

SUPPORTING AN EQUITABLE DISTRIBUTION OF COVID-19 VACCINES:

Key Themes, Strategies, and
Challenges Across State
and Territorial COVID-19
Vaccination Plans

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AUTHORS

Duke-Margolis Center for Health Policy

Katie Greene
Hemi Tewarson
Hilary Campbell
Katie Huber
Andrea Thoumi
Kirk Williamson

National Governors Association

Kate Johnson
Michelle LeBlanc
Carl Amritt
Kate Ricker-Kiefert
(NGA Contractor)

CONTRIBUTORS

COVID Collaborative

John Bridgeland
Gary Edson
Anjali Balakrishna

Duke-Margolis Center for Health Policy

Mark McClellan

National Governors Association

Timothy Blute
Jeffrey Locke
Maribel Ramos

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Executive Summary

Ensuring the rapid development, distribution, and widespread public uptake of a safe and effective COVID-19 vaccine will be a critical element in containing the COVID-19 pandemic and resuming normal economic, educational, and social activities. One or more vaccine candidates will likely be authorized for use in the next few days, and states and localities will need to be ready to efficiently and equitably distribute and administer the vaccines. Federal, state, territorial, tribal, and local governments and partners must work collaboratively to ensure that vaccines are distributed in a manner that protects public health and safeguards those at highest risk for severe COVID-19 disease.

Governors of states and territories, working in close collaboration with local partners, will have responsibility for the “last mile” of COVID-19 vaccine distribution, which will include receiving vaccine allocations from the federal government; managing the systems for ordering, distributing, and monitoring them; and supporting the administration of vaccines in a wide variety of health care and community settings. To make vaccinations available for hundreds of millions of people across the country, states must expand their reach by increasing capacity and enhancing data systems in ways that have never been done before. To ensure uptake of the vaccine, states must also engage and communicate with the public in new and creative ways, with a particular focus on reaching those who may face barriers to access or be hesitant to get the vaccine.

To assist Governors and their state partners in ongoing vaccine planning efforts, the National Governors Association, the Duke-Margolis Center for Health Policy, and the COVID Collaborative conducted a qualitative analysis of all publicly available state and territorial COVID-19 vaccination plans released as of the date of this publication. The analysis aims to support identification of key issues and promote sharing of promising practices across the country, while recognizing that the plans are initial drafts that will be refined by states and territories as they engage with the Centers for Disease Control and Prevention (CDC) and respond to new information and challenges that continue to emerge. Key areas of analysis include:

- ▶ **Setting a Vision: Vaccine Plan Goals, Principles, and Lessons Learned**
- ▶ **Cross-Cutting Challenges and Unique Considerations for States and Territories**
- ▶ **Determining Allocations to Critical Populations**
- ▶ **Planning for A Phased Approach: Distribution Strategies Across Phases**
- ▶ **Ensuring Effective Distribution and Management**
- ▶ **Building a Robust Data Infrastructure for Managing, Tracking, and Reporting Vaccine Information**
- ▶ **Supporting Equity in Distribution and Access**
- ▶ **Communicating with the Public and Engaging Vaccination Partners**

CONSIDERATIONS FOR GOVERNORS

As interim planning documents in a quickly evolving environment, state and territorial vaccination plans reflect a significant range of progress and detail regarding the various processes, partnerships, and systems that will need to be in place to support timely and equitable distribution of forthcoming COVID-19 vaccines. Plans will continue to evolve as more information is gained on vaccine safety, efficacy, and availability; as federal partners continue to provide guidance and feedback on state plans; and as states continue to gain experience through their collaborative planning processes. Despite this ongoing iterative process, a review of initial state COVID-19 vaccination plans reveals a number of shared barriers that states will face, as well as common themes in how states are approaching these challenges. As Governors continue to lead statewide vaccine distribution and administration efforts, understanding these common challenges and innovative approaches can assist state leaders with refining their own planning efforts. To continue to iterate and improve on these initial plans, Governors may want to consider the following actions to strengthen their vaccination planning efforts:

- ✓ **Articulate clear principles and goals** to guide partners in vaccine planning efforts, such as equitable access, inclusive planning, transparent and frequent communication;
- ✓ **Meaningfully engage** local health departments, representatives from high-risk populations, health systems, providers, community leaders, and organizations serving at-risk populations in planning activities;
- ✓ **Set criteria for priority allocation of vaccines** that are consistent with recommendations from the CDC’s Advisory Committee on Immunization Practices (ACIP), responsive to state needs and clearly communicated to the public;
- ✓ **Ensure that critical coordination structures are in place** to flexibly shift strategies to respond to changing dynamics in vaccine availability, demand, and emerging challenges;
- ✓ **Assess capacity for vaccine administration**, increase provider enrollment efforts, and examine strategies to expand surge capacity through non-traditional providers such as paramedics and emergency medical technicians (EMTs), dentists, veterinarians, and health professional school students;
- ✓ **Assess capacity for vaccine transport, logistics, and distribution**, including using the National Guard for such purposes if needed;
- ✓ **Address logistical issues early**, such as sufficient capacity to store vaccines in low-temperature freezers and provide supplies and personal protective equipment (PPE);
- ✓ **Deploy and test data management and reporting systems** to ensure accountability for results, ability to adjust, and transparency to the public;
- ✓ **Train key public health personnel, health systems, and partners** on the elements of the vaccination plans and subject the plans to Tabletop and Functional exercises as time permits;
- ✓ **Ensure necessary connections and agreements** are in place to facilitate reporting of vaccination data to the CDC and sharing of immunization data among jurisdictions to the extent allowable under state law;
- ✓ **Invest in education campaigns** to build public confidence in vaccines, including campaigns with trusted local messengers, especially for historically marginalized communities; and
- ✓ **Partner with community leaders and organizations serving high-risk communities** to conduct targeted outreach and address potential barriers to access, which could include making vaccines available in non-traditional sites such as churches, workplaces, mobile clinics, and other convenient and familiar community locations.

NEED FOR FEDERAL SUPPORT

Governors and public health leaders—as outlined in a number of plans—identified the need for increased federal support to build the capacity needed to successfully execute a mass vaccination effort. Specifically, public health leaders have requested at least \$8.4 billion in federal funds to conduct vaccination program activities including building data systems, supporting mass vaccination clinics, constructing mass vaccination sites, ensuring appropriate cold-chain storage and transportation, procuring PPE and ancillary supplies, funding communications efforts, hiring additional workforce, among other needs. To date, states have received \$200 million from the federal government that is specifically allocated for COVID-19 vaccination efforts, with an additional \$140 million forthcoming. In addition to funding, states are also awaiting critical federal guidance and support for addressing challenges related to data reporting, provider enrollment and training, vaccine storage and management, and communications. Finally states identified the need for coordination amongst different entities that may receive the vaccine directly from federal partners, including the six large cities receiving direct allocations, Veterans Affairs (VA) and Indian Health Service (IHS) entities, and pharmacies under contract to serve long term care facilities (LTCFs).

Introduction

Ensuring the rapid development, distribution, and widespread public uptake of a safe and effective COVID-19 vaccine will be a critical step in reducing the ongoing toll of the COVID-19 pandemic and resuming normal economic, educational, and social activities. With a vaccine likely to be authorized for public use in the coming days, federal, state, private sector, and community leaders must now come together to help support an unprecedented collaborative effort to quickly and efficiently vaccinate the American public in a manner that protects public health and those most at risk from COVID-19.

Through Operation Warp Speed (OWS), federal partners from the Department of Health and Human Services (HHS), the Department of Defense (DoD), the Food and Drug Administration (FDA), and the CDC have led the development of vaccines, while also working to coordinate supply, production, and distribution activities. Building on decades of experience in distributing routine and seasonal vaccines, Governors of states and territories will work in close collaboration with local and community partners to carry out the “last mile” of vaccine distribution, which will include receiving vaccine allocations from the federal government, managing the systems for ordering, distribution, and monitoring, and supporting the administration of vaccines in a wide variety of health care and community settings. By October 16, 2020, all states, territories, and the six local jurisdictions receiving Vaccines For Children (VFC) funding were required to submit a state COVID-19 vaccination plan based on requirements outlined by the CDC’s [COVID-19 Vaccination Program Interim Playbook](#).¹ As of this report’s publication, forty-eight states have made their interim state COVID-19 vaccine plans available and the CDC has published [executive summaries](#) for all states, territories, and six local jurisdictions receiving VFC funding on its website.² (See Appendices for a complete list and links to state and territorial plans and executive summaries).

