

COVID-19

Introducing COVID-19 Vaccination: Guidance for Determining Priority Groups and Micro-planning

Version 1, 18 January 2021



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COVID-19

2

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COVID-19

Contents

Introduction 4

Objectives of this guidance 4

Part I. Determining priority population groups for vaccination 4

Part II. Microplanning 16

1. Create a vaccination coordinating committee 17

2. Determine which population groups should be vaccinated in the initial phase 17

3. Estimate vaccine and supply needs 18

4. Estimate the need for health workers to serve on vaccination teams 18

5. Develop vaccination strategies and tactics 21

6. Assess cold chain requirements 22

7. Prepare a training plan 24

8. Prepare the work schedule 25

9. Prepare a vaccine and supply delivery plan 25

10. Prepare a transport plan 26

11. Prepare a plan for communication, mobilization, and creation of demand 26

12. Prepare a plan for managing solid waste from vaccination 27

13. Prepare a supervision and monitoring plan 28

14. Determine the data required for vaccination records and the information flow 28

15. Establish the budget 30

16. Validate the local microplanning plan 30

17. Reevaluate microplanning 31

18. Schedule tiered vaccination based on the availability of vaccine doses 32

Forms 33

Conclusions 43

References 44

Introduction

Almost a year into the COVID-19 pandemic, scientists throughout the world have swiftly moved to develop safe and effective vaccines that will help reduce illness, hospitalizations, and deaths associated with COVID-19. These vaccines are expected to make a significant contribution to the equitable protection and promotion of human well-being and a gradual return to social, economic, work, and family life.

The technical framework considered in developing these recommendations includes the following:

- 1) WHO. *SAGE values framework for the allocation and prioritization of COVID-19 vaccination*, proposed by the Strategic Advisory Group of Experts (SAGE) on immunization of the World Health Organization (WHO) (1).
- 2) WHO. *SAGE Roadmap for Prioritizing Uses of COVID-19 Vaccines in the Context of Limited Supply* (2).
- 3) *Training Course on Effective Management of the Expanded Program on Immunization (EPI). Module V: Programming of Vaccination Activities* (3).
- 4) Pan American Health Organization (PAHO). *Guidelines to Plan for COVID-19 Vaccine Introduction* (4).
- 5) WHO. *Guidance on National Deployment and Vaccination Planning* (5).
- 6) Recommendations from PAHO's Technical Advisory Group (TAG) on Vaccine-preventable Diseases (6).

This manual is designed to assist the countries of the Region of the Americas in planning the operational components of the immunization program to ready them for the COVID-19 vaccine. To accomplish this, it follows the principles and values recommended by the SAGE and TAG, as well as the technical recommendations from PAHO and WHO.

The aim of these recommendations is to plan for the introduction of COVID-19 vaccines at the operational level with a view to equitably vaccinating 20% of a country's population during the initial vaccine supply phase, following the recommendations of the *WHO SAGE Roadmap* and country prioritization of population groups (2). The recommendations are preliminary and will be updated as new evidence becomes available. This manual is divided into two parts:

- Part I. Determining the priority population groups for vaccination
- Part II. Micro-planning

More information on the prioritization of population groups and microplanning for deployment of COVID-19 vaccination will soon be available through a free and open online self-learning course on the PAHO Virtual Campus for Public Health (see <https://www.campusvirtualsp.org/en>).

Objectives of this guidance

- Support technical teams at the national and operational level during the initial vaccination phase in the application of the *WHO SAGE values framework for the allocation and prioritization of COVID-19 vaccination* and the *WHO SAGE Roadmap for Prioritizing Uses of COVID-19 Vaccines in the Context of Limited Supply*.
- Develop the microplanning process for systematic and organized implementation of the different phases. Furthermore, guarantee that vaccination targets are met and the expected impact in terms of reducing COVID-19 morbidity and mortality is achieved.

Part I. Determining priority population groups for vaccination

COVID-19

Global availability of COVID-19 vaccine doses will be limited at first. During the initial weeks of vaccination, the 190 countries participating in the COVAX Facility will receive the doses needed to offer two-dose regimens¹ to 3% of the population. Each country will subsequently receive additional doses in stages, until 20% of the population is covered (7). The initial limited availability of doses will affect all countries, regardless of their procurement method.

The overarching goal of the first stage in the introduction of COVID-19 vaccine(s) is to minimize the social and economic impact of the pandemic (especially mortality) and guarantee the delivery of essential services.

It is therefore highly advisable to equitably distribute the available doses of vaccine(s). WHO’s SAGE has proposed a framework of six values and 12 objectives for allocating and prioritizing COVID-19 vaccination (**Table 1**) for countries to determine which population groups should be prioritized for COVID-19 vaccination. This values and objectives framework is consistent with the basic principles of PAHO (equity and Pan-Americanism) and the objectives of the COVAX Facility’s Access to COVID-19 Tools Accelerator.

Table 1. WHO SAGE Values Framework for the Allocation and Prioritization of COVID-19 Vaccination

Values	Objectives
Human Well-being	Reduce deaths and disease burden from the COVID-19 pandemic.
	Reduce societal and economic disruption (in addition to reducing the number of deaths and disease burden).
	Protect the continuing functioning of essential services, including health services.
Equal Respect	Treat the interests of all individuals and groups with equal consideration as allocation and priority-setting decisions are being taken and implemented.
	Offer a meaningful opportunity to be vaccinated to all individuals and groups who qualify under prioritization criteria.
Global Equity	Ensure that vaccine allocation considers the special epidemic risks and needs of all countries, particularly low- and middle-income countries.
	Ensure that all countries commit to meeting the needs of people living in countries that cannot secure vaccine for their population on their own, particularly low- and middle-income countries.
National Equity	Ensure that vaccine prioritization within countries considers the vulnerabilities, risks, and needs of groups who, because of underlying societal, geographic, or biomedical factors, are at risk of experiencing greater burdens from the COVID-19 pandemic.
	Develop the immunization delivery systems and infrastructure required to ensure COVID-19 vaccines access to priority populations and take proactive action to ensure equal access to everyone who qualifies under a priority group, particularly socially disadvantaged populations.
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.
Legitimacy	Engage all countries in a transparent consultation process for determining what scientific, health, and values criteria should be used to make decisions about vaccine allocation between countries.

¹ It is currently recommended that people not receive more than two doses. For the moment, only one manufacturer has a three-dose regimen.

