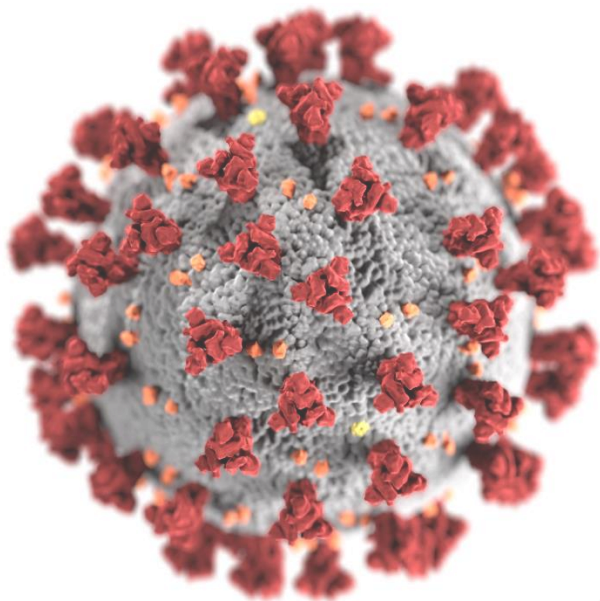




COVID-19 Vaccination Plan

COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND
ENVIRONMENT
OCTOBER 16, 2020 | VERSION 1.0

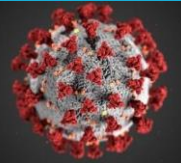
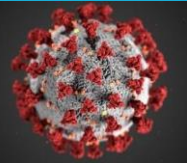


Table of Contents

Record of Changes	2
Section 1: Preparedness Planning	4
Section 2: COVID-19 Organizational Structure and Partner Involvement	8
Section 3: Phased Approach to COVID-19 Vaccination	16
Section 4: Critical Populations	18
Section 5: COVID-19 Provider Recruitment and Enrollment	36
Section 6: COVID-19 Vaccine Administration Capacity	43
Section 7: COVID-19 Vaccine Allocation, Ordering, Distribution, and Inventory Management	46
Section 8: COVID-19 Vaccine Storage and Handling	50
Section 9: COVID-19 Vaccine Administration Documentation and Reporting	52
Section 10: COVID-19 Vaccination Second-Dose Reminders	59
Section 11: COVID-19 Requirements for IISs or Other External Systems	61
Section 12: COVID-19 Vaccination Program Communication	74
Section 13: Regulatory Considerations for COVID-19 Vaccination	90
Section 14: COVID-19 Vaccine Safety Monitoring	91
Section 15: COVID-19 Vaccination Program Monitoring	92
Acronyms and Abbreviations	96

Date of original version:

[illegible]



Section 1: COVID-9 Vaccination Preparedness Planning

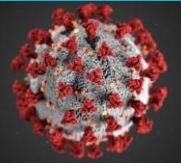
- A. Describe your early COVID-19 vaccination program planning activities, including lessons learned and improvements made from the 2009 H1N1 vaccination campaign, seasonal influenza campaigns, and other responses to identify gaps in preparedness.*

In early August 2020, the Colorado Department of Public Health and Environment (CDPHE), with support from the Colorado Department of Public Safety (CDPS), convened a multi-agency, multi-sector team to focus on operationalizing receipt and distribution of COVID-19 vaccine. More than 20 organizations representing the Governor's Office, public health, various state agencies, clinical associations, universities, pharmacies, hospital systems, and community based organizations have been engaged. The Joint Vaccine Planning Team, led by a Steering Committee, is organized into five Lines of Effort (LOE) that focus on various aspects of planning including, Immunization Distribution and Data Management, Critical Populations, Health Equity, Public Information, and Consequence Management. The Joint Vaccine Planning Team is included in the overall Joint Incident Command structure that is responding to the COVID-19 pandemic.

At a very high-level, the Colorado Immunization Information System (CIIS), Colorado's immunization registry, and our experience with the Vaccines for Children (VFC) program will serve as the backbone for managing processes and data related to allocation, ordering, distribution, redistribution, inventory management, administration documentation, safety monitoring, second dose reminders, and reporting. Provider enrollment, using CDC's provider enrollment agreement, will be handled electronically through the Colorado Public Health Reporting System (CoPHR). As COVID-19 vaccine is allocated to Colorado, CDPHE will work with local public health agencies (LPHA) to determine where vaccine should go within their jurisdiction based on which COVID vaccine allocation phase Colorado is in, the providers that are eligible to receive COVID-19 vaccine and can vaccinate priority populations, current COVID-19 positivity and transmission rates, and other local considerations. Public information and partner communications will be handled by the Unified Command Joint Information Center (JIC), and CDPHE will launch a statewide COVID vaccine media campaign by the end of the year.

To ensure an ethically defensible and fair allocation system that is both transparent and unbiased, CDPHE also solicited the input of additional medical expertise via the Governor's Expert Emergency Epidemic Response Committee (GEEERC), which advises the governor during an emerging or ongoing public health threat. The GEEERC formed a subcommittee, the Medical Advisory Group (GMAG), to provide recommendations for a preliminary phased approach for COVID-19 vaccine allocation that very closely aligns with the National Academies of Science, Engineering, and Medicine (NASEM) framework, while still accounting for Colorado-specific considerations. The GMAG recommendations provide more granular guidance for prioritization within phases when there is not enough vaccine to fully vaccinate all persons within a phase. The GMAG worked closely with the Critical Populations LOE to enumerate populations in each phase down to the county level. Colorado's allocation guidance may change depending on formal guidance from the Advisory Committee on Immunization Practices (ACIP).

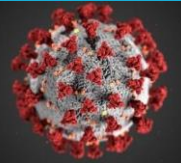
COLORADO COVID-19 VACCINATION PLAN



Colorado's COVID-19 vaccine response is built off our day-to-day experience managing immunization programs and planning for and responding to emergencies. While many aspects of the COVID-19 pandemic are different than the 2009 H1N1 Influenza outbreak, which is the last time public health needed to mobilize to distribute a vaccine to the entire state, several lessons learned from that response informed Colorado's planning for COVID-19 vaccine distribution. **Below are several notable areas for improvement related to immunizations that were identified during the 2009 H1N1 response and how Colorado addressed each item:**

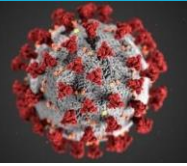
- **Obtaining Input from Locals Regarding Statewide Plans:** Several local agencies indicated that CDPHE could have benefited from having a local health department advisory group to help make policy decisions.
 - COVID-19 Response: The Joint Vaccine Planning Team has 7 LPHAs representing small and large agencies, and urban, rural, mountain and plains areas of the state on this state-level team to inform our planning.
- **Structured Use of the Incident Command System (ICS):** ICS was not immediately established at CDPHE, staff assignments were not always clearly defined and announced, and there was duplication of effort from some individuals who were not aware of what others were working on within the CDPHE Department Operations Center (DOC). LPHAs were not always aware of who to contact with specific questions.
 - COVID-19 Response: CDPHE established an internal monitoring team on January 21, 2020 to maintain situational awareness regarding an outbreak in China and to evaluate information being developed by the CDC about COVID-19. CDPHE DOC was activated on that same day at the Daily Monitoring level. The CDPHE DOC was elevated to a Level III on February 28, 2020 and an Incident Command Structure is employed. As the pandemic progressed, the ICS structure expanded and morphed into a Unified Command Structure with the Colorado Department of Public Safety. On March 16, 2020 the CDPHE's DOC was combined with the SEOC to form a Unified Coordination Center (UCC).
- **Vaccinating Priority Groups:** Some LPHAs followed strict CDC guidance to first vaccinate restrictive priority groups, followed by regular priority groups, and finally the general public. Other counties chose to skip the restrictive groups and allow all priority groups to receive the vaccine.
 - COVID-19 Response: CDPHE requested assistance from the GEEERC to provide more granular guidance for prioritization within phases when there is not enough vaccine to fully vaccinate all persons within a phase. This guidance, along with national guidelines, are being shared widely so LPHAs and other providers are clear which populations should be vaccinated first when vaccine is limited.

COLORADO COVID-19 VACCINATION PLAN



- **Colorado Immunization Information System registry (CIIS):** A previous, home-grown version of CIIS was used for the H1N1 response that was effective, but lacked adequate functionality to fully manage all data components in a single system. Further, few providers were able to submit data electronically to CIIS, resulting in extreme levels of manual data entry to capture all data.
 - COVID-19 Response: After H1N1, CDPHE invested funds to purchase a new immunization registry that incorporates additional functionality such as vaccine ordering, inventory management, documentation of contraindications and other important information. Further, CIIS has spent considerable effort connecting providers electronically to minimize manual data entry. Over 2,600 clinic locations can now report electronic data to CIIS.
 - **Tracking the Number of Doses Provided:** Many LPHAs had trouble keeping up with the volume of work associated with managing patient demographic and vaccine administration documentation. One county used an online self-registration appointment system to manage some this information for their clinics and it resulted in less paper copy forms and shorter lines.
 - COVID-19 Response: CDPHE is investigating the purchase of an online registration and appointment system for all LPHAs that could use this tool.
 - **Adapting Logistics Plan for both Metro and Rural Partners:** The original ordering process did not adequately address the needs of local partners in a way that streamlined the ordering process. CIP was able to re-access the situation in real-time and create a smoother, more customized approach to H1N1 vaccine distribution. Smaller LPHAs received the full amount their county was allocated for their jurisdiction and redistributed smaller quantities to other providers. Larger LPHAs directed the distribution of vaccine to providers within their jurisdiction so vaccine would be directly shipped instead of redistributed.
 - COVID-19 Response: CDPHE is starting out the allocation process by letting the LPHA decide if they want to allocate vaccines to other providers within their jurisdiction, if they want CDPHE to perform this function or if the LPHA wants to receive and redistribute vaccine. Some decisions will be dictated by the minimum order quantities of certain COVID-19 vaccines (e.g. vaccine requiring ultra cold storage has a minimum quantity order of 1000 doses).
 - **Continuing to Administer Seasonal Flu Vaccinations and Maintaining Public Awareness of Non-Pandemic Threats:** COVID-19 Response: CDPHE has already initiated a statewide media campaign promoting routine vaccinations, especially the measles, mumps and rubella (MMR) vaccine as well as seasonal flu vaccines.
- B. Include the number/dates of and qualitative information on planned workshops or tabletop, functional, or full-scale exercises that will be held prior to COVID-19 vaccine availability. Explain how continuous quality improvement occurs/will occur during the exercises and implementation of the COVID-19 Vaccination Program.*

COLORADO COVID-19 VACCINATION PLAN



Exercises

CDPHE, will develop a training and exercise plan specific to Colorado's COVID-19 Vaccine Distribution Plan. The first step in developing a training and exercise plan will be for the vaccination plan to go through a stakeholder review process in which comments and feedback will be solicited from key stakeholders. The stakeholder review process will most likely take place during Oct. 2020. CDPHE will then schedule a tabletop exercise (TTX) sometime in Nov. 2020. This TTX will involve key federal, state and local partners and will be based on a specific scenario central to vaccine distribution. The TTX will be used to again assess the policies and procedures associated with this plan.

Depending on when an approved COVID-19 vaccine is scheduled for delivery, a series of operational exercises will be scheduled for mid to late January 2021. These drills will be utilized to validate the plan, including any policies associated with the plan, any agreements and procedures, and to clarify roles and responsibilities, plus identify resource gaps in an operational environment. This portion of plan implementation will likely be achieved by designing a drill to test a single, specific operation or function within a single entity (e.g., CDPHE's Immunization Branch allocating and distributing a vaccine).

The next step in validating this plan is to design a functional exercise in March-April 2021 that examines and/or validates the coordination, command, and control between various multi-agency coordination centers, such as the CDPHE's DOC and the State Emergency Operations Center.

Finally, and if time permits, a full-scale exercise will take place during the summer of 2021 to evaluate the coordination amongst all pertinent federal, state and local partners. This exercise will evaluate the ability to coordinate, communicate, and share information from a multi-agency, multi-jurisdictional, multi-discipline standpoint.

Stakeholder Engagement

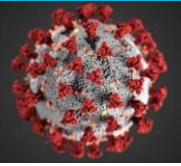
After an initial draft of Colorado's COVID-19 Vaccine Distribution Plan is completed, a stakeholder review process will be developed. This process will allow various stakeholders the ability to review certain aspects and portions of the plan and provide feedback based on their subject matter expertise and community representation.

Engagement methods will range in format, duration, and level of effort to encourage participation from a wide breadth of stakeholders. These aforementioned engagement efforts will take place on webinars and virtual listening sessions to provide stakeholders forums to share their feedback and maintain social distancing protocols. Feedback from stakeholders will be used to update the plan and to inform future training and exercise events.

Incorporate information from gaps identified during Tabletop Exercises

CDPHE, in partnership with CDPS, will develop, schedule and host a tabletop exercise for Nov. 2020. This exercise will be utilized to review Colorado's COVID-19 Vaccine Distribution Plan and identify any

COLORADO COVID-19 VACCINATION PLAN



significant gaps in coordination, communications and command structure. This tabletop exercise will be used to assess various departmental policies and procedures.

Flexible planning as vaccine distribution begins

Emergency situations in the contemporary world – in cities, in industrial plants, in transport systems, and in public health—are often complex and difficult to comprehend, especially when they evolve turbulently over time. In such conditions, an inflexible response or an over-reliance on some pre-ordained recipe can increase danger rather than eliminating it. When staff fail to recognize that existing systems are inappropriate or breaking down, or if we fail to acknowledge that the routines being adopted are inadequate, a hazardous degree of inflexibility exists.

Colorado will have to maintain a sense of flexibility throughout the distribution process and employ improvisation, innovation, and creativity when necessary. Additionally, since the state was only afforded about a month to develop this plan, the ability to be flexible is more important than ever as certain gaps in this plan may be noticed or identified in real time.

Effective emergency management requires flexibility. Because planners have to adapt plans to circumstances, innovate, and improvise when necessary, rigid plans and organizational structures should only be adhered to when necessary. This plan is a starting place rather than an immutable guide to action. In a healthy coordination environment, officials have the discretion to interpret plans and respond to circumstances.

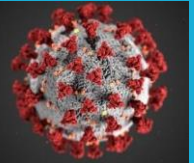
Flexibility to pivot based on political changes

During this entire response to the COVID-19 Pandemic, the United States has experienced many occasions when certain decisions or information from our federal partners has changed our response midstream. This was very evident throughout the country when all states took a different view or perspective on various non-pharmaceutical interventions to stem the spread of COVID-19.

Many health professionals argue for stricter social countermeasures to keep people at home. To them, saving lives should be the absolute priority and in case of doubts, a ‘no-regret’ approach should prevail. Many argue that the response should be free from so-called ‘political interference’. However, these measures may also have negative impacts on people’s health. It may lead to an increase in domestic violence, dangerously delay identification and treatment of non COVID-related life threatening medical conditions, or trigger or compound mental health issues. Furthermore, it can increase inequities, put people in precarious economic situations, and have many other consequences that cannot be fully anticipated by scientific models.

Colorado is building flexibility into its plan by continually assessing all critical data and briefing Executive Leadership on a regular basis in order to have the support needed to make changes “on the fly.”

COLORADO COVID-19 VACCINATION PLAN

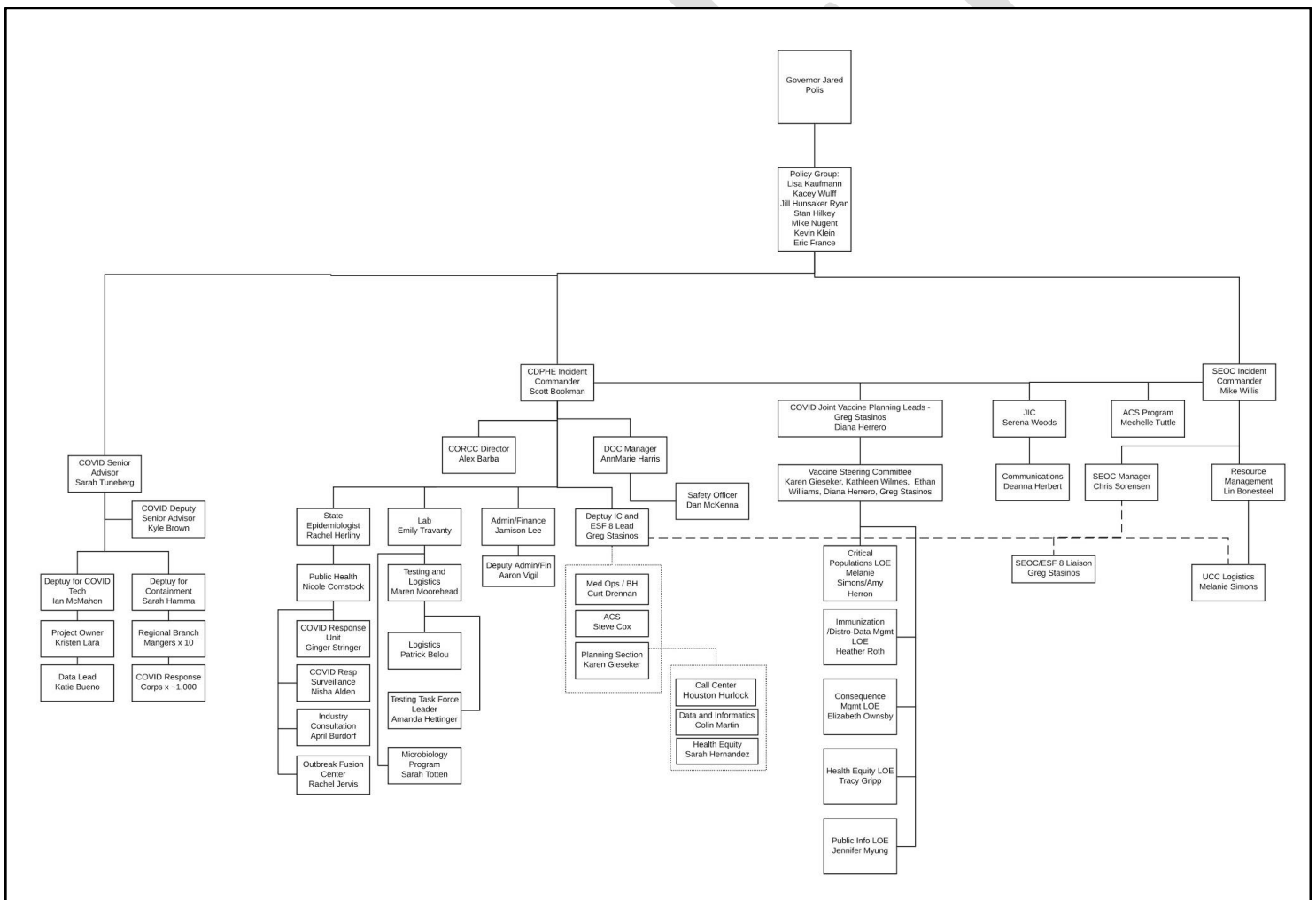


Section 2: COVID-19 Organizational Structure and Partner Involvement

A. Describe your organizational structure.

The Colorado Department of Public Health and Environment (CDPHE) has been fully engaged in the COVID-19 Response since January 21, 2020. CDPHE's Department Operations Center (DOC) is integrally connected to the State Emergency Operations Center (SEOC) and Colorado Department of Public Safety's Division of Homeland Security and Emergency Management (DHSEM), through the establishment of a Unified Coordination Center (UCC) in which both agencies are well represented (Figures 1 and 2).

Figure 1. Colorado COVID-19 Command Org Chart



COLORADO COVID-19 VACCINATION PLAN

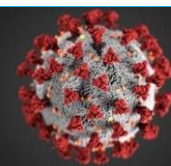
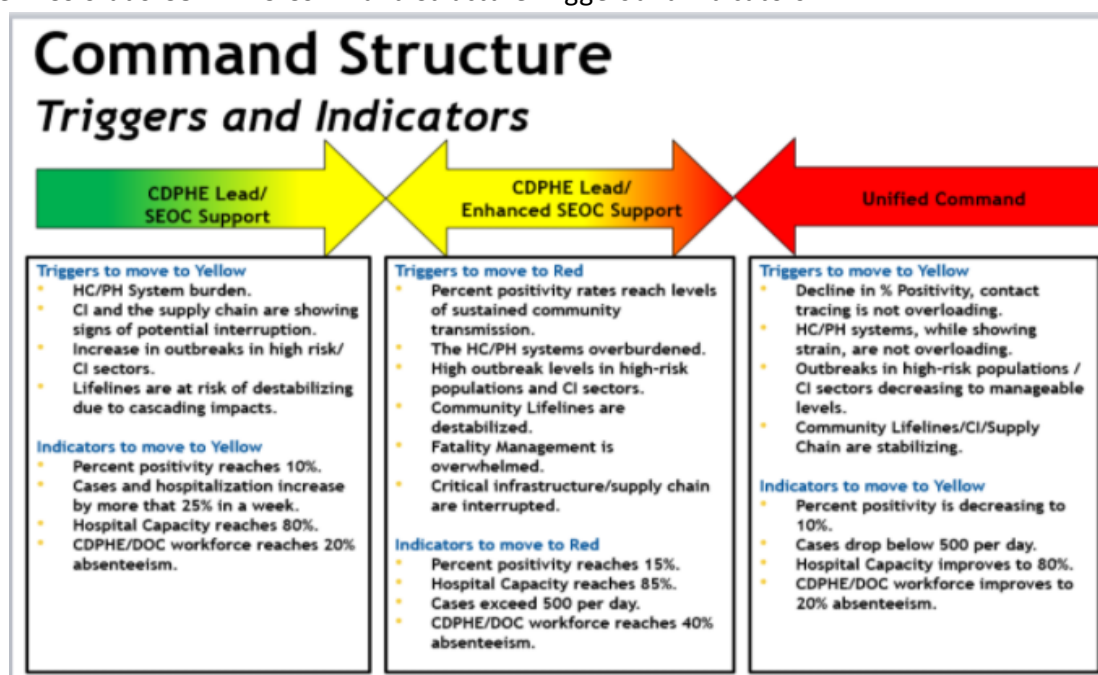


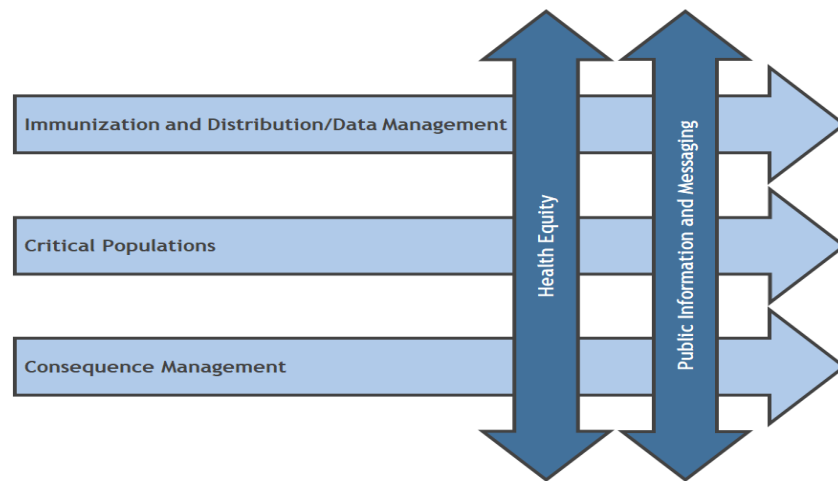
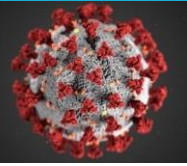
Figure 2. Colorado COVID-19 Command Structure Triggers and Indicators



A multiagency Colorado Joint COVID Vaccine Planning Team was created and began meeting weekly on August 11, 2020. This planning team consists of a robust group of individuals from across the state and disciplines. Five unique Lines of Effort (LOE) with oversight from a Steering Committee were identified and began work on various actions items. The five LOEs are shown below in Figure 3. As is noted in the graphic, both the Health Equity LOE and the Public Information LOE are cross cutting and embedded in each of the other Lines of Effort.

Figure 3. Colorado Joint Vaccine Planning Team Lines of Effort

COLORADO COVID-19 VACCINATION PLAN

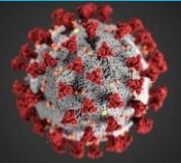


- B.** *Describe how your jurisdiction will plan for, develop, and assemble an internal COVID-19 Vaccination Program planning and coordination team that includes persons with a wide array of expertise as well as backup representatives to ensure coverage.*

The Colorado Joint COVID-19 Vaccination Planning Team includes representation from more than 20 agencies across the state and from a broad spectrum of agencies and disciplines. The team is made up of representatives from both Governmental and Non-Governmental entities. In addition to the broad representation of the Colorado Joint COVID Vaccination Planning Team (noted below) a far reaching stakeholder review process is planned.

- Colorado Department of Public Health and Environment - Individuals from several areas of CDPHE are involved within the vaccine planning efforts. The diverse background of these staff include individuals from the Immunization Branch, the Office of Health Equity, Office of Legal and Regulatory Compliance, Communications, Division of Disease Control and Public Health Response, the Office of Emergency Preparedness and Response, and the Prevention Services Division.
- Other State Agencies - CDPS including the Division of Homeland Security and Emergency Management (DHSEM); the Colorado Department of Human Services (CDHS), the Colorado Department of Regulatory Agencies (DORA), the Colorado National Guard (CONG), and the Colorado Governor's Office.
- Local Public Health Agencies (LPHA) - Urban and rural LPHAs, including representatives from Boulder, El Paso, Gunnison, Jefferson, Kit Carson, Summit and Tri-County.
- Hospital Systems - Children's Hospital of Colorado, Denver Health and Hospital Authority, and the University of Colorado - Anschutz Medical Center
- Health Education - University of Colorado School of Medicine
- Societies and Associations - Colorado Hospital Association, Colorado Medical Society, and the Colorado Pharmacists Society.

COLORADO COVID-19 VACCINATION PLAN



- Community Based Organizations - Center for African American Health and the Colorado Cross Disability Coalition.
- Pharmacy Chains - Walgreens.

Initial list of Stakeholders who will be asked to review the Colorado COVID-19 Vaccine Plan after first draft is submitted to CDC.

Figure 4. Stakeholders (Initial List)

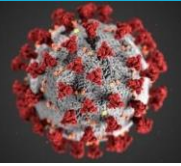


- C.** *Describe how your jurisdiction will plan for, develop, and assemble a broader committee of key internal leaders and external partners to assist with implementing the program, reaching critical populations, and developing crisis and risk communication messaging.*

As described above, Colorado's Joint COVID Vaccination Planning Team is divided into 5 Lines of Effort with oversight from a Steering Committee.