State plan development will be an iterative process as more information is gained on vaccine effectiveness and availability, additional guidance is provided by the federal government, and engagement continues with local partners. The CDC has already provided feedback on states’ initial plans and is providing technical assistance to states in certain instances. However, a number of states have identified significant funding, capacity, and informational challenges that will need to be addressed by or in coordination with federal partners.

This report, developed by the National Governors Association, Duke-Margolis Center for Health Policy, and COVID Collaborative, provides a qualitative analysis of all publicly available COVID-19 state and territorial vaccination plans that aims to support Governors, state officials, and their partners as they continue planning efforts and address remaining issues to maximize readiness once an emergency use authorization (EUA) is granted. The report provides an overview of state approaches across planning domains and highlights key themes across plans, innovative strategies for addressing major challenges, and opportunities for further refinement of vaccination planning, readiness, and stakeholder engagement.

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¹ CDC published its first version of the CDC Vaccination Program Interim Playbook on September 24, 2020. CDC has since published Version 2.0 of the playbook on October 29, 2020.

² The CDC has published executive summaries for all jurisdictions on its website, which was reviewed when the complete vaccination plans were publicly unavailable. At the time of publication, Minnesota, Pennsylvania, and all U.S. territories only had executive summaries available, so information about those jurisdictions may be incomplete. Additionally, state vaccination plans may not include all of the actions states intend to take and other planning elements may be reflected in supplemental policies, procedures, or public statements. As a result, any such actions not explicitly incorporated into state plans will not be captured as part of this assessment.

Snapshot: Capturing Select Approaches Across All State and Territorial COVID-19 Vaccination Plans

This section provides a point-in-time “snapshot” across all state and territorial COVID-19 vaccination plans, capturing how jurisdictions are approaching certain aspects of planning as of their submission of initial plans to the CDC in mid-October. Below are highlights of some of the common themes identified across plans. Importantly, while some states included only information requested by the CDC, others opted to use these public documents to highlight overarching goals or critical issues, such as the need for additional federal resources. This analysis is limited to what states chose to include in their plans and may not reflect the full or most current details of state and territorial planning efforts.



SPECIFIC GOALS OR TARGETS FOR VACCINATION EFFORTS

- ▶ While the OWS strategy for distributing a COVID-19 vaccine aims to ensure every American who wants to receive this vaccine can receive one, **11** states have expressly set a goal of vaccinating all eligible residents who want to receive the COVID-19 vaccine, consistent with national goals outlined in the CDC Playbook. Other states set specific numeric targets or deadlines. **Four** states discussed 80% as a target vaccination rate for the total population or subpopulations, or used it in calculations in the PanVax tool, while **two** states discussed 70% as a target vaccination rate. Since this was not specifically required of the states, most (**35**) did not include a specific vaccination target.



KEY CHALLENGES OUTLINED BY STATES

- ▶ Although states were not required to describe anticipated challenges, a number of states include them in their interim plans. **Twelve** states mention that their agencies are waiting on further information from the CDC and other federal partners on various aspects of distribution strategy. Seven states raised concerns about funding and the level of resources that the federal government will contribute to state vaccination efforts. Other key challenges that states mentioned include limited state and local resource and workforce capacity, logistical issues associated with vaccine distribution and storage, a lack of public confidence in vaccine efficacy and safety, and uncertainty about how to reach all target populations.



UTILIZATION OF NATIONAL GUARD

- ▶ **Twenty-four** states either outlined plans or are considering options to use their National Guard to support vaccine distribution efforts. Of those states, **eight** plan to involve the National Guard in vaccine transportation and logistics, if needed. A majority of states (**27**) did not specifically mention using their National Guard in interim plans; however, **52** states and territories are already using the National Guard under federally supported Title 32 status for COVID-19 response activities.



ENGAGEMENT OF NON-TRADITIONAL PROVIDERS

- ▶ **Twenty** states plan for potentially recruiting non-traditional vaccine providers to assist with vaccination efforts, including health professional students, dentists, veterinarians, and first responders, such as EMTs and paramedics. **Thirty** states did not mention utilizing non-traditional providers in their interim plans.



SUPPORTING ALLOCATION DECISION-MAKING

- ▶ **Twelve** states mentioned establishing specific allocation committees, working groups, or advisory groups to identify and prioritize critical populations and make recommendations for vaccine allocation. **Thirteen** states describe plans to engage stakeholders and groups focused on COVID-19 response more generally to provide input on allocation decisions.



SYSTEMS FOR VACCINE MANAGEMENT AND REPORTING

- ▶ All states plan to use their state immunization information systems (IISs) to support vaccine management in some capacity. **Nineteen** states plan to use their IIS as their sole system for vaccine management and reporting. **Twenty** states plan to also use PrepMod, the CDC-supported Vaccine Administration Management System (VAMS), or both systems to supplement their IIS. **Eleven** states were still considering the use of other systems to supplement their IIS if needed.



CONNECTING TO THE IMMUNIZATION (IZ) GATEWAY

▶ **Thirty-eight** states plan to use the IZ Gateway in some form, with most (**37**) specifying that they intend to use the “Connect” component to report vaccination data to the CDC, and **28** also specifying that they intend to use the “Share” component, which allows for immunization data to be shared between jurisdictions. **Four** states were planning to use the “Access” component, which allows for consumer access to their records in the IIS. **Six** states were still assessing their capabilities to connect to the IZ Gateway, **5** states did not mention the IZ Gateway in their plans, and one state specified that they do not intend to connect to the IZ Gateway.



Key Themes and Strategies Across State Vaccination Plans

State vaccination plans outline detailed objectives and processes across a range of vaccination planning activities and include a variety of approaches for addressing some of the most complex aspects of vaccine distribution and administration. The following sections outline key themes across the major components of state plans and provide examples of state strategies and remaining challenges.

Setting a Vision: Vaccine Plan Goals, Principles, and Lessons Learned

While state plans are only required to address operational requirements outlined in the CDC Playbook, a number of states took the opportunity to set a guiding vision for their vaccination efforts, including setting broad goals, outlining principles to guide planning, and detailing potential challenges and lessons learned from previous vaccination efforts. Setting a clear vision can help align planning objectives across partners and ground discussions to ensure everyone is working towards the same goals. Among states that laid out programmatic goals, principles, and lessons learned, some key themes include:

- ▶ **Setting Overall Vaccination Targets:** While states were not required to set overall vaccination targets as part of their plans, a minority of states chose to set vaccination goals, with most of those (11) saying they aimed to vaccinate all who wanted to be vaccinated. Several states set numerical goals of 80% (CDC recommendation in the PanVax tool) or 70% consistent with the Healthy People 2030 goal for uptake of seasonal influenza vaccine. **Nevada** set a time parameter and is targeting 80% vaccination of Tier 1 critical workforce within 60 days.
- ▶ **Defining Guiding Principles:** Several states used this opportunity to lay out principles aligning vaccine efforts to the state's larger COVID-19 response or that guide each step of the planning process. For instance, **Maine** will use the principles of equity, accessibility, and flexibility to guide its planning approach. **North Carolina** built on the state's overall pandemic response goals and pillars to emphasize equitable access, inclusive planning, transparent and frequent communication with the public, use of data to promote equity and guide decision-making, and appropriate stewardship of resources. In addition to setting out high-level goals, many other states contain more detailed planning goals related to program activities.
- ▶ **Building on Gaps and Lessons Learned:** A number of states expounded on lessons learned from H1N1, seasonal flu, and other preparedness activities. Many states highlighted lessons learned from the H1N1 vaccine response, which included the need to improve reporting capacity, respond to low public demand, address challenges with logistics and supplies, improve coordination with partners, and augment funding and workforce. A number of states cited recent Hepatitis A outbreaks as reinforcing the need for close coordination with congregate care settings and organizations providing outreach to people experiencing homelessness and other high-risk populations. Additionally, several states are using this year's seasonal flu campaign as an exercise to prepare for COVID-19 vaccine distribution and administration.