COVID-19

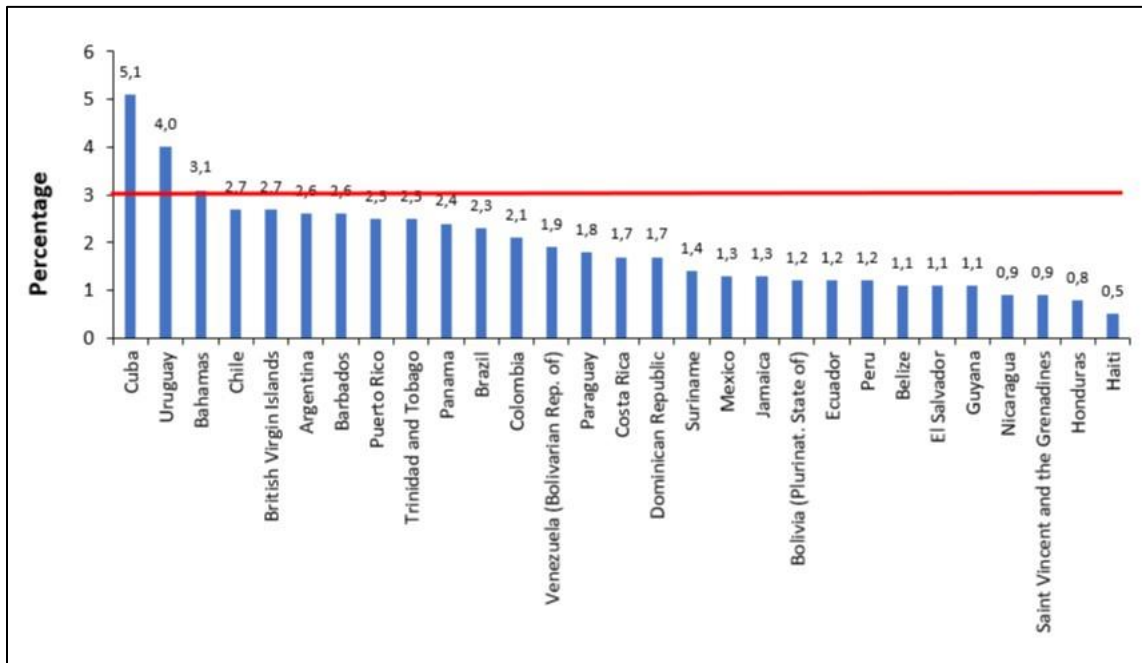
Values	Objectives
	Employ best available scientific evidence, expertise, and significant engagement with relevant stakeholders for vaccine prioritization between various groups within each country, using transparent, accountable, unbiased processes, to engender deserved trust in prioritization decisions.

Source: World Health Organization. WHO SAGE values framework for the allocation and prioritization of COVID-19 vaccination. Washington, D.C.: WHO; 2020. Available from: https://apps.who.int/iris/bitstream/handle/10665/334299/WHO-2019-nCoV-SAGE_Framework-Allocation_and_prioritization-2020.1-eng.pdf.

The values and objectives framework should be used at the national level, with participation from the National Immunization Technical Advisory Group (NITAG), to identify the priority groups for COVID-19 vaccination. However, the SAGE and TAG recommend prioritizing the following populations:

- **Health and social workers.** According to the International Labor Organization (ILO), health workers represent roughly 3% of a country’s population, a figure that can vary from country to country (Figure 1).

Figure 1. Proportion of the population working in social welfare and health care in selected countries in Latin America and the Caribbean, 2019

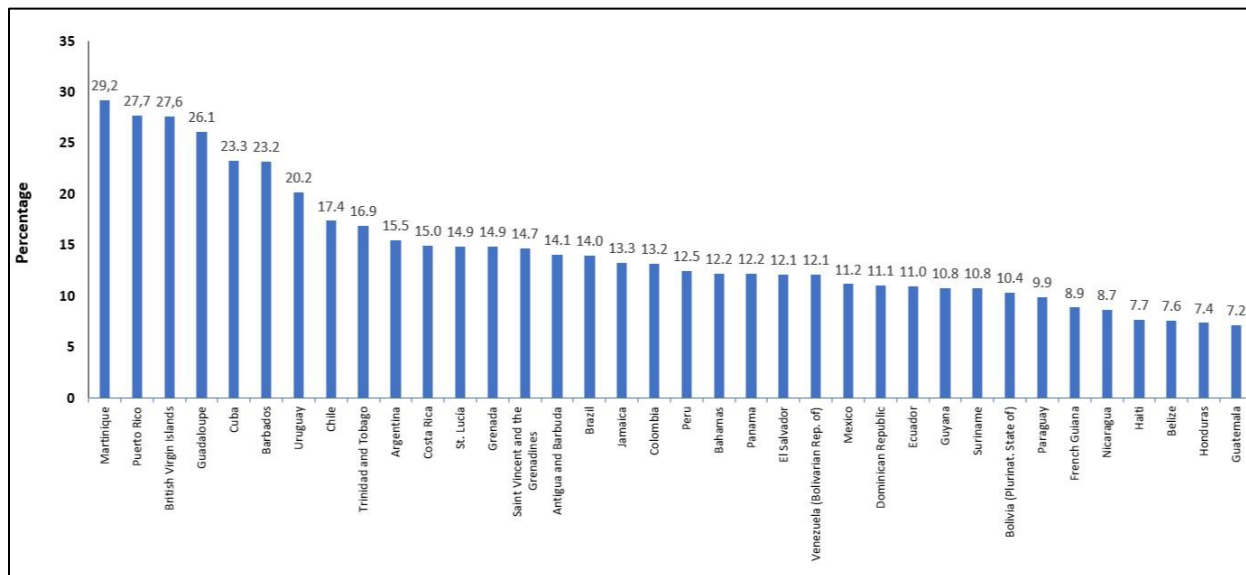


Source: Based on International Labor Organization. Employment by sex and economic activity – ILO modelled estimates, November 2019. Available from: <https://ilostat.ilo.org/data/>.

- **Older persons or people with co-morbidities, depending on social risk.** An estimated 13% of the general population in each country is over 60 years of age, a figure that can vary from country to country (Figure 2).

COVID-19

Figure 2. Proportion of the population over 60 years of age in selected countries in Latin America and the Caribbean, by subregion, 2019



Source: Based on World Bank. DataBank. Population estimates and projections 2019. Available from: <https://databank.worldbank.org/source/population-estimates-and-projections>.