- **Steering Committee** - This team focuses on coordinating all aspects of the Colorado COVID Vaccine Plan development and implementation. This team will serve as an oversight committee for the five Lines of Effort and serve as the coordination team with State Executive Leadership.
- **Immunization and Distribution/Data Management** - This team focuses on the development of the parts of the plan which will detail how the COVID-19 Vaccine will be distributed and develop timelines, deliverables and metrics. Team Lead is Heather Roth (CDPHE - Immunization Program)

COLORADO COVID-19 VACCINATION PLAN



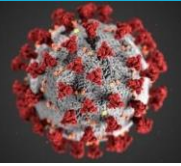
- Critical Populations - This team works to develop vaccination tiers and population groups for distribution of the vaccine. Team Leads - Melanie Simons and Amy Herron (CDPHE - Office of Emergency Preparedness and Response)
- Consequence Management - This team works with local offices of emergency management and regional field managers as well as the State Emergency Operations Center (SEOC) to identify resource needs, engagement strategies around distribution and redistribution of the vaccine. Team Leads - Kathleen Wilmes and Elizabeth Owensby. (CDPS - Division of Homeland Security and Emergency Management)
- Health Equity - This team works to make sure the plan ensures the distribution of the vaccine is fair for all Colorado citizens and that no one should be disadvantaged from having access to the vaccine. Team Lead is Tracy Gripp (CDPHE - Office of Health Equity)
- Public Information and Messaging - This team focuses on developing a communications plan to be shared with our Local Public Health Agencies and Healthcare partners. Additionally, this group will work to develop a vaccination campaign. Team Lead is Jennifer Myung (CDPHE - Office of Emergency Preparedness and Response)

D. Identify and list members and relevant expertise of the internal team and the internal/external committee.

Table 1. - Table of Internal and External Members of the Colorado Joint COVID Vaccination Planning Team

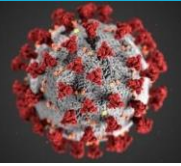
First Name	Last Name	Organization	LOE
Amy	Herron	CDPHE-OEPR	Critical Populations
Ann	Hause	CDPHE-OLRC	
Annie	Giangardella	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Anuj	Mehta	CU-Anschutz	Critical Populations
Caitlin	Gappa	LPHA-TCHD	Public Information
Charlotte	Olsen	CDHS	Health Equity
Chet	Seward	Colorado Medical Society	Public Information
Christine	Billings	LPHA-Jeffco PH	Critical Populations
Connie	Price	DHHA	
Dawn	James	LPHA-KCCDPHE	ImmunizDistro-DataMgmt
Deanna	Herbert	CDPHE-JIC	Public Information
Deborah	Hindman	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Deidre	Johnson	ERT/Center for African American Health	Health Equity
Diana	Herrero	CDPHE-DCPHR	Steering Committee
Elisabeth	Arenales	Governor's Office	

COLORADO COVID-19 VACCINATION PLAN



Elizabeth	Owensby	CDPS/DHSEM	Consequence Mgmt
Emily	Zadvorny	Colorado Pharmacists Society	ImmunizDistro-DataMgmt
Ethan	Williams	CDPS/DHSEM	Steering Committee
Gina	Febbraro	CDPHE IZ/PSD	Health Equity
Ginny	Brown	DORA	
Greg	Stasinos	CDPHE-OEPR	Steering Committee
Heather	Roth	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Indira	Gujral	LPHA-Boulder County	Health Equity
Janel	McNair	LPHA-El Paso County Public Health	Consequence Mgmt
Jenni	Myung	CDPHE OEPR / JIC	Public Information
Jennifer	Yara-Zelenski	CDPHE-DCPHR-IZ (CDC PHA)	ImmunizDistro-DataMgmt
Jessica	Bralish	CDPHE-JIC	Public Information
Jessica	Cataldi	University of Colorado School of Medicine and Children's Hospital CO	Public Information
Joni	Koenig	CDPHE - OLRC	ImmunizDistro-DataMgmt
Joni	Reynolds	LPHA- Gunnison County	
Kaitlin	Wolff	LPHA-TCHD	Health Equity
Karen	Miller	LPHA-TCHD	ImmunizDistro-DataMgmt
Karen	Giesecker	CDPHE-DCPHR	Steering Committee
Kathleen	Wilmes	CDPS/DHSEM	Steering Committee
Kenny	Maestas	ERT/CO Cross Disability Coalition/ Rural CO	Health Equity
Kim	Gulliver	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Korey	Bell	CDPHE-OEPR	
Kristi	Mihok	Walgreens	ImmunizDistro-DataMgmt
Laura	McLoughlin	LPHA- Gunnison County	
Lyle	Moore	Colorado Hospital Association	Critical Populations
Melanie	Simons	CDPHE-OEPR	Critical Populations
Nicole	Ortiz	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Nicole	Comstock	CDPHE-DCPHR	ImmunizDistro-DataMgmt
Paul	Gillenwater	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Phyllis	Bourassa	CDPHE-DCPHR-IZ	ImmunizDistro-DataMgmt
Richard	Kane	CONG	
Sadie	Martinez	CDPS/DHSEM	Health Equity
Sara	Garrington	LPHA-TCHD	ImmunizDistro-DataMgmt
Sara	Lopez	LPHA-Summit County	
Sarah	Hernandez	CDPHE-OHE	Health Equity

COLORADO COVID-19 VACCINATION PLAN

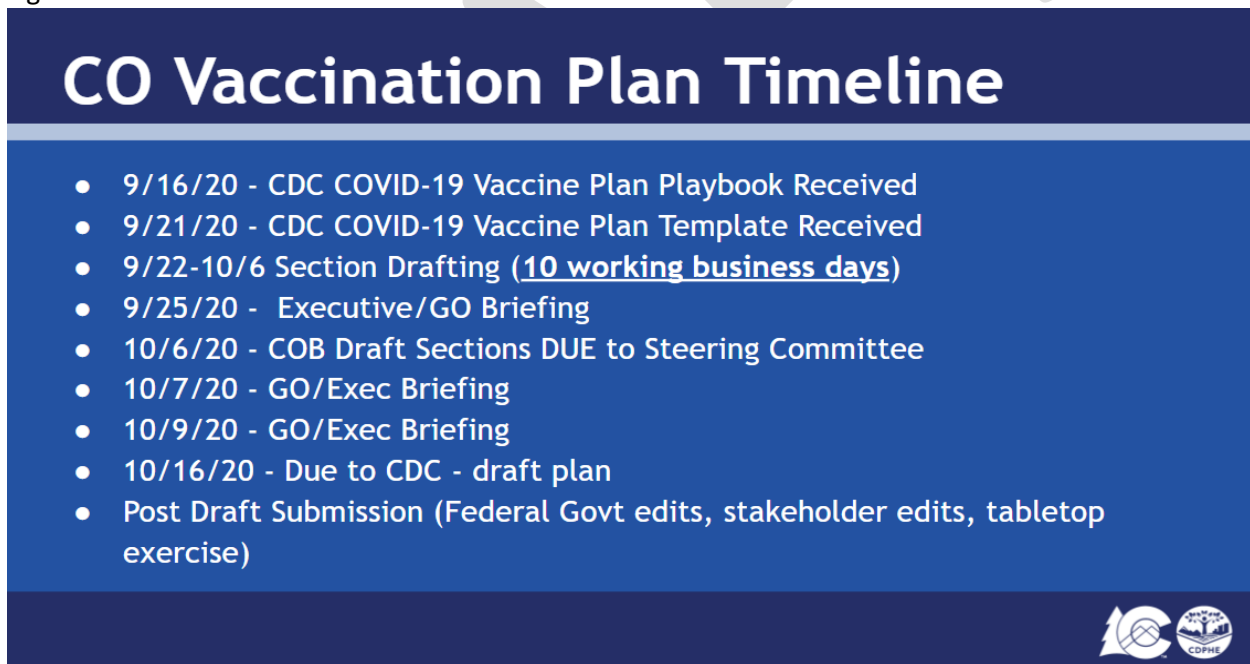


Sean	O'Leary	Children's Hospital Colorado	Critical Populations
Serena	Woods	Governor's Office	
Scott	Bookman	CDPHE-DCPHR	
Stephanie	Burke	CDPHE-OEPR	
Stephen	Cantrill	DHHA	Critical Populations
Tracy	Gripp	CDPHE-OHE	Health Equity
Web	Brown	CDPHE-OHE	Health Equity

E. *Describe how your jurisdiction will coordinate efforts between state, local, and territorial authorities.*

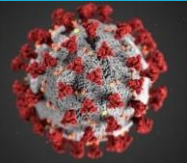
The CO Vaccination Plan Timeline (Figure 5.) shows the most up-to-date timeline for our Colorado Joint Vaccination Planning

Figure 5. CO Vaccination Plan Timeline



There are weekly meetings of the full Colorado Joint COVID Vaccination Planning Committee and each LOE. Additionally, there are weekly updates provided to both internal and external partners regarding COVID vaccine planning efforts. Meetings include, but are not limited to: CDPHE DOC Weekly and Long Range Planning Meeting (weekly); SEOC Weekly Section Chiefs Objectives and Review Meeting (weekly); LPHA epidemiologists, immunization staff, and local OEM regular weekly meeting; weekly updates to

COLORADO COVID-19 VACCINATION PLAN



the Governor's office; Colorado Outbreak Response Coordination Center (CORCC) daily meetings; Daily SEOC Command and General Staff meeting; Ad-Hoc Stakeholder meetings.

F. *Describe how your jurisdiction will engage and coordinate efforts with leadership from tribal communities, tribal health organizations, and urban Indian organizations.*

There are two sovereign tribal governments in Colorado, the Ute Mountain Ute Tribe and the Southern Ute Indian Tribe. Both Ute Tribes in Colorado are governed by tribal councils. CDPHE will conduct tribal consultation on a government-to-government basis with both of the sovereign tribal governments in the state. CDPHE is signed on to a Tribal Consultation Agreement with these tribes and conducts annual consultation as well as special consultation as needed. CDPHE employs a Tribal Liaison as a central point of contact for tribal partners in line with best practices for tribal engagement. The Colorado Commission of Indian Affairs (CCIA) has hosted regular meetings with tribal leaders throughout the COVID-19 response. In addition to engagement with tribal leadership, CDPHE works closely with tribal Incident Management Teams (IMTs) as well as health and immunization staff at tribal clinics.

CDPHE will also engage in a confer process with the Urban Indian Health Program (UIHP) in Colorado, the Denver Indian Health & Family Services (DIHFS). The majority of Colorado's American Indian / Alaska Native population lives in urban areas. CDPHE and CCIA meet on a biweekly basis with leadership from DIHFS to continue collaborative efforts.

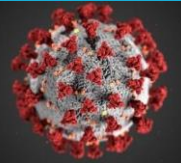
CDPHE's Immunization Branch regularly engages with Tribal clinics and provides immunization support through the Vaccines for Children Program (VFC). Immunization Branch staff will continue to provide vaccine subject matter expertise and assistance.

G. *List key partners for critical populations that you plan to engage and briefly describe how you plan to engage them, including but not limited to:*

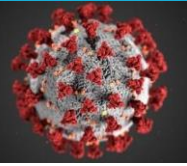
Colorado has been engaging with the following critical populations:

- **Communities of Color:** The Health Equity LOE is a cross cutting team focused on bringing the equity lens to all components on Colorado's COVID-19 Vaccine Distribution Plan. Members of the Health Equity LOE have attended meetings of the other LOEs and have been integral to the writing of each section of the plan. Additionally, the Health Equity LOE held a focus group with LOE team leads and leaders from several local communities of color, representatives from the disability community, and several employees of the DIHFS. This was a powerful and interactive first step in engaging the concerns and needs of these communities. Additional focus groups and other engagements are planned to continue gathering feedback and inform state planning.
- **Tribes:** Consultation with Tribes and confer with our Urban Indian Health Program regarding their preferred methods of vaccine allocation and distribution are ongoing.

COLORADO COVID-19 VACCINATION PLAN



- **Pharmacies:** Many pharmacies have signed up to receive vaccines and we have included the Society of Pharmacists in the Colorado Joint Vaccine Planning Team. Additionally, LPHAs will be working with CDPHE to identify gaps in providers and critical population vaccine distribution.
- **Homeless Shelters:** LPHAs will be coordinating vaccine delivery to this population in Phase II
- **Correctional Facilities:** Colorado Department of Corrections (CDOC) is represented in the Critical Populations LOE and has signed up to receive COVID-19 Vaccine as well.
- **Faith Based Organizations:** Faith based organizations will be involved in the stakeholder process.
- **Community Based Organizations:** Various groups such as the Centers for Independent Living, Disability Advocacy Groups, and others will be involved in the stakeholder process. Center for African American Health and the Colorado Cross Disability Coalition are both active in the Colorado Joint COVID-19 Vaccination Planning Team.



Section 3: Phased Approach to COVID-19 Vaccination

A. *Describe how your jurisdiction will structure the COVID-19 Vaccination Program around the three phases of vaccine administration:*

Phase 1: Potentially Limited Doses Available

In the beginning, it is anticipated that COVID-19 vaccine supply will be constrained and vaccine administration efforts will be tightly focused on initial critical populations. As a result, Colorado will concentrate its early COVID-19 vaccination efforts on initial critical populations which may include:

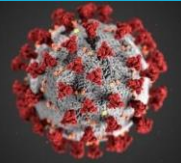
- Healthcare personnel likely to be exposed to or treat people with COVID-19;
- People at increased risk for severe illness from COVID-19, including those with underlying medical conditions and adults 65 years of age and older; and
- Others as indicated on the “Phase Categories and Corresponding Members” below

Colorado assumes that initial vaccine allocations will not be sufficient to immunize all Phase 1 critical populations and that additional granularity within critical populations groups will be necessary. Colorado will align its phased vaccination approach with federal efforts as closely as possible while still accounting for Colorado-specific considerations. Colorado will follow local recommendations to address vaccine scarcity within critical population groups. More details can be found in *Section 4: Critical Populations*.

Colorado will analyze the results of an initial COVID-19 Vaccine Provider Interest Survey and coordinate with Local Public Health Agencies (LPHA) to determine the vaccination providers who will be initially enrolled in the COVID-19 Vaccination Program for Phase 1. More information about this collaborative process can be found in *Section 5: COVID-19 Provider Recruitment and Enrollment*. During Phase 1, Colorado will prioritize enrollment of vaccination providers and settings who will administer COVID vaccine to the initial populations of focus, giving consideration to providers serving critical populations who live in remote, rural areas of the state who may experience difficulty accessing vaccination services. More details about the types of vaccination providers/settings targeted for Phase 1 can be found in *Section 5: COVID-19 Provider Recruitment and Enrollment*.

Colorado will use the Colorado Immunization Information System (CIIS) to monitor doses administered, inventory levels, vaccine orders, distribution to vaccination providers and any repositioning of vaccine between vaccination providers during Phase 1 to ensure end-to-end visibility of all doses. Vaccination coverage rates for critical populations will also be generated from CIIS and will be used to inform interventions at the local level. More information about the role of CIIS in Colorado’s COVID vaccine response is described in greater detail in several other sections of this plan. Colorado will also update its existing [Offsite Vaccination Clinic Operational Playbook](#) (originally developed for holding flu clinics during the COVID-19 pandemic) to include operational guidance specific to temporary and mobile clinics planned for Phase 1.

COLORADO COVID-19 VACCINATION PLAN



Phase 2: Large Number of Doses Available, Supply Likely to Meet Demand

In Phase 2, COVID-19 vaccine supply will likely be sufficient to meet demand for critical populations as well as the general population. As a result, additional vaccination providers not activated during Phase 1 will be invited to enroll in the COVID-19 Vaccination Program. Particular consideration will be given to ensure a broad network of providers across the state with an emphasis on equitable access for all populations. Efforts will be made to ensure providers are enrolled in areas of the state where equitable access to vaccines may be lacking. If providers do not exist or are unable to provide COVID-19 vaccine, the Colorado Department of Public Health and Environment (CDPHE) will work with LPHAs to ensure there is access by supporting LPHAs with funding and vaccinators either from CDPHE's Vaccine Support Team (VST) or by collaborating with community vaccinators. More details about the types of vaccination provider/settings targeted for Phase 2 can be found in *Section 5: COVID-19 Provider Recruitment and Enrollment*.

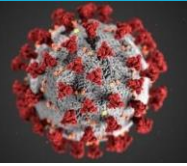
Objectives of Phase 2 include:

- Providing equitable access to COVID-19 vaccination to all critical populations to achieve high COVID-19 vaccination coverage;
- Ensuring high uptake in specific populations, particularly in groups that are at higher risk for severe outcomes from COVID-19;
- Ensuring the remainder of Phase 1 populations are fully vaccinated, especially if they did not receive COVID-19 vaccine during Phase 1.

Colorado will use CIIS to monitor doses administered, vaccine orders, inventory levels, distribution to vaccination providers, and any repositioning of vaccine between vaccination providers during Phase 2. Vaccination coverage rates for critical populations will also be generated from CIIS and will be used to inform interventions at the local level.

Phase 3: Likely Sufficient Supply, Slowing Demand

Ultimately, COVID-19 vaccine will become widely available and integrated into routine vaccination programs, run by both public and private partners. During Phase 3, Colorado will continue to focus on equitable vaccination access for all Coloradans. Additional vaccination providers may be enrolled at this time and others may be ramped down depending on the population served, vaccine availability, and demand. Particular focus will be devoted to using CIIS to monitor COVID-19 vaccine uptake and coverage, especially among critical populations. Low COVID-19 vaccination coverage rates will inform strategies intended to increase vaccine uptake among populations and/or within local areas. In many ways, Phase 3 is when COVID-19 vaccination moves from being a pandemic response to becoming just another piece of the routine immunization program.



Section 4: Critical Populations

A. Describe how your jurisdiction plans to: 1) identify, 2) estimate numbers of, and 3) locate (e.g., via mapping) critical populations. Critical population groups may include:

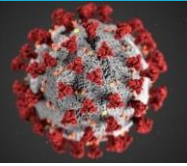
- Healthcare personnel
- Other essential workers
- Long-term care facility residents (e.g., nursing home and assisted living facility residents)
- People with underlying medical conditions that are risk factors for severe COVID-19 illness
- People 65 years of age and older
- People from racial and ethnic minority groups
- People from tribal communities
- People who are incarcerated/detained in correctional facilities
- People experiencing homelessness/living in shelters
- People attending colleges/universities
- People living and working in other congregate settings
- People living in rural communities
- People with disabilities
- People who are under- or uninsured

The overarching goal of COVID-19 vaccines should be to contribute significantly to the equitable protection and promotion of human well-being among all people living in Colorado. Identifying and delineating critical populations for initial or limited vaccine allocation is a key component to this goal. The critical populations process is centered around creating a phased system that is ethically defensible, equitable, fair, transparent, unbiased, based on the best scientific data available, and which must also align with implementation considerations.

Allocation and prioritization decisions should not be made on the basis of public health science or economics alone, as they are inextricably linked — the economy cannot recover as long as the public health crisis continues. Alongside that, the pandemic has caused destructive impacts on many pieces of social and individual life. Determining how best to deploy COVID-19 vaccines requires accounting for the various ways in which they can make a difference and the many different groups whose lives could be improved as a consequence.

Additionally, interwoven throughout vaccine allocation planning and delivery, is the understanding that this process will benefit from behavioral health support. Safe and effective vaccines are a key component of ensuring critical populations are able to protect their physical health and sustain other critical services to the community. Tending to the disaster needs and impacts on workers is good stewardship of organizational capacity and the ability to respond to the community. But vaccine sites and uptake can also be sources of stress and anxiety. Therefore, although not highlighted in the CDC's framework, we should strive for integrating behavioral health supports, within the vaccine clinics, in messaging, and in support to the critical populations. To support this, the Disaster Behavioral Health Unit is working on a considerations list and some operational guidelines around vaccine delivery.

COLORADO COVID-19 VACCINATION PLAN

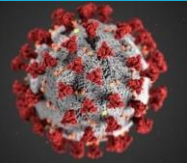


Critical to the process of developing a phased vaccine strategy are the core principles of fairness, transparency, consistency, proportionality, accountability, duty to care, and the duty to steward resources especially when scarce. At no point should decisions to deny vaccines be based on age, gender, race, ethnicity, ability to pay, disability status, national origin, primary language, immigration status, sexual orientation, gender identity, HIV status, religion, veteran status, 'VIP' status, housing status, or criminal history other than as described in the vaccination phases. While the goal is to vaccinate all eligible individuals as quickly as possible, it makes sense that certain populations who may be at higher risk of severe disease or members of a critical workforce may receive higher vaccine phase allocation if the supply is limited. Why certain groups were chosen for certain phases must be understood and justifiable and should help inform the process as to how those critical populations are tabulated.

Therefore, an ethical framework is needed in order to provide structure to the process of developing a critical populations phased strategy. Colorado's framework is based on the principles of:

- Equity - Although everyone is affected by the COVID-19 pandemic, it is not the case that the burdens of the pandemic are being experienced equally by all people. The COVID-19 pandemic has had a disproportionate impact on the physical and mental health of older Coloradans and exacerbated existing health inequities and with communities of color experiencing increased risk of infection as well as severe disease and death. Equitable allocation and distribution of a COVID-19 vaccine is critical to addressing these inequities. This includes offering a meaningful opportunity to be vaccinated to all individuals and groups who qualify under prioritization criterias.
- Reduction of death and disease burden - Throughout the pandemic, saving the most number of lives has been a guiding public health principle.
- Maintain societal function and cohesion during and after the pandemic - Reducing societal and economic disruption by containing transmission, reducing severe disease and death, or a combination of these strategies as it is imperative that we maintain strong social cohesion after the pandemic because that is critical for a return to normal and should be considered in the vaccine allocation process.
- Protect the continuing functioning of essential services - including health services.
- Reciprocity - Protect those who bear significant additional risks and burdens of COVID-19 to safeguard the welfare of others, including health and other essential workers. This further supports the mitigation of health inequities and the related social risks more commonly experienced by communities of color.
- Multiplier Effect - Certain individuals serve a critical societal function in caring and securing the lives of others (e.g., firefighters and healthcare workers). By preventing these individuals from becoming ill, they may then continue to save the lives of others.
- Legitimacy - Engage stakeholders, the community, and subject matter experts in a transparent consultation process for determining what scientific, public health, and values criteria should be used to make decisions about vaccine allocation.
- Transparency - Employ best available scientific evidence, expertise, and significant engagement with relevant stakeholders for vaccine prioritization between various groups

COLORADO COVID-19 VACCINATION PLAN



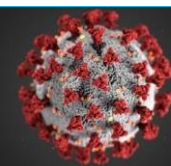
within each county using transparent, accountable, and unbiased processes to engender deserved trust in prioritization decisions.

The CDC and the World Health Organization (WHO) have performed extensive work to outline how to prioritize different populations for an influenza pandemic. In general, the goal is to try to match progressively increasing population size in each phase with a corresponding increase in vaccine availability through increased manufacturing, as it does not make sense to have an extremely large phase early in the vaccination process before a sufficient supply is available. Additionally, the National Academies of Sciences, Engineering, and Medicine (NASEM) has issued recommendations for COVID-19 critical population considerations and the Advisory Committee on Immunization Practices (ACIP) is finalizing their recommendations. The Colorado Department of Public Health and Environment (CDPHE) performed an iterative review of the literature and considered this collective body of work in the state's phased allocation system and the recommendations generally align with the NASEM recommendations. As much as it makes sense for Colorado, these recommendations will be aligned with federal guidance when it becomes available. Further modifications to this phased approach may become necessary when a vaccine becomes available or other local considerations. The common theme from all of the guidance above outlines four key groups:

- Critical Workforce - This group includes healthcare workers, firefighters, emergency medical services, police officers, correctional workers and critical public health personnel. These individuals often have the highest risk of exposure to COVID-19 through their work and care critical to maintaining essential societal functions. Moreover, members of this group are often able to save the lives of others, providing instrumental value to society.
- Congregate Housing - This group includes people living in high-density housing who may have challenges with social distancing. This includes homeless shelters, group homes, correctional facilities, college dorms and other other congregate student housing, and congregate housing typically used for some workers (e.g. agricultural and migrant workers, meatpacking workers and ski industry workers).
- Essential Workers - For Colorado, identification of essential workers was informed by the definition of essential workers in Colorado's Fourth Updated [Public Health Order 20-24](#) from April 9, 2020 with the addition of teachers, other school staff and ski industry workers who live in congregate settings. Essential workers are those that work for a critical business and are deemed essential by that business. Examples of essential workers include grocery store workers, food service workers, meatpacking workers, agricultural workers, teachers, vaccine manufacturing personnel, etc. Essential workers may bear increased risk of exposure to COVID-19, may be a vector of infection to more vulnerable populations, and are essential to societal function.
- Individuals at Risk for Moderate to Severe Disease and Death - Some individuals are at significantly higher risk of developing moderate to severe disease and dying from COVID-19. The list of conditions that confer a high-risk of severe disease is evolving. Key risk factors currently include residence in a nursing or long-term facility, age ≥ 65 years, obesity, diabetes, active cancer, etc.^A
- General Public – Adults 18-64

CDPHE's Critical Populations Workgroup worked in concert with the Governor's Expert Emergency

COLORADO COVID-19 VACCINATION PLAN

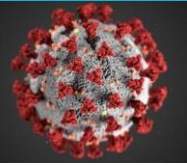


Response Committee (GEEERC). The GEEERC acts to advise Colorado's governor during an emerging or ongoing public health threat. The committee creates a mechanism for sharing public health decision-making with healthcare and infectious disease experts to achieve clarity and consensus in public health recommendations and the governor's executive emergency orders. A subcommittee of the GEEERC, the GEEERC Medical Advisory Group (GMAG), was created to provide guidance on the allocation of limited antivirals, therapeutics, and vaccines for the COVID response. The "Vaccine Allocation Subgroup of the GMAG" was tasked to develop prioritization phases of vaccine allocation based on the framework above. This GMAG subgroup is a curated group of subject matter experts in medical, public health and vaccination administration designated to advise the GEEERC on matters aligned with their subject matter expertise. Equity was incorporated at every level and interwoven into the entire process and methodology. Informed by recommendations from the GMAC, Colorado plans the following approach to vaccine allocation with an increasing number of eligible individuals matching increases in vaccine availability as shown in Table 1 and Appendix A. Please note that this approach may be modified as more knowledge regarding vaccine efficacy and the virus itself becomes available as well as new federal guidance or local considerations.

Table 1: Phase Categories and Corresponding Members

Phase	Category	Members
1A	Critical Workforce (Appendix B)	Inpatient Healthcare workers, including those at assisted living facilities ^B
		Outpatient Healthcare Workers, including home health workers and outpatient pharmacists ^C
1B	Critical Workforce	EMS, Firefighters, Police, Public Health Personnel, Correctional Workers ^D
1C	Highest Risk Individuals	Residents/patients of assisted living, long-term care, and nursing home facilities ^E
2A	Congregate Housing ^F Essential Workers (I) (Appendix C)	Congregate Housing: • Adults experiencing homelessness living in congregate shelters • Incarcerated adults • Adults living in group homes • Workers living in congregate settings (e.g. ski industry, some agricultural workers, etc.) • Students living in college dorms or other congregate housing Essential workers^G: • With direct interaction with the public (e.g. grocery store workers, teachers, childcare, etc.) • Working in high-density settings (e.g. agricultural, meat-

COLORADO COVID-19 VACCINATION PLAN



		packing workers, etc.) Serving persons that live in high-density settings (e.g. homeless shelter or group home workers)
2B	Higher Risk Individuals (Appendix D)	Adults 65 or older Adults with obesity, diabetes, chronic lung disease ^h , significant heart disease ⁱ , chronic kidney disease requiring dialysis, active cancers, and/or immunocompromised status Adults who received placebo during a COVID-19 vaccine clinical trial
3	General Public	Adults 18-64 without high-risk conditions
Note: There are certain key populations that are not yet part of the system outlined above, including Native Tribal members, military personnel, children, and pregnant women. We anticipate military personnel will work directly with the federal government. Tribal consultations and confers are ongoing with our Native Tribes and Urban Indian Health program regarding their preferred methods of vaccine allocation and distribution. Children and pregnant women are not included in this preliminary phased approach as the current vaccine trials exclude children and pregnant women. We anticipate some guidance from the federal government about the safety and efficacy in these important populations at the time of an emergency use authorization or full approval and plan to incorporate children and pregnant women, if appropriate, at the time of a actual implementation.		