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Cross-Cutting Challenges and Unique Considerations for States and Territories

States identified a myriad of challenges that must be addressed to successfully execute a mass vaccination campaign of the scale and complexity that will be required for COVID-19. Some of these challenges are common across all states, while others are specific to unique conditions within individual states and territories. Specific challenges and considerations contained within state vaccination plans include:

- ▶ **Federal Funding for Vaccine Program Activities:** Many states cited concerns about public health and provider capacity in regard to their own planning activities. While not requested by CDC, at least **seven** states used their state plans to highlight the need for additional federal funding to support vaccine for activities such as building data systems, supporting mass vaccine clinics, constructing mass vaccine sites, cold-chain storage and transportation, procuring PPE and ancillary supplies, funding communications efforts, and other needs. **Virginia** conducted a preparedness gap analysis and estimated over \$120 million in unmet funding that will be required to support their efforts. **North Dakota** also raised that the limited funding allocated to the vaccine program would not be sufficient to support a campaign of the magnitude required, with state and local public health resources facing competing demands for other COVID-19 response activities. Additionally, **24** states indicated in their plans that they are either planning or considering using their National Guard resources to augment vaccine capacity, and **52** states and territories are already using the National Guard under federally supported Title 32 status for COVID-19 response activities. This mission was extended on December 3 through March 31, 2021, though there are funding ramifications due to a 25 percent cost share requirement. It is likely continued extensions will be needed throughout the remainder of the COVID-19 crisis. Without this authority, state and territories will have to decide if they can afford to maintain the Guard under state active duty. While some plans provided preliminary numbers, states and territories will continue to gain better understanding of additional support, resource, and funding needs to carry out the largest vaccination effort in history.
- ▶ **Information and Guidance from the Federal Government:** While virtually all states acknowledged logistical and planning challenges related to uncertainty regarding vaccine effectiveness, availability, and storage and handling requirements, at least **12** states highlighted the need for continued information and guidance from federal partners on issues such as data reporting requirements, training materials, and communications resources. While federal officials recently **announced** that vaccines will be allocated to states pro rata by population, additional questions remain regarding the methodology for entities receiving allocations directly from the CDC outside of the state allocation, including tribal governments opting to receive vaccines through the Indian Health Service, as well as pharmacies contracted to serve long-term care facilities. **New Mexico** highlighted a number of critical questions for the CDC and other federal partners, including the criteria that will be used for initial allocation decisions, what vaccine-specific training will be available for vaccines with differing storage and handling requirements, how providers will be reimbursed for vaccine administration fees, and what federal support will be made available for costs related to vaccine administration. This is reflective of concerns about whether administration fees will be adequate for resource-limited providers, particularly in rural areas where it may be more costly or difficult to administer vaccines.

At least **seven** states used their state plans to highlight the need for additional federal funding to support vaccine for activities such as building data systems, supporting mass vaccine clinics, constructing mass vaccine sites, cold-chain storage and transportation, procuring PPE and ancillary supplies, funding communications efforts, and other needs.

Additionally, a number of states also raised potential challenges related to barriers to engaging underserved communities that may have a distrust for public health or health systems, as well as rising levels of overall vaccine hesitancy and misinformation.

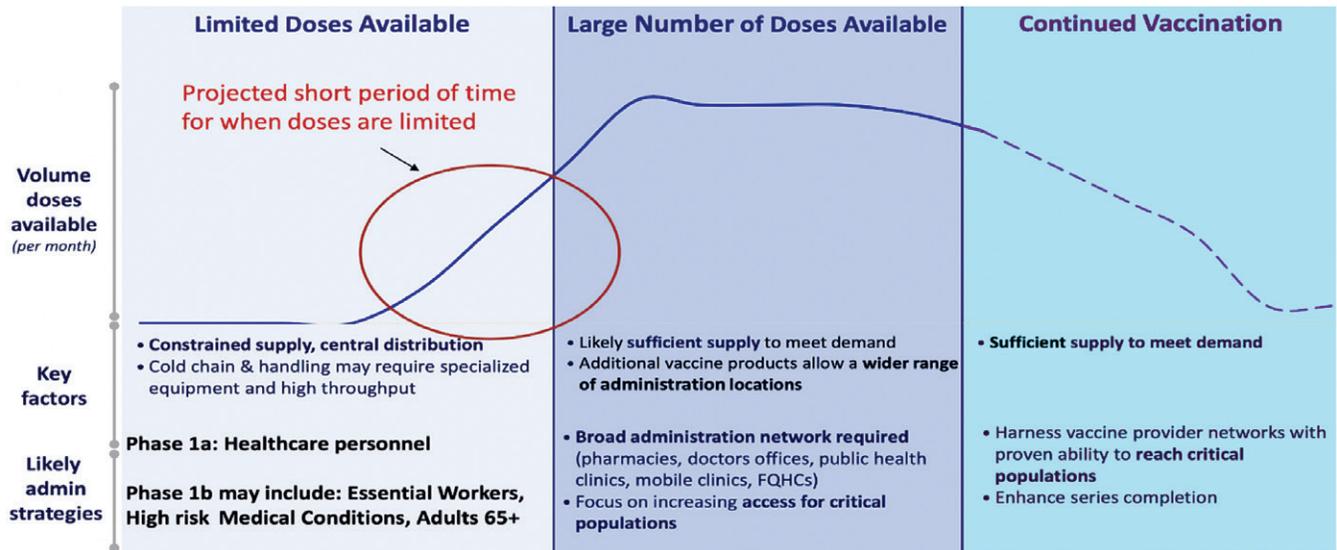
- ▶ **State-Specific Considerations:** At least **18** states highlighted specific challenges or considerations related to their own populations, patterns of disease transmission, public health infrastructure, or other factors. Whether a state's public health governance is centralized or decentralized, and whether large cities or tribal governments will receive a separate vaccine allocation from the CDC are factors that will affect coordination and planning approaches. Many rural states highlighted additional challenges related to workforce capacity, as well as distribution, cost, and access for rural populations. **Alaska's** plan noted that over 80% of their communities are geographically isolated and only accessible by water or air—compounding existing challenges for distribution to critical populations and ensuring broader access to vaccines, particularly for early shipments of vaccines requiring ultra-cold chain storage that will be packaged in shipments of 1,000 vaccines. Additionally, a number of states also raised potential challenges related to barriers to engaging underserved communities that may have a distrust for public health or health systems, as well as rising levels of overall vaccine hesitancy and misinformation. Solutions for building trust in communities as well as other challenges raised by states are highlighted later sections in this report.
- ▶ **Challenges and Considerations for U.S. Territories and Freely-Associated States:** U.S. territories and freely-associated states, including American Samoa, Guam, the Marshall Islands, Micronesia, the Northern Marianas Islands, Palau, and the U.S. Virgin Islands, all receive VFC funding for their immunization programs and are required to submit jurisdictional COVID-19 vaccination plans. While territorial planning efforts include many components similar to state plans, territories may face specific logistical or resource challenges, as well as unique considerations that require differing approaches to those being adopted in the continental United States. Notably, **American Samoa** reported being COVID-19 free at the time of their plan submission. To support distribution across phases, **Puerto Rico** plans to leverage its 66 hospitals to vaccinate critical populations in Phase 1, while establishing memoranda of understanding (MOUs) with private sector vaccinators, mobile vaccine providers, and public health sponsored clinics that can enable a high throughput of vaccinated individuals while maintaining social distancing and infection control procedures. In jurisdictions with many outlying island components, main islands are the initial focus: **Micronesia** is prioritizing its four main islands, with the lagoon and outlying neighboring islands to follow; the **Marshall Islands** will also initially focus on its two main islands. The Marshall Islands will specifically prioritize essential workers from Points of Entry, especially important for island jurisdictions. To reach its population, **Palau** plans to use schools as after-hours Points of Dispensing (PODs), and their plan includes a weekly schedule of the sites to be used. Palau also plans to conduct surveys after town hall meetings to assess community knowledge, opinions, and feelings about vaccine uptake. Finally, ultra-cold storage is especially challenging for these jurisdictions: American Samoa, Micronesia, and Palau indicated that they do not have any ultra-cold storage capacity, and Micronesia and Palau emphasized that they entirely lack dry ice vendors. Guam noted its Department of Public Health and Social Services does have limited cold storage devices, but they already contain routine adult and child vaccines, so Guam will be procuring additional units.

While territorial planning efforts include many components similar to state plans, territories may face specific logistical or resource challenges, as well as unique considerations that require differing approaches to those being adopted in the continental U.S.

Determining Allocations to Critical Populations

As initial vaccine availability is expected to be limited, the CDC Playbook instructs states to begin preparing for distribution of vaccines to critical populations in three phases as supply of available vaccine increases (see Figure 1):

FIGURE 1: VACCINE ADMINISTRATION BY PHASE



Source: Adapted from CDC ACIP [Sept 2020](#) and [Dec 2020](#) meeting presentation

Based on vaccine availability, states will need to make decisions about critical populations that will receive prioritization for vaccine access within each phase. These decisions will be informed by recommendations from the CDC's [Advisory Committee on immunization Practices \(ACIP\)](#)³. Guided by these recommendations, states will determine allocation for early vaccine supply to prioritized critical populations, which may include health care personnel with a high risk of exposure, non-health care essential workers, and adults with a high risk of severe illness (including older adults and individuals living in congregate care settings). On December 1, ACIP voted to recommend that health care personnel and residents and staff of long-term care facilities be prioritized as a part of Phase 1a distribution. In its discussion, ACIP also [outlined plans](#) for prioritization of essential workers and adults with high-risk medical conditions and older adults in Phases 1b and 1c respectively. The committee will continue to provide further recommendations, with later phases potentially including other populations at higher risk of exposure or poor outcomes due to COVID-19, followed by young adults, children, and anyone not already vaccinated in previous phases (see Figure 2).

