction. • The Bureau of Labor Statistics estimates the median rate for a registered nurse in the United States to be approximately $40/hour, or $60/hour when accounting for fringe benefits (BLS, 2022). Rates may be higher during periods of increased demand.

Transportation

Costs may include: leasing of vehicles, retrofitting vehicles, annual maintenance, fuel

Considerations	Factors that affect cost
? What are current guidelines on allowable costs? **? Can our staff use a ridesharing service to visit homes?**	• The General Services Administration (GSA) authorized reimbursement for privately owned vehicles is $0.66/mile as of January 1, 2023 (GSA, 2023). • AIM Legacy Council members noted that the use of sports utility vehicles is more typical for at-home vaccinations.

Refrigeration and storage

Costs may include: plug-in refrigeration units, digital data logger thermometers, electrical power

Considerations	Factors that affect cost
? What existing supplies do you already have? **? And do they meet current storage and handling guidelines?**	• The cost of refrigeration can vary widely. • Portable coolers or containers for vaccine storage may be less expensive for at-home vaccination. However, AIM Legacy Council members noted other considerations can add to the cost of refrigeration for this practice.

Scheduling and logistics

Costs may include: staff salary for scheduling and logistics for mobile clinics

Considerations	Factors that affect cost
? What partners do you already have to support in-home programs? **? How familiar are your partners with supporting in-home operations?**	• CDC guidance on what to consider when planning to operate a COVID-19 vaccination clinic includes a variety of operational and logistics considerations, such as involving public health department staff leadership, establishing critical partnerships, identifying disproportionally impacted communities, and strategically selecting sites (CDC, 2023a). • Hourly rates for staff time will vary by jurisdiction.

Training

Costs may include: staff time to participate in trainings, required training materials

Considerations	Factors that affect cost
? What level of training do staff already have? **? What type of staff can administer vaccinations in your jurisdiction?** **? Do staff have the knowledge and tools to respond to vaccine hesitancy during the event?**	• Recommended CDC trainings for administering COVID-19 vaccinations include: (1) COVID-19 training modules, (2) routine vaccination administration training, and (3) routine vaccine storage and handling training (CDC, 2023b). • The AIM Legacy Council suggested that these and other trainings can take up to 80 hours. • The Bureau of Labor Statistics estimates the median rate for a registered nurse in the United States to be approximately $40/hour, or $60/hour when accounting for fringe benefits (BLS, 2022). Rates may be higher during periods of increased demand.

Outreach

Costs may include: systems to manage outreach, staff time to conduct outreach

Considerations	Factors that affect cost
? Does your jurisdiction currently have enough staff to conduct outreach? **? If not, are there partnerships your jurisdiction could leverage to support outreach efforts?**	• The outreach modality and the number of individuals receiving outreach will affect the cost of outreach.

How much would it cost to implement this practice in your jurisdiction?

AIM has hypothetical examples available for jurisdictions to use as a starting point to calculate the potential costs to implement this practice. Actual expenses for your immunization program will vary widely based on program specifics and if/how you engage with vaccine purchase and administration. Find the examples and the detailed technical economic analysis in the Evaluation of Five Promising Practices Used During the COVID-19 Public Health Emergency to Improve Pediatric COVID-19 Immunization Rates technical report (available in the Promising Practices to Improve Pediatric COVID-19 Immunization Rates Toolkit).

Environmental factors

Jurisdictions providing in-home vaccination must navigate policies and environmental factors that can help or challenge the implementation of in-home programs. The table below provides examples of specific policies and environmental factors that organizations may consider when implementing this practice.

Environmental factor or policy	Questions for implementers to consider	Example(s) of policy or environmental factor affecting the practice	Action steps
Policies related to providers' scope of practice	• Can providers that provide home and community support services purchase, store, transport, and administer vaccines to children in our jurisdiction? • If so, how can our jurisdiction work with our partners that provide home and community support services to implement in-home vaccination?	• Texas's legislature enacted 2021 TX H 797, which allows certain home and community support service providers, such as registered nurses, to purchase, store, transport, and administer approved vaccines, which means they can administer COVID-19 vaccines to home health and hospice patients and their family members, including children.	◯ Engage state lawmakers through education surrounding policies related to providers' scope of practice (see AIM's Immunization Program Policy Resource Guide). ◯ Check with your jurisdiction's licensing boards to understand scope of practice regulations in your jurisdiction.
Policies on minor consent for vaccination	• Can minors consent for vaccination in our jurisdiction, or do we need to obtain parental consent to vaccinate children in their home or in temporary shelters? • What processes and protocols do we have in place to capture parental consent, if it is needed? • What processes or protocols do we have in place to gather consent from the minor in settings such as temporary shelters?	• Most jurisdictions do not allow minors to get a COVID-19 vaccine without parental or guardian consent. • Washington, DC, adopted Law 23-193, which allows a minor of at least 11 years old to consent to receive a vaccination where the vaccination is recommended by the ACIP. Per the law, informed consent is established if "a minor is able to comprehend the need for, the nature of, and any significant risks" inherent in the medical care.	◯ Engage state lawmakers through education surrounding policies related to minor consent for vaccination (see AIM's Immunization Program Policy Resource Guide). ◯ Consult this webpage on state laws on minor consent from SchoolHouse Connection to understand minor consent in your state.