^AThe classification of high-risk conditions is constantly evolving and modifications to the list of potential high-risk conditions will be updated over time.

^BInpatient healthcare workers would include individuals working at nursing and residential facilities. Inpatient healthcare workers specifically refers to those with direct patient care responsibilities (physicians, nurses, pharmacists, respiratory therapists, physical therapists, etc.), patient support responsibilities (e.g., social workers, case managers, chaplains, etc.) those involved in processing patient samples (e.g., phlebotomists, laboratory technicians, etc.), and hospital support personnel with contact with patient care areas (e.g., environmental services staff). See Appendix B for a definition of healthcare workers.

^COutpatient healthcare workers would include similar categories as inpatient healthcare workers as well as home health workers, outpatient pharmacists, and primary vaccine providers. See Appendix B for a definition of healthcare workers.

^DPublic health personnel may include vaccine providers and contact tracers if their position results in increased risk of exposure.

^ENot including patients in a dedicated hospice facility. Patients in hospice facilities would be vaccinated with the general public.

^FPeople living in high-density housing who may have challenges with social distancing. This includes homeless shelters, group homes, correctional facilities, college dorms and other other congregate student housing, and congregate housing typically used for some workers (e.g. agricultural and migrant workers, meatpacking workers and ski industry workers).

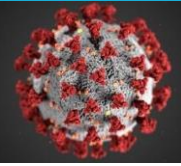
^GFront facing essential workers are those who have direct interaction with the public (e.g., grocery store workers, teachers and childcare workers, transportation personnel, public-facing staff at essential business, etc.), those who work in high density areas with high-risk of transmission (e.g., food service industry workers, meatpacking workers, migrant farm workers, agricultural workers, postal workers, workers that manufacture a COVID-19 vaccine, etc.) and those who serve persons living in congregate housing (e.g. homeless shelter workers).

^HChronic obstructive pulmonary disease (COPD), chronic hypoxic respiratory failure, and other severe lung diseases.

^ISignificant heart disease includes heart failure, coronary artery disease, moderate to severe pulmonary hypertension, and other cardiomyopathies.

There are several key points to note regarding the table above. First, the identification of essential workers was informed by the definition of essential workers in Colorado's Fourth Updated [Public Health Order 20-24](#) from April 9, 2020 with the addition of teachers, other school staff. In this order, "critical business" is defined and workers employed or contracted to these businesses can be deemed essential. Additionally, the proposed framework identified essential workers based on the aforementioned ethical principles as essential workers, by definition, have instrumental value but not all have increased risk of exposure due to the nature of their work (e.g., some may be able to work from home or have very limited interaction with the public). The principle of reciprocity only applies to those essential workers who have increased risk of contracting COVID-19 when their job requires interacting with large numbers

COLORADO COVID-19 VACCINATION PLAN



of people.

Second, there may be the need to provide further sub-phasing methodologies as it is highly probable the initial releases of presentations will not be sufficient to vaccinate all individuals in Phase 1 or even in Phase 1A. **Within phase allocations**, it is recommended to use a combination of:

- Risk of exposure, and
- Risk of severe disease or death.

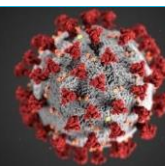
Specifically, it is recommended that counties and vaccine administrators:

1. Prioritize inpatient healthcare workers before outpatient healthcare workers if there is an insufficient supply to vaccinate all of Phase 1A due to potentially higher risk of exposure.
2. Prioritize patients at higher risk of severe COVID-19 related disease and death over critical workforce members who do not have a high-risk condition if there is insufficient supply to vaccinate a sub-phase (e.g., not enough for all inpatient healthcare workers or not enough for all individuals in Phase 1B).
3. Prioritize those with a condition that puts them at higher risk for severe disease and death followed by those without high-risk conditions if there is insufficient vaccine supply for all adults in congregate housing and public facing or high density essential workers (Phase 2A).
4. Prioritize individuals with high-risk conditions (Phase 2B) who live in communities with the highest positivity and transmission rates of COVID-19 over high-risk individuals who do not live in a hotspot if there is not enough vaccine for all individuals in Phase 2B. Phase 2B vaccines are likely to be provided by traditional vaccine providers (e.g., individual practitioners, retail pharmacies, etc.). It is important to note that if there are insufficient vaccine supplies for all of Phase 2B, CDPHE will need to further guide the distribution of vaccines to vaccine providers in geographic areas with higher COVID-19 positivity and transmission rates for the initial phases of Phase 2B vaccinations.
5. Prioritize Phase individuals based on areas with higher COVID-19 positivity and transmission rates if vaccine shortages still exist when Phase 3 is activated.

Therefore, within phase allocations for Phase 1-2A should be based on identifying individuals at high-risk for severe disease and death (see definitions in Appendix D for Phase 2B conditions). For example, if there were insufficient vaccines to vaccinate all inpatient healthcare workers with a single vaccine distribution, older healthcare workers (≥ 65 years), those with obesity, those with diabetes, etc. would receive the highest priority. Within phase allocations for Phase 2B-3 should be based on prioritizing distribution of vaccines to communities with high positivity and transmission rates, which depends on effective contact tracing, rapid test turnaround times, and equitable access to and use of testing throughout Colorado.

Third, there may be times when it may make sense to utilize **vaccination outside of the phase approach**. It is clear the spread of COVID-19 has significant regional variation. In Colorado, Eagle and Summit Counties saw an early spike in COVID-19 cases followed by Denver County and other metropolitan areas. Regional spread can often be linked to rapid transmission within certain communities or certain industries (e.g., meat packing or ski industry). Identifying hotspots (areas of high positivity rates and rapid transmission) can further guide within phase allocation in the overall prioritization approach.

COLORADO COVID-19 VACCINATION PLAN



Additionally, CDPHE and local public health agencies should monitor for the emergence of areas of high positivity and/or high transmission rates because it is known that areas of rapid and high transmission may quickly overwhelm local health systems especially in rural areas with limited access to hospitals and other forms of healthcare. It may therefore make sense to attempt to direct vaccines to emerging hotspots based on timely positivity and transmission rates.

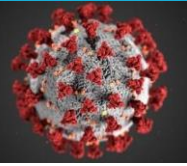
Fourth, CDPHE acknowledges long-standing systemic racism, including economic and environmental injustice, has created negative health outcomes. These systematic institutions influence a person's health more than individual behaviors and affect marginalized communities, particularly people of color, more than other communities. To realize a future where all Coloradans have the opportunity to thrive, CDPHE recognizes the need for public health to be leaders in undoing government policies and practices that have contributed to these inequities and creating new ones that ensure equity. Healthcare inequities experienced by communities of color during the COVID-19 pandemic are well documented and cannot be ignored. Addressing healthcare inequities specifically related to COVID-19 was considered for each vaccination phase with data driven considerations about how prioritizing certain critical populations can address some of the COVID-19 inequities experienced related to social risks. For example, prioritizing individuals at high risk of severe disease and death (Phase 2B) addresses both the ethical principle of trying to save the most number of lives, while also working to address racial inequities, as there is ample data that demonstrates that communities of color have disproportionately higher risk of rates of high-risk conditions (e.g. diabetes, heart disease, obesity, etc.) and tend to live in either high-density areas and/or in multigenerational homes which can increase risk of COVID-19 exposure and transmission.

Finally, it is important to acknowledge the importance of decision makers in this process, and it is encouraged that they be as clear as possible about the reasons for the decisions they take, reasons that they can then share in ways that can be readily understood, if not always readily accepted, by the people affected by these decisions. Being clear and explicit about the full range of reasons behind allocation and prioritizing decisions will permit groups who think they qualify under the reasoning to press their case for inclusion. Being explicit about the values as well as the data that were used to make decisions will allow for more precise and therefore potentially more useful feedback and criticism. And, the cooperation and reduction of stress, anxiety, and/or anger in the community will rely heavily on the public information messaging that explains these critical population phases as well as the safety of the vaccine for those designated for early uptake.

B. Describe how your jurisdiction will define and estimate numbers of persons in the critical infrastructure workforce, which will vary by jurisdiction.

A consultant working on pandemic influenza critical workforce group population numbers for a local public health agency (LPHA) was solicited to provide technical assistance in estimating the number of critical workforce and high-risk populations by risk phases using employment and demographic data (for the entire state). The overarching aim with the data methodology was to create a process that was useful, consistent, defensible, and replicable. The data methodology process, the "how," is as follows:

COLORADO COVID-19 VACCINATION PLAN



Modeling Critical Workforce for Pandemic Vaccination

This section describes the rationale and process for estimating the number of critical workforce and high-risk populations in need of vaccination by risk using employment and demographic data. Colorado used the *Roadmap to Implementing Pandemic Influenza Vaccination of Critical Workforce: Guidance for state and local planners in targeting and allocating pandemic influenza vaccine for critical workforce* as a guide. A key action of the Department of Health and Human Services (HHS), outlined in the 2017 HHS Pandemic Influenza Plan, is to support production and distribution of pandemic influenza vaccine matched to the circulating pandemic influenza vaccine strain within 12 weeks from declaration of an influenza pandemic. However, early in a response, the vaccine supply may not be sufficient to meet the demand for the entire U.S. population. In this case, decisions about how to target this initial supply of pandemic influenza vaccine will need to be made. These decisions will be based not only on vaccine supply, but also on epidemiology, severity, and assessment of potential for disruption of essential community services in context of publicly articulated pandemic influenza vaccination program objectives and principles. CDC's Interim Updated Planning Guidance on Allocating and Targeting Pandemic Influenza Vaccine during an Influenza Pandemic (2018) outlines this strategy but includes limited information on how state and local planners should plan for implementing and operationalizing pandemic vaccine targeting decisions. In a severe pandemic, disease can spread rapidly in a community and may result in notable losses in workdays, particularly among critical workforce groups who provide response functions and essential basic services to communities. Disease and absenteeism among critical workforce may increase the negative impact of a pandemic on a community. Pandemic vaccine may only be available in incremental, limited supplies during the initial stages of an influenza pandemic. Therefore, it may be necessary to target available pandemic vaccine to protect these critical workforce personnel in both public and private sectors.

The following data were considered for determining critical workforce populations:

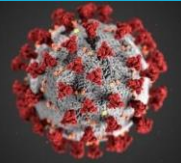
- American Community Survey (ACS) 2014-2018 5-year Estimates of Population by Industry
- Quarterly Census of Employment and Wages (QCEW) Quarterly Report
- American Community Survey (ACS) 2014-2018 5-year Estimates of Population by Occupation
- Standardized Occupational Classification (SOC) Yearly Report

ACS Industry and Occupation data was believed to contain insufficient detail to categorize populations by phase/tier. We therefore investigated using the detailed data that inform each of those data: NAICS data informs ACS population by Industry and SOC informs ACS population by Occupation.

American Community Survey (ACS) 2014-2018 5-year Estimates of Population by Industry

The ACS Industry estimates break down population into 20 detailed industries, but not in sufficient detail to assign appropriate Phase categories, in particular those related to 1A and 1B. Quarterly Census of Employment and Wages (QCEW) Quarterly Report NAICS data was provided by the Colorado Department of Labor and Employment (CDLE). This data was in raw format as reported by employers and contained the numbers of employees at each establishment in Colorado by NAICS code. This data is desirable because the detailed 6-digit NAICS jobs allow for identifying very specific job categories. It is also point-level data by employer address, which allows for very precise geographic distribution. We assigned a Phase to each of the 1200+ job categories as a first attempt at determining the total number

COLORADO COVID-19 VACCINATION PLAN



of jobs in each tier. However, a substantial number of establishments provided addresses outside of Colorado, and many of those are large employers (several thousand employees each) resulting in an unreasonable number of jobs that are not able to be reasonably located in Colorado. The data also contains multiple records for many employers resulting in overreporting. Between the out-of-state addressing and overreporting, the ability to provide accurate numbers at the state-level was suspect and providing numbers at the county level would require a feat of geographic distribution modeling and would be very difficult to replicate.

American Community Survey (ACS) 2014-2018 5-year Estimates of Population by Occupation

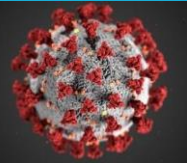
The ACS Occupation estimates break down population into 23 details occupations, and while not ideal, are sufficient to assign appropriate Phase categories, in particularly those related to 1A and 1B:

- 11-0000 [Management Occupations](#)
- 13-0000 [Business and Financial Operations Occupations](#)
- 15-0000 [Computer and Mathematical Occupations](#)
- 17-0000 [Architecture and Engineering Occupations](#)
- 19-0000 [Life, Physical, and Social Science Occupations](#)
- 21-0000 [Community and Social Service Occupations](#)
- 23-0000 [Legal Occupations](#)
- 25-0000 [Educational Instruction and Library Occupations](#)
- 27-0000 [Arts, Design, Entertainment, Sports, and Media Occupations](#)
- 29-0000 [Healthcare Practitioners and Technical Occupations](#)
- 31-0000 [Healthcare Support Occupations](#)
- 33-0000 [Protective Service Occupations](#)
- 35-0000 [Food Preparation and Serving Related Occupations](#)
- 37-0000 [Building and Grounds Cleaning and Maintenance Occupations](#)
- 39-0000 [Personal Care and Service Occupations](#)
- 41-0000 [Sales and Related Occupations](#)
- 43-0000 [Office and Administrative Support Occupations](#)
- 45-0000 [Farming, Fishing, and Forestry Occupations](#)
- 47-0000 [Construction and Extraction Occupations](#)
- 49-0000 [Installation, Maintenance, and Repair Occupations](#)
- 51-0000 [Production Occupations](#)
- 53-0000 [Transportation and Material Moving Occupations](#)

Standardized Occupational Classification (SOC) Yearly Report SOC data is available from CDLE and is aggregated by state and county each year, 2019 being the most recent year this data is available for. This data is broken down by occupation into 23 major, 98 minor, 459 broad, and 867 detailed categories (see Standardized Occupational Classes tab or: https://www.bls.gov/soc/2018/major_groups.htm).

Colorado assigned each of the minor, broad, and detailed categories a Phase, downloaded county-level data for 2019 from the BLS, and aggregated those to the county-level. The result showed major collection/reporting issues as 31 counties showed no one employed in Phase 1A; 19 with no one employed in Phase 1B; and significant undercounts in the remaining tiers with 8 counties showing no

COLORADO COVID-19 VACCINATION PLAN



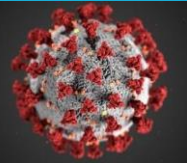
jobs in any Phase.

ACS 2014-2018 5-year county estimates were used for baseline employment totals for each major occupation group for each county. State-level detailed occupation data that is much more complete than the county-level data were used to estimate state-level totals and generate distribution values for each Phase by major occupation group, and calculated totals for each Phase by county.

Additional considerations:

- These data only represent employed persons, do not encapsulate volunteers (an important component of many volunteer emergency services throughout Colorado), and may not fully capture part-time, independent, or gig workers in any given field.
- These data are from the ACS 2014-2018 5-year Estimates, therefore 2-years old sample data, and have varying margin of error depending on population and sample size - typically counties with small populations will result in a higher margin of error. For state-level counts based on detailed SOC data from BLS the Percent Relative Standard Error (PRSE) is 0.3%, while county-level estimates from the ACS have Margin of Error (MOE) between 0% and 42%, but averaging 7%.
- Job and population growth from 2018 to 2020 are not incorporated into this model, but may be at a later date.
- The distribution of jobs across the Phases 1A, 1B, and 2A are based on the typical distribution across the *state* and individual county distributions will vary. Individual county distributions may be added at a later date.
 - To support this data set and its potential limitations, CDPHE also used the Center for Improving Value in Healthcare (CIVHC) database to estimate [Phase 2B, people with underlying comorbidities](#). It is important to note that there are limitations with this data including:
 - This data only counts insured individuals, so it must be extrapolated to account for the uninsured. CDPHE believes that Colorado's uninsured population is 24% of the total population. Therefore, the CIVHC data was multiplied by 24%. CDPHE acknowledges this is imperfect as it is known that uninsured people are likely to experience higher rates of comorbidities and uninsured rates may vary by county.
 - The CIVHC database does not include those with federal insurance through the United States Department of Veterans Affairs (VA) or military, those with a specific type of employer based Medicare, and those that are uninsured. Therefore, CIVHC has 3.6 million people but misses 1.9 million people.
 - Comorbidities and the methodology for counting them within this data set (e.g., an individual with diabetes and obesity will show up twice in this data set although the individual is only one person.) This almost certainly leads to an overestimate but will also help to address the aforementioned underinsured undercount issues.
 - Alignment of CDC high-risk comorbidities with GMAG critical populations,

COLORADO COVID-19 VACCINATION PLAN



as CDPHE misses a couple of the rare conditions considered high risk by CDC, and the CDC included severe obesity but not all obesity.

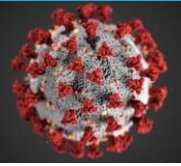
- Not all obese individuals are counted in this dataset as it only includes individuals with severe obesity. Therefore, numbers used are missing individuals with mild or moderate obesity. Obesity data continues to be refined and will be updated as new data becomes available.
- Taking all of the above into account, the following method was used to calculate the totals for CIVHC Phase 2B estimates. The percent of people in the APCD that have a high risk condition (by county) was calculated. Then, multiplied this high-risk rate by the total county population minus kids to get the total at risk population (making assumption that rates of high-risk conditions are stable across different insurance/uninsured brands).
- Homeless population data from the Coalition for the Homeless point in time (PIT) studies to improve Phase 2A estimates, although this is likely an underestimate due to methodologies used to obtain estimates.
 - Coalition for the Homeless PIT studies have limitations because not all counties participate and their data is a single day snapshot. By design, this data does not include people who may be cohabitating at that time.
- Long term and residential care facility bed counts from CDPHE's Health Facilities and Emergency Medical Services Division to support Phase 1C estimates. The data set used is located here:
<https://drive.google.com/file/d/1b7WBUGDgi67Q4NNknwqeXbH2X2Ae0qu/view?usp=sharing>.
 - It is not necessarily known how many of these beds are occupied at any single point in time; however, it provides a starting point for initial population estimates.
- Prison population data from Colorado Department of Corrections (CDOC) to improve Phase 2A estimates, included in the data set above, located here:
<https://drive.google.com/file/d/1SYhguzYBQhzeF2WNQ26SwPJk-0zpzcqc/view?usp=sharing>.

The data from the steps outlined above was compiled and used as the baseline for critical population estimates by county for the state. Complete estimates of each phase statewide and by county can be found in the datasets linked above. In an effort to ensure these estimates are as accurate as possible, it has been cross-checked with county-level critical workforce group estimates from a subset of rural and urban Local Public Health Agencies, CDC estimated state data, Colorado demographic data, and other data sources as appropriate.

Mapping and Data Visualization Efforts

Visualizing data and providing context to data is important not only to the overarching narrative of critical populations, but also to inform the allocation, distribution, and implementation work related to providing equitable COVID-19 vaccines to Colorado citizens. In order to inform and improve risk

COLORADO COVID-19 VACCINATION PLAN



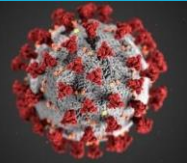
management, CDPHE is working with the data and informatics mapping teams to overlay demographic data with vaccine provider registration locations to visually identify at-risk areas and ensure equity in vaccine allocation and distribution across Colorado.

CDPHE is creating an innovative application that will be utilized by the state and LPHAs for vaccine provider distribution, targeting, and allocation. This application has a variety of functional features which include:

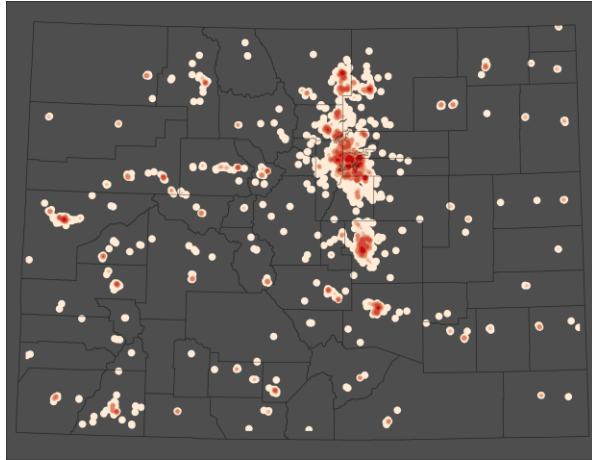
- Allowing both a list and a map to be downloaded by the user.
- Filtering and selecting providers with specific characteristics using available metadata that allows for users to select area, age range, race, and ethnicity of patients served, and/or provider type.
- Enhanced provider functionality. Once the list of chosen providers are selected, they will be plotted on a map of the chosen geography and represented in a way to visually share their administration capacity and populations served (ages, race and ethnicity, underserved, etc.).
 - This functionality will be used to merge this information and overlay it on a map of critical populations in the same area. The state could then use this to estimate if there are enough providers to be able to sufficiently vaccinate the critical populations in a designated area. If CDPHE visually sees there may be a gap, the state will be able to identify this ahead of time and perform outreach to onboard additional providers in identified areas of need.
 - This will support the equity efforts and further support attempts to create equitable access to areas with larger populations of people of color and/or people at increased risk of severe outcomes or death due to COVID-19.
 - Subject matter expertise of LPHA partners will be utilized to identify potential areas of provider shortage from the maps mentioned above.
- Synthesization of 2019-20 flu season information, which includes the data points:
 - Total number of flu doses administered
 - Peak week dates and doses administered
 - Race and ethnicity breakdown of patients receiving flu vaccine,
 - With Top level filters for:
 - Age range for flu vaccinations (the metrics above adjust based on the ages entered)
 - Provider type (e.g., large hospital/health system, commercial partners, mobile vaccination providers, occupational health providers, and others)
 - Geography (e.g., county, city, zip code, census tract, and full address)

Additionally, mapped phases 1-2 were created based on data estimates by county. The visual representation of each phase is as follows:

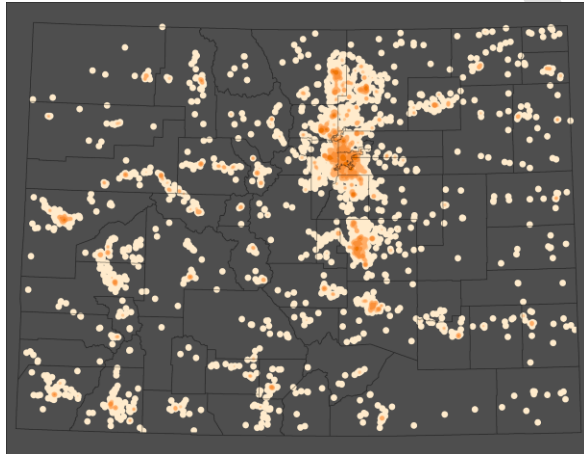
COLORADO COVID-19 VACCINATION PLAN



Phase 1



Phase 2

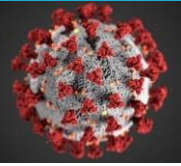


- C. Describe how your jurisdiction will determine additional subset groups of critical populations if there is insufficient vaccine supply.

See the response to A. above.

- D. Describe how your jurisdiction will establish points of contact (POCs) and communication methods for organizations, employers, or communities (as appropriate) within the critical population groups.

COLORADO COVID-19 VACCINATION PLAN



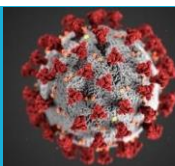
CDPHE distributed a COVID-19 Vaccine Provider Interest Survey survey to potential vaccine providers, including those participating in 2009's H1N1 campaign, to ascertain interest and ability in becoming a COVID-19 vaccine provider. Based on the results of the survey and with input from LPHAs, providers will be enrolled using CDC COVID-19 Vaccination Program Provider Agreement with support from the state and local public health to ensure that compliance with COVID-19 vaccine requirements can be met (e.g., general and cold chain storage capacity, ability to collect and report data, throughput estimate, provider availability, etc.). Outreach to additional providers will be conducted in the coming weeks to address potential gaps in provider sites with the ability to communicate and vaccinate specific critical populations, with an initial focus on Phase 1 populations (healthcare provider sites, pharmacies, long term care facilities, and those sites able to vaccinate responder populations, including LPHAs).

Colorado's COVID-19 Vaccine Plan will be updated to include a list of locations of providers that may be added to the mapping and data visualization efforts mentioned above. Additional outreach to ensure community engagement and support is occurring in conjunction with the Health Equity and Public Information lines of effort. Specific communication methods are identified within the Public Information section of this plan. Community engagement meetings have begun with community leaders to receive feedback on this plan and on community needs, fears, and concerns related to this vaccination campaign. Feedback from these meetings is actively incorporated into the state's planning efforts and may be reflected in future iterations of this plan.

Appendix A - Phase Categories and Corresponding Members with State Estimates

Phase	Category	Members	State Estimate
1A	Critical Workforce (Appendix B)	Inpatient Healthcare workers, including those at assisted living facilities ^B	182,884
		Outpatient Healthcare Workers, including home health workers and outpatient pharmacists ^C	101,708
1B	Critical Workforce	EMS, Firefighters, Police, Public Health Personnel and Correctional Workers ^D	
1C	Highest Risk Individuals	Residents/patients of assisted living, long-term care, and nursing home facilities ^E	46,941

COLORADO COVID-19 VACCINATION PLAN



2A	Congregate Housing ^F Essential Workers (I) (Appendix C)	Congregate Housing: - Adults experiencing homelessness living in congregate shelters - Incarcerated adults - Adults living in group homes - Workers living in congregate settings (e.g. ski industry, some agricultural workers, etc.) - Students living in college dorms or other congregate housing Essential workers^G: - With direct interaction with the public (e.g. grocery store workers, teachers, childcare, etc.) - Working in high-density settings (e.g. agricultural, meat-packing workers, etc.) - Serving persons that live in high-density settings (e.g. homeless shelter or group home workers)	669,063
2B	Higher Risk Individuals (Appendix D)	Adults 65 or older Adults with obesity, diabetes, chronic lung disease ^H , significant heart disease ^I , chronic kidney disease requiring dialysis, active cancers, and/or immunocompromised status	2,343,851
3	General Public	Adults 18-64 without high-risk conditions	1,937,711
Note: There are certain key populations that are not yet part of the system outlined above, including Native Tribal members, military personnel, children, and pregnant women. We anticipate that military personnel will work directly with the federal government. Consultation with Tribes and confer with our Urban Indian Health Program regarding their preferred methods of vaccine allocation and distribution are ongoing. Children and pregnant women are not included in this preliminary phased approach as the current vaccine trials exclude children and pregnant women. We anticipate some guidance from the federal government about the safety and efficacy in these important populations at the time of an emergency use authorization or full approval and plan to incorporate children and pregnant women, if appropriate, at the time of actual implementation.			

^AThe classification of high-risk conditions is constantly evolving and modifications to the list of potential high-risk conditions will be updated over time.

^BInpatient healthcare workers would include individuals working at nursing and residential facilities. Inpatient healthcare workers specifically refers to those with direct patient care responsibilities (physicians, nurses, pharmacists, respiratory therapists, physical therapists, etc.), patient support responsibilities (e.g., social workers, case managers, chaplains, etc.) those involved in processing patient samples (e.g., phlebotomists, laboratory technicians, etc.), and hospital support personnel with contact with patient care areas (e.g., environmental services staff). See Appendix B for a definition of healthcare workers.