People with underlying medical conditions are at greater risk of developing severe COVID-19 illness. It is therefore necessary to develop protection strategies for this population group (8-11). PAHO, in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM), has developed a tool for estimating the proportion of the population with comorbidities in every country in the Americas. The model includes 14 underlying conditions for severe COVID-19 illness (Table 2). It was found that 24% of the population of the Americas (or some 250 million people) have at least one underlying condition, putting them at greater risk of developing severe COVID-19 illness (Table 3). In the countries where these estimates have been made, the proportion of the population with at least one underlying condition ranges from 18% in Honduras to 33% in Chile. It is important to point out that much of this at-risk population is not people aged 65 or over. In fact, a substantial portion is of working age (15-64). This distribution of risk in the population must therefore be considered to avoid duplication in the prioritization process and ensure the continuity of essential services.

COVID-19

Table 2. Underlying conditions that increase the risk of severe COVID-19 illness, Region of the Americas, 2020

Cardiovascular disease	HIV/AIDS
Chronic kidney disease	Tuberculosis (active)
Chronic respiratory disease	Chronic neurological disorders
Chronic liver disease	Sickle cell disorders
Diabetes	Tobacco smoking
Cancers with direct immunosuppression	Severe obesity (BMI \geq40)
Cancers with possible immunosuppression caused by treatment	Hypertension

Source: Reproduced from Pan American Health Organization and London School of Hygiene and Tropical Medicine. Hands-on tool to estimate the population at increased and high risk of severe COVID-19 illness disease due to underlying health conditions in the Americas. Washington, D.C.: 2020. Available from: <file:///C:/Users/mksir/Downloads/Underlying%20conditions%20tool-covid-19-background-information.pdf>

COVID-19

Table 3. Percentage distribution of the population by underlying condition, by subregion and sex, 2020

Geographic area	No underlying condition	1 underlying condition	More than 2 underlying conditions	Higher risk (more than 1 underlying condition)
Region of the Americas	76	18	6	24
Latin America	78	17	6	22
Non-Latin Caribbean	71	22	7	27

Sex	No underlying condition	1 underlying condition	More than 2 underlying conditions	Higher risk (more than 1 underlying condition)
Male	78	17	5	22
Female	73	19	8	27

Note: Data corresponding to November 2020.

Sources:

¹ World Health Organization. Information note: COVID-19 and NCDs. Washington, D.C.: WHO; 2020. Available from: <https://rb.gy/8rcqsj>.

² Public Health England (PHE) definition of individuals at increased risk of severe COVID-19 illness. Available from: <https://rb.gy/dlkcze>;

³ Centers for Disease Control and Prevention. COVID-19: People with certain medical conditions [Internet]. Atlanta: CDC; 2020. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>

Once priority populations have been identified, the number of people to be vaccinated should be estimated in order of priority for each population group (**Table 4**). These estimates will inform the calculation of the doses to be allocated to each country.

Table 4. Exercise: Priority populations to vaccinate against COVID-19 in your area of responsibility

Target population group (in order of priority)	Number of people to be vaccinated	Cumulative total and percentage of the total people in the population to be vaccinated

Table 5 presents some special considerations that should be borne in mind when prioritizing the people to vaccinate (12).

Table 5. Special considerations for selecting who should be vaccinated against COVID-19

Tiered vaccination	Since the initial supply of vaccine doses will be limited, it may be necessary to adopt a risk-based tiered vaccination system. The first dose of a COVID-19 vaccine should be administered to the greatest possible number of priority individuals. However, it should be borne in mind that a complete regimen consists of two doses (for the moment, only one manufacturer has a three-dose vaccine). Thus, if the date of the next shipment is unknown or it is scheduled for more than six weeks (42 days) from the administration date of the first dose, the necessary doses for administering the complete regimen should be held in reserve.
Contraindications	A history of a severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine is a contraindication for vaccination.
Precautions	<p>Anaphylactic reactions after administration of a COVID-19 vaccine have been reported. Thus, if there is a history of an immediate allergic reaction after the administration of any other vaccine or injectable treatment (that is, intramuscular, intravenous, or subcutaneous vaccines or treatment), health workers must proceed with precaution. This does not, however, imply a contraindication for COVID-19 vaccination.</p> <p>A risk assessment should be conducted in such cases to determine the type and severity of the reaction, as well as the reliability of the information. Such individuals can be vaccinated but should be counseled about the possibility of experiencing a severe allergic reaction, and the risks of vaccination should be weighed against its benefits. They should also be observed for 30 minutes after vaccination in a medical setting where immediate treatment for anaphylaxis can be provided.</p>
Classification of health worker risk	It is highly recommended that all health workers be vaccinated. However, if the available doses are insufficient to initially cover all such personnel, a risk assessment should be conducted based on the type of work they do (Table 6) (13).
Delay in administration of the second dose	Given the limited supply of vaccines and the high disease burden, it is possible that some countries will consider delaying the administration of the second dose as a practical approach in order to maximize the number of people benefitting from the first dose. However, there are no data on the long-term efficacy of a single dose of COVID-19 vaccine(s).

<p>Interchangeability of vaccine(s) from different manufacturers</p>	<p>Each individual vaccinated should be guaranteed a second dose of vaccine from the manufacturer of the vaccine used for the first dose. If, inadvertently, the two doses administered are from different manufacturers (for the moment, only one manufacturer has a three-dose regimen), administering an additional dose of any of the vaccines is not recommended. Countries in exceptional epidemiological circumstances can consider briefly delaying administration of the second dose as a pragmatic approach to maximize the number of people who benefit from a first dose while the vaccine supply increases. WHO currently recommends up to a 42-day interval (six weeks) between doses, based on the data currently available from clinical trials.</p>
<p>Allergic reaction to the first dose</p>	<p>Generally, people who have an immediate allergic reaction to the first dose should not receive additional doses. An immediate allergic reaction to a vaccine or drug is defined as any sign or symptom related to hypersensitivity, such as anaphylaxis, urticaria, angioedema, difficulty breathing (e.g., episodes of wheezing, stridor) appearing within a few hours of administration.</p>
<p>Immunocompromised people</p>	<p>The immunocompromised are at greater risk of developing severe COVID-19 illness. Currently, the available data are insufficient to evaluate vaccine efficacy or the risks associated with vaccines in critically immunocompromised people. The immune response to the vaccine may be lower, which would affect its efficacy. Meanwhile, since the vaccine does not contain live viruses, immunocompromised people in a group recommended for vaccination can be vaccinated.</p>
<p>Pregnancy</p>	<p>Pregnant women have a higher risk of developing severe COVID-19 illness than women of reproductive age who are not pregnant, and COVID-19 has been associated with a higher risk of premature delivery. The available data on the vaccination of pregnant women are insufficient to evaluate the efficacy of the vaccine(s) or the risks associated with COVID-19 vaccination during pregnancy. The recommendations on vaccination during pregnancy will be updated as more evidence becomes available. In the meantime, WHO recommends not vaccinating against COVID-19 during pregnancy unless the benefits of doing so outweigh the potential risks of the vaccine, as in the case of health workers at high risk of exposure or pregnant women with comorbidities. WHO does not recommend doing a pregnancy test before vaccination.</p>
<p>Breastfeeding</p>	<p>Breastfeeding offers significant health benefits for lactating women and their breastfed babies. Vaccine efficacy in lactating women is expected to be similar to that in other adults. There are no data on the safety of COVID-19 vaccine(s) in lactating women or on the effects of the vaccines on breastfed children. However, it is clinically unlikely that they pose a risk to infants. Based on these considerations, vaccination should be offered to lactating woman who are members of a priority group – health workers, for example. WHO does not recommend interrupting breastfeeding after receiving a COVID-19 vaccine.</p>
<p>People with HIV</p>	<p>People with HIV may be at higher risk of developing severe COVID-19 illness. HIV-positive individuals whose infection is managed with antiretroviral therapy and are members of a group recommended for vaccination can be vaccinated. The available data on administration of the vaccine(s) are insufficient to evaluate their efficacy or safety for people living with HIV whose infection is not well-controlled with therapy. The immune response to the vaccine may be lower, which it can affect its efficacy. In the meantime, people with HIV who are members of a group recommended for vaccination can be vaccinated.</p>