FIGURE 2: POTENTIAL PRIORITIZATION OF CRITICAL POPULATIONS ACROSS PHASES

Phase 1* (~261 M+)	Additional Prioritization to Be Determined in Later Phases
Phase 1a <ul style="list-style-type: none"> Health care personnel: ~21 M Long-term care facility residents: ~3 M 	<ul style="list-style-type: none"> Staff and residents of other congregate living facilities People of all ages with conditions that put them at <i>moderately</i> higher risk Prisoners, detainees, and staff Young adults Children Everyone residing in the United States who did not have access to the vaccine in previous phases
Phase 1b <ul style="list-style-type: none"> Essential workers (non-healthcare): ~87 M 	
Phase 1c <ul style="list-style-type: none"> Adults with high-risk medical conditions: >100 M Adults ≥ 65 years**: ~50 M 	
<small>* CDC ACIP Dec 2020 meeting presentation **Excluding older adults in LTCFs</small>	

³ In September 2020, the National Institutes of Health and CDC commissioned the National Academies of Sciences, Engineering, and Medicine (NASEM) to produce a consensus study to assist policymakers in planning for the equitable

In their vaccination plans, states have taken a variety of approaches to defining and estimating critical populations, developing processes or formulas for further refining subpopulations when vaccines are limited, and developing processes for determining equitable allocations. In a rapidly changing information environment, with many remaining unknowns regarding vaccine availability, efficacy across populations, handling requirements, and potential demand for the vaccine, states will need to be flexible and adaptive in adjusting their strategies and tactics in responding to challenges. Ensuring strong mechanisms for input, partner coordination, and communication can help ensure that states can course correct to shift resources or efficiently target populations most at-risk from COVID-19. Approaches include:

▸ **Defining, Estimating, and Locating Critical Populations:** To support allocation planning, CDC guidance outlines a lengthy list of critical populations to identify and estimate within each state. These populations include critical infrastructure workforce (e.g., health care personnel and other essential workers), populations at increased risk of severe illness (e.g., long-term care facility residents, adults with significant risk factors), populations at risk of acquiring or transmitting COVID-19 (e.g., individuals within racial or ethnic minorities, individuals in congregate care settings, individuals in educational settings), and people with limited access to routine vaccination services (e.g., individuals in rural or underserved communities). States are utilizing a range of federal and state data and input from partners to define and estimate these populations. Many states are leveraging [guidance](#) from the Cybersecurity and Infrastructure Security Agency for definitions of essential workers. Other state examples of approaches for identifying and estimating critical populations include:

- Given that health care workers will most likely be the first to receive limited allocations of vaccines, many states are focusing early efforts on accurately estimating health care personnel at high risk of exposure through existing data sources, surveys, and engagement with health care systems and provider associations. **Nebraska** is using data from the U.S. Census Bureau American Community Survey, Bureau of Labor Statistics, Nebraska Department of Labor, and National Healthcare Safety Network to estimate numbers of health care and long-term care workforce. The state is conducting surveys and collaborating with the Nebraska Hospital Association and local health departments to better estimate facility-level numbers and estimates at the local level.
- **Idaho** is working closely with local public health districts, local and tribal governments, and health care providers to identify and estimate critical populations. Idaho's Department of Health and Welfare developed a survey of providers and provider organizations to understand which providers serve critical populations, and will engage with the Idaho Hospital Association and other health care organizations to provide input on sub-prioritization and approaches for vaccinating health care personnel in rural communities. Idaho will also leverage its COVID-19 Vaccine Advisory Committee, with representation from tribes, priority populations, and health care systems, to advise the Governor and state and local entities on prioritization of vaccines when they are in limited supply.
- **Ohio** engaged third-party support to develop a vaccine deployment analytical tool with the ability to identify and locate critical population groups based on census data, and medical claims, as well as labor, school district, and university enrollment data.
- While **Maryland** is using population estimates from previous mass vaccination events as well as facility/organization surveys to estimate critical populations, the state will also ask Maryland residents to preregister to receive a COVID-19 vaccine. The state will work with Phase 1 facilities to preregister critical care staff and residents in order to estimate and target critical populations.

While many states have already outlined priority populations for initial distribution, many have built in flexibility for incorporating ACIP recommendations, as well as adjusting to local factors such as provider enrollment, vaccine storage capacity, distribution of critical populations across the state, patterns of disease transmission, and other factors.

▸ **Developing Processes for Determining Allocations:** Federal officials recently [announced](#) that vaccines will be allocated pro rata by population, rather than based on numbers of critical populations within each state, and have provided states with tools to determine rough estimates of how many vaccine doses they may receive. With this preliminary data, states are identifying how to further prioritize within Phase 1 populations when vaccine supply is insufficient to reach all critical populations. States are implementing a variety of approaches for allocating initially limited vaccine supplies in a manner that is transparent, equitable, and maximizes public health benefit. While many states have already outlined priority populations for initial distribution, many have built in flexibility for incorporating ACIP recommendations, as well as adjusting to local factors such as provider enrollment, vaccine storage capacity, distribution of critical populations across the state, patterns of disease transmission, and other factors. As instructed by the CDC, states are also planning to respond to both high and low-demand scenarios, which states should factor in to allocation decisions. In some places, demand may exceed supply. However, with recent [polling](#) showing significant levels of hesitancy among health care workers, states also may need to consider how and when to shift toward distribution to other critical Phase 1 populations if there are not enough individuals interested in getting the vaccine. State plans vary considerably in their allocation methodologies and processes, with some notable approaches including:

- **Leveraging Advisory Committees:** **Twelve** states established specific allocation committees, working groups, or advisory groups to identify and prioritize critical populations and make recommendations for vaccine allocation, while **13** states describe plans to engage stakeholders and groups focused on COVID-19 response more generally to provide input on allocation decisions. **Kentucky's** Department of Public Health will establish a Vaccine Allocation Committee that will include the Kentucky Health and Medical Preparedness Committee (HMPAC), leadership from the state's COVID-19 planning and coordination team, and representatives of critical population groups. The committee will review and discuss CDC guidance and advise on whether the vaccine targeting guidance should be used or if it should be modified and how, based upon Kentucky's unique circumstances. The recommendations will then be reviewed by the Governor and the Public Health Commissioner for final endorsement or adjustment. Similarly, **Arizona's** Vaccine and Antiviral Prioritization Advisory Committee (VAPAC) will provide recommendations on eligible populations throughout the distribution cycle, allocations to 15 local health departments and 638 local allocators will be on a pro rata basis based on populations of priority groups recommended by the VAPAC.
- **Prioritizing Subpopulations Within Critical Populations:** While ACIP will recommend critical populations for early distribution, [priority groups within Phase 1](#) represent a significant percentage of the population, with roughly 21 million Americans classified as health care workers and over 100 million people with high-risk medical conditions. Accordingly, states are developing strategies or processes for refining and prioritizing subpopulations within each phase, while working with a wide variety of partners to accurately estimate and locate these populations. While a number of state plans describe the creation of advisory committees to oversee the identification and prioritization of subpopulations when vaccine supply is insufficient, other state vaccine programs have already outlined methodologies for further refining subpopulations. For example, **Colorado's** plan identifies critical workforce and individuals in high-risk settings as priority populations for Phases 1 and 2, but across all phases, individuals with high-risk conditions will be prioritized over those without additional risk factors. Similarly, **North Carolina** will prioritize individuals with two or more chronic conditions within populations prioritized in Phases 1b and 2.
- **Data-Driven Allocation Approaches:** States are utilizing a wide variety of strategies, tools, and technologies to identify and map critical populations, local disease transmission, and providers serving critical populations to guide allocation decision-making. **New York** developed a Vaccine Prioritization Matrix, which the state will use to further target distribution among priority groups if supply is limited. The matrix involves determinations around which areas of the state may derive a greater public health benefit from receiving early vaccines based on COVID-19 prevalence or historical burden of disease. The state will also consider individual factors for hospitals and nursing homes, such as case rates. Under a methodology approved by the Governor's COVID-19 Mitigation and Management Task Force, **Nevada** will identify counties flagged for elevated disease transmission. Based on real-time analysis, the Nevada State Immunization Program will apply a data-driven approach to allocate to health care and critical infrastructure workers in those counties with elevated risks of exposure.