^COutpatient healthcare workers would include similar categories as inpatient healthcare workers as well as home health workers, outpatient pharmacists, and primary vaccine providers. See Appendix B for a definition of healthcare workers.

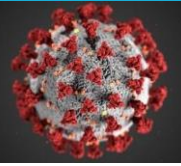
^DPublic health personnel may include vaccine providers and contact tracers if their position results in increased risk of exposure.

^ENot including patients in a dedicated hospice facility. Patients in hospice facilities would be vaccinated with the general public.

^FPeople living in high-density housing who may have challenges with social distancing. This includes homeless shelters, group homes, correctional facilities, college dorms and other other congregate student housing, and congregate housing typically used for some workers (e.g. agricultural and migrant workers, meatpacking workers and ski industry workers).

^GFront facing essential workers are those who have direct interaction with the public (e.g., grocery store workers, teachers and childcare workers, transportation personnel, public-facing staff at essential business, etc.), those who work in high density areas with high-risk of transmission (e.g., food service industry workers, meatpacking workers, migrant farm workers, agricultural

COLORADO COVID-19 VACCINATION PLAN



workers, postal workers, workers that manufacture a COVID-19 vaccine, etc.) and those who serve persons living in congregate housing (e.g. homeless shelter workers).

¹⁴Chronic obstructive pulmonary disease (COPD), chronic hypoxic respiratory failure, and other severe lung diseases.

¹⁵Significant heart disease includes heart failure, coronary artery disease, moderate to severe pulmonary hypertension, and other cardiomyopathies.

Appendix B - Defining healthcare workers

The Code of Colorado Regulations, Standards for Hospitals and Health Facilities, General Licensure Standards (6 CCR 1011-1 Chapter 2), healthcare workers are defined as:

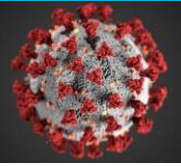
Any employee or direct contractor who has the potential for exposure to clients of the facility or agency and/or to infectious materials, including bodily substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air are subject to this Part 11. Such positions that may have the potential for exposure include, but are not limited to, licensed independent practitioners; students and trainees; individuals who directly contract with the facility or agency to provide services; home care personnel; individuals aged 18 or older who are affiliated with the facility or agency, but do not receive wages or other remuneration from the facility or agency; and persons not directly involved in client care but potentially exposed to infectious agents that can be transmitted to and from the individual providing services and clients of the facility or agency.²⁶

The definition for healthcare workers applied to the facility mandate requiring 90% of healthcare workers to receive the annual influenza vaccine. For the purposes of COVID-19 vaccinations, CDPHE recommends using the same definition:

- Physicians (MD/DO)
- Advanced Practice Providers (NP/PA)
- Nurses (RN/LPN)
- Medical Assistants
- Medical Technicians
- Respiratory Therapists
- Pharmacists
- Laboratory Technicians processing human samples
- Phlebotomists
- Radiology Technicians
- Social Workers
- Case Managers
- Behavioral Health Providers if seeing patients in-person
- Home Health Aids/Technicians, including workers at non-medical home care agencies who work in client homes
- Environmental Services Technicians
- Food Service Technicians
- Dieticians/nutritionists
- Mortuary Services

This list is not exhaustive but providers within one of these groups must have or be at risk for contact

COLORADO COVID-19 VACCINATION PLAN



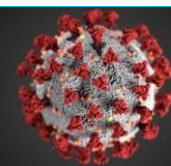
with patients or patient samples. For example, radiologists who participate in patient exams would receive higher priority but those whose sole responsibility is reading films without patient contact might not receive higher priority. Hospital administration or human resources personnel who do not have a direct patient care role would not receive extra prioritization. The final decision as to which personnel are at high-risk will fall onto individual facilities.

Appendix C - Defining essential workers

As described on page 23, the identification of essential workers was informed by the definition of essential workers in Colorado's Fourth Updated [Public Health Order 20-24](#) from April 9, 2020 with the addition of teachers, other school staff. The list below is meant to serve as an example and is not exhaustive. It is meant to provide guidance for vaccine allocation on the local level based on estimating phase size and to individual vaccine providers in deciding which patients will receive a vaccine in each phase of vaccination effort.

Essential Workers - Public Facing, High-Density Areas, or Mission Critical to the Pandemic (Phase 2A)	
Healthcare Operations	Medical wholesale and distribution ^A
	Pharmaceutical and biotechnology companies if working on the pandemic response including vaccine manufacturing ^A
	Medical supplies and durable medical equipment technicians and suppliers ^A
	Blood banks ^A
Critical Infrastructure	Public transportation
	Businesses and organizations that provide food, shelter, social services or other necessities to economically disadvantaged persons or persons with functional needs
Critical Manufacturing	Food processing and manufacturing
	Medical equipment/components ^A
	Pharmaceuticals ^A
Critical Retail	Grocery stores
	Farm and produce stands
	Gas stations and convenience stores
	Restaurants and bars ^B
	Establishments engaged in retail sale of food or other critical household products
Critical Services	Building cleaning and maintenance
	Teachers
	Child care services
	Warehouse/distribution and fulfillment centers
	In-person pastoral services for individuals in crisis or end-of-life

COLORADO COVID-19 VACCINATION PLAN



Providers of Basic Necessities to Economically Disadvantaged Populations	Homeless shelters
	Food banks
	Human services providers whose function includes the direct care of patients in state-licensed or voluntary funded programs
Critical Services to Maintain Safety, Sanitation and Critical Operations	Disinfection services ^A
Government	Critical government functions ^A

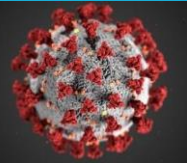
^APandemic essential services

^BSubject to public health orders on restaurant and bar opening and closures

Appendix D: Definition of High-Risk Conditions for Severe COVID-19 Disease and Death

The conditions that define an individual as high-risk for severe COVID-19 disease and death are still being defined. Using several retrospective studies, the CDC has compiled a list of conditions that likely increase the risk of severe COVID-19 related disease. As new information about the virus and pandemic emerges, this list will be modified and updated to incorporate the latest scientific data. As of now, the CDC and other sources define high-risk conditions as:

- Adults ≥ 65 years old
- Active cancer
- COPD
- Chronic hypoxic respiratory failure
- Immunocompromised state
- Obesity (BMI ≥ 30)
- Serious heart conditions (heart failure, active coronary artery disease, or cardiomyopathies)
- Sickle cell disease
- Diabetes
- Adults with chronic kidney disease requiring dialysis



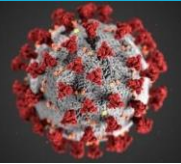
Section 5: COVID-19 Provider Recruitment and Enrollment

- A. Describe how your jurisdiction is currently recruiting or will recruit and enroll COVID-19 vaccination providers and the types of settings to be utilized in the COVID-19 Vaccination Program for each of the previously described phases of vaccine availability, including the process to verify that providers are credentialed with active, valid licenses to possess and administer vaccine.*

Colorado widely distributed a COVID-19 Vaccine Provider Interest Survey in September 2020 using various distribution lists, including those for local public health agencies, Vaccines for Children (VFC) providers, Colorado Immunization Information System (CIIS)-enrolled clinics, long-term care facilities, assisted living residences and H1N1 vaccine providers. The deadline for submission was September 30, and there were 1,125 respondents from 62 of Colorado's 64 counties. Most responding facilities were private practices (19.5%) or pharmacies (39.1%). Federally Qualified Health Centers (FQHC)/Rural Health Centers (RHC), hospitals and local public health agencies (LPHA) accounted for 7.1%, 6% and 5.6% of the respondents, respectively. All three tribal clinics in Colorado also submitted interest forms. 806 (or 71.6%) of the respondents stated they serve populations that would fall into Colorado-defined Phase 1 of COVID-19 vaccination (e.g., healthcare workers, long-term care facilities, nursing homes). 867 (or 77%) of the respondents stated they serve populations that would fall into Colorado-defined Phase 2 of COVID-19 vaccination (e.g., adults 65 years and older, adults with comorbidities). 95.8% of the respondents reported that their facility is monitoring and recording twice daily temperatures for all vaccine storage units, and 91.9% reported that their facility uses a digital data logger thermometer to record temperatures of vaccine storage units. 96% of respondents reported that their facility had a provider with prescription writing privileges. Finally, 90.2% of the respondents reported that their facility currently reports to CIIS.

County-level lists of providers and key information submitted via the COVID Vaccine Provider Interest Survey as well as county-level critical population estimates have been shared with each LPHA jurisdiction for review. Each LPHA will have the opportunity to review the information to: (1) vet the providers who completed the interest form, (2) identify gaps and additional providers that should be

COLORADO COVID-19 VACCINATION PLAN



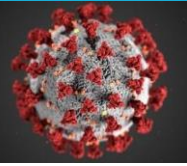
considered for enrollment, and (3) prioritize which providers should be enrolled first based on the critical populations they indicated they serve. In the initial phase of the COVID vaccine response, doses of vaccine will likely be very limited. As a result, Colorado will prioritize enrollment of vaccination providers and settings who will administer COVID-19 vaccine to the populations of focus for Phase 1, giving consideration to providers serving critical populations who live in remote, rural areas of the state who may experience difficulty accessing vaccination services. Vaccination providers/settings may include: large hospitals and health systems, occupational health settings for large employers, critical access hospitals, rural health centers, community health centers, and LPHAs. COVID-19 vaccine may be delivered in closed point-of-dispensing (POD) settings during Phase 1 in an effort to maximize throughput and minimize vaccine wastage. PODs may be particularly useful in vaccinating certain critical workforce members (e.g., emergency medical services, firefighters, and police officers) who may not be uniformly associated with large healthcare delivery systems. The Colorado Department of Public Health and Environment (CDPHE) will gauge the interest and capacity of LPHAs in hosting closed POD clinics for first responders.

With Phase 2 and 3 of the COVID-19 vaccine response, it is assumed that large numbers of doses will be available and sufficient to meet demand. As a result, additional vaccination providers not activated during Phase 1 will be invited to enroll in the COVID-19 Vaccination Program. Particular consideration will be given to ensure a broad network of providers across the state with an emphasis on equitable access for all populations. Vaccination providers/settings may include: doctors' offices and other outpatient healthcare facilities, pharmacies, LPHAs, occupational health settings, organizations serving those at higher risk for severe illness from COVID-19, congregate settings (including correctional facilities), homeless shelters, colleges/universities, senior centers, FQHCs, RHCs and school-based health centers.

Enrollment within the COVID-19 Vaccination Program will occur online through an existing system currently used for the Immunization Information System (IIS) enrollment and onboarding, the Colorado Public Health Reporting (CoPHR) portal - a commercial software product developed and maintained by Atlantic Management Center, Inc. (AMCI). Colorado is currently in the process of configuring a Pandemic Provider Rapid Engagement Platform (PREP) within CoPHR that will enable providers to complete the COVID-19 and CIIS enrollment processes in one centralized system. Pandemic PREP will collect all required information from the vaccination provider and input it on the official CDC COVID-19 Vaccination Program Provider Agreement and Profile Form. Provider agreements can be routed to authorized officials for electronic signatures, and copies of completed provider agreements will be retained within CoPHR indefinitely. The information collected from vaccination providers will be compiled in an interactive, summary-based dashboard within CoPHR to allow CDPHE staff to identify, approve and prioritize providers for allocation.

- B.** *Describe how your jurisdiction will determine the provider types and settings that will administer the first available COVID-19 vaccine doses to the critical population groups listed in Section 4.*

COLORADO COVID-19 VACCINATION PLAN



Phase 1 recruitment and enrollment efforts will be driven by Colorado-specific recommendations for vaccine allocation (see *Section 4: Critical Populations*). The initial provider types and settings that will likely administer the first available COVID-19 vaccine doses may include: large hospitals and health systems, occupational health settings for large employers, critical access hospitals, rural health centers, community health centers, pharmacies and LPHAs. LPHAs could administer vaccine to: (1) healthcare workers that are employed in smaller settings where receiving doses due to minimum order quantities is not possible, and (2) first responders within their county. LPHAs would do so by way of mass clinics or PODS. In jurisdictions where LPHAs are not able to administer vaccines, CDPHE will assist with coordinating Vaccine Support Teams or partnering with community vaccinators/pharmacists to administer vaccines to identified critical populations.

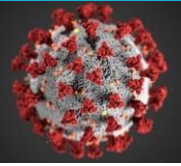
- C.** *Describe how provider enrollment data will be collected and compiled to be reported electronically to CDC twice weekly, using a CDC-provided Comma Separated Values (CSV) or JavaScript (JSON) template via a SAMS-authenticated mechanism.*

Colorado is making some changes that will allow for rapid enrollment and onboarding of providers to CIIS. To assist with rapid enrollment, Colorado will be utilizing Pandemic PREP. This platform provides the following features:

- Enroll pandemic vaccine providers.
- Collect, store and approve CDC Pandemic Vaccine Provider Agreements and CIIS Letter of Agreements.
- Identify per provider patient profiles (critical, essential, children, adults and high-risk).
- Capture vaccine administration capacity.
- Capture vaccine storage and temperature monitoring capacity.
- Capture shipping information.
- Give providers the ability to load certificates of completion for required training.

Vaccination providers will complete the CDC COVID-19 Vaccination Program Provider Agreement, CDC COVID-19 Vaccination Program Provider Profile Form, and any other necessary Colorado-specific documents (e.g., IIS enrollment forms) electronically within Pandemic PREP. This centralized, online system will enable the Immunization Branch to monitor and approve enrollments quickly and avoid a paper-heavy process. Colorado has shared the Provider Agreement Data Submission Instructions and Provider Agreement Template released by CDC on October 2, 2020 with AMCI to give them the information necessary to build an export into Pandemic PREP so that provider enrollment data can be exported from the system and reported to CDC twice weekly: Monday and Thursday by 9:00 EST (7:00 MST). Until such a time as Pandemic PREP has an export feature, Colorado will track all of the necessary provider enrollment data using a Google sheet which can then be converted to a .csv file and shared with CDC twice weekly, per requirements. Colorado will ensure that multiple staff members have the necessary access to the Immunization Data Lake (IZDL) Partner Portal within Secure Access Management Services (SAMS) and the knowledge of uploading the required file through the portal and resolving any

COLORADO COVID-19 VACCINATION PLAN



errors with submitted data. One staff member will be designated as primary and several others as back-ups.

D. *Describe the process your jurisdiction will use to verify that providers are credentialed with active, valid licenses to possess and administer vaccine.*

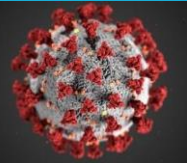
CDPHE will verify providers are credentialed with active valid licenses by running medical license numbers against the Colorado Department of Regulatory Agencies (DORA), Division of Professions and Occupations - [Verify a Colorado Professional License app](#). Colorado will ensure that multiple staff members are trained on verifying the licenses of enrolling providers. Verification of licenses will be documented within CoPHR for all COVID-19 vaccination providers.

E. *Describe how your jurisdiction will provide and track training for enrolled providers and list training topics.*

Effective training of COVID-19 vaccination providers is essential to ensure the success of the COVID vaccine response. CDPHE plans to take advantage of CDC-developed training whenever possible. The Immunization Branch will create additional training for CIIS functionality by leveraging CO.TRAIN (TRAIN Learning Management System) to deliver these CIIS-required training. Job aids/just-in-time training materials will be available within CIIS through the Learn More feature and on the CIIS public-facing website. Providers will be required to upload certificates of completion for required training courses into Pandemic PREP. This will allow Immunization Branch staff to review and verify the required training has been completed. Required trainings may include:

- CDC COVID-19 web-based training module: topics will include storage and handling, vaccine indications, contraindications/precautions, vaccine administration and documentation.
- CDC You Call the Shots web-based training: updates to the existing You Call the Shots Vaccine Administration and Storage and Handling modules to refer providers to appropriate COVID-19 websites.
- COVID-19 Training for CIIS Users (this may be in the form of a training guidance document that links to job aids, videos, cheat sheets, etc.) specific to CIIS functionality that COVID-19 vaccination providers will need to use depending on whether they enter data directly into CIIS or electronically report to CIIS. Topics may include:
 - Patient search techniques
 - Documenting patient demographics and eligibility
 - Adding new patients
 - Entering vaccinations
 - Inventory management, vaccine ordering and receiving vaccine shipments
 - Running patient reminder/recall reports for second dose reminders

COLORADO COVID-19 VACCINATION PLAN



- IZ Quick Add (Mass Events module)
- Recording vaccine adverse events

Additionally, CDPHE will provide COVID-19 vaccine education materials on a COVID-19 vaccine webpage for providers to reference, including the following materials expected to be delivered by CDC:

- Storage and Handling Toolkit: an addendum with general COVID-19 vaccine storage, handling and transport information.
- Vaccine product summary sheets: fact sheets with storage, handling, preparation, indications, contraindications/precautions and administration for each approved vaccine.
- Additional immunization guidance materials: more extensive information related to storage, handling, preparation, administration, shipping, package and transport.
- Comprehensive table of vaccine products: a table of COVID-19 vaccine products with key information.
- Beyond use dates and expiration date tracking tools: a resource to track beyond use dates and expiration dates for use early in the vaccine distribution process.
- ACIP recommendation summary information: webinar, slide deck.
- Healthcare provider FAQs: web-based FAQ document for healthcare personnel.
- Providing vaccinations safely during a pandemic: link to [CDC's website](#) which provides guidance about safely providing vaccines during COVID-19, including PPE and social distancing considerations.
- How to submit facility information for COVID-19 vaccination clinics to CDC's VaccineFinder.
- Temperature excursion guidance: temperature excursion response checklist, storage and handling incident report, vaccine inventory reporting form.
- Emergency Use Authorization (EUA) factsheets for providers and patients (if a vaccine is made available under an EUA).

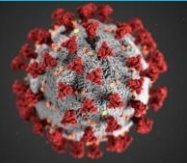
F. *Describe how your jurisdiction will approve planned redistribution of COVID-19 vaccine (e.g., health systems or commercial partners with depots, smaller vaccination providers needing less than the minimum order requirement).*

To date, CDPHE has identified two possible options for redistribution of COVID-19 vaccine.

Option 1

In coordination with LPHAs, vaccination providers will be identified as possible redistribution depots based on: location; population served; storage unit size and capability; adherence to Colorado temperature monitoring, vaccine administration, and storage and handling requirements; enrolled in CIIS; and local needs. Approved sites would sign the Supplemental COVID-19 Vaccine Redistribution Agreement and receive further guidance on redistribution, such as transport protocols and how to transfer doses in CIIS.

COLORADO COVID-19 VACCINATION PLAN



Option 2

CDPHE, along with support from the State Emergency Operations Center (SEOC), will use cold storage facilities that have been previously secured by CDPHE's Office of Emergency Preparedness and Response (OEPR). COVID-19 vaccine would be shipped to a cold storage facility to be packed in smaller quantities for redistribution. Potential benefits of this option include: having approved packing materials on-hand to maintain the cold chain for COVID-19 vaccine during transportation, trained staff with devoted time for redistribution to remove the burden from LPHAs and other providers, and approved transportation methods in place to ensure the viability of vaccine.

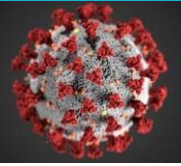
G. Describe how your jurisdiction will ensure there is equitable access to COVID-19 vaccination services throughout all areas within your jurisdiction.

CDPHE acknowledges that long-standing systemic racism, including economic and environmental injustice, has created negative health outcomes. These systematic biases influence a person's health more than individual behaviors and affect marginalized communities, particularly people of color, more than other communities. To realize a future where all Coloradans have the opportunity to thrive, we must be leaders in undoing government policies and practices that have contributed to these inequities and creating new ones that ensure equity. Healthcare inequities experienced by communities of color during the COVID-19 pandemic have been well documented and cannot be ignored. Addressing healthcare inequities specifically related to COVID-19 was considered for each vaccination phase with data driven considerations about how prioritizing certain critical populations can address some of the COVID-19 inequities. More information about Colorado's approach to vaccine prioritization can be found in *Section 4: Critical Populations*.

Efforts will be made to ensure providers are enrolled in areas of the state where equitable access to vaccines may be lacking. If providers do not exist or are unable to provide COVID-19 vaccine, CDPHE will work with LPHAs to ensure there is access by supporting LPHAs with funding and vaccinators either from CDPHE's Vaccine Support Team or by collaborating with community vaccinators. Some of the requirements outlined in the CDC COVID-19 Vaccination Program Provider Agreement will be very difficult for under-resourced providers to meet (e.g., reporting administered doses to CIIS within 24 hours of vaccine administration, meeting all storage and handling requirements, and dose-level accountability). CDPHE is actively identifying ways to support under-resourced providers to ensure they - and the patients they serve - are not left behind.

Additionally, CDPHE is establishing a contract with cultural navigators. The cultural navigators will be set up as a consult-like model where counties may call our navigator pool for guidance on setting up COVID-19 vaccine clinics that are inclusive and culturally appropriate/sensitive. Navigators would provide feedback on COVID-19 vaccine clinic set-up (e.g., is there a culture that prefers same-gendered professionals to administer the shots, are there cultures that may have questions about religious practices and vaccines, etc.). CDPHE is talking with some of the community based organizations during

COLORADO COVID-19 VACCINATION PLAN



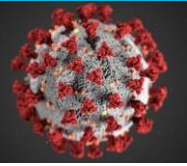
the pilot phase about setting up a Google Voice number that community members can dial into to ask questions about COVID-19.

CDPHE developed a Champions for Vaccine Equity Initiative in the fall of 2020. The initiative is a new, pilot approach intended to create relationships and sustain dialogue with structurally marginalized communities, particularly communities of color, about vaccine importance and safety. Colorado's communities of color have been disproportionately affected by the incidence and severity of COVID-19, resulting in higher hospitalization and death rates for some groups.

Though state and local efforts to promote childhood and flu vaccines are well underway, the promise of a COVID-19 vaccine in the near future makes it imperative to start building relationships and trust with community leaders and partners now to support adequate vaccine uptake in the future, with an intentional focus on those communities most affected by COVID-19. It is important to meet communities where they are with their attitudes and beliefs related to the COVID vaccine. CDPHE is currently conducting research to try and better understand beliefs among Coloradans, oversampling in communities of color. Part of this research includes testing messages to see what resonates with communities and what kind of messaging may be most effective in addressing valid concerns. The research also tries to assess potential barriers to vaccination, including: lack of transportation, lack of insurance, inconvenient clinic hours, lack of paid leave from work, lack of childcare, etc. Results of this research will inform our messaging and provider recruitment efforts.

H. Describe how your jurisdiction plans to recruit and enroll pharmacies not served directly by CDC and their role in your COVID-19 Vaccination Program plans.

CDPHE distributed the COVID-19 Vaccine Provider Interest Survey to pharmacies across the state and has pharmacy representation on its COVID-19 Joint Vaccination Planning Team. Any pharmacies not served directly by CDC will be invited to enroll as COVID-19 vaccination providers using Pandemic PREP just like all other providers in Colorado. Pharmacies will be treated the same as any other vaccination provider as the allocation and distribution plan is developed. Pharmacies will be strong partners, especially in the more rural areas of Colorado and may be leveraged for offsite vaccination clinics and PODs.



Section 6: COVID-19 Vaccine Administration Capacity

A. Describe how your jurisdiction has or will estimate vaccine administration capacity based on hypothetical planning scenarios provided previously.

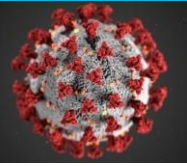
Colorado is using vaccine administration data from Colorado Immunization Information System (CIIS) and responses from an initial COVID-19 Vaccine Provider Interest Survey to estimate vaccine administration capacity at the provider level. Colorado is using the number of influenza doses administered and reported to CIIS during the 2019-2020 flu season to estimate vaccine administration capacity of provider sites currently reporting to CIIS. A provider's throughput is estimated by the maximum number of influenza doses the provider administered in a week (Sunday - Saturday) during the 2019-2020 flu season. The total number of flu doses given in the prior season can be used to estimate a provider's patient population and dose administration capacity.

Colorado has developed an online shiny application that estimates provider throughput (maximum influenza doses administered in a single week), capacity (total influenza doses administered during the 2019/2020 flu season) and demographics of their patient population. The application also allows for filtering based on geography and provider type, including but not limited to: public health, occupational health, mobile vaccination providers, long term care facilities, pharmacies, and hospitals. This allows partners and planners to identify providers to target for a variety of scenarios. The application readily identifies the largest immunizers in a county and/or the providers that serve patients aged 65 and older and other populations. This application was developed to be used at the state and county level for identifying providers throughout each phase of vaccine availability. The user will be able to create a custom list of providers in a geographic area allowing for a mix of different types of providers to be selected and then plotted on a map to visualize estimated throughput (size of mark), provider type (type of mark), and reach (shaded area surrounding mark). Reach will be estimated by determining the greatest distance traveled from residence to provider address for at least 10 percent of the provider's patients who received influenza last season. Once a final selection of providers are chosen and mapped, an option to overlay critical population data will be available to help determine appropriateness of providers selected based on current vaccine availability and targeted population. The list of providers and final mapping may be exported.

Additional information has been collected through the COVID Vaccine Provider Interest Survey to estimate capacity and critical populations served. See *Section 4, Critical Populations* for an outline of data used to estimate critical populations used in each scenario. See *Section 5: COVID-19 Provider Recruitment and Enrollment* for more information about the providers.

For the Phase I vaccine planning scenarios 1, 2, and 3, providers serving healthcare workers, first responders and other essential workers, and those at higher risk of severe COVID-19 illness would be targeted for vaccine distribution.

COLORADO COVID-19 VACCINATION PLAN



For scenario 1, if Colorado is allocated doses of Vaccine A requiring ultra-cold storage and minimum orders of 1,000 doses, only large healthcare systems would be able to administer those doses and minimize wastage given the relatively short shelf life of the vaccine. In the largest 12 counties, providers who have demonstrated peak throughput exceeding 1,500 doses in a single week are limited to 12 separate facilities associated with two large health systems: UCHHealth and Kaiser Permanente. There may not be other facilities outside of the state's 12 largest counties with high enough throughput to ensure Vaccine A is administered quickly enough given the challenging storage and handling requirements. In these areas, closed PODs will be established to serve multiple counties in a region while trying to ensure a reasonable driving time for the target populations.

For scenario 2, where Vaccine B is considered, there are more providers that can be included in the initial distribution, and additional areas in Colorado can be covered. There are providers in every county of Colorado capable of storing this vaccine. These doses would be prioritized for LPHAs and providers serving health care workers, first responders, and long term care residents.

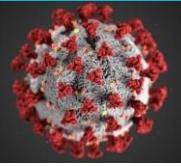
For scenario 3 where both Vaccines A and B are available, Vaccine A would be allocated to providers in the Front Range capable of storage and handling while Vaccine B would be allocated to providers in greater rural Colorado. There are 12 counties considered metropolitan with a total population of 4,807,785 (86% of total population), and all but one is in the greater Front Range area. The remaining 52 counties are considered rural or frontier and have a total population of 801,258 (14%). In rural counties, the LPHA often has the greatest throughput (high of 900, average of 110), followed by pharmacies and hospital-based clinics. In many of the more rural counties, LPHAs serve as the primary vaccinator and are well connected in their communities to ensure that targeted populations are reached.