Environmental factor or policy	Questions for implementers to consider	Example(s) of policy or environmental factor affecting the practice	Action steps
Policies on whether entities need minor/parent/guardian consent to report vaccinations to the IIS	• How do our jurisdiction's policies on minor or parental consent to report vaccinations to the IIS affect the comprehensiveness of data in the IIS?	• Illinois and Michigan use implicit consent with the ability for parents/guardians to opt out of having their child's information in the IIS. • New Hampshire and Ohio require entities to obtain explicit consent from parents/guardians before reporting vaccination information to the IIS.	◯ Consult this School-House Connection webpage on state laws on minor consent to understand minor consent in your state. ◯ Engage lawmakers through education surrounding informed and minor consent laws (see AIM's Immunization Program Policy Resource Guide).
Organized groups supporting or hindering implementation of practice	• Are there any organizations or groups in our jurisdiction who would try to stop this practice? • What measures can we take to make sure families and children feel comfortable and safe to receive vaccinations?	• An anti-vaccine organized group worked to hinder the jurisdiction from administering COVID-19 vaccines to children, accusing the jurisdiction of violating the public health code by requiring the vaccination for children attending school. The jurisdiction addressed this by clarifying to the public that the vaccine was recommended for children but not required for school attendance.	◯ Combat misinformation from anti-vaccine groups (see AIM's COVID-19 Vaccines: Vaccine Safety FAQs, Dispelling Vaccine Myths and CDC's How to Address COVID-19 Vaccine Misinformation).

Other resources to implement this practice:

Below are resources for vaccinating children against COVID-19 at home.

AIM

- **Promising Practices to Improve Pediatric COVID-19 Immunization Rates Toolkit:** In this toolkit, find more resources, including tip sheets and slide decks, to implement five promising strategies to improve vaccination rates, including mobile vaccination clinics.
- **COVID-19 Resource Guide:** This guide compiles existing communications messaging and materials that you can use to support immunization program outreach.
- **COVID-19 Vaccines: Vaccine Safety FAQs, Dispelling Vaccine Myths:** This PowerPoint slide set was developed by iREACH Subject Matter Experts to answer frequently asked questions about COVID-19 vaccine safety and dispel common myths about COVID-19 vaccines.
- **Evaluation of Five Promising Practices Used During the COVID-19 Public Health Emergency to Improve Pediatric COVID-19 Immunization Rates Technical Report** (available in the Promising Practices to Improve Pediatric COVID-19 Immunization Rates Toolkit): This technical report includes detailed information about this study, including feasibility, policy, and costs analyses of each practice.

- **How Can Community-Based Organizations Help Support the COVID-19 Vaccination Effort?:** This resource provides community-based organizations (CBOs) with tools to assist in stopping the spread of COVID-19.
- **Immunization Program Policy Toolkit:** This toolkit is designed to equip immunization programs with the tools and information necessary to appropriately and effectively engage with elected officials.
- **Vaccine Confidence Connect the Dots:** This guide provides immunization programs with the tools and information necessary to promote vaccine confidence across the nation and its territories.

CDC

- **12 COVID-19 Vaccination Strategies for Your Community:** This field guide presents 12 COVID-19 vaccination strategies adapted from evidence-based practices implemented nationwide to help increase vaccine confidence and uptake.
- **How to Address COVID-19 Vaccine Misinformation:** On this page, the CDC shares strategies for communicating accurate information about COVID-19 vaccines, responding to gaps in information, and confronting misinformation with evidence-based messaging from credible sources.
- **Recommended trainings for administering COVID-19 vaccinations:** (1) COVID-19 training modules, (2) routine vaccination administration training, and (3) routine vaccine storage and handling training.
- **Vaccine Storage and Handling Toolkit:** This is a comprehensive guide that reflects best practices for vaccine storage and handling from ACIP recommendations, product information from vaccine manufacturers, and scientific studies.
- **VFC Operations Guide:** This guide reflects VFC program policies, processes, and requirements.
- **VFC Vaccine Price List:** This website provides vaccine contract prices and lists the private sector vaccine prices for general information.