Planning for A Phased Approach: Distribution Strategies Across Phases

States must address a variety of operational considerations and challenges to equitably and efficiently distribute and administer vaccines across the defined phases. Different planning challenges include targeting subpopulations, increasing provider workforce capacity, ensuring vaccine handling and storage requirements are met, and planning mass vaccination locations that can maximize the number of people vaccinated while maintaining adequate social distancing. Critical steps and strategies for addressing these challenges include:

- ▶ **Recruiting and Enrolling Providers for Each Phase of Distribution:** Many state immunization programs already have a robust network of providers and health systems enrolled as vaccine providers. However, additional provider capacity will be needed to support distribution at this scale. While working to expand the workforce of potential vaccine providers, states will need to ensure that providers can meet requirements outlined in the CDC's COVID-19 Vaccination Program Provider Agreement, assess each provider's capacity for vaccine storage and handling, deliver vaccinator training, ensure providers are enrolled in the state's IIS, and continue to monitor vaccine accessibility for critical populations. The following are examples of state approaches for increasing and assessing vaccine provider capacity:
 - **Health System and Provider Engagement:** Through external advisory boards and direct outreach, states are conducting surveys and contacting state health systems, provider associations, professional boards, and other partners to recruit and enroll additional providers. To support adequate provider and health system recruitment in Phase 1, **South Dakota** recruited its three primary health systems and large independent hospitals to ensure that affiliated clinics will complete provider enrollment and redistribution agreements. For later phases, the state will engage the state pharmacy association, as well as state boards of pharmacy, medical and osteopathic examiners, and nursing, along with other partners, to recruit previously unenrolled providers.
 - **Recruiting Non-Traditional Providers:** Expanding the pool of potential vaccinators will be a key strategy for expanding access to the vaccine in later phases, with CDC guidance advising states to review state practice acts to allow for expanded professional practice. Several states, including **Illinois** and **Vermont**, are examining expanding scope of practice laws and/or regulations for professionals such as advanced EMTs and paramedics. A number of other states identified non-traditional providers that could potentially provide surge support. **Indiana's** plan notes that respiratory therapists, dentists and dental hygienists, podiatrists, midwives, and veterinarians may be able to provide additional support and capacity. **Illinois** is also leveraging "Illinois Helps," a state registry of medical and non-medical professionals that can support qualifying organizations. The federal government also has the authority to expand scope of practice regulations under the Public Readiness and Emergency Preparedness (PREP) Act. HHS has already authorized pharmacists to procure and administer COVID-19 vaccines once authorized by the FDA, which preempts any state law to the contrary. Thus, states and the federal government may consider further expansions of scope of practices for COVID-19 vaccine administration.
- ▶ **Assessing Provider Capacity to Meet Vaccination Needs:** Many states are utilizing REDCap for onboarding providers, a system that can collect required CDC data elements and agreements, including facility target populations, and storage capacity. This data can be paired with mapping platforms, such as OWS's Tiberius system or ArcGIS to map and overlay critical populations and provider capacity, to identify underserved populations. States are also using tools such as the CDC's Social Vulnerability Index or state vulnerability indexes for locating areas with significant health disparities to determine where additional resources may be needed. **West Virginia** has engaged a university partner to develop a data visualization project that will overlay critical populations with enrolled providers with the goal of identifying underserved areas. States are also assessing providers' ability to meet cold and ultra-cold storage requirements for certain vaccines (see "Ensuring Effective Distribution and Management" for more details on these considerations).

- ▶ **Developing Distribution Strategies for Phase 1:** With states focused on initial Phase 1 distribution, early state planning activities have focused on engaging critical partners in planning for vaccinating health care personnel in PODs in settings such as hospitals or health systems, long-term care facilities, occupational health settings, critical access hospitals, community health centers, or mobile vaccination units. The CDC also has agreements with large pharmacy chains to assist with on-site vaccination for LTCFs, which can opt to receive an allocation directly from the CDC. Virtually all states are planning on using closed PODs for administration of initial supply. In **Kansas**, the state hospital association surveyed all 121 hospitals to determine capacity and willingness to vaccinate health care workers in their communities. Building on the state’s influenza playbook and previous lessons learned, the Kansas Immunization Program plans to conduct mobile clinics for areas of the state with limited access to providers. For early Phase 1 populations, **Maine** is planning on holding closed PODs and using mobile “strike teams” to vaccinate the highest priority health care workers, critical infrastructure workers, and LTCFs. Similarly, **New Jersey** will establish closed PODs at acute care hospitals (serving health care workers), local health departments (first responders, critical infrastructure, at-risk populations) and Federally-Qualified Health Centers (FQHCs) (at-risk populations). To support rapid distribution once an Emergency Use Authorization (EUA) is issued and ACIP recommendations are made, the CDC has requested that states identify “pre-positioning sites” capable of ultra-cold storage and with the potential to serve any possible priority groups in Phase 1.

“Push” and “Pull” Distribution Strategies

Strategies for vaccine distribution generally fall into two models:

- **Pull models** allow the public to retrieve vaccines from PODs (e.g., drive-through clinics, clinics established at schools, and other areas)
- **Push models** require state and local officials to coordinate with providers and organizations (e.g. primary care doctors, community health centers, home health care workers, community organizations and others) to deliver the vaccine to populations that may be unable or unwilling to receive a vaccine at a POD

- ▶ **Developing Distribution Strategies to Support Increased Access as Vaccine Supply Expands:** As vaccine supply increases and a critical mass of priority populations have been vaccinated, states have outlined plans to shift from a closed to open POD “pull” strategy, and ultimately incorporate efforts to “push” vaccine to a variety of community settings. In Phases 2 and 3, when supply is sufficient, states will need to continue efforts to engage critical populations at high risk of exposure or poor outcomes from COVID-19, many of whom may be hesitant to receive a vaccine or face barriers to access. As a rural state, **New Mexico** is examining a variety of vaccine delivery modalities to address barriers facing underserved populations, including leveraging seasonal influenza and COVID-19 drive-through testing sites as mass vaccination sites, encouraging pharmacies to set up outreach clinics and PODs in each region, and leveraging diverse sites such as mobile health clinics, FQHCs, IHS clinics, homeless shelters, harm reduction sites, churches, and primary care offices to reach critical populations. In addition to mass vaccination clinics, primary care providers, pharmacists, community health centers, local health departments, and community organizations play a prominent role in Phase 2 and 3 distribution strategies across states. **Massachusetts** highlights the importance of its network of community health centers in reaching high-risk communities, due to their longstanding relationships with communities of color, LGBT, and non-US born communities. **Vermont** plans to expand its Phase 1 efforts to include drive-through clinics, outreach into rural and urban communities, as well as leveraging the state’s strong medical home system.

New Jersey will establish closed PODs at acute care hospitals (serving health care workers), local health departments (first responders, critical infrastructure, at-risk populations) and Federally-Qualified Health Centers (FQHCs) (at-risk populations).

Ensuring Effective Distribution and Management

Ensuring effective distribution and administration of vaccines involves complex management and logistics. States and the federal government have experience and processes upon which to build; however, the scale, pace, and other dynamics of COVID-19 vaccine distribution and administration present new and complicating factors. It is anticipated that multiple vaccines, each with unique storage and handling requirements, will be authorized or approved for COVID-19. Both vaccine candidates currently under consideration for EUAs, Pfizer and Moderna, will require two dose regimens. While the Moderna vaccine can be stored at cold (-20°C/-4°F) temperatures, Pfizer's vaccine will require ultra-cold storage (-80°C to -60°C / -112°F to -76°F). Vaccines requiring ultra-cold storage present particular challenges as they need to be transported and stored utilizing specialized freezers, dry ice, and other equipment, and each shipment is expected to contain a minimum of 975 doses. State plans address these planning considerations in varying levels of detail. Strategies, common themes, and key issues related to distribution and management are outlined in state plans include:

- ▶ **Ensuring Adequate Storage Capacity:** Successful vaccine distribution and administration will depend on the capacity of providers to properly receive, store, and handle vaccines. Ultra-cold storage requirements for vaccines are unprecedented and the specialized freezers necessary for storage are limited, particularly in rural areas. While some states provided initial plans based on their understanding of provider capacity, many jurisdictions indicated they are still assessing provider capacity for cold and ultra-cold storage as part of ongoing provider enrollment. Capacity assessments will be important in informing a state's overall distribution approach and how individuals in rural and other areas with limited ultra-cold storage capacity will access vaccines. For example, **Missouri** plans to only distribute ultra-cold vaccine in large metro areas during Phase 1 and monitor ability to expand as vaccine becomes more widely available. Other states, like **North Dakota**, plan to use dry ice to transport and temporarily store ultra-cold vaccine in areas without freezers. Initial shipments of ultra-cold vaccine will arrive in temperature-controlled containers utilizing dry ice to maintain conditions for **ten** days. States will be responsible for procuring any replacement dry ice necessary to maintain vaccines beyond **ten** days. Some states specifically mention dry ice procurement in their plans, such as **Indiana's** strategy to engage dry ice vendors by way of a bidding process. Additionally, both **Idaho** and **New Mexico** curated lists for providers on where they can obtain dry ice.
- ▶ **Supplementing PPE and Ancillary Supplies:** In addition to storage capacity, providers will need appropriate supplies to properly handle and administer vaccines. As part of centralized federal distribution efforts, supply kits will be shipped directly to provider sites. However, the kits will not include certain supplies such as sharps containers, gloves, bandages, and additional PPE that some sites may need, which may necessitate state procurement. Although most state plans do not yet address strategies to procure ancillary supplies, some indicated efforts to monitor PPE and alert localities about shortages. For example, **Maine** will monitor PPE at the state level as the state's CDC Public Health Emergency Preparedness division oversees obtaining and distributing ancillary supplies. Additionally, **Iowa** is working with local public health agencies and emergency management personnel to assure guidance and availability of supplemental supplies through local coordinators. The state is also working with local providers to ensure availability of an adequate supply of sharps containers and that sharps disposal contracts are in place.
- ▶ **Ensuring Adequate Provider Training:** Proper storage and handling of vaccines requires well-trained staff, reliable monitoring equipment, and accurate inventory management. State plans outline a variety of training methods and requirements for storage, handling, safe administration, reporting, and proper sharing

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of relevant materials for vaccine recipients. **Oregon** will require two specially trained immunization staff at every site to oversee vaccine storage, handling, and documentation. In **Maryland**, training methods will include webinars, a website, and self-guided training that allows a flexible, convenient approach for providers to complete their training alongside the written training materials developed by CDC. In **Washington**, the Health Department is implementing the training required by the CDC for receiving the COVID-19 vaccine (e.g., You Call the Shots Vaccine Storage and Handling and the CDC Storage and Handling Toolkit). In addition, enrolled providers will receive trainings on the enrollment process, use of IIS and other data software, and distribution guidelines through live and recorded webinars. States also outlined objectives to train providers on key materials for vaccine recipients (e.g. EUA fact sheets and Vaccine Information Statements) and highlighted the importance of producing materials in multiple languages that are culturally responsive, bias-free, compliant with the Americans with Disabilities Act, and clearly written. Ultimately, one of the goals of such materials, which may include notices of information and disclosures, is to help ensure safe administration and to obtain patient consent and understanding for subsequent vaccination. Many states expressed the need for additional information and training protocols from the federal government specific to the various vaccine candidates.

- ▶ **Setting Guidelines for Redistribution:** While vaccine doses and related supplies will be shipped directly to provider sites, capacity challenges, supply and demand dynamics, and other factors may necessitate some level of redistribution within states. Importantly, states will have to bear the costs of redistribution, which raises important questions around associated risks with vaccine wastage and mishandling. Some states note that redistribution will be very limited, and several states explicitly stated that redistribution will only occur for refrigerated vaccines, as opposed to those requiring freezers or ultra-cold storage. Other states lay out detailed plans for getting vaccines to provider sites that may be unable to receive and store ultra-cold vaccines and larger shipments. **Arizona** notes that redistribution of vaccines requiring ultra-cold storage in 100-200 dose increments would enable the jurisdiction to meet the demand of health care personnel in smaller communities during Phase 1. In **New Mexico**, health care providers with sufficient storage capacity may act as redistribution hubs for smaller hospital and community dispensing partners. In these instances, providers may be allowed to redistribute vaccine if approved by the jurisdiction's immunization program and if validated cold-chain procedures are in place. In **Nebraska**, redistribution requests and satellite storage will be considered based on the number of anticipated recipients and availability of proper equipment and ancillary supplies. Some states are also considering thresholds for redistribution of vaccines should an outbreak occur within their jurisdiction and how they can rapidly set-up mass immunization clinics. **Indiana** mentions possibly leveraging its model for testing by utilizing mobile response vehicles for redistribution across its **ten** preparedness districts. Each vehicle will be outfitted with cold storage capabilities. In **Oklahoma**, a hotline is being set up to aid vaccine providers in reporting unused vaccines that can be retrieved and redistributed.
- ▶ **Preparing for Wastage and Disposal:** Although states are working to solidify logistics to ensure all vaccine doses they receive are used, it is likely that some will expire or lose viability during the distribution, storage, and handling processes. To prepare for this, most states have included some detail on wastage and disposal considerations in their plans. However, many states indicated that additional guidance is needed from the federal government on how to minimize waste and properly dispose of vaccines. **Nevada** notes that if vaccine is exposed to out-of-range temperatures, it will be labeled "do not use" and stored at the required temperature until further information can be gathered. **Texas** emphasized consistent monitoring of supply to minimize waste and will have sites report wasted vaccine or adjuvants within twenty-four hours after which disposal will occur in accordance with state regulations for biological waste.

Building a Robust Data Infrastructure for Managing, Tracking, and Reporting Vaccine Information

A robust data infrastructure is essential for state and local public health jurisdictions and federal partners to operationalize vaccine distribution and administration and have timely and complete access to information. An end-to-end [vaccine program data infrastructure](#) should meet vaccine program functions for distribution, monitoring, tracking, provider enrollment, administration, and reporting according to state and federal requirements. Although states have existing data infrastructure on which to build, new processes, requirements, and systems for COVID-19 vaccines must be addressed. A number of key themes, challenges and strategies for data infrastructure were outlined in states plans, including:

- ▶ **Leveraging IISs and Other External Systems:** A critical part of state planning efforts to date has involved evaluation of vaccine data requirements and needs to determine if existing IIS systems should be 1) used with additional functionality development, 2) integrated with third-party tools or 3) or supplemented with federal technology available for state use, such as the CDC-supported VAMS. While all states intend to leverage their existing IISs in some capacity, at least **ten** states indicated they plan to use their state IIS as their primary system for vaccine management and reporting and many may be adapting the system to meet new requirements. For example, **Wyoming** will be installing a system enhancement that will allow for multiple provider type listings within its IIS including a COVID-19 provider type. Other states plan to or are exploring options to integrate or supplement the IIS with other systems to support administration, monitoring, reporting or other functions. Specifically, **20** states indicated plans to use PrepMod, VAMS, or both, though more states indicated that they are still considering the use of these systems. Indiana is currently evaluating PrepMod as an option to help providers collect and report vaccine information to the IIS and will use Tiberius as a visualization tool for allocations, vaccine administration data monitoring, and transparency. Notably, new federal systems (e.g., VAMS) have not undergone significant testing and can create significant risk with a complex program rollout. States have indicated additional guidance is needed detailing how these new systems will interface with existing IIS, integration specifications, testing and training plans, and other operational details.

Additional electronic systems available to augment IIS systems capabilities include:

- **Tiberius platform** integrates the related manufacturing, supply chain, allocation, state and territory planning, delivery and administration of both vaccine products and ancillary kits.
- **PrepMod** is a third-party functionality that can be used to conduct satellite, temporary, or off-site vaccination clinics that will connect to the IIS for real-time reporting and monitoring of uptake, coverage, and supply inventory.
- **Vaccine Administration Management System (VAMS)** is a CDC provided system that states can leverage for mass vaccination sites for registration, scheduling, documentation, and reporting vaccine dose administration.
- **IZ Gateway** has three modules for vaccine program use. 1) Connect – enabling national provider organizations (i.e., VA, DoD, Bureau of Prisons) connections to multiple IIS systems and CDC reporting, 2) Share – cross-jurisdictional IIS to IIS query, 3) Access – consumer access.