B. *Describe how your jurisdiction will use this information to inform provider recruitment plans.*

Due to the on-site vaccine storage requirements of COVID vaccine, the competing vaccine demands of peak flu season and the likelihood that doses will initially be very limited, Colorado will prioritize providers for recruitment based on their potential weekly COVID-19 vaccine administration throughput, their vaccine storage capacity, and their access to vaccinate critical populations - giving consideration to providers serving critical populations who live in remote, rural areas of the state who may experience difficulty accessing vaccination services. Providers' potential weekly COVID-19 vaccine administration capacity will be estimated based on their 2019-20 flu season peak week administration. Providers may be prioritized for recruitment based on the following criteria:

- Peak week throughput of 1,500 doses or greater ($\geq 1,000$ doses if not in flu season) in metro areas. For rural areas, throughput at or above current maximum throughput for county. This criterion applies to ultra cold storage vaccine prioritization only.
- Peak week throughput above the median for existing providers with signed agreements in the same city (for metro counties) or in the same county (for rural counties). This criterion applies to frozen and refrigerated vaccine prioritization only.

COLORADO COVID-19 VACCINATION PLAN

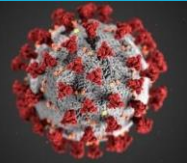


- Association with or an existing agreement to administer vaccinations to critical populations (health care workers, Long-term Care Facilities (LCTF) residents and staff, first responders and other essential employees, and those at higher risk for severe illness from COVID-19).
- Capacity to meet COVID-19 vaccine storage requirements.
- Sufficient staffing to ensure maximum throughput.
- Provider serves an area with few or no existing providers with a signed agreement to administer COVID-19 vaccine.
- Provider has unique access to a difficult-to-reach segment of a critical population.
- Provider has mobile vaccination capacity or experience in mass vaccination events.

Information from the COVID Vaccine Provider Interest Survey has been mapped to compare the number of providers serving Phase I and Phase 2 populations. These initial maps show areas of the state that may need targeted recruitment. The Critical Population LOE is working on county level mapping of critical populations. CDPHE will overlay information about provider location, capacity (from survey or last flu season total flu doses administered), and throughput on the population maps. The results will be used to identify areas with adequate provider participation for the population and where there are provider gaps. The maps will be used to inform the recruitment and enrollment of COVID-19 vaccination providers.

CDPHE has a Geographic Information System (GIS) Unit in the Colorado Health and Environmental Data (CHED) Division. The GIS Unit is already involved in mapping critical populations and has the expertise to assist with spatial analyses to identify where additional focus may be needed to recruit providers for vaccination efforts. Colorado would also be interested in comparing the population estimates in the CDC's Tiberius mapping application to ensure we are using the best available data to inform provider recruitment.

While much can be done for planning and prioritization at the state level, Colorado will be reaching out to LPHAs for input on prioritizing and recruiting COVID-19 vaccination providers. More details can be found in *Section 5: COVID-19 Provider Recruitment and Enrollment*.



Section 7: COVID-19 Vaccine Allocation, Ordering, Distribution, and Inventory Management

A. Describe your jurisdiction's plans for allocating/assigning allotments of vaccine throughout the jurisdiction using information from Sections 4, 5, and 6. Include allocation methods for populations of focus in early and limited supply scenarios as well as the variables used to determine allocation.

Colorado's allocation plans for Phase 1 COVID-19 vaccination are based on several assumptions, including:

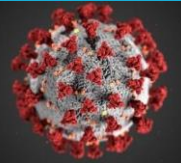
- Early dose distribution will be limited and necessitate phased allocation.
- Populations of focus for initial COVID-19 vaccine doses will include healthcare workers (including ancillary staff, vaccinators, and staff in long-term care facilities), other essential workers, and people at highest risk for severe COVID-19 illness.
- CDC will allocate COVID-19 vaccine to jurisdictions based on multiple factors, including:
 - Populations recommended by the Advisory Committee on Immunization Practices (ACIP) with input from the National Academies of Sciences (NASEM);
 - Current local spread/prevalence of COVID-19; and
 - COVID-19 vaccine production and availability.

As it is likely that initial vaccine supply will not be sufficient to immediately immunize all critical populations in Colorado, the state's allocation plan relies upon the prioritization framework created by the Governor's Expert Emergency Epidemic Response Committee's (GEEERC) Medical Advisory Group (GMAG) (see *Section 4: Critical Populations*). Through the initial COVID Vaccine Provider Interest Survey and the CDC COVID-19 Vaccination Program Provider Agreement, the state will identify providers that can immunize the populations included in Phase 1. Allocation to these Phase 1 healthcare facilities will be based on:

- ACIP recommendations;
- Estimated number of doses in Colorado's allocation and timing of availability;
- Populations served by the healthcare facilities;
- Geographic location of healthcare facilities;
- Expected throughput and staffing capacity;
- Vaccination provider site vaccine storage and handling capacity;
- Minimizing the potential for vaccine wastage and loss; and
- Areas of high COVID-19 positivity rates and/or high COVID-19 transmission rates.

Once Colorado moves to Phase II and COVID-19 vaccine supply is considered adequate, allocation will begin for essential workers with and without direct interaction with the public, higher risk individuals such as adults >65 years, adults with high risk medical conditions such as diabetes, chronic lung disease,

COLORADO COVID-19 VACCINATION PLAN



etc. Phase III will focus on the general public population of adults 18 and older without high risk conditions. (See *Section 4: Critical Populations*).

Allocations will be assessed by population served (number of patients), high risk group categories, facility type, storage and handling capacity, and the number of doses the facility can administer weekly.

CDPHE will consider using the [PanVax Tool](#) for Pandemic Vaccination Planning.

B. *Describe your jurisdiction's plan for assessing the cold chain capability of individual providers and how you will incorporate the results of these assessments into your plans for allocating/assigning allotments of COVID-19 vaccine and approving orders.*

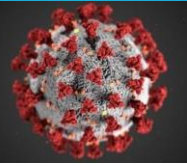
In the COVID-19 Vaccine Provider Interest Survey, CDPHE asked providers to share their vaccine storage unit and temperature monitoring information. Questions included:

- Is this facility monitoring and recording twice daily temperatures in all vaccine storage units?
- Does this facility use a digital data logger thermometer to record temperature?
- What type of primary and back-up storage units does this facility use for vaccine storage?
- Does this facility have sufficient space in the vaccine storage units to store private and public vaccines for the population served?
- What is the size (in cubic feet) of each vaccine storage unit?

CDPHE will have baseline cold chain capability information from the results of this interest survey. As targeted healthcare providers are invited to enroll in the COVID-19 Vaccination Program, they will also be required to provide information on their vaccine storage units, storage capacity, temperature monitoring equipment and thermometer calibration. These results will enable Colorado to better allocate COVID-19 vaccines based on vaccination provider capabilities. For example, if a healthcare provider does not have the ability to store vaccines at frozen temperatures, then they would not receive COVID-19 vaccine presentations that would necessitate frozen storage. CDPHE will facilitate working with the LPHA and provider or use the Vaccine Support Team (VST) to help administer doses to hard to reach populations.

CDPHE will direct providers to maintain storage and handling guidelines set forth by the CDC. Adhering to proper cold chain management is essential to assuring the viability of the COVID-19 vaccines. Initial assessment of individual providers' storage equipment is done when the COVID-19 Vaccine Provider Interest Survey. Storage equipment is assessed again during the enrollment process. CDPHE requires one full week of temperature monitoring to verify the unit can maintain proper temperature to store COVID-19 vaccines. Providers whose unit can maintain proper temperatures for store COVID-19 vaccine will be approved for COVID-19 vaccine ordering. Orders will not be placed if the storage unit is out of range. CDPHE will request one week of in-range temperatures prior to releasing a vaccine order for distribution.

COLORADO COVID-19 VACCINATION PLAN



- C.** *Describe your jurisdiction's procedures for ordering COVID-19 vaccine, including entering/updating provider information in VTrckS and any other jurisdictional systems (e.g., IIS) used for provider ordering. Describe how you will incorporate the allocation process described in step A in provider order approval.*

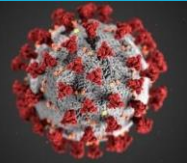
The COVID-19 vaccine will be distributed in a phased approach using the existing infrastructure (McKesson, Vaccine Tracking System or VTrckS and CIIS) that delivers and tracks publicly-purchased adult and pediatric vaccines in Colorado. In addition to the COVID-19 vaccines, providers will receive ancillary supply kits (syringes, needles, alcohol prep pads, surgical masks, face shields, and COVID-19 vaccination cards) through this delivery system. The kits will be automatically ordered in amounts to match vaccine orders. Mixing kits will also be included for vaccines that require reconstitution with diluent or adjuvant.

CDC's National Center for Immunization and Respiratory Disease (NCIRD) manages the existing public health vaccine distribution system called the Vaccine Tracking System, or VTrckS. This system utilizes a central distributor, McKesson Specialty, to process vaccine orders placed by providers. Since 2013, VFC vaccine orders have been placed through the Vaccine Ordering module in the Colorado Immunization Information System (CIIS) and uploaded into VTrckS via an ExIS interface. Vaccine shipments are distributed directly to the enrolled provider location. Colorado will use this existing process to order and distribute COVID-19 vaccine to enrolled providers. Since COVID-19 vaccine will not be available for private purchase by physicians, pharmacies, hospitals or any other health care entity, the public health system will be distributing these vaccines to many providers who have not previously administered publicly-purchased vaccines.

Phase 1 vaccine orders will be placed by CDPHE using CIIS and uploaded into VTrckS. This will ensure that the vaccine is going to vetted healthcare facilities identified as serving critical populations. Orders will be placed in 100 dose increments with potential need for redistribution to smaller facilities. CDPHE anticipates potential redistribution in all phases of vaccination. Estimates for the number of doses required to vaccinate a facility's target population should be based upon the number of high priority staff/patients each participating provider expects to immunize. The initial shipments will be prioritized for critical health care workers. Once Colorado moves to Phase II and beyond when vaccine supply is adequate, vaccination providers serving additional priority groups will be able to order COVID vaccines through CIIS.

As described in *Section 5: COVID-19 Provider Recruitment and Enrollment*, Colorado will be utilizing Pandemic PREP for provider enrollment. This system will track all required provider information and allow CDPHE staff to update provider profiles. The provider information can be uploaded into VTrckS to update master provider data. Manual entry updates can be made in VTrckS as needed.

COLORADO COVID-19 VACCINATION PLAN



Vaccine Ordering Process

The initial ordering process is based on the assumption that limited vaccine supply may be available in November 2020.

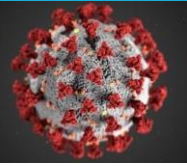
1. CDC allocates Colorado's vaccine allotment by presentation on the CDC Allocation Report.
2. CDPHE determines how many doses will be allocated for distribution to enrolled facilities based on variables described above in part A.
3. CDPHE staff create orders in CIIS and uploads orders into VTrckS.
4. Vaccine and ancillary kits are directly shipped to provider offices.
5. Vaccination providers "virtually" receive shipments of vaccine into their inventory within CIIS.

D. Describe how your jurisdiction will coordinate any unplanned repositioning (i.e., transfer) of vaccine.

CDPHE will coordinate any unplanned repositioning of vaccines by requiring the use of the [Vaccines for Children \(VFC\) Vaccine Transfer Policy](#). This includes submitting an online form requesting a transfer. CDPHE staff will review the form and provide transport guidance to the vaccination provider. CDPHE will ensure the vaccination provider uses proper transport equipment and a digital data logger to monitor temperature before, during and after transport. All vaccine transfers will be documented within CIIS. CDPHE will respond to and resolve any temperature excursions documented during the transport.

E. Describe jurisdictional plans for monitoring COVID-19 vaccine wastage and inventory levels.

COVID-19 providers will be required to report dose-level information for COVID-19 doses administered within twenty-four hours of administration (see Section 9: *COVID-19 Vaccine Administration Documentation and Reporting*). Inventory levels and wastage will be monitored using the Inventory Reconciliation module within CIIS. The Inventory Reconciliation module captures doses administered, ending inventory, and vaccine wastage. CDPHE will hire additional staff to oversee and provide technical assistance for COVID-19 providers to meet CDC's twenty-four hour reporting requirements and account for all COVID-19 doses.



Section 8: COVID-19 Vaccine Storage and Handling

A. *Describe how your jurisdiction plans to ensure adherence to COVID-19 vaccine storage and handling requirements, including cold and ultracold chain requirements, at all levels:*

- *Individual provider locations*
- *Satellite, temporary, or off-site settings*
- *Planned redistribution from depots to individual locations and from larger to smaller locations*
- *Unplanned repositioning among provider locations*

The Colorado Department of Public Health and Environment (CDPHE) will direct providers to maintain storage and handling guidelines set forth by the Centers for Disease Control and Prevention (CDC). Adhering to proper cold chain management is essential to assuring the viability of the COVID-19 vaccines.

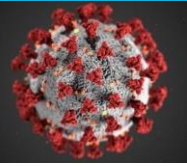
Individual provider locations

All providers approved for enrollment in the COVID-19 Vaccination Program will be provided storage and handling training specific to the COVID vaccine(s) being received as outlined by CDC. Continuous 24-hour temperature monitoring capability will be required. CDPHE may provide a digital data logger to providers who do not have an approved, calibrated thermometer. Only approved storage units that maintain appropriate temperatures will be allowed for storage of COVID-19 vaccines as outlined by CDC in the COVID-19 Vaccine Storage and Handling Toolkit Addendum. Twice daily current temperature and once daily minimum/maximum temperature documentation will be required. All temperature excursions must be reported to CDPHE as soon as possible, as defined in Colorado's [Vaccines for Children \(VFC\) Thermometer & Temperature Monitoring Requirements policy](#).

For providers new to the administration of publicly-funded vaccines, submission of temperature data from a continuous temperature monitoring device, a vaccine management plan (template to be provided by CDPHE), and pictures of labeled electrical outlets and breakers with "Do Not Disconnect" tag/sticker will be required. The vaccine management plan will reiterate proper storage guidelines and require documentation of required training completion and signatures for the Primary Coordinator, Secondary Coordinator, and Provider of Record. It will also include instructions for preparing for vaccine transport in the event of an emergency and designation of a backup location.

If Colorado receives COVID-19 vaccines requiring ultra cold storage, they will be distributed exclusively to providers with the demonstrated capacity to properly maintain storage requirements and who have large throughput capacity, thereby maximizing vaccine viability and minimizing the chance of wastage or vaccine loss. Frozen and ultra cold vaccines will not be redistributed.

COLORADO COVID-19 VACCINATION PLAN



Satellite, temporary, or off-site settings

Colorado will expand an off-site clinic request process already utilized and defined in its [Off-Site Clinic Policy](#) to include considerations for COVID-19 vaccine. This process gives guidance to providers on appropriate storage and handling during the clinic, including transporting to and from off-site locations and only transporting quantities expected to be used during the clinic to minimize the risk for vaccine wastage and loss. Additional existing resources will be updated to include COVID-19 vaccine considerations and shared with enrolled vaccination providers, including [Colorado's Off-Site Vaccination Operational Playbook](#) and Colorado's [Best Practice Checklist for Off-Site Clinics](#).

Planned redistribution from depots to individual locations and from larger to smaller locations

Providers approved to be a redistribution depot will receive guidance that includes the required documentation needed for dose-level accountability of vaccine, and required storage and temperature monitoring during redistribution to individual locations.

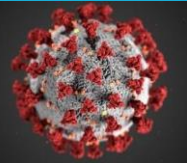
Unplanned repositioning among provider locations

CDPHE will coordinate any unplanned repositioning among provider locations using its existing [VFC Vaccine Transfer Policy](#). Documentation will be requested including temperature logs, type of storage unit used for transporting, and inventory being transferred. CDPHE currently reviews and approves all VFC/317 vaccine transports in the state and will use the same process already in place for COVID-19 vaccine repositioning.

- B.** *Describe how your jurisdiction will assess provider/redistribution depot COVID-19 vaccine storage and temperature monitoring capabilities.*

Colorado distributed a COVID-19 Vaccine Provider Interest Survey to possible vaccination providers. This survey assessed storage unit type, capacity, thermometer type, and temperature monitoring equipment. Results of this survey will be analyzed for geographic location, storage capacity, ability to meet storage and handling requirements, critical populations served, and anticipated throughput of vaccines. This information will give us a baseline understanding of the current storage unit and temperature monitoring capacity and needs of providers. Storage unit and temperature monitoring information will also be collected during the formal enrollment process for providers completing the CDC COVID-19 Vaccination Program Provider Agreement. In coordination with local public health agencies (LPHAs), vaccination providers will be identified as possible redistribution depots based on storage unit size and capability, population served, adherence to Colorado temperature monitoring and vaccine administration requirements, and local needs. Approved sites will be contacted and provided the Supplemental COVID-19 Vaccine Redistribution Agreement for completion, as well as further guidance on transport protocols and transferring doses in Colorado Immunization Information System (CIIS).

COLORADO COVID-19 VACCINATION PLAN



Section 9: COVID-19 Vaccine Administration Documentation and Reporting

A. Describe the system your jurisdiction will use to collect COVID-19 vaccine doses administered data from providers.

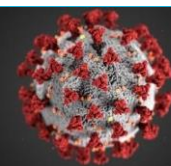
The Colorado Department of Public Health and Environment (CDPHE) maintains the Colorado Immunization Information System (CIIS), a confidential, population-based, secure computerized system that collects and consolidates individual-level vaccine and exemption data for Coloradans of all ages from a variety of sources. CIIS is a powerful tool that supports population health surveillance, outbreak response, and helps guide public health actions with the goals of improving vaccination rates and reducing vaccine-preventable diseases.

CIIS has been a population-based system since 2004 and became a lifelong system in 2007. CDPHE migrated from a legacy, homegrown system to the WebIZ immunization registry product developed and maintained by Envision Technology Partners in 2011. As of September 2020, CIIS included more than 6.8 million patients and 78.1 million immunizations. Patient saturation within the IIS as measured by the Immunization Information System Annual Report (IISAR) has vastly improved over the last few years, particularly among the adolescent and adult segments of the population as shown in the table below.

Patient saturation measure	IISAR Year	Colorado's value
Percentage of children aged 4 months through 5 years in both CO and IIS who have 2 or more vaccine doses recorded in IIS	2019	101%
	2018	100%
	2017	99.5%
	2016	100%
Percentage of adolescents aged 11 through 17 years in both CO and IIS who have 2 or more adolescent vaccine doses recorded in IIS	2019	88.2%
	2018	85.1%
	2017	83.3%
	2016	82%
Percentage of adults aged 19 years and older in both CO and IIS who have 1 or more adult vaccine dose(s) recorded in IIS	2019	77.6%
	2018	71.2%
	2017	62.9%
	2016	57.1%

From a provider perspective, CIIS has historically been a voluntary reporting system, and CDPHE has spent years recruiting the majority of immunizing providers to actively report data to CIIS. Over 87% of known immunizing providers actively report immunization data to CIIS. Currently, 1,995 individual practices report data to CIIS either electronically through an interface from their Electronic Health Record (EHR) systems (1,790) or through direct data entry into the CIIS web application (205). In

COLORADO COVID-19 VACCINATION PLAN



Colorado, 90% of the data that is entered into CIIS comes from electronic reporters. For all data reported electronically to CIIS, 78% of the providers submit data in real-time. Results from an initial COVID-19 Vaccine Provider Interest Survey are also promising with 90.2% of all respondents reporting that their facilities currently report to CIIS.

With the passage of [Senate Bill 20-163](#), it is now mandatory for all immunizing providers to report data to CIIS. As such, Colorado will require all COVID-19 vaccination providers to report administered doses to CIIS. Colorado plans to capitalize on existing interfaces and functionality in CIIS and plans strategic improvements to ensure that COVID vaccine administration data is collected from all enrolled providers.

Existing Functionality

COVID-19 vaccine administration data will be collected and consolidated within CIIS through existing processes and interfaces and through new processes that will be implemented. Providers currently submit data to CIIS through the following methods:

- Real-time bi-directional interface. This includes health systems, retail pharmacy chains and larger providers.
- Batch file uploads. Uploads may be daily, weekly or less frequent.
- Direct data entry into the CIIS web application.

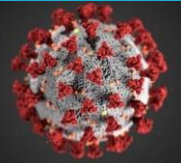
See *Section 11: COVID-19 Requirements for IISs and Other Systems* for more information about existing data exchange methods.

New Functionality

Colorado will also implement new processes to connect new COVID-19 vaccination providers to CIIS and to support mass vaccination clinics. The capability to report vaccine administration data will be considered when enrolling COVID-19 vaccination providers. An expedited CIIS onboarding process will be implemented to establish electronic interfaces for new providers who may currently enter data into an EHR and have the resources to support an IIS interface implementation project. Colorado is currently piloting this expedited onboarding process with new providers recruited to provide flu vaccinations to populations disproportionately impacted by COVID-19. Initial efforts are aimed at reducing the time to implement a CIIS interface from several months to 1-2 weeks. Providers connected to CIIS through this expedited onboarding process will undergo ongoing data quality checks to ensure immunizations are accurately reported. More detailed information on this rapid onboarding process can be found in *Section 11: COVID-19 Requirements for IISs or Other External Systems*.

To make sure providers have multiple options to submit immunization data to CIIS, we are looking at adding new processes. New functionality to upload flat file imports into CIIS will be available by November 2020. This Flat File Import feature will allow providers to upload data directly into CIIS without a formal interface. The flat file import could also be used to upload data recorded in other systems during mass vaccination clinics. Colorado is currently evaluating and developing procedures and guidance to assist COVID-19 vaccination providers in using this new CIIS functionality.

COLORADO COVID-19 VACCINATION PLAN



Colorado is also planning to purchase a mass vaccination management system to offer to local public health agencies (LPHAs) and other community vaccination partners at no cost. Colorado LPHAs have expressed great interest in having a system capable of supporting the various aspects of mass vaccination clinics, including: easy online consent and appointment scheduling, accommodating social distancing protocols, supporting contactless patient registration, identifying priority groups, documenting vaccine administration, exchanging data with CIIS, and the ability to store data and upload to CIIS later if internet connectivity is not available or fails. Colorado anticipates such a system will increase COVID-19 and influenza clinic efficiency, reduce touchpoints, and reduce delays in reporting doses administered to CIIS.

B. *Describe how your jurisdiction will submit COVID-19 vaccine administration data via the Immunization (IZ) Gateway.*

Colorado will use CIIS to submit daily COVID-19 vaccine administration data to the Centers for Disease Control and Prevention (CDC) via the Immunization (IZ) Gateway “Connect” component. CIIS uses HL7 Version 2.5.1 (release 1.5) messaging and is capable of interfacing with the IZ Gateway components. Colorado is in Wave 4 to onboard an interface between CIIS and IZ Gateway Connect. As of October 2020, Colorado has negotiated the terms of the required Data Use Agreement (DUA) with the Association of Public Health Laboratories (APHL) and is awaiting the routing of the DUA for signatures through Docusign.

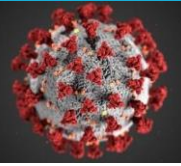
Colorado is still awaiting the DUA from CDC that will govern the daily reporting of COVID-19 vaccine administration data from CIIS to CDC.

C. *Describe how your jurisdiction will ensure each COVID-19 vaccination provider is ready and able (e.g., staff is trained, internet connection and equipment are adequate) to report the required COVID-19 vaccine administration data elements to the IIS or other external system every 24 hours.*

For Phase 1, providers that have the capacity to vaccinate critical populations will be prioritized for enrollment in the CDC COVID-19 Vaccination Program. Most, if not all, of these Phase 1 providers have EHRs and already electronically report data to CIIS. Additional providers will be enrolled to ensure equitable access to vaccine for priority populations during subsequent phases of vaccination. Readiness to report vaccine administration data elements will be assessed as part of the enrollment process and used to determine the method of reporting to CIIS.

Providers that currently participate in CIIS with real-time bi-directional interfaces or daily electronic uploads are more likely to be able to meet the requirement of reporting doses administered within 24 hours of vaccine administration. But even those providers may have difficulty meeting the 24 hour requirement for large mass vaccination events, especially if data entry does not occur during the clinic. One potential option would be to use the CIIS IZ Quick Add module or another mass vaccination

COLORADO COVID-19 VACCINATION PLAN



management system capable of interfacing with CIIS to facilitate reporting doses administered within 24 hours. CDPHE is concerned that the 24 hour reporting requirement would disproportionately affect providers who may not have the resources, staff, or equipment necessary to report within the timeframe. There is a very real potential that this reporting requirement would unintentionally burden underserved communities served by these under-resourced providers. To ensure greater equity, Colorado is identifying ways to support providers in meeting the 24-hour reporting requirement, including hiring temporary staff to assist with direct data entry into CIIS on behalf of COVID-19 vaccination providers. The CDC reporting requirement should not prevent a provider from being able to administer COVID-19 vaccine to their patients.

For new providers, there will be several options to submit data to CIIS within 24 hours of vaccine administration: expedited onboarding to implement an interface from their EHR to CIIS, the flat file upload feature within CIIS, direct data entry into the CIIS web application (including IZ Quick Add), or securely emailing or faxing vaccination consent forms to CDPHE for direct data entry into the CIIS web application.

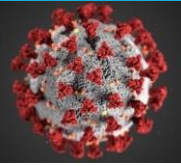
In addition to CDC-developed trainings, Colorado providers will also be required to complete training specific to CIIS functionality depending on whether they enter data directly into CIIS or electronically report to CIIS. Topics may include:

- Patient search techniques;
- Patient demographics and eligibility;
- Adding new patients;
- Entering vaccinations;
- Inventory management, vaccine ordering and receiving vaccine shipments;
- Running patient reminder/recall reports for second dose reminders;
- IZ Quick Add (Mass Events module); and
- Recording vaccine adverse events.

Colorado will leverage CO.TRAIN (TRAIN Learning Management System) to deliver CIIS-required training, and make job aids/just-in-time training materials available within CIIS through using the Learn More feature, and on the CIIS public-facing website. Additional technical support is available through two CIIS help desks; one for vaccine inventory and ordering assistance and one for all other CIIS questions or issues. Providers can reach both help desks by phone or by email.

In addition to leveraging existing experienced IIS staff, Colorado will hire temporary staff to support the additional workflow of enrolling and onboarding new COVID-19 vaccination providers. Additional staff are needed to ensure COVID vaccination providers are ready and able to report required data elements to CIIS, including:

COLORADO COVID-19 VACCINATION PLAN



- One Data Interface Specialist to support onboarding efforts for providers to upload or exchange data electronically with CIIS. This includes establishing connectivity, running data quality reports, and resolving issues through communications with providers and/or EHR vendors.
- Two CIIS Data Quality Coordinators to conduct data quality reviews of COVID vaccine records submitted to CIIS and to resolve unmatched or duplicate patients and immunization records.
- Two CIIS Help Desk Assistants to process requests for immunization records, provide technical assistance for CIIS users, create user accounts, set up providers and clinics in CIIS, process enrollment documentation, provide technical assistance to access online training courses in CO.TRAIN, and respond to general CIIS questions.

D. *Describe the steps your jurisdiction will take to ensure real-time documentation and reporting of COVID-19 vaccine administration data from satellite, temporary, or off-site clinic settings.*

The CIIS IZ Quick Add module facilitates data entry for vaccines administered at mass vaccination events and has been used by LPHAs to submit data for influenza vaccination clinics. As previously mentioned, LPHA partners have asked for additional functionality for COVID-19 vaccination events including online scheduling, contactless patient registration, and documentation of critical population categories. To ensure all the required data elements are collected for COVID vaccination, Colorado is planning to purchase a mass vaccination management system with the goal of having the new system in place for LPHAs and other interested community partners for testing and training during influenza clinics.