COVID-19

Autoimmune diseases	No data is currently available on the safety and efficacy of the vaccine(s) in people with autoimmune diseases. They can therefore receive the vaccine
History of COVID-19	The vaccine can be offered regardless of a history of infection with symptomatic or asymptomatic SARS-CoV-2.
Acute COVID-19 infection	Vaccination of people with acute COVID-19 symptoms should be postponed until they recover from the acute disease and have met the criteria for ending isolation. There are no data to support a recommendation of a minimum interval between the onset of symptoms and vaccination.
History of treatment with monoclonal antibodies or convalescent plasma	There are currently no data on the safety or efficacy of vaccination in people who have received monoclonal antibodies or convalescent plasma as part of their treatment for COVID-19. Thus, as a precautionary measure, vaccination should be postponed for at least 90 days to prevent the antibody treatment from interfering with vaccine-induced immune responses.
Special situations	People in settings such as refugee and detention camps, prisons, marginal areas, and other places with high population density where physical distancing is unsustainable should be prioritized for vaccination, taking national epidemiological data, vaccine supply, and other relevant considerations into account. These groups must be identified, vaccination barriers addressed, and programs developed to permit equitable access to the vaccines.
Vaccination of travelers	In the current context of limited doses of vaccine, preferential vaccination of international travelers would be inconsistent with the principle of equity. Due to this and the lack of evidence on whether vaccination reduces the risk of transmission, WHO currently does not recommend COVID-19 vaccination for travelers (unless they are also members of a high-risk group). These recommendations will be reviewed as the vaccine supply increases.
Co-administration with other vaccines	A minimum of 14 days between the administration of COVID-19 vaccines and any other vaccine is recommended. Until data become available, coadministration with other vaccines is not recommended.

Table 6. Classification of health worker risk to prioritize COVID-19 vaccination

Very high risk
<ul style="list-style-type: none"> - Jobs and occupations with a risk of exposure to aerosols with SARS-CoV-2: settings in which aerosol-generating procedures are performed on patients with COVID-19, including tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, sputum induction, bronchoscopy, spirometry, autopsy procedures, and work with COVID-19 patients in enclosed and cramped spaces lacking adequate ventilation.
High risk
<ul style="list-style-type: none"> - Jobs or occupations with a high potential for close contact with people known or suspected to have COVID-19 or that involve contact with objects or surfaces potentially contaminated with the virus. - Direct patient care. - Home care for people with COVID-19. - Entering the room of a confirmed or suspected COVID-19 patient. - Care for patients with COVID-19 that does not involve aerosol-generating procedures. - Transport of people known to have or suspected of having COVID-19.
Moderate risk
<p>Jobs or occupations involving frequent close contact with the general public or other groups but does not require contact with people suspected to be infected with the SARS-CoV-2 virus:</p> <ul style="list-style-type: none"> - In areas where COVID-19 continues to be reported: <ul style="list-style-type: none"> o Workers who have frequent close contact with personnel responsible for managing cases in a medical center. o Work activities where it is hard to maintain a safe physical distance. o Tasks requiring frequent close contact between colleagues. - In areas without community transmission of COVID-19: frequent contact with people returning from areas with higher levels of community transmission.
Low risk
<p>Jobs or occupations without frequent close contact with the public or other people:</p> <ul style="list-style-type: none"> - Administrative functions in non-public areas of health facilities. - Location far from other staff. - Telehealth services in individual offices.

Source: Adapted from World Health Organization. Classification of health workforce statistics. Geneva: WHO; s.f. Available from: https://www.who.int/hrh/statistics/Health_workers_classification.pdf?ua=1#:~:text=The%20classification.

Once health workers are vaccinated, the next priority groups should receive the vaccine. This will require the classification of social vulnerability² (14) in all municipalities or districts, based on the epidemiological situation at the time of vaccine deployment. This classification will help determine which municipalities to prioritize as doses become available.

A tool has been developed for this purpose that evaluates five variables (Table 7) selected after extensive review and technical discussion. The data for evaluating these variables are available in epidemiological bulletins and household survey results. This latter information may be available on the websites of the ministries of economy and national statistics institutes or through the Economic Commission for Latin

² Social vulnerability is defined as the characteristics of a person or community that affect their ability to anticipate, deal with, remedy, and recover from the effects of a public health event.

America and the Caribbean (ECLAC). Local data may not be available; the use of qualitative estimates based on local knowledge of the situation is therefore suggested.

Table 7. Variables for classifying the risk of municipalities to prioritize deployment of the COVID-19 vaccine in the most vulnerable areas

Variables	Weight of the variable	Scoring	Remarks
1. Epidemiological situation	3	0 = No cases 1 = Sporadic or clustered cases 2 = Community transmission	
2. Presence of migrant population	2	0 = No 1 = Yes	In camps, transit stations, borders, or households
3. Presence of indigenous or Afro-descendant populations	2	0 = No 1 = Yes	In urban, peri-urban, or rural areas
4. Percentage of the population living in extreme poverty	1	0 = Less than or equal to 20% 1 = More than 20%	
5. Percentage of the population living in overcrowded conditions (3 or more people per room)	1	0 = Less than or equal to 30% 1 = More than 30%	

Table 8. Form for assessing the risk by municipality to prioritize deployment of COVID-19 vaccine(s)

Variable	Epidemiological situation	Presence of migrants	Presence of indigenous or of Afro-descendant groups	Extreme poverty	Overcrowding	Score
Weight	3	2	2	1	1	
Municipality 1						
Municipality 2						
Municipality 3						
Municipality 4						
Municipality 5						
Municipality 6						
Municipality 7						
Municipality 8						
Municipality 9						
Municipality 10						

Note: Tool for Microsoft Excel.