- ▶ **Supporting Provider Functionality and Internet Access:** Newly authorized vaccine providers (e.g., pharmacists) and setting types (e.g., mass vaccination sites) may experience enrollment and reporting challenges due to a lack of technical functionality and connectivity to the IIS. Further, vaccination sites in rural settings may not have access to the internet for meeting documentation and reporting requirements. To solve these challenges, state plans outlined a variety of options for providers to report data to the IIS and navigate limited broadband capacity. Most state IIS functions allow for multiple reporting methods for required vaccine data. Examples include existing data interfaces with providers' electronic health records , use of third-party tools for multiple functions and interfacing with IIS and other electronic systems, mass vaccination online tools, manual data entry into IIS through web form, or access to a downloadable excel template for offline use and delayed IIS upload. States have also identified back-up plans for providers that may have limited internet access including use of mobile hot spots, delayed data entry, or paper records. For

example, **Alabama** noted that it will provide an Excel template for health care providers to enter data and will build a module in its IIS where providers can login and upload vaccination data when they gain internet access. Importantly, some of these methods could likely cause a delay in reporting and hinder compliance with 24-hour reporting requirements. Notably, some states, such as **Missouri**, have indicated that they will focus on initial vaccinators that have already established vaccination programs and verified state IIS interfaces.

- ▶ **Scaling IZ Gateway Connections and Interoperability for Federal Reporting:** The IZ Gateway was established several years ago to support data exchange among and between IIS systems, providers, and consumer access tools and is being leveraged for COVID-19 response to facilitate sharing of information between states and with the federal government. However, as of late last year, IZ Gateway was only in proof-of-concept phase and had seen limited uptake across states. Although **38** states have indicated they plan to use at least one component of the IZ Gateway and many have begun onboarding, only a handful are currently live on the platform. Thirty-seven states have noted that they plan to use the “Connect” component of IZ Gateway to report vaccination data to the CDC and twenty-eight states plan to use the “Share” component, which allows for immunization data to be shared among jurisdictions. Only four states have noted that they plan to use the “Access” component, which allows for consumer access to their records in the IIS. Six states were still assessing their capabilities to connect to the IZ Gateway, five states did not mention onboarding to the IZ Gateway in their plans, and one state stated that it will not be connecting to the IZ Gateway. Notably, while many states have indicated signing the data use agreement (DUA) to use IZ Gateway Connect some have explicitly noted they will not sign the memorandum of understanding for cross-jurisdiction IIS querying for IZ Gateway Share. For example, **Missouri** indicated that while they have executed a data use agreement to participate in IZ Gateway Connect they are exploring other avenues for cross-jurisdictional sharing outside of IZ Gateway Share. Additional guidance and details on system requirements, system access, and security provisions, as well as implementation details, may help enable more and faster state onboarding and use of IZ Gateway.
- ▶ **Addressing Legal and Regulatory Challenges Related to Information Sharing:** Federal requests for identified data have created challenges for immunization programs. Multiple states have indicated that laws in their state prohibit reporting of identifiable data to CDC. State laws may also dictate certain consent processes for reporting information or place limits on cross-jurisdictional information sharing. Due to jurisdictional laws and policies, a number of states and local jurisdictions have voiced concerns that they may not be able to sign DUAs that require them to send identified data to CDC, particularly when system requirements, system access, and security provisions have not been published. States continue to review and negotiate legal issues surrounding DUAs or MOUs for sharing vaccine administration data with the CDC and other entities through relevant information-sharing platforms.
- ▶ **Supporting Data Dashboards for Public Reporting:** To provide transparency on vaccination efforts, most states plan to maintain dashboards to track vaccine uptake and share this data with the public. Idaho is in the process of identifying metrics for vaccine distribution and administration that will be included on its public-facing website. Metrics may include which may include the number of providers enrolled to be COVID-19 vaccination providers and the number of vaccine doses distributed and administered by county, age-group, and facility. The state anticipates incorporating vaccination data into Tableau dashboards for data visualization. **Oregon** will track and publish vaccination metrics through a public dashboard that will track 1 and 2-dose vaccine uptake by county, race and ethnicity, age, and gender, with the potential to include information on vaccine uptake across priority populations. **Michigan** also plans to track COVID-19 vaccination administrations on a public-facing dashboard, which is being built on the same platform the state is using for its recently developed flu dashboard and allows users to view aggregate level data across the state for analysis.

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Supporting Equity in Distribution and Access

The COVID-19 pandemic has magnified existing disparities in health resulting in [well-documented](#) disproportionate burden of COVID-19 related morbidity and mortality among Black, Indigenous, and other people of color (BIPOC). Some of these disparities can be attributed to over representation of BIPOC people in many critical population categories, including essential workers, people who are incarcerated, and people living in congregate living settings (e.g., homeless shelters, group homes). Given the disproportionate impact of COVID-19 on these populations, states should consider targeted strategies to ensure that vaccines will be equitably and effectively distributed to BIPOC communities at high risk. At the same time, high levels of [hesitancy](#) about a potential COVID-19 vaccine among racial and ethnic minorities may reflect historical and ongoing discrimination in the health care system and beyond. States will need to not only determine how and when to prioritize these populations for vaccine distribution and ensure access through distribution channels, but also need to engage community leaders and other trusted messengers to listen to and communicate with individuals about the safety and efficacy of the vaccine to better ensure uptake and informed decision-making.

With those factors in mind, many states have incorporated health equity principles in their vaccination plans to varying degrees. Examples include coordination with state health equity task forces, community engagement primarily for purposes of messaging and education, and co-leadership or collaboration with tribal communities. Many states are focused on supply-side strategies such as increased provider outreach; while other states have more community-oriented strategies to address and prioritize community needs. However, there are opportunities to strengthen coordination with existing state health equity taskforces and to expand strategies guided by health equity principles to engage all BIPOC communities and other critical population groups during the planning, allocation, and distribution processes. Some examples include:

- ▶ **Equity As a Guiding Principle in State Plans:** The degree to which health equity is a guiding principle of planning and decision-making for distribution and access varies across state vaccine allocation and distribution plans. Some states, like **California, Louisiana, New Mexico, North Carolina, and Indiana**, have noted fairness, equity, or both as key principles underpinning their vaccination plans for allocation, distribution and access. **Oregon** emphasized that health equity is a key pillar of the state plan, which highlights the importance of understanding underlying inequities and injustices in the state's effort to achieve health equity. In addition, some states have specifically prioritized BIPOC communities in their state plans. For example, **North Carolina** specifically cited historically marginalized populations as an early-phase critical population group and **New Mexico** is prioritizing collaboration with Native Americans. Oregon noted how communities of color have been disproportionately affected by COVID-19. **New Jersey** and California have incorporated programmatic monitoring to assess and remove barriers related to accessibility, such as transportation and wait times, among other factors. California has also developed a composite health equity metric that measures case rate and test positivity and will be used to inform vaccination allocation. While other states may not explicitly mention equity as a guiding principle in their vaccination plans, many states are making allocation assumptions based on principles outlined in the NASEM [Framework for Equitable Allocation](#). In addition, some states are incorporating strategic plans from or coordinating with state health equity taskforces. For example, **New Hampshire** is using the health equity strategy that the state's COVID-19 Equity Response Team developed and is coordinating with experts in the Department of Health and Human Services Office of Health Equity.
- ▶ **Supporting Targeted Community Engagement and Communication to Critical Populations:** Some states have highlighted their plans to engage communities in developing a communications strategy to minimize misinformation and increase public acceptance amongst BIPOC populations. For example, **Louisiana** has partnered with universities and faith-based organizations to provide accurate and culturally

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Massachusetts and **Oregon** have established community grants to support community-based and faith-based organizations in BIPOC communities to increase messaging, education, and training in the community. To date, most of these funds have been targeted to meet community needs through increased contact tracing and wrap around services in communities that have been affected the most.

sensitive information to the high-risk about vaccines. **Massachusetts** and **Oregon** have established community grants to support community-based and faith-based organizations in BIPOC communities to increase messaging, education, and training in the community. To date, most of these funds have been targeted to meet community needs through increased contact tracing and wrap around services in communities that have been affected the most. The public health team in Oregon is partnering with and providing technical assistance to these organizations and includes a Faith Community Liaison on the COVID-19 response team. Oregon plans to coordinate with community-based organizations and use this year's influenza vaccine distribution as an opportunity to identify any gaps in distribution that can be addressed for the COVID-19 vaccine rollout. **Oklahoma** is recruiting faith-based organizations to serve as vaccine sites, support community outreach and advocate for vaccination among the community. **North Carolina** is focused on building trust in vaccines among historically marginalized populations through coordinating with community health workers and engaging the public through town halls.