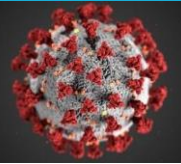
Training and support will be available through materials available online, live webinars, and recorded webinars. Additional technical assistance will be available through the CIIS Training/Outreach Unit and the CIIS help desks.

Colorado will also support requests for additional staff to assist with mass vaccination events. Sites conducting satellite, temporary, or off-site clinics can request assistance from Colorado's Vaccine Support Team (VST). The VST is an upon-request vaccination resource and can respond to specific Colorado community needs for mass clinic events. Sites can request vaccinators or additional clerical support to facilitate reporting doses administered and required data elements to CIIS.

E. *Describe how your jurisdiction will monitor provider-level data to ensure each dose of COVID-19 vaccine administered is fully documented and reported every 24 hours as well as steps to be taken when providers do not comply with documentation and reporting requirements.*

Colorado plans to use CIIS to monitor compliance with the CDC documentation and reporting requirements. CDPHE staff can compare the administration date to the record create date within CIIS to identify providers not meeting the 24 hour reporting requirement. In addition, CIIS staff have a delinquent file transfer process to monitor timeliness for providers submitting data via batch submission (through Secure File Transfer Protocol). CIIS staff can identify the frequency of expected batch submissions (daily, weekly, monthly, and seasonal) in their interface profile, and providers can be

COLORADO COVID-19 VACCINATION PLAN



identified if they are not sending data at the specified frequency. When providers are identified, CIIS staff will follow-up with the provider or EHR vendor to determine why data is not being submitted at the identified frequency, and the team works together to resolve any potential issues with their data transfer. Additional staff is being hired to review CIIS data and identify providers that need follow up or technical assistance to meet the requirements.

Additional tracking will occur through the CIIS Vaccine Ordering and Inventory Module (VOM). Since 2013, Colorado has used the VOM to ensure providers account for the doses of Vaccines for Children (VFC) and Section 317 vaccines they receive. Providers have a virtual vaccine inventory location in CIIS where vaccine shipments and vaccine transfers are added, doses administered are subtracted and vaccine adjustments can be made to account for wasted, spoiled or expired doses. CDPHE staff currently compare reported inventory and doses administered data when clinics complete an inventory reconciliation process prior to placing a vaccine order. The VOM reconciliation process has identified administration of incorrect lot number, missing doses administered, and unaccounted for doses. VOM help desk staff provide technical assistance to clinics to ensure doses administered are reported correctly and doses of publicly-funded vaccines are fully accounted for. This review process will also occur for COVID-19 vaccine.

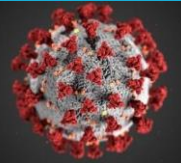
Accurate reporting of COVID-19 Vaccine National Drug Code (NDC) and lot numbers on patient records will be critical since they must receive the same product for their first and second doses of vaccine. Data quality is also paramount to second-dose reminders. To ensure providers are reporting required COVID-19 data elements and are accurately reporting doses administered data, Colorado will hire additional staff to review data and provide technical assistance to providers. In addition to the temporary staff listed in section C above, Colorado also plans to hire staff to monitor compliance with COVID-19 data reporting requirements and to account for COVID-19 vaccine doses:

- One COVID Doses Administered Coordinator to work with providers to ensure accountability of COVID doses distributed throughout Colorado. They will follow up with providers that have not reported doses administered to CIIS per defined requirements.
- Two VFC Aides to support data entry for COVID vaccine doses in CIIS and to follow up with providers to account for doses administered, wasted or expired.
- Two CIIS VOM Help Desk Assistants to provide technical assistance for providers managing their vaccine inventory in CIIS, creating and submitting inventory reconciliations, and vaccine orders. Ensure clinics account for the publicly-funded vaccines received, including doses that are administered, wasted, or returned.

F. *Describe how your jurisdiction will generate and use COVID-19 vaccination coverage reports.*

CIIS will be used to assess COVID-19 vaccination coverage and generate reports. CDPHE currently uses CIIS to generate state and county level coverage reports for routine childhood and adolescent vaccinations and influenza coverage for persons aged 65 years and older. A replica database, the CIIS

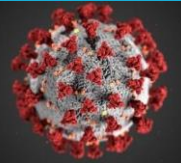
COLORADO COVID-19 VACCINATION PLAN



warehouse, is used for coverage analyses to prevent any disruption in performance for CIIS users. The CIIS warehouse is updated daily.

CDPHE uses the CIIS forecasting and evaluation engine to assess whether a patient is up to date for a vaccine series. CDPHE will develop custom code to assess COVID-19 immunization status until such a time as the CIIS forecasting and evaluation engine is updated with recommendations specific to COVID-19 vaccine.

Analyses of COVID-19 data in CIIS will be used to assess uptake of the vaccine in priority groups and later in the general public to ensure equitable distribution of vaccine throughout the state; identify areas with low coverage for outreach; report progress to leadership at the state, department, and division levels; and create and inform messages shared with the public. To support the anticipated increased needs to analyze COVID-19 data, Colorado will hire a temporary data analyst. The data analyst will provide support to send COVID data every 24 hours to the CDC, prepare data for media requests, respond to data requests from the Governor and LPHAs, and support dose allocation.



Section 10: COVID-19 Vaccination Second-Dose Reminders

A. *Describe all methods your jurisdiction will use to remind COVID-19 vaccine recipients of the need for a second dose, including planned redundancy of reminder methods.*

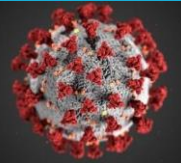
As most of the COVID-19 vaccine products require two doses separated by 21 or 28 days, second-dose reminders will be critical to ensure compliance with vaccine dosing intervals and achieve maximum vaccine effectiveness. Colorado will strongly encourage COVID-19 vaccination providers to schedule a patient's second-dose appointment when they receive their first dose. This proactive scheduling could minimize the number of second-dose reminders needed to be distributed to vaccine recipients. Patients are more likely to present for a second dose if the appointment is already on their calendar. Proactive scheduling of second-dose appointments can also assist COVID-19 vaccination providers with planning and anticipated inventory needs.

Many healthcare systems, private practices, local public health agencies, pharmacies and health plans have their own systems for patient notifications and reminders. Whenever possible, second-dose reminders will come directly from the COVID-19 vaccination provider who first immunized the patient. Patients are more receptive to receiving messages from trusted and known sources.

For COVID-19 vaccination providers without existing mechanisms for performing second-dose reminders, Colorado will promote the use of the Colorado Immunization Information System (CIIS) reminder/recall functionality. CIIS has a Reminder/Recall report feature which allows clinics to run reminder/recall reports for their patients. Local public health agencies (LPHAs) also have the ability to run a reminder/recall at the county/zip code level. The report output is available in PDF or Excel formats and includes the option to print mailing labels and postcards to send notifications to patients who are coming due or overdue for their vaccinations. This report runs overnight and results are available within the system the next morning. This feature also has the capability to reprocess the same reminder/recall run and generate a report of those patients who have become up-to-date since the initial reminder/recall report was generated and those patients who are still not-up-to-date. The not-up-to-date report can be used as a call list to notify patients. This "reprocess" report also runs overnight. Colorado has created a Patient Reminder/Recall training toolkit for clinics. It is available on Colorado's public-facing website and includes training videos, best practices, guidance on reviewing the quality and accuracy of the clinic's data before running a reminder/recall, and templates for reminder messages. The toolkit will be updated as COVID-19 required functionality is added to CIIS.

Colorado recently invested in a health messaging system (Teletask) that allows us to send automated phone messages, text messages and/or email messages to patients who are coming due or overdue for vaccinations based on CIIS data. We are already using this system to conduct statewide, centralized Immunization Information System (IIS)-based recall for kindergarten-aged children missing their second dose of MMR and adults 65 years and older missing their annual flu vaccine. Both the MMR and flu recall messages are in English and Spanish. Colorado will expand this effort in order to conduct autodial

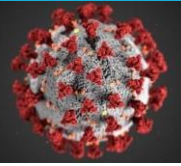
COLORADO COVID-19 VACCINATION PLAN



recalls for patients who are overdue for their second dose of COVID-19 vaccine. In between centralized, statewide recall efforts, Colorado will remove patients who become up-to-date on their COVID-19 vaccinations and update patient data in CIIS (e.g., record reminder/recall opt-out requests). Given the initial limited supply of doses likely available, it is anticipated that Colorado will be able to use the canned CIIS Reminder/Recall report to support centralized recall efforts during Phase 1. Once vaccine supply becomes adequate to support the vaccination of the general population, Colorado may need to generate second-dose recall reports through other methods. Colorado maintains a day-old copy of the CIIS production database, and several Colorado staff members have the capability to query this database and could pull the data needed to perform centralized recall for subsequent phases. This gives us the flexibility to leverage a separate instance of the IIS without the risk of causing performance issues with our IIS production environment.

Colorado sends a monthly newsletter to all CIIS users on the first Friday of every month. The newsletter contains timely information on immunization practices and CIIS/Vaccines for Children (VFC) training tips. Colorado will use the newsletter to highlight important information about COVID-19 vaccination delivery, including encouraging vaccination providers to complete COVID-19 vaccination record cards with detailed and accurate information (e.g., vaccine manufacturer, lot number, date of first dose, and second dose due date) so that patients have the necessary information in-hand should they present somewhere else for their second dose. The likely need for two doses will also be woven into the statewide COVID-19 vaccination media campaign and key messages to strengthen the public's understanding of the importance of a second dose.

Lastly, Colorado will have a Public Portal available by the end of 2020 or early 2021. This secure, online portal will enable individuals, parents, and guardians to access, save, and print official certificates of immunization directly from CIIS. It will use two-factor authentication to ensure the security of the record being requested. The portal will be available 24/7 from the Colorado Department of Public Health and Environment's (CDPHE) website and accessible from both computers and mobile devices. As the vast majority of COVID-19 vaccine candidates are two-dose series, the public portal is another method by which patients can stay on top of their COVID-19 vaccine schedules.



Section 11: COVID-19 Requirements for IISs or Other External Systems

- A.** *Describe your jurisdiction's solution for documenting vaccine administration in temporary or high-volume vaccination settings (e.g., CDC mobile app, IIS or module that interfaces with the IIS, or other jurisdiction-based solution). Include planned contingencies for network outages or other access issues.*

Colorado will be offering a variety of methods for providers to report COVID-19 vaccine to Colorado Immunization Information System (CIIS), including:

- Direct Entry Into CIIS
- Immunization (IZ) Quick Add Module in CIIS
- Flat File Import
- Electronic Data Exchange
- A Stand-Alone Mass Vaccination Tool with Interface to CIIS

Direct Entry Into CIIS

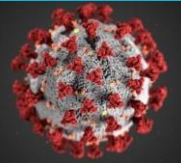
CIIS users will have the ability to manually enter patient demographic and immunization information directly into the CIIS web application for COVID-19 vaccine response, just like they do now. Based on the type of clinic, resources, and technical capabilities, sites can enter information into CIIS immediately at the point of care or take paper-based documentation and enter the data into CIIS after their clinic.

The requirement to report all administered COVID doses to CDPHE within 24 hours of vaccine administration will be a barrier for many of our providers, especially those who regularly enter their vaccination data directly into CIIS. Colorado intends to hire temporary staff to assist with CIIS data entry for sites who cannot meet the 24 hour reporting requirement. If sites use this option, then they would need to record all required information on a standardized vaccine consent form developed by the Colorado Department of Public Health and Environment (CDPHE) and send all completed consent forms to CDPHE via fax or secure email within 24 hours of vaccine administration. Once received, CDPHE temporary staff would transfer the information from the consent forms into CIIS on behalf of the site.

IZ Quick Add Module in CIIS

CIIS has a mass event module, *IZ Quick Add*, which may be helpful to providers holding large COVID-19 clinics or mass immunization events. It is designed to make data entry for mass events quick and easy. The *IZ Quick Add* module allows for loading of mass doses administered. From this module, a clinic can view and add mass event data (e.g., from vaccination consent forms), view details of the mass event (inventory used, location of event, etc.), and view the list of patients tied to a mass event along with their vaccination details (route, site, etc.). This feature also decrements doses administered from the clinic's on-hand inventory in CIIS. Once the clinic submits the mass event for processing, CIIS will process the data overnight (e.g., add the immunizations to the patients' records and decrement on-hand inventory).

COLORADO COVID-19 VACCINATION PLAN



The next CIIS upgrade will come with additional functions added to the Job board. The Job board allows CIIS administrative staff to process overnight jobs immediately. This new functionality will allow CIIS administrative staff to start IZ Quick Add processing immediately instead of waiting for the overnight process, in the event that this data needs to be available in the IIS quicker.

Flat File Import

Colorado will be receiving Flat File Import functionality with their next IIS upgrade (this upgrade will be available in the production environment at the end of October or beginning of November 2020). The Flat File Import would allow providers that cannot send data via HL7 format and those in a temporary or high-volume vaccination setting to send data electronically to CIIS via a flat file format. CDPHE is evaluating two different ways for users to use this new functionality.

Option #1 - 100% User Involvement

With this option, interested providers would use the Envision specification guide to develop a Flat File of their data. They would then upload the file in CIIS and review the status of the file submission. The site would also be responsible for correcting any errors that have been identified so that the data can be loaded into CIIS.

Option #2 - CIIS Staff Involved

With this option, the CIIS staff will be more involved in the process and hope to make the process easier for sites without a lot of technical resources. The CIIS team will develop a template and guidance document for users which will provide a clear format for gathering the necessary data elements and detailed guidance on sending the files so the CIIS staff can upload the files through their regular import process.

Electronic Data Exchange

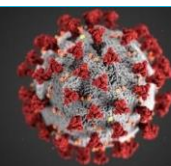
Colorado will offer electronic data exchange from the Electronic Health Record (EHR) and pharmacy systems. More details about Colorado's capabilities for data exchange are covered in section C below.

Contingency/Back-Up Plan for Network Outages or Access Issues

The Colorado Governor's Office of Information Technology (OIT) is responsible for maintaining and updating CIIS servers. They have verified that the CIIS servers are up to date with the most current updates, and the servers are updated monthly (every 3rd weekend) after the most recent Microsoft Patches become available. In addition, OIT does nightly incremental backups of the servers and full backups weekly.

In the event of a CIIS outage, CIIS staff will post critical level tickets to both OIT and Envision, which would be escalated quickly for resolution. Both vendors have a specific timeframe in which they need to respond when critical level tickets are submitted, and they will work together to resolve the outage as quickly as possible. In addition, CIIS staff will monitor planned OIT outages, and they will communicate these outages to CIIS users and partners.

COLORADO COVID-19 VACCINATION PLAN



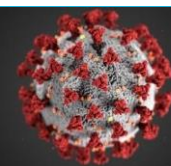
- B.** *List the variables your jurisdiction's IIS or other system will be able to capture for persons who will receive COVID-19 vaccine, including but not limited to age, race/ethnicity, chronic medical conditions, occupation, membership in other critical population groups.*

Colorado has a very robust IIS and many fields can be submitted through the user interface directly or via electronic data exchange. As of September 2020, 90% of the data submitted to CIIS comes in through electronic data exchange. For all electronic data, 78% is reported in real-time to CIIS. The following table notes if this information can be entered manually or received electronically within our IIS.

Demographic Information

Field Name	Manually Entered	Electronically Accepted
Last Name	Yes (Required)	Yes (Required)
First Name	Yes (Required)	Yes (Required)
Middle Name	Yes	Yes
Gender	Yes (Required)	Yes
Date of Birth	Yes (Required)	Yes (Required)
Patient Eligibility	Yes (Required)	Yes
Language	Yes	Yes
Primary Contact	Yes	Yes
Health Insurance	Yes	Yes
Home Phone	Yes	Yes
Cell Phone	Yes	Yes
Work Phone	Yes	Yes
Email	Yes	Yes
Mailing Address	Yes (Required)	Yes
Physical Address	Yes (Required)	Yes
Race	Yes	Yes

COLORADO COVID-19 VACCINATION PLAN



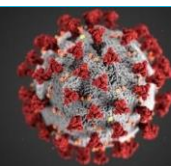
Ethnicity	Yes	Yes
Occupation	Yes	N/A

Vaccine Administration Information

Field Name	Manually Entered	Electronically Accepted
Vaccine	Yes (Required)	Yes
CVX Code	Yes (linked in Code Tables)	Yes (Required)
Vaccination Date	Yes (Required)	Yes (Required)
VIS Publication Date	Yes (Required)	Yes
VIS Given Date	Yes (Required)	Yes
Prescribed By	Yes (Required)	Yes
Administered By	Yes (Required)	Yes
Manufacturer	Yes (Required)	Yes
Lot Number	Yes (Required)	Yes
Expiration Date	Yes (Required)	Yes
Funding Source	Yes (Required)	Yes
NDC	Yes (linked in Code Tables)	Yes
Body Site	Yes (Required)	Yes
Route	Yes (Required)	Yes
Dosage	Yes	Yes

During the onboarding process, the CDPHE completes extensive Data Quality reviews to identify possible vaccine quality issues and ensure data meets required completeness thresholds. Providers are required to meet the below thresholds before their interface is approved for Go Live.

COLORADO COVID-19 VACCINATION PLAN



Fields Requiring 100% Completeness	Fields Requiring 95% Completeness	Fields Requiring 90% Completeness
First Name*	Address	Mother/Father/Guardian (Patients under 19 years old)
Last Name*	Phone Number	VIS Form Date
Date of Birth*	Manufacturer	Vaccine Funding Source (VFC Sites Only)
Vaccine Type* (CVX or NDC Code)	Dosage	Vaccine Program Eligibility (VFC Sites Only)
Vaccination Date*	Administered Body Site	
Lot ID	Administered Route	
	Expiration Date	
	Administering Provider	

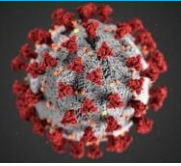
*Required field for a message to be accepted.

Race/Ethnicity Information

CIIS does allow race and ethnicity to be entered through the user interface and accepts it via electronic data exchange. One major source of race/ethnicity data is electronic birth certificate information received daily from Colorado Vital Records. According to a review of over 3 million recent records that were submitted to our real-time messaging gateway, CIIS receives race about 63% of the time and ethnicity about 65% of the time from electronic reporters. This data also includes a significant amount of “unknown” or “refused to answer” values (race-25%; ethnicity-35%). An analysis of all CIIS records performed in April 2020 showed the following completion rates for race and ethnicity by age group:

Age Group	% of Patients with Race in CIIS	% of Patients with Ethnicity in CIIS
0-9 years	73%	72%
10-19 years	62.4%	62%
20-29 years	49.6%	48.2%
30-39 years	51.2%	48.6%

COLORADO COVID-19 VACCINATION PLAN



40-49 years	54.7%	55.5%
50-59 years	58%	58.9%
60-69 years	62.9%	62.4%
70-79 years	64.9%	64.2%
80+ years	58.7%	56.6%

Chronic Medical Conditions, Occupation and Critical Population Groups Information

During a review of the CDC immunization HL7 specification guide, there does not seem to be a place to capture and communicate chronic medical conditions, occupation or critical population groups information from EHRs to the IIS. Even if this information could be captured via an HL7 message, then CIIS would need to rely on EHR vendors to build this information into the EHR, train providers to incorporate entry into their current workflows and then send the information in the HL7 message.

Users that manually enter data into CIIS (10%) can already enter some chronic medical conditions as a Precaution/Contraindication on the patient record. In addition, occupation can be entered on the demographics page of the patient profile. The selections from the occupation field are populated by a Code Table that is managed by IIS Administrative staff. Administrative staff have the ability to add Occupation Codes and designate each code as Active or Inactive. Once additional guidance is released from ACIP and NASEM regarding vaccination tiers, including comorbidities and occupation groups, CDPHE will update CIIS code tables to align.

- C.** *Describe your jurisdiction's current capacity for data exchange, storage, and reporting as well as any planned improvements (including timelines) to accommodate the COVID-19 Vaccination Program.*

Capacity for Data Exchange

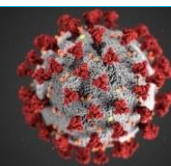
CIIS currently supports HL7 2.5.1 message format (1.5 release). Participating partners can transfer data to CIIS through secure FTP or real-time messaging.

Batch Messaging Via sFTP

CIIS uses a secure File Transfer Protocol (FTP) server to handle only inbound messages (option not available for bi-directional messaging). The server application utilized is Globalscape EFT Server. The preferred client software for secure FTP transfer is CuteFTP Pro. File Transfer Protocol Secure (FTPS) and Secure File Transfer Protocol (SFTP) require the client application to be installed on the local computer. Upload via HTTPS is then done using a web browser, entering login credentials each time.

Real-Time Messaging

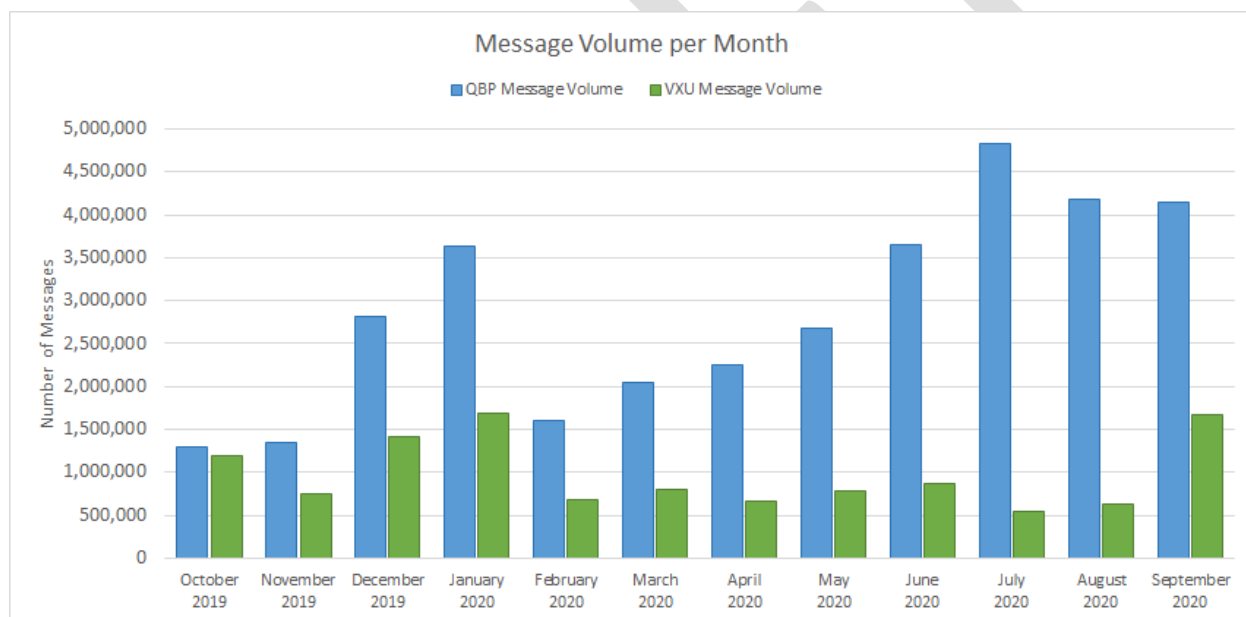
COLORADO COVID-19 VACCINATION PLAN



Bi-directional real-time messaging can be achieved using the CIIS Real-Time Messaging Gateway. The CDPHE Web Service Description Language (WSDL) is compliant with the CDC Immunization WSDL, having credentials including username, facilityid, password and a payload field containing the HL7 message being transmitted. The credentials are assigned and maintained by CIIS. For organizations sending on behalf of multiple providers, CIIS will establish one combination of facilityid (the sending organization) and password. Each practice will be assigned a username by CIIS. This value will also be sent in either MSH-4 and/or MSH-22 in the HL7 payload.

Jurisdiction Storage Capacity

In Colorado, 90% of the data that is entered into CIIS comes from electronic reporters. For all data reported electronically, 78% of the providers submit data in real-time. The volume of data reported fluctuates throughout the year, but Colorado sees the largest volume during back to school and flu season months. The graphs below provide a visual representation for VXU and QBP messages submitted through the CIIS real-time messaging gateway by month.

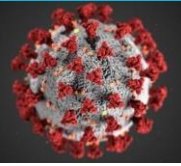


The CIIS team is concerned about the performance of its real-time messaging system with the expected influx of COVID-19 VXU messages. With the influx of early flu vaccinations in Colorado, there have been some backlogs for processing VXU messages. Colorado will be working with the Office of Information Technology to discuss this impact and identify possible solutions for preventing performance issues.

Jurisdiction Reporting

CDPHE will assist with reporting COVID-19 related data to the CDC and its external partners.

COLORADO COVID-19 VACCINATION PLAN



CDPHE uses a data warehouse for all reporting that contains a full copy of CIIS that is updated daily. CDPHE has extensive experience reporting at all levels (patients, providers, counties, and statewide) from CIIS. CDPHE will leverage the COVID case reporting infrastructure for the vaccine response. CDPHE has expertise in SQL, R, and Tableau that are used in conjunction to create automated reporting solutions quickly.

Planned Improvements

Colorado will be moving to a monthly IIS release schedule, starting in October or November 2020. This new release schedule will allow Colorado to receive more frequent IIS enhancements, bug fixes and COVID-19 required functionality. Colorado's IIS vendor, Envision, plans to release COVID-19 CVX Code(s), forecasting and evaluation updates and other vaccine-related information during these monthly releases.

Colorado will offer a Flat File Import, within the IIS, starting in late October or early November 2020. The Flat File Import would allow providers that cannot send data via HL7 format and those in a temporary or high-volume vaccination setting to send data electronically to CIIS via a flat file format. Once the file is in a flat file format, then users can upload the file directly in the IIS for processing. Colorado is currently evaluating and developing procedures and guidance for using this new functionality.

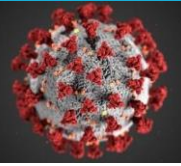
Lastly, Colorado will have a Public Portal available by the end of 2020 or early 2021. See *Section 10: COVID-19 Vaccination Second-Dose Reminders* for more information about this functionality.

- D.** *Describe plans to rapidly enroll and onboard to the IIS those vaccination provider facilities and settings expected to serve healthcare personnel (e.g., paid and unpaid personnel working in healthcare settings, including vaccinators, pharmacy staff, and ancillary staff) and other essential workers.*

See *Section 5: COVID-19 Provider Recruitment and Enrollment* for detail about utilizing Atlantic Management Center, Inc. (AMCI's) Pandemic Provider Rapid Engagement Platform (PREP) Module. This module will enable the Colorado team to do the following:

- Enroll Pandemic Vaccine Providers
 - Collect, store and approve CDC COVID-19 Vaccination Program Provider Agreements and CIIS Letter of Agreements.
 - Identify per provider patient profiles (critical workforce, essential workforce, and high-risk individuals).
 - Capture vaccine administration capacity.
 - Capture vaccine storage capacity.
 - Capture shipping information.
- Coordinate Vaccine Rollout Plans
 - Identify vaccination needs with pre-generated population estimates per jurisdictional region.

COLORADO COVID-19 VACCINATION PLAN



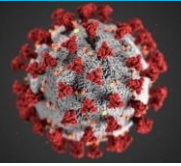
- Link and tally enrolled pandemic vaccine providers to each jurisdictional region.
- Assess the number of providers/vaccinators registered to each jurisdictional region.
- Assess vaccination site readiness.
- Categorize providers based on vaccine administration capacity, storage capacity and patient profiles.
- Link high storage-capacity sites with those having high vaccination-capacity sites.
- Monitor per vaccine allocations by jurisdictional region.
- Communicate Continuously
 - Expedite pandemic provider communications with email broadcasts, RSS feeds and online updates.
 - Auto-generate communications for continual guidance to enrolled providers.
 - Disseminate federal communications and essential training seamlessly.
 - Collaborate internally across programs (IIS, VFC, Office of Emergency Preparedness and Response).