The following procedure should be used to complete this form:

- **Column 1:** Indicate the name of all municipalities in the country or area of responsibility.
- **Column 2-6:** Assign the corresponding score for each of the five aforementioned variables, based on the situation in the municipality.
- **Column 7:** Multiply the score assigned to each variable by the weight of each variable. The sum of the results for each variable will be the total score for classifying the municipality’s vulnerability.
- The highest score is 12 and the lowest, 0. The classification of the results is explained in **Table 9**.

Table 9. Classification of municipal vulnerability

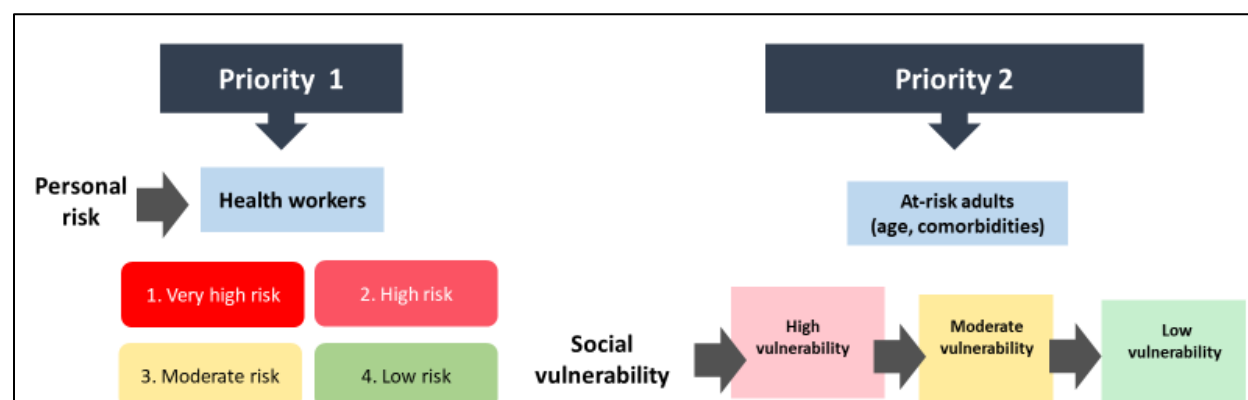
Score	Interpretation	Vulnerability color coding
12-9	High degree of vulnerability	
8-5	Moderate degree of vulnerability	
Less than 5	Low degree of vulnerability	

This classification of social vulnerability and the programming of tiered vaccination should be a dynamic process that takes place prior to each delivery of a new vaccine shipment. This will entail the following activities:

- Determine the need to review or update the priority populations for vaccination, based on the characteristics of the vaccine and the epidemiological situation.
- Reevaluate microplanning, based on the characteristics of each vaccine received and the manufacturer’s recommendations, and make any necessary adjustments. For example, 1) age at which the vaccine can be administered; 2) cold chain requirements and utilization time at different temperatures; 3) number of doses necessary and interval between doses; 4) type of diluent; 5) type of syringe and route of administration; 6) whether vaccination of pregnant women is recommended; 7) coadministration with other vaccines, indications, contraindications, and expected reactions; 8) policy on open multidose vials; etc.

Once social vulnerability has been evaluated, vaccination should commence in the most vulnerable areas, and priority groups should continue to be vaccinated based on their degree of vulnerability. **Figure 3** presents a tiered vaccination regimen.

Figure 3. Tiered vaccination regimen for vaccination deployment



Part II. Microplanning

Microplanning is a strategy to assist local personnel with systematic and organized vaccination administration to meet vaccination targets. In the case of COVID-19 vaccination, the microplanning process should also consider that vaccinations must be administered within a certain time between the receipt of the vaccine lots at the national level and their arrival at the site (5-7 days, depending on the type of vaccine).

Microplanning for the introduction of a new vaccine normally takes 6-12 months. However, due to pandemic, the necessary steps will be taken to complete it as quickly as possible (1 month).

Table 10 presents the 18 recommended microplanning components for introducing COVID-19 vaccine(s) in the initial phase (availability doses to vaccinate 20% of the population), with their respective objectives. Some of these steps can be taken simultaneously.

Table 10. Microplanning components for introducing a COVID-19 vaccine

Number	Components	Objectives
1	Coordination	Create a vaccination coordinating committee
2	Target population	Determine which population groups should be vaccinated in the initial phase
3	Vaccines and supplies	Estimate vaccine and supply needs, including personal protective equipment
4	Vaccination team	Evaluate and estimate the need for health workers to serve on vaccination, supervision, and coordination teams
5	Strategies and tactics	Develop vaccination strategies and tactics
6	Cold chain	Assess cold chain requirements
7	Training	Prepare a training plan
8	Work schedule	Prepare the daily work schedule
9	Vaccine and supply delivery	Prepare a vaccine and supply delivery plan
10	Transport	Prepare a transport plan
11	Communication and mobilization	Prepare a communication, mobilization, and demand creation plan
12	Solid waste	Prepare a plan for managing solid vaccination waste
13	Supervision and monitoring	Prepare the supervision and monitoring plan
14	Information system	Determine the data required for the vaccination record and the information flow
15	Budget	Prepare the budget
16	Validation	Validate the local microplanning plan

Number	Components	Objectives
17	Reevaluation	Reevaluate microplanning based on the characteristics of the vaccine and strategic recommendations
18	Tiered vaccination	Program tiered vaccination based on the availability of doses

1. Create a vaccination coordinating committee

A multidisciplinary team should be designated at each organizational or administrative level. This team will be responsible for coordinating all components related to the introduction of COVID-19 vaccine(s). **Table 11** presents the roles and responsibilities of each level.

Use Form 1 for this component.

Table 11. Roles and responsibilities of vaccination committees, by organizational or administrative level and level of care

Level	Roles and responsibilities
National	The national committee is responsible for preparing national guidance and prioritizing population groups, organizing training, compiling and analyzing information, coordinating with other committees (logistics, cold chain, etc.), and monitoring and evaluating vaccination at the national level.
Subnational	This departmental, provincial, or state committee is responsible for replicating training activities, coordinating the creation of local committees, verifying and monitoring microplanning activities, providing technical support and supportive supervision, training, and compiling information.
Local	Each facility should designate a team to coordinate vaccine deployment. The local committee will be responsible for organizing, administering, supervising, and evaluating municipal and local vaccination. This committee should monitor adherence to the activities schedule, following national or subnational regulations.