- ▶ **Coordinating with Tribal Communities:** Some states are implementing more comprehensive community engagement through collaboration and co-leadership with tribal communities. Sovereign tribal governments have the option to decide if they will receive their allocations directly through the IHS or through state allocations. As a result, there will be variation in approaches across states, with some states including specific information on how they will engage in consultation and coordination with federally-recognized and non-federally recognized tribes and ensure that tribal members can receive access to vaccinations at convenient locations (including urban areas). For example, **Alaska** is planning to implement the supply chain of vaccines through the Alaskan Tribal Health System, including a network of tribal regional hubs, and by partnering with the Alaska Native Tribal Health Consortium. In addition, Alaska began engaging tribal partners at the pre-planning phase. **Oklahoma** consulted with tribal leaders to inform the work of the state's COVID-19 Vaccine Planning Committee, which includes two representatives from the IHS and the Chickasaw Nation Department of Health as core members. In addition to engaging with the IHS, **New Mexico** is using collaborative partnerships with tribal leaders, tribal clinical partners, and non-clinicians to listen and to incorporate specific priorities, questions and concerns of each tribal community. These examples of collaborative community engagement are needed for all BIPOC communities and other critical population groups to ensure community voices are heard and incorporated in decision-making.

Communicating with the Public and Engaging Vaccination Partners

State plans recognize the importance of building vaccine confidence and addressing misinformation and include a wide range of detail regarding communication objectives and activities, including partner engagements. In describing overall goals of their vaccine communications programs, a significant number of states echoed broad communications objectives outlined in the CDC Playbook, which include educating and building public confidence in the vaccine regulatory safety process, ensuring dialogue and guidance with internal and external partners, monitoring public receptiveness to vaccination messaging, conducting outreach to critical local and community partners, and providing the public with timely and effective public health messaging. Other state plans focus more specifically on developing targeted messages and outreach efforts to critical populations across distribution phases. Although state communications strategies as outlined in plans are tremendously varied, common strategies include:

- ▶ **Developing Public Information Campaigns:** Nearly half of state plans highlighted the role of public information campaigns and paid media to communicate with the public about COVID-19 vaccine availability and safety, while dispelling myths and encouraging individuals to get vaccinated. A number of states indicated that they will engage communications firms to design and implement these strategies, while others will work through existing communications resources and partnerships. **Louisiana** will work with a communications firm to launch a campaign that will use clear and accessible language to target vulnerable and hard-to-reach populations across distribution phases. The campaign will use a variety of tactics, including targeted digital advertising, social media, radio, newspapers, minority print publications, television advertising, and virtual townhalls. **Idaho's** Department of Health and Welfare will leverage partnerships with the state's COVID-19 Communications Task Force as well as other internal and external partners to reach audiences with targeted messages through internet streaming services, local radio, billboards, social media, video jukeboxes in bars, local sports groups, and bus wraps.
- ▶ **Coordinating with Vaccination Partners:** Many state plans also emphasized the role of clear communication and engagement of partners to reach critical populations, with a number of states outlining detailed stakeholder lists, communications processes, and resources to support these efforts. **Michigan** will leverage an Immunization Communications Work Group, composed of educators, program leads, nurse educators, and managers to review educational needs and create appropriate COVID-19 vaccine materials, and will work closely with the Community Health Emergency Coordination Center to coordinate timely and consistent communication with the public and partners across the state. **Alaska's** Communication/Education Team plans to support the ability of state, local and tribal partners to communicate meaningfully to Alaskans by producing a communications toolkit, which will include talking points and FAQs, fact sheets, public service announcements, flyer templates, and other materials to support vaccine clinics, social media posts, and postcard mailers.

In describing overall goals of their vaccine communications programs, a significant number of states echoed broad communications objectives outlined in the CDC Playbook, which include educating and building public confidence in the vaccine regulatory safety process, ensuring dialogue and guidance with internal and external partners, monitoring public receptiveness to vaccination messaging, conducting outreach to critical local and community partners, and providing the public with timely and effective public health messaging.

Louisiana will work with a communications firm to launch a campaign that will use clear and accessible language to target vulnerable and hard-to-reach populations across distribution phases.

- ▶ **Addressing Vaccine Hesitancy:** Numerous states cited communications challenges related to vaccine hesitancy or anti-vaccine advocacy, along with the need to develop targeted messages, educational resources, and targeted grassroots outreach to engage trusted messengers and address community concerns. Noting the potential for higher levels of hesitancy due to a lack of vaccine development transparency and negative social media, **North Dakota** plans to conduct surveys on residents' intentions to be vaccinated. To respond to potential concerns, the state plans to adapt materials from the CDC and other credible organizations, while engaging trusted messengers in the community as vaccine spokespeople. **New Jersey** is also taking a targeted and grass-roots approach to addressing varying degrees of public indecision about whether or not to receive a vaccine. To inform strategies and resources for engaging critical populations, the New Jersey Department of Health will conduct focus groups, listening sessions, and key informant interviews with health care providers serving marginalized communities, local health departments, community-based organizations, community leaders, faith leaders, local officials, and public health practitioners.
- ▶ **Providing Critical Information to the Public:** Nearly all state plans reiterated the CDC's Crisis and Emergency Risk Communications principles – be first, be right, be credible, express empathy, show respect. To further ensure transparent and clear communications, states have adopted a number of strategies to connect with the public and vaccination partners. **Arizona's** Department of Human Services (ADHS) and the Governor's staff will work together to coordinate state-level messaging and support for county and tribal health departments. The state will utilize the Arizona Health Alert Network, media releases, regular press conferences, blog posts from the ADHS director, and social media messaging. Other states are adopting creative ways to engage the public or provide forums for the public to have their questions answered. **Georgia, Illinois, and Louisiana** will support hotline numbers to address public questions or concerns, while **Maryland** will use its COVID-19 preregistration system MarylandVax.org to provide information and reminders to vaccine recipients.

Alaska's Communication/Education Team plans to support the ability of state, local and tribal partners to communicate meaningfully to Alaskans by producing a communications toolkit, which will include talking points and FAQs, fact sheets, public service announcements, flyer templates and other materials to support vaccine clinics, social media posts, and postcard mailers.

Conclusion and Next Steps

States and territories will continue to refine COVID-19 vaccination plans as additional information becomes available and dynamics evolve. This analysis of initial planning objectives and approaches across states identifies common themes, key issues, and strategies that can help inform the national dialogue, spread best practices, and foster improved coordination among federal, state, and local partners as planning continues and implementation begins.

It is anticipated that two vaccine candidates will be granted EUAs from the FDA by mid-December, placing significant emphasis on state preparedness for initial distribution to priority populations, including health care personnel and residents of long-term care facilities. Federal officials have indicated roughly 6.4 million doses — or enough to vaccinate 3.2 million people — will be allocated across states immediately once an EUA is granted by the FDA and have noted that up to 40 million doses may be available by the end of December. Given the expected delta between initial supply and demand, a critical next step for Governors will be to set clear criteria for further targeting for vaccination within priority populations when demand exceeds supply. Governors must also prepare for scenarios where vaccine uptake does not meet expectations.

While the need for rapid preparation is evident, numerous challenges and outstanding questions complicate state efforts to ensure seamless execution, including clarity on vaccine effectiveness and safety across populations, availability of supply, storage and handling requirements for specific vaccines, and aligned communications. Further, states will need additional federal resources to carry out ongoing vaccination program planning and operations over time, especially as states maintain their current efforts on testing and other COVID-19 response activities. Strong partnerships, enhanced resources, and transparent communications among federal, state, and local partners will be imperative to successful vaccination programs across the country.

Appendices

Appendix A. Links to Executive Summaries of State and Territorial COVID-19 Vaccination Plans

The CDC published executive summaries of interim vaccine distribution plans for all jurisdictions on its [website](#). Links to executive summaries for states and territories that have not published full interim plans are provided below.

American Samoa	N. Mariana Islands
Guam	Palau
Marshall Islands	Pennsylvania
Micronesia	Puerto Rico
Minnesota	United States Virgin Islands

Appendix B. Links to State and Territorial COVID-19 Vaccination Plans

Links to all publicly available state and territorial COVID-19 vaccination plans are provided below. These documents are subject to change, but are up to date as of December 3, 2020.

Alabama	Nebraska
Alaska	Nevada
American Samoa	New Hampshire
Arizona	New Jersey
Arkansas	New Mexico
California	New York
Colorado	New York City
Connecticut	North Carolina
Delaware	North Dakota
District of Columbia	Northern Mariana Islands
Florida	Ohio
Georgia	Oklahoma
Guam	Oregon
Hawaii	Palau
Idaho	Pennsylvania
Illinois	Puerto Rico
Indiana	Rhode Island
Iowa	San Antonio
Kansas	South Carolina
Kentucky	South Dakota
Louisiana	Tennessee
Maine	Texas
Marshall Islands	U.S. Virgin Islands
Maryland	Utah
Massachusetts	Vermont
Michigan	Virginia
Micronesia	Washington
Minnesota	West Virginia
Mississippi	Wisconsin
Missouri	Wyoming
Montana	