The enrollment process and all CDC, state and IIS forms will be completed electronically, and the team will be able to monitor and approve enrollments quickly.

CDPHE evaluated a variety of options to rapidly onboard providers for electronic data exchange. Colorado's current onboarding process requires each site to go through a five-phase project, which includes two important Data Quality phases. CDPHE is currently pilot testing a new onboarding process that eliminates the more burdensome and resource-intensive Data Quality phase because providers typically spend 50% of the entire project in this one phase. Since this important Data Quality step is being eliminated, ongoing Data Quality Reviews will be completed 3-6 months after Go Live to ensure consistent data quality post-Go Live. With this new onboarding process, all providers will be required to sign a Data Exchange Agreement, which states that providers are required to actively work with the CIIS staff following the conclusion of the COVID-19 vaccine response to improve issues identified during an Ongoing Data Quality review. If providers do not adhere to the terms of this Data Exchange Agreement, then the CIIS team will have the right to turn the interface off until the site abides by the terms. This will be put in place in order to ensure the ongoing integrity and quality of data in our IIS.

E. Describe your jurisdiction's current status and plans to onboard to the IZ Gateway *Connect* and *Share* components.

Colorado plans to complete onboarding to the IZ Gateway for Connect in order to receive vaccine administration data for Colorado residents that may be entered into CDC's Vaccine Administration Management System (VAMS) rather than the IIS (e.g., federal entities not connected to the IIS). Colorado is in Wave 4 for onboarding. Connectivity to the test environment has been confirmed and Colorado is awaiting additional information on connectivity to the production environment.



F. Describe the status of establishing:

1. *Data use agreement with the Association of Public Health Laboratories to participate in the IZ Gateway*
2. *Data use agreement with CDC for national coverage analyses*
3. *Memorandum of Understanding to share data with other jurisdictions via the IZ Gateway Share component*

Colorado negotiated the terms of the Data Use Agreement (DUA) with the Association of Public Health Laboratories (APHL). The APHL DUA will soon be routed for signatures.

Colorado has not received any information on the DUA with CDC for national coverage analyses so no action has been taken.

Colorado has a signed, fully executed Memorandum of Understanding on file with AIRA to share data with other jurisdictions via the IZ Gateway Share component but does not plan to engage in interjurisdictional exchange at this time.

G. Describe planned backup solutions for offline use if internet connectivity is lost or not possible.

Colorado collaborated with Local Public Health Agency (LPHA) staff to discuss backup solutions for offline use if internet connectivity is lost or not possible. There were two common ideas that came out of these discussions:

Mobile HotSpots

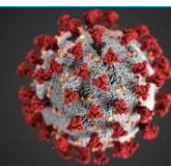
Many LPHAs noted that they have access to Mobile HotSpots. Some of these agencies had a limited amount so coordination with other programs would be necessary to ensure they have access during their planned clinics.

Paper Documentation

CDPHE will be developing a standardized vaccine consent form that sites can use during COVID-19 vaccination clinics. Clinic staff would need to record all required information on this consent form. Upon completion of the clinic, their staff can use these forms to enter the information directly into the CIIS user interface, or they can send all completed consent forms to CDPHE via fax or secure email within 24 hours of vaccine administration. Once received, CDPHE temporary staff would transfer the information from the consent forms into CIIS on behalf of the site.

H. Describe how your jurisdiction will monitor data quality and the steps to be taken to ensure data are available, complete, timely, valid, accurate, consistent, and unique.

COLORADO COVID-19 VACCINATION PLAN



CDPHE currently has a number of pre-Go Live and post-Go Live data quality measures in place to ensure complete and accurate data and will implement these measures during the COVID-19 vaccination response as well.

Pre-Go Live Data Quality Measures

Onboarding Vaccine Quality and Completeness

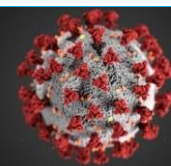
During the onboarding process, the CDPHE completes extensive Data Quality reviews to look for possible vaccine quality issues and ensure data meets required completeness thresholds. The following vaccine quality issues are flagged and reported to the provider during the onboarding process:

- Administration Site Error - the vaccine was given in a body site that is not recommended.
- Age Too Old/Young - the vaccine was given outside of the licensed age range for the vaccine.
- Expired Vaccine - the vaccine expiration date charted is prior to the vaccination date.
- Incorrect Manufacturer Code - the administered vaccination is linked to a manufacturer (MVX) code that does not match the vaccine indicated by the vaccine (CVX) code sent from the EHR.
- Invalid Dosage - the dosage is not correct for this vaccine.
- Invalid VIS Date - the VIS published data is not correct.
- Invalid VIS Given Date - the VIS given date is blank.
- Invalid Lot ID Pattern - the Lot ID is not a typical pattern for the manufacturer (MVX) that was sent from the EHR.
- Manufacturer Is Missing - the manufacturer code is BLANK, unknown or set to OTH or UNK in the electronic record sent from the EHR.
- SC Vaccine Route Incorrect - the suggested route for the vaccine is subcutaneous, but the electronic record included a route of IM.
- Vaccine Formulation No Longer Available - the administered vaccination is linked to a vaccine CVX code that was no longer available at the time of administration.
- Vaccine Not Licensed - the vaccine submitted is no longer a licensed vaccine.
- CVX Code Invalid - the CVX code that was submitted is not valid or is no longer active.

Providers are required to meet the thresholds noted below before their interface is approved for Go Live.

Fields Requiring 100% Completeness	Fields Requiring 95% Completeness	Fields Requiring 90% Completeness
First Name*	Address	Mother/Father/Guardian (Patients under 19 years old)
Last Name*	Phone Number	VIS Form Date
Date of Birth*	Manufacturer	Vaccine Funding Source (VFC Sites Only)

COLORADO COVID-19 VACCINATION PLAN



Vaccine Type* (CVX or NDC Code)	Dosage	Vaccine Program Eligibility (VFC Sites Only)
Vaccination Date*	Administered Body Site	
Lot ID	Administered Route	
	Expiration Date	
	Administering Provider	

*Required field for a message to be accepted.

Post-Go Live Data Quality Measures

CIIS Import Processing

When data is submitted to CIIS electronically it goes through an extensive deduplication process during the processing of the data. The deduplication process is fully automated and during this process the system tries to match the imported data to an existing record in CIIS. If the automated process is uncertain or there are multiple match possibilities, then the record is placed in a queue that requires manual review by CIIS staff. This manual review process involves CIIS staff reviewing each individual record in the queue and determining if the patient is the same person or not and merging possible duplicate records. Currently, there are seven staff that are trained to review and process records in this manual queue.

CIIS Ongoing Data Quality Review

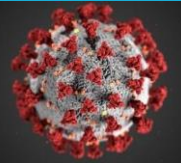
Ongoing Data Quality reviews are completed 3-6 months after an electronic immunization interface is taken live. During this review, CDPHE evaluates the current data for the same items evaluated during the onboarding process. Once the review is completed, the team will provide a report to the practice to let them know if they passed or failed the review. If they failed the review, then the expectation is that the site makes the necessary corrections (workflow re-training or EHR mapping changes) so improvements are seen with their data.

Additional Data Quality Tools

CDPHE is discussing the ability to create a backend report, which could be set up to run more frequently (weekly or daily), and it will provide a more complete view of COVID-19 data. The specifics of this report are still being developed, but the report will look for inconsistencies within the COVID-19 immunization data regarding:

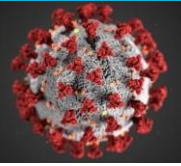
- Availability/Completeness - quality of data is comprehensive.
- Validity/Accuracy - quality of data is logical and accurate according to ACIP recommendations, Vaccine Licensure parameters and CDC IIS Code Sets.
- Consistency/Timeliness - quality of data is trustworthy, unique and remains consistent by monitoring volume, duplicates and timeliness of vaccination submissions.

COLORADO COVID-19 VACCINATION PLAN



There are additional tools that CIIS currently has in place or will possibly have in place in the future that could help with data quality efforts. These include the following:

- Data Quality Monitoring Service - this service is currently being developed by AMCI to provide data quality monitoring for production messages. The messages are analyzed by providing an in-depth picture of data quality by using the following reports:
 - DQ Immunization Report: provides Accuracy and Completeness statistics of immunization-related data for messages received in the assessment period.
 - DQ Patient Report: provides Accuracy and Completeness statistics of Patient Demographic information for messages received in the assessment period.
 - DQ Timeliness Report: provides statistics and calculates the average time interval between the administration date and when the message was received.
- CIIS Data Quality Statistics Reports - these reports can be run out of the IIS to provide a high level view of data for individual clinics. The following reports can be used to analyze the data.
 - Patient Count: calculates the number and percentage of patients associated with the clinic according to the patient program status.
 - Patient Completeness: calculates the number and percentage of data fields that contain values for active patient records.
 - Vaccination Completeness: calculates the number and percentage of vaccination events that have a value, such as a vaccination date, manufacturer, lot number, expiration date, Vaccine National Drug Code (NDC), funding source, site, etc.
 - Accuracy: Vaccination Given at an invalid age. Calculates the number and percentage of patient vaccinations that fall outside of the Advisory Committee on Immunization Practices (ACIP) age recommendation or vaccine's licensure guidelines.
 - Vaccination Counts Inconsistent with Patient's Age: calculates the number and percentage of patient vaccinations that are more than what is appropriate for their age.
 - Timeliness: calculates the number and percentage of the time between the vaccination date and the vaccination create date within CIIS with specific timeframes categories (e.g., total number of vaccinations entered into CIIS within one day of administration).
- CIIS Data Review Tool - this is a tool that was developed internally that can look at a sample of data for completeness, accuracy and frequency. The following reports can be used to analyze the data.
 - Completeness Report: this report evaluates data elements to gauge how often meaningful values are found in the electronic data.
 - Vaccine Quality Report: this report evaluates validity and accuracy of data elements.
 - Service Date Frequency: this report can show obvious gaps in immunization data being sent to CIIS.



Section 12: COVID-19 Vaccination Program Communication

- *Describe your jurisdiction's COVID-19 vaccination communication plan, including key audiences, communication channels, and partner activation for each of the three phases of the COVID-19 Vaccination Program.*

Clear and effective communication will be integral to implementing a successful COVID-19 Vaccination Program. This section provides a broad communications plan for vaccine planning and distribution in the state of Colorado. The plan covers key audiences, communication channels, primary stakeholders for each phase of the vaccination program, procedures for risk and crisis communications, and message integration with the Joint Information Center (JIC) and the Unified Coordination Center (UCC).

With additional direction and guidance from the Centers for Disease Control and Prevention (CDC) and the Vaccination Program Interim Playbook, the goal of this plan is to:

- Educate the public about the development, authorization, distribution, and execution of COVID-19 vaccines and that situations are continually evolving.
- Ensure public confidence in the approval or authorization process, safety, and efficacy of COVID-19 vaccines.
- Ensure active, timely, accessible, and effective public health and safety messaging along with outreach to key state/local partners and the public about COVID-19 vaccines.
- Provide guidance to Local Public Health Agencies, clinicians, and other hosts of COVID-19 vaccination provider locations.
- Engage in dialogue with internal and external partners to understand their key considerations and needs related to COVID-19 vaccine program implementation.

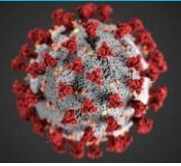
Key Audiences and Communication Channels

The key audiences outlined in this plan are in alignment with CDC's COVID-19 Vaccination Program Interim Playbook for Jurisdiction Operations. As the COVID-19 vaccine program moves through the phases, it will become increasingly important to leverage the support of stakeholders and partners as well as lessons learned from prior phases to optimize communications with each audience group.

I. General Public/Consumers

Some of the first people to get vaccinated will set the tone for later vaccination uptake; if their experience is positive, they will act as ambassadors and spokespersons, sharing experience with friends and family, amplified by social media. Because the COVID-19 vaccine will most likely not be a mandatory vaccine, educating the public with consistent, accurate, transparent, and timely information will be of utmost importance.

COLORADO COVID-19 VACCINATION PLAN



This group includes Critical Populations as defined in Section 4 of COVID-19 Vaccination Program Interim Playbook for Jurisdiction Operations, including, but is not limited to:

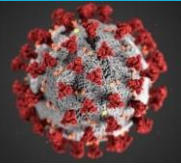
- Critical infrastructure workforce, including healthcare personnel and other essential workers.
- People at increased risk for severe COVID-19 illness.
- People at increased risk of acquiring or transmitting COVID-19.
- People with limited access to routine vaccination services (e.g. uninsured, undocumented, unhoused and rural communities).

Communication channels for general public/consumers

- Traditional Media (Print, Radio, TV)
 - Press releases.
 - Press conferences.
 - Media availabilities.
 - Ad campaigns (Public Service Announcements (PSA) and/or paid).
- Digital Media (Website, Social Media, Apps)
 - Guidance and fact sheets.
 - Social media messaging.
 - Paid digital campaigns.
 - Regular website updates.
 - Interactive map (ESRI or Google).
 - Infographics and social media graphics.
 - Video with voiceover and captions.
 - Apps and tools accessible by smartphone, tablet, or computer.
- Other
 - Scripts for hotlines and call centers.
 - Talking points for Public Information Officers in other jurisdictions and sectors.
 - Community meetings and town halls (virtual or in-person).
 - Emergency text alerts.

II. Partners and trusted sources who can help reinforce COVID-19 vaccination messages

Vaccine information shared with partners and trusted sources will be an important component of ongoing public health communication during a pandemic. Existing federal, state, and local networks and relationships can be used to engage and empower stakeholders to help reinforce and coordinate consistent vaccination messaging. There should be a specific focus to engage health equity networks and community relationships to disseminate information through trusted and credible sources.

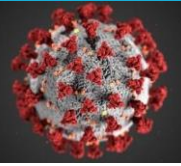


Trusted partners and key stakeholders include the following:

- Federal, state, and local government and tribal nations.
- Consulate representatives.
- Employers.
- Healthcare providers.
- Local public health agencies.
- County commissioners.
- State legislators.
- Tribal councils.
- Health Care Coalitions.
- Health insurance carriers and plans.
- Educators.
- Unions and professional organizations.
- Chambers of commerce and other business networks.
- Community and family resource centers.
- Organizations serving priority populations experiencing highest impact and access barriers (e.g. communities of color, people with disabilities, people experiencing homelessness, etc.).
- Community advocacy, non-profit and faith-based groups.
- Other state agencies, including Health Care Policy and Financing (HCPF), Department of Local Affairs (DOLA), Colorado Department of Agriculture (CDA), Colorado Department of Education (CDE), Colorado Department of Higher Education (CDHE), Colorado Department of Regulatory Affairs (DORA), Office of Economic Development and International Trade (OEDIT), Area Agency on Aging.

Communication channels for partners and trusted sources

- Colorado Department of Public Health and Environment's (CDPHE) existing distribution lists for government partners, local public health agencies, non-profit partners, and health care systems.
- Using existing distribution lists from other state agencies.
- Collaborating with professional organizations such as Colorado Medical Society, Colorado Hospital Association (CHA), etc. to leverage into existing distribution lists.
- Collaborating with LPHAs to tap into existing community networks at the local level.
- Developing new communication methods such as e-newsletters, a hotline dedicated to vaccine information for providers, partners, and the general public, a dedicated web page with vaccine information and resources, and regular stakeholder conference calls.



III. Vaccine Providers

To improve vaccination uptake among critical population groups, jurisdictions must ensure these groups have access to vaccination services. Partnerships with trusted community organizations can facilitate early agreement on a communication plan for rapidly disseminating information and ultimately ensuring these groups have access to vaccination.

Some of these partners could include:

- Local Public Health Agencies.
- Hospitals and health systems.
- Individual and Group Physician practices.
- Behavioral health providers and clinics.
- Community Health Centers.
- Federally Qualified Health Centers (FQHC).
- Rural Health Centers (RHC).
- Critical access hospitals.
- Pharmacies.
- Organizations and businesses that employ critical workforce.
- First responder organizations.
- Non-traditional providers (e.g., community health workers, doulas) and locations (e.g., dialysis centers, community centers) serving people at higher risk for severe illness.
- Locations or facilities with shared or congregate housing serving people at higher risk for severe illness (e.g., homeless shelters, group housing, correctional facilities, senior living facilities).
- Rehabilitation and long-term care facilities.
- Locations or services where people 65 years of age and older use frequently (e.g., senior centers, food banks, paratransit providers).
- Religious groups and other community groups.
- In-home care organizations.
- Schools and institutions of higher learning.

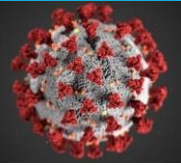
Communication channels for vaccine providers

It will be crucial to identify processes for frequent communication with participating COVID-19 vaccination providers about vaccine recommendations, supply, ordering, reporting, etc.

Consider the following communication channels for this vaccine providers:

- CDPHE's existing distribution lists in Constant Contact via CDPHE Immunization program. Contacts on this distribution list include Vaccine For Children (VFC) program providers, Colorado Immunization Information System (CIIS) users, local public health agencies, and other healthcare providers.

COLORADO COVID-19 VACCINATION PLAN



- Using established communication methods such as Health Alert Network (HAN) messages and listservs.
- Disseminating information through existing partnerships with organizations such as Colorado Academy of Family Physicians (CAFP), American Academy of Pediatrics (AAP), CHA, Colorado Medical Society (CMS), CDPHE's Health Facilities team.
- Developing new communication methods such as e-newsletters, a hotline dedicated to vaccine information for providers, partners, and the general public, a dedicated web page with vaccine information and resources, and regular stakeholder conference calls.

Risk Communication

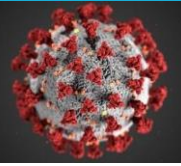
All risk communication messages will be based on CDC messaging guidance and tailored to Colorado audiences as referenced by CDC's COVID-19 Vaccination Program Interim Playbook for Jurisdiction Operations. These messages will be created to be inclusive for all Colorado communities. The Joint Information System and Center will help release these messages in an expedited manner.

I. Key communication considerations for any phase of the COVID-19 Vaccination Program:

To ensure consistency and consensus in messaging, CDPHE will work to do the following throughout each phase of the vaccination program:

- CDPHE will work with federal partners to disseminate accurate, useful, and consistent public health messages and will tailor information to meet local needs.
- CDPHE will disseminate information on vaccine use to stakeholders and partners that include the benefits, risks, and contraindications of the vaccine.
- CDPHE will keep stakeholders well-informed about COVID-19 vaccine(s) development, recommendations, and public health's efforts.
- CDPHE will provide information to local public health agencies, health care providers, state and local government officials, and the general public on:
 - Information on the vaccine for prioritized target groups.
 - Phasing in of broader vaccination coverage after prioritized target groups have been vaccinated.
 - Protocols for the use of limited supplies of vaccine.
 - When and where pandemic vaccines are available.
 - Updated information as to the amount of vaccine distributed and administered.
 - New data or information surrounding safety and efficacy of vaccine.
 - The importance of vaccination, including whether multiple doses are required.

Additionally, communications from CDPHE will acknowledge the health inequities and injustices that have created deep distrust in government in certain groups. Throughout the vaccine



phases, CDPHE and the Joint Information Center will assess communication campaigns using the following equity considerations :

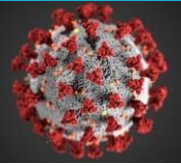
- Certain members and groups of Colorado’s communities have been and continue to be subject to systemic injustices and racism perpetuated by the government.
- Access to health care may be a barrier to accessing the vaccine, even if it’s free. People without health care may not have a trusted medical advisor.
- There is lingering historical trauma and fears about medical racism and being used as “medical experiments.”
- Although everyone is affected by the COVID-19 pandemic, it is not the case that the burdens of the pandemic are being experienced equally by all people. The COVID-19 pandemic has exacerbated health inequities with communities of color experiencing increased risk of infection as well as severe disease and death.

II. Key communication considerations before the vaccine is available

For all stakeholders and the general public

- Keep stakeholders up-to-date on projected timelines for vaccine manufacturing and the availability of vaccines for COVID-19.
- Provide culturally relevant, accessible education on key vaccine topics, such as how vaccines are manufactured, data privacy, vaccine safety and efficacy, benefits and risks of vaccination.
- Clarify the approval or authorization process of the COVID-19 vaccine. If the vaccine receives an U.S. Food and Drug Administration (FDA) Emergency Use Authorization (EUA), create messages to help the public understand key differences between the EUA and routine FDA approval.
- Educate regarding the reasoning for phased vaccinations and why it’s necessary. Use data to substantiate reasons for decision making in targeting vaccine.
- Continue to encourage vaccination with seasonal influenza vaccine and pneumococcal vaccine so as to have as many people as possible properly vaccinated by the time pandemic vaccine is available.
- Communicate that the vaccine is one tool and supplies will be limited. Emphasize the importance of continuing to follow public health guidance.
- Inform the public about the safety and efficacy of COVID-19 vaccines as the data becomes available.
- Other early messaging needs that may arise will be developed, approved, and disseminated in collaboration with the Joint Information Center (See Joint Information Center Approval Process chapter of this section).

COLORADO COVID-19 VACCINATION PLAN



For vaccine providers

An adequate network of trained, technically competent COVID-19 vaccination providers in accessible settings is critical to the success of the COVID-19 Vaccination Program. For this reason, COVID-19 vaccination provider recruitment and enrollment may be the most critical activity conducted before the vaccine becomes available.

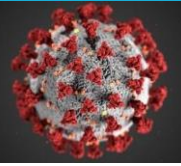
- Using existing listservs to distribute interest forms to providers across Colorado to gauge interest and information regarding ability to provide vaccinations, such as capacity to store doses of the vaccine, types of patients served, and the use of CIIS.
- Engage in dialogue with internal and external partners to understand their needs related to COVID-19 vaccine program implementation.
- Provide information on legal considerations regarding ability to expand vaccination provider workforce
- Communicate vaccine ordering status, reimburse, billing, storage and handling requirements, and policy and administrative solutions regarding insurance, vaccine licensing, and administration fees to the provider community
- Educate providers about supplementary dose allocations when vaccine supply is limited.
- Be proactive in communicating how CDPHE can support providers to ensure they meet reporting requirements.
- Provide training to COVID-19 vaccination providers. CDC will have many educational resources available for use (even some for co-branding), but immunization programs may develop or use other materials in conjunction with CDC materials.

III. Key communication considerations for Phase I - Vaccine is available in limited supply for certain populations

In the initial phase, or Phase 1, of the COVID-19 Vaccination Program, doses of vaccine will likely be distributed in a limited manner, with the goal of maximizing vaccine acceptance and public health protection while minimizing waste and inefficiency. CDC recommendations will inform Colorado's inclusive messaging regarding the phased system.

Populations for initial COVID-19 vaccination may include critical populations as defined in *Section 4 - Critical Populations*, including:

- Critical infrastructure workforce, including healthcare personnel and other essential workers.
- People at increased risk for severe COVID-19 illness.
- People at increased risk of acquiring or transmitting COVID-19.
- People with limited access to routine vaccination services (e.g. uninsured, undocumented, unhoused and rural communities).



Vaccination providers and settings for rapid vaccination of targeted populations can include:

- Large hospitals and health systems.
- Commercial partners (e.g., pharmacies).
- Mobile vaccination providers.
- Occupational health for large employers.

For all stakeholders and the general public:

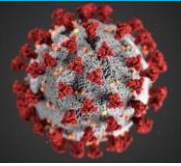
- Provide education on key vaccine topics, such as how vaccines are manufactured, vaccine safety and efficacy, benefits and risks of vaccination.
- Educate stakeholders regarding the reason for prioritizing vaccination and why it's necessary. Use data to substantiate reasons for targeting vaccine.
- Need for supplementary doses of same vaccine.
- Information about what early COVID-19 vaccination providers/settings may be (large hospital and health systems, commercial partners, mobile vaccination providers, occupational health settings for large employers, etc.).
- Continue to encourage vaccination with seasonal influenza vaccine and pneumococcal vaccine so as to have as many people as possible properly vaccinated by the time pandemic vaccine is available.
- Communicate to all stakeholders that the vaccine is one tool and supplies will be limited. Emphasize the importance of continuing to follow other public health guidance.

For all health care providers:

- Ensure health care providers have easy access to culturally relevant and accessible vaccine information. This can be done through the use of existing call centers, partnerships with medical societies and associations, or other existing networks and information sharing structures. Other methods can include a call center and web page dedicated to sharing vaccine information.
- Targeted messaging about vaccine availability to providers serving prioritized groups
- Messaging for physicians not receiving doses of the vaccine regarding where people can get vaccinated so they can give that information to patients who call in to their office.

For vaccine providers

- COVID-19 vaccine administration efforts must concentrate on the initial populations of focus to achieve vaccination coverage in those groups.
- Training of COVID-19 vaccination providers is vital to ensure the success of the COVID-19 Vaccination Program. CDC will have many educational resources available for use (even some for co-branding), but immunization programs may develop or use other materials in conjunction with CDC materials.



- Targeted messaging about vaccine availability to providers serving prioritized groups.
- Educate stakeholders regarding the reason for prioritizing vaccine and why it's necessary. Use data to substantiate reasons for targeting vaccine.
- Educate providers about supplementary dose allocations when vaccine supply is limited.
- Communicate vaccine ordering status, reimburse, billing, storage and handling requirements, and policy and administrative solutions regarding insurance, vaccine licensing, and administration fees to the provider community.

IV. Key communication considerations for Phase II - Vaccine is increasing and available for other critical populations and the general public

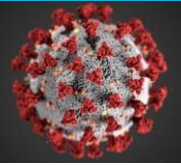
As the supply of available vaccine increases, distribution will expand, increasing access to vaccination services for a larger population. Focus on ensuring access to vaccine for members of Phase 1 critical populations who were not yet vaccinated as well as for the general population; lastly, begin messaging to help expand provider network.

Vaccination provider types and settings when vaccine supply increases to expand access to COVID-19 vaccination services can include:

- Healthcare provider offices and other outpatient settings.
- Inpatient settings (e.g., hospitals, long-term care facilities).
- Pharmacies.
- School-based health centers.
- Workplaces and other occupational health settings.
- Satellite, temporary, or off-site clinics.

For all stakeholders:

- Provide education on key vaccine topics, such as how vaccines are manufactured, vaccine safety and efficacy, benefits and risks of vaccination.
- Educate stakeholders regarding the reason for prioritizing vaccine and why it's necessary. Use data to substantiate reasons for targeting vaccine.
- Need for supplementary doses of same vaccine.
- Information about what expanded COVID-19 vaccination providers/settings may be (provider offices, inpatient settings, school-based clinics, workplaces, pharmacies, etc.).
- Continue to encourage vaccination with seasonal influenza vaccine and pneumococcal vaccine so as to have as many people as possible properly vaccinated by the time pandemic vaccine is available.
- Communicate to all stakeholders that the vaccine is one tool and supplies will be limited. Emphasize the importance of maintaining community mitigation efforts.



For all health care providers:

- Ensure health care providers have easy access to vaccine information. This can be done through the use of existing call centers, partnerships with medical societies and associations, or other existing networks and information sharing structures. Other methods can include a call center and web page dedicated to sharing vaccine information.
- Targeted messaging about vaccine availability to providers serving prioritized groups.
- Messaging for physicians not receiving vaccine regarding where people can get vaccinated so they can give that information to patients who call in to their office.