2. Determine which population groups should be vaccinated in the initial phase

Based on the *WHO SAGE Roadmap for Prioritizing Uses of COVID-19 Vaccines in the Context of Limited Supply*, each local committee will be responsible for identifying the population groups to be vaccinated in the initial and subsequent phases. These estimates will be made after allocating the doses of vaccine to each municipality and health facility, identifying the number of people to be vaccinated in the initial and subsequent phases, based on vaccine availability.

Based on the recommendations contained in Part 1, each health facility should prioritize the population groups to be vaccinated during the initial phase. These estimates will be made after allocating the doses of vaccine to each facility. The staff will then know how many people can be vaccinated in this initial phase. In their area of responsibility, these professionals should:

- Identify all public and private health facilities in urban and rural areas. The form will consider institutions that train human resources for health and practitioners of traditional medicine (lay midwives or traditional birth attendants, healers).
- Conduct a census of health workers in the public and private sector, including personnel working in training institutions and practitioners of traditional medicine.

- Identify the number of communities or localities (urban and rural) and prioritize them by vulnerability category.
- By vulnerability category, identify and conduct a census of all congregate facilities (for example, asylums or prisons) in each locality, as well as private and social security health facilities.
- If local censuses are unavailable, estimate the percentage of the population that is older (over 60 years of age) and has underlying medical conditions.
- Identify the priority groups for vaccination in the initial phase (up to 20% of the population, with modifications based on the availability of doses).

Use Forms 2-7 for this component.

3. Estimate vaccine and supply needs

Estimate vaccine and supply needs, including personal protective equipment:

- **Vaccines:** Estimate the number of doses necessary for vaccinating the priority population groups (number of people \times 2, since each individual will receive a two-dose regimen³) and consider the loss factor (which should be calculated once the characteristics of the vaccines are known).
- **Syringes for administration and dilution:** This calculation is based on the dose estimate. The type of syringe and its graduation, as well as the size of the needle for administration, should be specified once the characteristics of the vaccine are known (dose, route of administration).
- **Personal protective equipment:** Each vaccinator should have a surgical mask that should be discarded at the end of the day, following the established guidelines. As of this writing, surgical masks are the only recommended requirement for the vaccination team. It is advisable to consider a loss factor for their replacement, if necessary (for example, in the case of spatters or defective masks).
- **Hand sanitizer:** This should have a minimum alcohol content of 60%.
- **Red and black biohazard boxes and bags to handle solid waste:**
 - Vaccine thermoses and cold packs
 - Record forms
 - Personal vaccination card
 - Kit for managing and reporting adverse events, whose content will be determined by each country
 - Vaccinator's manual
 - Other

Use Form 8 for this component.

4. Estimate the need for health workers to serve on vaccination teams

The number of vaccination teams will depend on the size of the target population and the vaccination strategies adopted. A review of the experience gained during previous adult vaccination campaigns (e.g., against rubella or yellow fever) is recommended to serve as the basis for human resource estimates. Nevertheless, it should also be borne in mind that infection prevention and control (IPC) measures could have an impact on the number of people seen daily. Useful estimates for a 6-hour a work day (that have been evaluated on the basis of field studies in previous vaccination campaigns) include the following:

⁴ It is currently recommended that no more than two doses be administered. For the moment being, only one manufacturer has a three-dose regimen.

- 60 -100 doses administered in fixed sites and dense populations
- 20- 40 doses administered in mobile units
- 15-30 doses administered through home vaccination in urban areas
- 10-20 doses administered through home vaccination in sparse rural areas

A basic team should have at least three members:

- A member responsible for IPC measures
- A vaccinator
- A vaccination recorder

To facilitate the vaccination process and guarantee quality service, consideration should be given to adding 2 or 3 more professionals to the team (expanded vaccination team): a vaccinator’s assistant, a supervisor, and a health promoter or community leader, the latter especially for the mobile unit and vaccination strategy for remote locations. **Table 12** presents the roles and responsibilities of these human resources.

Table 12. Roles and responsibilities of vaccination team members

Vaccination team	Personnel	Roles and responsibilities
Basic team	Member responsible for infection prevention and control (ICP) and evaluating the eligibility of every user	<ul style="list-style-type: none"> • Assess all users on arrival, ensuring they wear a mask, wash their hands, or use of hand sanitizer before entering the vaccination site, as well as their maintenance of social distance. • Triage all members of the team at the beginning and end of the day, and all users before they enter the vaccination site. This includes taking their temperature and asking about the presence of symptoms suggestive of COVID-19. • Assess the eligibility of each user based on national recommendations. • Evaluate any history of severe allergy. • Ensure adherence to the flow established for users at the vaccination site (Figure 4).
	Vaccination recorder	<ul style="list-style-type: none"> • Record the dose administered on the form or in the respective system, following national guidance. • Record the dose administered on the user’s vaccination card. • Inform the user of the date that the second dose will be administered, based on the type of vaccine. • Have the user wait 30 minutes in the observation area before leaving the vaccination site.