Immunize.org

- **Ask the Experts: COVID-19:** This page is frequently updated with answers to questions about COVID-19 vaccine products, recommendations, and more.
- **Checklist of Current Versions of U.S. COVID-19 Vaccination Guidance and Clinic Support Tools:** This checklist provides links to key COVID-19 vaccination resources and indicates when they were last updated.
- **Clinical Storage and Handling Resources:** This page contains numerous clinical storage and handling resources, including temperature logs, suggestions to improve immunization services, and skills checklists for vaccine administration.
- **COVID-19 Clinical Resources:** This page provides clinical resources related to COVID-19 vaccination.
- **Improving the Vaccination Experience:** This page provides materials for providers and vaccine recipients on addressing vaccination anxiety, reducing vaccination pain, and other strategies for improving the vaccination experience.
- **Medical Management of Vaccine Reactions in Children and Teens in a Community Setting:** This table describes procedures to follow if various reactions occur in children and teens, including a supply list.

- **Supplies You May Need at an Immunization Clinic:** This one-page form lists patient resources, routine clinic supplies, medical emergency supplies, and other supplies that may be needed at immunization clinics.

Other

- **Autism Society of America's Guide to Accessible Vaccination:** This guide provides tips on how to reduce barriers to vaccination and increase vaccination equity and uptake among the Autism community.
- **Centers for Medicare & Medicaid Services Toolkit of Vaccine Coverage and Administration for Medicaid and Children's Health Insurance Program Individuals:** This vaccine toolkit equips states with the tools necessary to meet the needs of people with Medicaid and the Children's Health Insurance Program (CHIP) coverage. The kit helps states understand coverage, cost-sharing, and payment for vaccines, including vaccines administered as part of the Inflation Reduction Act (IRA) under Medicaid, CHIP, and the Basic Health Program (BHP).

Appendix: Tips for Vaccinating Children Against COVID-19 at Home

When providing vaccinations to children at home, jurisdictions should consider the local environment, patient and staff safety, and how to use resources efficiently to start up, scale, and sustain the practice.

Understand the local environment in your jurisdiction

- Work with local partners who understand the local environment and needs of the community.
- Understand which providers in your jurisdiction can and will vaccinate children in their homes to inform your staffing plans.
- Consider how policies on minor consent for vaccination affect in-home program processes and protocols to obtain consent from parents or minors.
- Consider whether any local groups would attempt to hinder implementation of your program.

Consider the cost and feasibility to start up, scale, and sustain the practice

- Understand expenses will vary widely based on jurisdiction specifics and use of existing staff, infrastructure, funding support, and partnerships.
- Mitigate costs by partnering with organizations that can support the infrastructure to deliver vaccines to homes.
- Determine if staff can use ridesharing services to deliver vaccines to homes rather than having to purchase a vehicle.

During the COVID-19 public health emergency (PHE), government funding was available that offered a large number of allowances and flexibilities for spending, including spending on the leasing, rental, and purchase of vans. In the post-PHE environment, jurisdictions will have less of this type of government funding and will likely need to find new ways to fund practice implementation. For example, government funding is now available for the leasing of vehicles, but not purchase.

Understand safety concerns for staff and patients

- Adopt procedures for staff safety, including visiting homes in pairs or small teams, scheduling appointments during daylight hours, and checking in with centralized staff when entering and leaving a home and any time they feel unsafe.
- Make patients and families more comfortable letting staff into their homes by asking staff to wear uniforms and name badges and follow standard procedures when conducting in-home vaccinations.

Plan for vaccine side effects and adverse events

- Hire emergency medical service staff or other personnel trained in emergency medical response as part of the in-home vaccination team.
- Bring medical emergency supplies, such as a blood pressure monitor, epinephrine, and an H1 antihistamine (e.g., diphenhydramine) to in-home appointments.

Focus the intervention to effectively use staff time and resources

- Offer in-home vaccination to a subset of patients who would especially benefit from the intervention, such as homebound children.
- Conduct in-home vaccination as a later step of phased outreach, beginning with less-intensive forms such as reminder/recall.

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