For vaccine providers:

- Additional COVID-19 vaccine doses available will permit an increase in vaccination providers and locations requiring additional communication efforts to expand provider enrollment.
- Develop and implement a vaccination provider outreach and training plan, focusing first on vaccination providers and services likely to serve remaining critical populations.
- COVID-19 vaccine administration efforts must concentrate on the expanded populations of focus to achieve vaccination coverage in those groups.
- Targeted messaging about vaccine availability to providers serving prioritized groups.
- Educate stakeholders regarding the reason for prioritizing vaccine and why it's necessary. Use data to substantiate reasons for targeting vaccine.
- Educate providers about supplementary dose allocations when vaccine supply is limited.
- Communicate vaccine ordering status, reimburse, billing, storage and handling requirements, and policy and administrative solutions regarding insurance, vaccine licensing, and administration fees to the provider community.

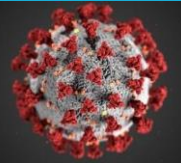
V. Key communication considerations for Phase III - Vaccine is widely available

Ultimately, COVID-19 vaccine will be widely available and integrated into routine vaccination programs, run by both public and private partners. Communications should focus on ensuring equitable vaccination access across the entire population. Monitor vaccine uptake and coverage; reassess strategy to increase uptake in populations or communities with low coverage.

For all stakeholders and the general public:

- Provide education on key vaccine topics, such as how vaccines are manufactured, vaccine safety and efficacy, benefits and risks of vaccination.
- Educate providers about supplementary dose allocations and the need for doses of the same vaccine to achieve full vaccination coverage.

COLORADO COVID-19 VACCINATION PLAN



- Continue to encourage vaccination with seasonal influenza vaccine and pneumococcal vaccine (if applicable) so as to have as many people as possible properly vaccinated by the time pandemic vaccine is available.
- Communicate to all stakeholders that the vaccine is one tool. Emphasize the importance of continuing to follow other public health guidance.

For all health care providers:

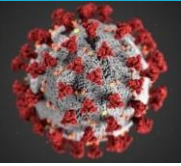
- Ensure health care providers have easy access to vaccine information. This can be done through the use of existing call centers, partnerships with medical societies and associations, or other existing networks and information sharing structures. Other methods can include a call center and web page dedicated to sharing vaccine information.
- Targeted messaging about vaccine availability to providers serving prioritized groups
- Messaging for physicians not receiving vaccine regarding where people can get vaccinated so they can give that information to patients who call in to their office.
- Educate partners regarding the risks and benefits of vaccination.
- Educate providers about supplementary dose allocations and the need for doses of the same vaccine to achieve full vaccination coverage.

For vaccine providers:

- Additional COVID-19 vaccine doses available will permit an increase in vaccination providers and locations requiring additional communication efforts to expand provider enrollment. This will require widespread messaging about vaccine availability to providers.
 - Communicate change in ordering vaccine when supplies are adequate.
 - Educate providers about supplementary dose allocations when vaccine supply is limited.
 - Communicate vaccine ordering status, reimburse, billing, storage and handling requirements, and policy and administrative solutions regarding insurance, vaccine licensing, and administration fees to the provider community.
- *Describe your jurisdiction's expedited procedures for risk/crisis/emergency communication, including timely message development as well as delivery methods as new information becomes available.*

As vaccination efforts begin, new information will become available. Responses to new information (or activation points) must involve the Joint Information Center to determine when crisis and emergency risk communications will be necessary. The Joint Information Center will be responsible for monitoring new information and developing messages in an expedited manner. Each activation point should be

COLORADO COVID-19 VACCINATION PLAN



discussed at length with the Unified Coordination Center before a communications plan is developed.

Major activation points for crisis communication can include, but are not limited to:

- First person vaccinated in Colorado.
- Shipment/delivery of vaccines and why distribution differs across the state, if applicable.
- Announcing phases and critical populations including the # of people in each population.
- New knowledge of vaccine side effects, adverse events, and/or failures.
- Key data trends.
- Vaccine uptake milestones.
- Low vaccine uptake in critical populations.

Social Media Monitoring

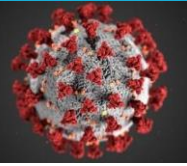
- The JIC shall assign a Media Monitor Public information Officer (PIO) who will be in charge of monitoring social media and gathering information related to the emergency. The Media Monitor PIO will track trends and share information with the JIC to ensure that the information to be disseminated is accurate, credible, and responsive to the public needs.

Misinformation and rumor control

- Throughout the vaccination effort, the JIC will handle and monitor incoming media queries, which will assist in rumor control.
- The Joint Information System (JIS)/JIC should serve as the primary source of information to the media and public.
- PIOs and JIS/JIC staff shall monitor and document all media coverage. Rumors and misinformation should be recorded and reported to the appropriate personnel.
- The Media Monitor PIO will relay rumors and misinformation to the JIS/JIC.
- The JIC Leadership will investigate the rumor and recommend how to respond in the form of a news release, press briefing, live interview, etc.
- If needed, information will be updated on all public channels to make sure the misinformation is corrected.

Feedback Mechanisms

- CDPHE will consider feedback mechanisms such as a web page, e-mail, or social account to allow members of the general public, media, and partners to express concerns, ask questions, and request assistance.
- Local jurisdictions may also create their own methods to garner feedback from their constituents.



Culturally and Linguistically Responsive Communication

When communicating to all of Colorado's diverse populations, it is important to remember that inclusive messaging must occur before the event or from the very beginning of an event. If the messaging is not inclusive, we are not communicating risk to all populations.

For resources for communicating inclusively, please see the CDPHE Office of Emergency Preparedness and Response (OEPR) Risk Communications Plan, Appendix 10. These resources include how to access CDPHE translators, communication standards to improve readability and accuracy, crisis communication state contacts to reach out to who understand their community's needs in terms of communications, and additional resources such as the [Community Inclusion in Colorado maps](#), effective communications for persons with limited English proficiency, and a Denver county resource guide for immigrants and refugees.

I. Communication, Maintaining Health, Independence, Safety/Support/Services, and/or Transportation (CMIST)

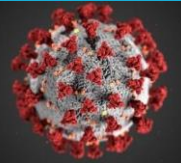
All messaging should take into consideration the CMIST framework for Access and Functional needs. "Access and Functional Needs" is a term and framework that is helping to promote inclusive emergency preparedness and response. Instead of identifying vulnerable groups, the access and functional needs approach suggests that there are functions and access that everyone needs in emergencies, regardless of who we are. We should build our systems to help everyone achieve these functions and access.

Read more about CMIST framework: [Moving beyond "special needs" A function-based framework for emergency management and planning](#) via The Journal of Disability Policy Studies.

II. Culturally Responsive Messaging

In addition to the CMIST framework, public health messages and products should be tailored for each audience and developed with consideration for health equity. Messages should address all people inclusively, with respect, using non-stigmatizing, bias-free, inclusive, culturally-sensitive language. Insufficient consideration of culture in developing materials may unintentionally result in misinformation, errors, confusion, or loss of credibility. Consider the following when creating messaging:

- Are there words, phrases, or images that could be offensive to or stereotypical of the cultural or religious traditions, practices, or beliefs of the intended audience?
- Are there words, phrases, or images that may be confusing, misleading, or have a different meaning for the intended audience (e.g., if abstract images are used, will the audience interpret them as intended)?



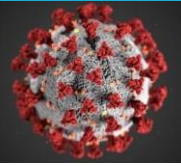
- Are there images that do not reflect the look or lifestyle of the intended audience or the places where they live, work, or worship?
- Are there health recommendations that may be inappropriate or prohibited for the social, economic, cultural, or religious context of the intended audience?
- Are any toll-free numbers or reference web pages in the message in the language of the intended audience?

These considerations and any others that emerge during message development and deployment should be reviewed again when material is translated.

III. Linguistically Responsive Messaging

It is important to use plain language that is easily understood. Messages and information should be presented in culturally responsive language and available in languages that represent all Colorado communities.

- Write public messaging at an 8th grade reading level or below.
- Write safety messaging or emergency directions at a 3rd grade reading level or below.
- In notices for public meetings, advertise what language services and communication resources will be available and how to request them.
- Provide simultaneous sign language interpretation at televised press conferences. Request that media outlets keep interpreters in frame and provide captioning.
- Translate communication products in at least the top three languages other than English of affected jurisdictions or communities as well as American Sign Language.
- Use alternative text descriptions for any photo, flyer, or graphic posted online or on social media.
- Use accessible design in all pictorial or graphic materials for people with low literacy.
- Plan for and continually advertise multiple platforms to receive information (e.g. by phone, online, in-person, etc).
- Identify trusted community contacts through which public information can be shared to expand the reach and trust of messages.
- Assess community comprehension of public messages; ensure a feedback mechanism for public information by which the community can identify communication barriers or request alternate formats; consider non-English language services for two-way communication (video remote interpreting; in-person, telephonic interpretation services).
- Follow all public health guidance in the creation and portrayal of any and all messaging.



IV. Technology Accessibility and Barriers

Communications Accessibility

For press conferences, town halls, and other remote or in-person messaging, consider incorporating the following equipment for greater accessibility. CDPS's Division of Homeland Security and Emergency Management (DHSEM) houses a limited supply of accessibility equipment for use by other agencies. Reserve use of this equipment with a 213RR form.

- Portable loop systems
 - 13 units.
 - 13 speakers.
 - 13 speaker stands.
- Simultaneous interpretation equipment for up to four languages
 - 4 transmitter channels.
 - 40 receiver units.
- Portable conference room
 - 10 microphones.
 - Several speaker stands.

Internet and Phone Accessibility

- For communities with low or unreliable accessibility to internet access, consider placing print materials in high traffic locations such as libraries, community centers, grocery stores, and similar locations.
- Consider a call center with a toll free number for people with phone access but not internet access.

Joint Information Center Approval Process

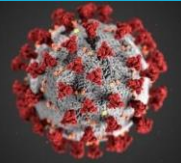
While the release of information will be coordinated by the Joint Information Center, participating PIOs will continue to be responsible for responding to requests for information from their agencies/jurisdictions.

No PIO will speak or disseminate information for another agency. However, they may coordinate the dissemination of all information with the designated lead agency.

The approval process for an incident's JIC is as follows:

1. A PIO will work with subject matter experts to develop the initial communication product using the most up-to-date and confirmed information.

COLORADO COVID-19 VACCINATION PLAN

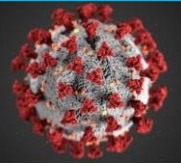


2. The PIO will send the communication products to subject matter experts (including healthy equity and/or behavioral health experts) for review and approval.
3. The PIO will send the product to the JIC guidance/content lead for copyediting and formatting, if product is guidance or content. If media inquiry, the PIO will send the product to the JIC media relations team for review.
4. The JIC guidance/content lead -- or media relations team-- will route the communication product for approval from CDPHE, the policy team, and the normal JIC process. The JIC Manager will determine if the product needs to be further routed to the UCC and Executive Leadership.
5. All feedback during the approval process will need to be reviewed and approved again by the subject matter experts.
6. Once approved, the PIO will route the resource for dissemination and language accessibility:
 - a. The web and/or digital team will post the communications product on social media or the appropriate webpage.
 - b. The media relations team will use the content to be responsive to media.
 - c. The Local Public Health Agency (LPHA) liaison will disseminate the information to LPHA PIOs, and the LPHA Executive Directors liaison will disseminate the information to LPHA Executive Directors.
 - d. The translations coordinator will route English resources for translations in Spanish, Vietnamese, Simplified Chinese, Somali, Nepali, and Arabic, as appropriate. Not all products will need to be translated; the translations coordinator will work with the PIO and the JIC Leadership to make those final decisions.
 - e. Additionally, the PIO will ensure that partners, stakeholders, and other relevant audiences are made aware of the new resource through the various communication channels outlined in this section.

Sources

The following sources were heavily referenced in the development of this section:

- CDC COVID-19 Vaccination Program Interim Playbook for Jurisdiction Operations
- Colorado Department of Public Health and Environment Office of Emergency Preparedness and Response Risk Communication Plan
- [Arizona Pandemic Influenza Response Plan](#)
- [Pandemic Influenza Response Plan, Seattle & King County](#)
- [2009 H1N1 Influenza Vaccination Campaign: Summary of a Workshop Series](#)



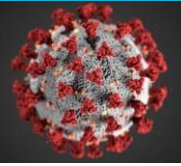
Section 13: Regulatory Considerations for COVID-19 Vaccination

- A. Describe how your jurisdiction will ensure enrolled COVID-19 vaccination providers are aware of, know where to locate, and understand the information in any Emergency Use Authorization (EUA) fact sheets for providers and vaccine recipients or vaccine information statements (VISs), as applicable.*
- B. Describe how your jurisdiction will instruct enrolled COVID-19 vaccination providers to provide Emergency Use Authorization (EUA) fact sheets or vaccine information statements (VISs), as applicable, to each vaccine recipient prior to vaccine administration.*

Colorado will be prepared to ensure enrolled COVID-19 vaccine providers have access to and will distribute any Emergency Use Authorization (EUA) factsheets or vaccine information statements (VISs) that are developed for any COVID-19 vaccine. Based on assumptions provided by CDC, Colorado anticipates one or more COVID-19 vaccines will be authorized under an EUA and, as such, a product-specific EUA fact sheet for COVID-19 vaccination providers and an EUA fact sheet for vaccine recipients will be developed. Additionally, because the Public Readiness and Emergency Preparedness Act (PREP Act) authorizes the coverages of COVID-19 vaccines under the Countermeasures Injury Compensation Program (CICP) rather than the standard National Vaccine Injury Compensation Program, it is assumed a VIS will not be made available. If and when a VIS is made available it will be distributed appropriately.

Colorado will employ multiple methods to ensure broad access to both the provider and vaccine recipient EUA factsheets and will include specific language indicating COVID-19 vaccine providers are required to share the vaccine recipient EUA factsheet with anyone presenting to receive a COVID-19 vaccine. The EUA factsheets will be promoted in the following ways:

- On COVID-19 vaccine webpages (state, local public health and provider),
- Via direct emails to all enrollee COVID-19 vaccine providers,
- In Colorado's COVID-19 media campaign (directing them to our webpages),
- Made available within the CIIS web application,
- Provided onsite at COVID-19 vaccine clinics (e.g., individual hard copies for each patient, laminated copies patients can view, and
- Via registration/scheduling systems used by local public health, pharmacies, and providers.



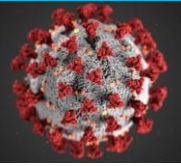
Section 14: COVID-19 Vaccine Safety Monitoring

- A.** *Describe how your jurisdiction will ensure enrolled COVID-19 vaccination providers understand the requirement and process for reporting adverse events following vaccination to the Vaccine Adverse Event Reporting System (VAERS).*

Per the Centers for Disease Control and Prevention (CDC) COVID-19 Vaccination Program Provider Agreement, all COVID-19 vaccination providers will be made aware of and asked to acknowledge the requirement that they report adverse events following COVID-19 vaccination to the Vaccine Adverse Event Reporting System (VAERS). This requirement, and the process for reporting adverse events, will also be communicated through the longstanding Colorado Immunization Information System (CIIS) First Friday e-newsletter and other publications managed by partner organizations, including the Colorado Academy of Family Physicians, the Colorado Chapter of the American Academy of Pediatrics and the Colorado Medical Society.

Colorado has an on-call immunization nurse line that is monitored during normal business hours, Monday through Friday. The Public Health Nurse Consultants who staff the on-call immunization nurse line discuss how to report adverse events to VAERS and provide the link to the VAERS website to providers and staff who call with questions related to vaccine administration errors and vaccine adverse events. This will occur for COVID-19 vaccine as well.

Providers will be expected to complete the VAERS report themselves by: 1) using the link available in CIIS (which will auto-populate some of the relevant information on the VAERS form), or 2) visiting the VAERS website to complete the online form. Although some demographic information such as name, address, race, and ethnicity are not mandatory fields, providers will be strongly encouraged to complete these sections of the VAERS form for COVID vaccine adverse events.



Section 15: COVID-19 Vaccination Program Monitoring

A. *Describe your jurisdiction's methods and procedures for monitoring progress in COVID-19 Vaccination Program implementation, including:*

- *Provider enrollment*
- *Access to COVID-19 vaccination services by population in all phases of implementation*
- *IIS or other designated system performance*
- *Data reporting to CDC*
- *Provider-level data reporting*
- *Vaccine ordering and distribution*
- *1- and 2-dose COVID-19 vaccination coverage*

Methods for monitoring progress are included in these sections below:

- Provider enrollment - See Section 5 - Provider Recruitment and Enrollment
- Access to COVID-19 vaccination services by population in all phases of implementation - See Section 4 - Critical Populations
- IIS or other designated system performance - See Section 11 - COVID-19 Requirements for IISs or Other External Systems
- Data reporting to CDC - See Section 9 - COVID-19 Vaccine Administration Documentation and Reporting
- Provider-level data reporting - See Section 9 - COVID-19 Vaccine Administration Documentation and Reporting
- Vaccine ordering and distribution - See Section 7 - Vaccine Allocation, Ordering, Distribution, and Inventory Management
- 1- and 2-dose COVID-19 vaccination coverage - See Section 10 - COVID-19 Second Dose Reminders

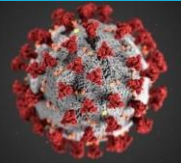
B. *Describe your jurisdiction's methods and procedures for monitoring resources, including:*

- *Budget*
- *Staffing*
- *Supplies*

CDPHE created a COVID-19 Fiscal Program within our department's centralized accounting and budget office to manage and track all COVID-19 funds separately, including COVID-19 vaccine planning and distribution funds. The COVID-19 Fiscal Program meets with program response staff weekly to discuss staffing and budget needs as well as holds internal fiscal meetings weekly. The COVID-19 Fiscal Program performs budget reconciliations in the Colorado Operations and Resource Engine (CORE) financial system and updates budgets on the master budget sheet on a weekly basis. This Program is also responsible for producing a COVID-19 weekly Budget Monitoring Report that includes the following:

- Summary of Budgeted vs Expended Funds Overall, including breakdowns for State vs Federal

COLORADO COVID-19 VACCINATION PLAN



- Testing Strategy: Budgeted vs Expended Funds Overall, including breakdowns for State vs Federal
- Containment Strategy: Budgeted vs Expended Funds Overall, including breakdowns for State vs Federal
- Budgets by funding source are further broken down into categories, as appropriate, including construction, contractual, equipment, indirect, personnel, operating, supplies and travel.

Staffing - CDPHE is currently in the process of hiring additional staff to manage various response functions. A table of the positions identified to date is below.

Position	Number of Staff
VFC Aide	2
CIIS Data Quality Coordinator	2
CIIS Help Desk Assistant	2
CIIS Vaccine Ordering and Inventory Module Help Desk Assistant	2
COVID Vaccine Call Center Specialist	4
CIIS Coordinator	1

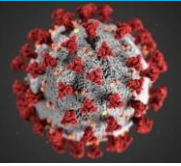
C. Describe your jurisdiction's methods and procedures for monitoring communication, including:

- Message delivery
- Reception of communication messages and materials among target audiences throughout jurisdiction

As vaccination efforts begin, new information will become available. Responses to new information (or activation points) must involve the Joint Information Center to determine when crisis and emergency risk communications will be necessary. The Joint Information Center (JIC) will be responsible for monitoring new information and developing messages in an expedited manner. Each activation point should be discussed at length with the Unified Coordination Center before a communications plan is developed.

In addition, the JIC will assign a Media Monitor Public information Officer (PIO) who will be in charge of monitoring social media to gather information related to the emergency. The Media Monitor PIO will track trends and share information with the JIC to ensure that the information to be disseminated is accurate, credible, and responsive to the public needs. The JIC will also investigate rumors and

COLORADO COVID-19 VACCINATION PLAN



misinformation and respond in the form of a news release, press briefing, live interview, etc. If needed, information will be updated on all public channels to make sure the misinformation is corrected.

Lastly, CDPHE will consider feedback mechanisms such as a web page, e-mail, or social account to allow members of the general public, media, and partners to express concerns, ask questions, and request assistance. Local jurisdictions may also create their own methods to garner feedback from their constituents.

D. Describe your jurisdiction's methods and procedures for monitoring local-level situational awareness (i.e., strategies, activities, progress, etc.).

Colorado will establish specific objectives to monitor local-level situational awareness. Each objective herein will be followed by specific strategies necessary to reach the objectives and actions that can be carried out and tracked by relevant entities. These objectives will be incorporated into the CDPHE's DOC Incident Action Plan (IAP) and shared with our Local Public Health Agencies on a regular basis.

The following objectives will be utilized to establish and maintain situational awareness with not only our local partners, but with other healthcare entities. Strategies and tasks will be developed to help meet these objectives and enhance situational awareness throughout the vaccine distribution process.

- Foster development of an internal management structure within the CDPHE's DOC to build capacity and operationalize a Public Health & Medical (PH&M) Situational Awareness capability.
- Colorado will ensure timely, relevant, and accurate information is available to inform decisions at all levels and across all sectors.
- Evaluate existing vaccination capacity, ensuring it is leveraged where appropriate and that new capacity is promoted where needed.
- Ensure continual improvement and innovation of critical PH&M SA functions.

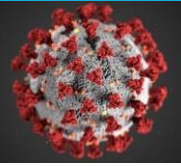
Colorado will use the Health Alert Network (HAN) to continually share important information with Local Public Health Agencies and many other healthcare partners regarding vaccine distribution and other details necessary to maintain situational awareness.

Local Public Health Agency Contracts

CDPHE distributed COVID-19 vaccine planning funds to LPHAs via contracts. The scope of work for these funds requires LPHAs to meet the following deliverables:

- Identify strategies to provide COVID-19 vaccine within their jurisdiction.
- Determine the need for allocation of doses of COVID-19 vaccine to serve the target populations during each phase of vaccine distribution.
- Determine the need for redistribution of doses of COVID-19 vaccine to serve the target populations during each phase of vaccine distribution.

COLORADO COVID-19 VACCINATION PLAN



- Work with community stakeholders to implement additional vaccination services to serve target populations during each phase of vaccine distribution.
 - Submit immunization data to CIIS for all COVID-19 immunizations administered by their agency within 24 hours of vaccine administration.
 - Promote informed COVID-19 vaccine decision making by educating a minimum of one (1) of the following:
 - Consumers
 - Health care providers
 - Staff who administer immunizations
 - Policy makers
 - Address COVID-19 vaccine hesitancy by educating a minimum of one (1) of the following:
 - Consumers
 - Health care providers
 - Staff who administer immunizations
 - Policy makers
 - Promote COVID-19 vaccine services availability by educating a minimum of one (1) of the following:
 - Consumers
 - Health care providers
 - Staff who administer immunizations
 - Policy makers
 - Refer clients to health care providers within their jurisdiction in instances that COVID-19 vaccine is not available at their agency.
 - Refer clients to health care providers outside of their jurisdiction in instances that COVID-19 vaccine is not available within their jurisdiction.
 - Submit quarterly progress report to CDPHE.
- E. *Describe the COVID-19 Vaccination Program metrics (e.g., vaccination provider enrollment, doses distributed, doses administered, vaccination coverage), if any, that will be posted on your jurisdiction's public-facing website, including the exact web location of placement.*

CDPHE is currently working through the metrics to be tracked and what will be shared publicly. These metrics will likely include # of providers enrolled, # of doses distributed, # of doses administered, # of persons vaccinated, vaccination coverage within various populations, etc.

Acronyms and Abbreviations

AAP -	American Academy of Pediatrics
ACIP -	Advisory Committee on Immunization Practices
ACS -	American Community Survey
AFN -	Access and Functional Needs
AMCI -	Atlantic Management Center, Inc.
APHL -	Association of Public Health Laboratories
CAFP -	Colorado Academy of Family Physicians
CCIA -	Colorado Commission of Indian Affairs
CDA -	Colorado Department of Agriculture
CDC -	Centers for Disease Control and Prevention
CDE -	Colorado Department of Education
CDHE -	Colorado Department of Higher Education
CDHS -	Colorado Department of Human Services
CICP -	Countermeasures Injury Compensation Program
CDLE -	Colorado Department of Labor and Employment
CDOC -	Colorado Department of Corrections
CDPHE -	Colorado Department of Public Health and Environment
CDPS -	Colorado Department of Public Safety
CHA -	Colorado Hospital Association
CHC -	Community Health Center
CHED-	Colorado Health and Environmental Data
CIIS -	Colorado Immunization Information System
CIVHC -	Center for Improving Value in Healthcare
CMIST -	Communication, Maintaining Health, Independence, Safety/Support/Services, and/or Transportation resources
CMS -	Colorado Medical Society
CONG -	Colorado National Guard
COPD -	Chronic obstructive pulmonary disease
CoPHR -	Colorado Public Health Reporting system
CORCC -	Colorado Outbreak Response Coordination Center
DHSEM -	Colorado Division of Homeland Security and Emergency Management
DIHFS -	Denver Indian Health & Family Services
DO -	Doctor of Osteopathic Medicine
DOC -	Department Operations Center
DOLA -	Colorado Department of Local Affairs
DORA -	Colorado Department of Regulatory Affairs
DUA -	Data Use Agreement
EHR -	Electronic Health Record
EMS -	Emergency Medical Services

EUA -	Emergency Use Authorization
FDA -	U.S. Food and Drug Administration
FQHC -	Federally Qualified Health Center
FTP -	File Transfer Protocol
FTPS -	File Transfer Protocol Secure
GEEERC -	Governor’s Expert Emergency Epidemic Response Committee
GIS -	Geographic Information System
GMAG -	GEEERC Medical Advisory Group
HAN -	Health Alert Network
HCPF -	Colorado Department of Health Care Policy and Financing
HIV -	The human immunodeficiency viruses
ICS -	Incident Command System
IIS -	Immunization Information System
IISAR -	Immunization Information System Annual Report
IMT -	Incident Management Team
IZDL -	Immunization Data Lake
JIC -	Joint Information Center
JIS -	Joint Information System
LOE -	Line of Effort
LPHA -	Local public Health Agency
LPN -	Licensed Practical Nurse
LTCF -	Long-Term Care Facilities
MD -	Doctor of Medicine/Medical Doctor
NASEM -	National Academies of Sciences
NCIRD -	National Center for Immunization and Respiratory Disease
NDC -	National Drug Code
OEDIT -	Colorado Office of Economic Development and International Trade
OEPR -	Office of Emergency Preparedness and Response
OIT -	Colorado Governor’s Office of Information Technology
PIO -	Public Information Officer
PIT -	Point-in-Time studies
POD -	Point of Dispensing
PREP -	Pandemic Provider Rapid Engagement Platform
PUMS -	Public Use Microdata
QCEW -	Quarterly Census of Employment and Wages
RHC -	Rural Health Clinics
RN -	Registered Nurse
SAMS -	Secure Access Management Services
SEOC -	State Emergency Operations Center
SOC -	Standard Occupational Classification
SFTP -	Secure File Transfer Protocol
TTX -	Tabletop Exercise

UCC -	Unified Coordination Center
UIHP -	Urban Indian Health Program
VA -	United States Department of Veterans Affairs
VAERS -	Vaccine Adverse Event Reporting System
VAMS -	Vaccine Administration Management System
VIS -	Vaccine Information Statement
VFC -	Vaccines for Children
VOM-	Vaccine Ordering and Inventory Module
VST -	Vaccine Support Team
VTckS-	Vaccine Tracking System
WHO -	World Health Organization
WSDL -	Web Service Description Language

DRAFT