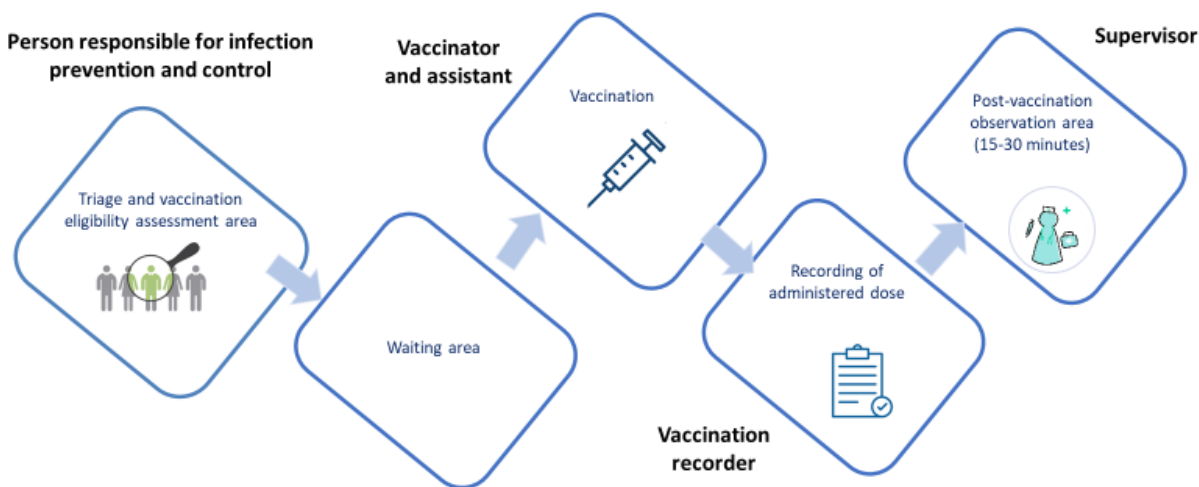
COVID-19

Vaccination team	Personnel	Roles and responsibilities
		<ul style="list-style-type: none"> Recommend at least a 14-day interval between the administration of the COVID-19 vaccine and any other vaccine, until data on coadministration with other vaccines is available.
	Vaccinator	<ul style="list-style-type: none"> Guarantee compliance at all times with each manufacturer’s recommendations regarding the transport, storage, and preservation of the vaccines, as well as cold chain maintenance. Administer the vaccine following national recommendations on safe injection and vaccination. Recommend at least a 14-day interval between the administration of the COVID-19 vaccine and any other vaccine. Inform the user of the date that the second dose will be administered, based on the type of vaccine.
Expanded team	Vaccinator’s assistant	<ul style="list-style-type: none"> Assist the vaccinator with preparation of the biological and vaccination, as necessary.
	Communicator or social mobilizer	<ul style="list-style-type: none"> Help mobilize the population when the mobile unit or remote location strategy is used.
	Team supervisor	<ul style="list-style-type: none"> Verify vaccination team and user compliance with infection prevention and control measures. Provide supportive supervision and support for the team. Guarantee the quality of the data. Monitor the observation area for the people vaccinated. Provide immediate treatment of severe adverse events.

Figure 4 describes the areas of a vaccination site and user flow (15). Note that there can be several vaccination sites in the same location, depending on needs and the available space.

Use Forms 9 and 10 for this component.

Figure 4. Description of the areas of a COVID-19 vaccination post and user flow



Source: Adapted from World Health Organization and United Nations Children’s Fund. COVID-19 vaccination training for health workers. Module 3: Organizing COVID-19 vaccination sessions. WHO, UNICEF, 2020. Available from: <https://openwho.org/courses/covid-19-vaccination-healthworkers-en>.

5. Develop vaccination strategies and tactics

Concerning vaccination strategies and tactics, it is important to emphasize interinstitutional vaccination in the first phase of the introduction of COVID-19 vaccines, using fixed and mobile units within the service or in strategically selected areas – ideally only in settings where proper and immediate treatment can be provided for severe adverse events such as an anaphylactic reaction.

It should be borne in mind that the infodemic and disinformation have aroused fear about receiving the COVID-19 vaccine. Thus, placing vaccination sites in strategic locations will help foster trust among the population.

Based on the experience gained in this initial vaccination phase, off-site vaccination with its various tactics could be considered.

The best strategy for administering the vaccine and setting up vaccination sites will depend on the population group to be vaccinated. **Table 13** presents the recommendations of WHO and the United Nations Children’s Fund (UNICEF) in this regard.

If mobile vaccination units are deployed, a health center should be designated for the referral of cases of serious adverse events. Adequate transportation – an ambulance, if possible – should also be guaranteed for the immediate transfer (15-30 minutes) of such cases.

Table 13. Vaccination strategies by priority population

Priority population	Strategy	Potential vaccination sites
Health workers	Fixed vaccination sites	Workplace (primary care facilities, hospitals, long-term care facilities, private clinics)
Older adults	Fixed vaccination sites and mobile units	<ul style="list-style-type: none"> • Health facilities • Nursing home • Community health centers • Pharmacies • Group homes • Churches
People with underlying medical conditions	Fixed vaccination sites and mobile units	Health facilities <ul style="list-style-type: none"> • Ambulatory care centers Associations of people with medical conditions (diabetes, hypertension)
Other target groups	Fixed vaccination posts	<ul style="list-style-type: none"> • Any of the aforementioned strategies, plus special strategies (e.g., insecure areas, workplaces).

Source: World Health Organization. The Guidance on National Deployment and Vaccination Planning is intended to help countries develop their plan for COVID-19 vaccine introduction. Geneva: WHO; 2020. Available from: https://www.who.int/publications/i/item/WHO-2019-nCoV-Vaccine_deployment-2020.1.

6. Assess cold chain requirements

The additional cold chain needs of each health facility must be determined, with respect to the temperatures required for the type of vaccine(s) administered. Moreover, the capacity for freezing cold packs in 24 hours must be calculated, along with the number of thermoses necessary for transporting the vaccine(s). Cold packs must be available for changes required during the vaccination period.

Concerning the increase in storage capacity, WHO and UNICEF propose different options, which are presented in **Table 14** (16).

Table 14. Options for increasing cold chain storage capacity

Required temperature	Standard procedures	What to consider in the event of insufficient capacity
+2°C to +8°C	<ul style="list-style-type: none"> • Map all storage points in the cold chain (both public and private) in this temperature range. • Conduct a gap analysis to determine cold chain storage needs. 	<ul style="list-style-type: none"> • Procure refrigerators or cold boxes for transporting vaccines • Rent private facilities with trained personnel and good vaccine storage practices • Divide shipments and increase the frequency of deliveries for vaccine distribution • Administer vaccination by tiers or phases
-20 °C	<ul style="list-style-type: none"> • Map all storage points in the cold chain (both public and 	<ul style="list-style-type: none"> • Procure freezers, cold boxes, and thermoses for transporting vaccines

Required temperature	Standard procedures	What to consider in the event of insufficient capacity
	private) in this temperature range. • Conduct a gap analysis to determine cold chain storage needs.	• Rent private facilities with trained personnel and good vaccine storage practices • Divide shipments and increase the frequency of deliveries for vaccine distribution • Administer vaccinations by tiers or phases
-60 to -90 °C	The majority of health workers are unfamiliar with vaccine management in this temperature range. It is important to follow the instructions for ultracold-chain management, which includes the use of cold packs containing the recommended refrigerants (phase change materials - PCM), as well as the use of personal protective equipment (cryogenic gloves)	

Source: Adapted from World Health Organization and United Nations Children’s Fund. COVID-19 vaccination training for health workers. Module 2: Storage, handling, delivery, and waste management for COVID-19 vaccines. WHO, UNICEF; 2020. Available from: <https://openwho.org/courses/covid-19-vaccination-healthworkers-en>.

If the country receives vaccine(s) that must be stored at ultralow temperatures (between -60 °C and -90 °C), the following elements must be considered (12):

- The creation of ultralow refrigeration centers at strategic national and subnational sites. Given the high cost of this equipment, it is not recommended to install it in each health facility. Consideration can be given to the use of private ultralow refrigeration centers that have trained personnel trained and good vaccine storage practices.
- The ability to quickly administer an entire lot of vaccines in a brief period (5 days) after extracting the vials from ultralow temperatures.
- Avoid exposing the vials to sunlight and ultraviolet light.
- Follow the manufacturer’s specific instructions. Here, a review of the vaccine insert is recommended; this may be available on the manufacturer’s website.
- Train and equip all staff involved in vaccine storage, preservation, and transport with personal protective equipment (cryogenic gloves, safety goggles).
- Follow good practices for the management and disposal of refrigerants with PCM.
- When storing vaccines, use thermal containers capable of maintaining temperatures between -60 °C and -90 °C. Depending on their features, some of these containers operate with dry ice and others with cold packs containing PCM. Here, it is necessary to know the following:

Dry ice (solid CO₂):

- Evaluate local production capacity or the purchase of a dry ice machine.
- Dry ice should be stored at ultralow temperatures in an ultracold refrigeration center or special container.

Cold packs with phase change materials (PCM):

- PCMs are substances that improve thermal performance when applied to cold chain equipment, changing solid to liquid or vice versa.
- The health hazards of PCMs are minimal if their primary container is intact.
- In the event of a leak in the primary PCM container, the risks are severe eye irritation and potentially fatal complications from aspiration or ingestion of paraffin PCM.

- The environmental risks include toxicity for specific aquatic species. However, the majority of PCMs are biodegradable, and none is environmentally persistent, bioaccumulative, or contains toxic chemicals.
- To minimize risk, avoid PCM disposal in the environment.

More details on planning, microplanning, and cold chain management can be found in the forthcoming guide on this topic.

7. Prepare a training plan

WHO has produced an online self-learning course on COVID-19 vaccination for health workers that can be accessed at the following link: <https://openwho.org/courses/covid-19-vaccination-healthworkers-en>. Currently available only in English, it will be published in other languages shortly.

In the meantime, operational levels can begin preparations:

- Designate a focal point at each administrative level to coordinate the planning and supervision of training activities.
- Assess training needs in terms of the roles of the workers to be trained (i.e., vaccinators, vaccination recorders, health promoters, communicators, community leaders, personnel responsible for solid waste management, supervisors, statisticians, personnel responsible for the cold chain and surveillance of adverse events following immunization [AEFI]).
- Prepare an agenda and training materials that cover the following topics:
 - Coordination.
 - Priority populations for vaccination.
 - Type of vaccine (dose, route of administration, type of syringe and diluent, contraindications and precautions).
 - Vaccine and supply logistics.
 - Transport plan.
 - Safe vaccination.
 - Cold chain management, depending on the type of vaccine.
 - Formation of the vaccination team.
 - Vaccination strategies.
 - Tiered vaccination.
 - Characteristics of the vaccination site.
 - Protocol for operating a vaccination site during the pandemic.
 - Monitoring and management of adverse events of special interest (AESI) and AEFIs.
 - Information system.
 - Solid waste management.
- Determine the number of people that must be trained.
- Evaluate workers' Internet access. Search for the best options to guarantee access by all participants.
- If Internet access is limited, consider on-site training, for which the following is recommended:
 - Limit the number of participants in each session.
 - Install a sink.
 - Ensure physical distancing.
 - Ensure the availability and use of masks.
- Develop a training schedule based on district or municipal acquisition of vaccine doses. Ideally, the training should be provided two weeks before vaccination begins.

- Bring in experts from training institutions (universities, ministry of health training units, institutions of higher education, etc.).
- Create advisory groups and communication mechanisms or channels for health workers to consult to clear up any questions in a timely manner.
- Learning strategies:
 - Use the best practices of adult learning methods, such as small group discussions, demonstrations, and skill-practicing.
 - Use mobile phone apps or text messages to share short videos or infographics to improve learning.
 - For particularly complex topics, the use of short videos can help guarantee that the quality of the content is properly conveyed.
- Activities and training schedule:
 - Consider vaccinating vaccination team members before commencing field activities.
 - Program the training in close coordination with the introduction of the vaccine – ideally, no more than 2-3 weeks before the start of vaccination.
- Monitor the quality of the training:
 - Establish procedures and mechanisms to monitor the quality of the training.
 - Evaluate knowledge before and after training. The results should be used to improve training and determine supervision needs to guide technical support and supportive supervision.
- Consider conducting a simulation exercise to assess the facility’s ability to put knowledge into practice and its logistical capacity.

The people in charge of training should be prepared for special scenarios or situations, such as:

- Offering additional specialized training if the COVID-19 vaccine requires a nontraditional cold chain (ultralow refrigeration) or a new route of administration is used.
- Improve the vaccination team’s interpersonal communication skills, since it will need to address a range of questions and issues raised by the infodemic, ignorance, or concerns.
- As more information on the vaccine(s) to be used becomes available, a vaccinator’s pocket manual should be produced highlighting the basic aspects of the vaccine(s) and special situations, serving as a reference for immediate consultation when questions arise.

Use Form 11 for this component.

8. Prepare the work schedule

Prepare the work schedule, which should include the following elements:

- Administrative tasks, such as the delivery and receipt of vaccines and supplies at the beginning and end of the work day.
- Monitoring and supervision activities.
- The vaccination schedule for each team and vaccination site, transport, and assigned supervisor.

Use Form 12 for this component.

9. Prepare a vaccine and supply delivery plan

- Prepare a daily plan for the delivery and distribution of vaccine doses and supplies (for example, personal protective equipment, syringes, biohazard boxes, vaccine thermoses, cold packs, vaccination

record and data collection forms, etc.). Base the estimates on the size of the target population, as well as the number of vaccination and monitoring teams (that is, vaccinators, vaccination recorders, social mobilizers, supervisors, and monitors).

- To avoid exposing the vaccines to high temperatures, avoid the delivery of excess doses. This is especially applicable to vaccines that require ultralow temperatures and cannot be refrozen once the vials have been thawed.
- Identify the responsible personnel and establish the schedules. Bear in mind that the schedules should be flexible and adaptable to every circumstance. Tailor the supply and management of the materials to the availability of doses.

Use Form 13 for this component.

10. Prepare a transport plan

There are no uniform standards for estimating transport needs. However, experiences with other vaccination activities can be useful for determining the number of vehicles that will be required, based on the activities and the characteristics of the terrain. A transport plan should be prepared that indicates the programmed activities to be carried out before, during, and after vaccination. Some examples are:

- Distribution of vaccines and supplies, considering:
 - **Volume of vaccine:** volume by doses packed by total doses.
 - **Number and capacity of thermal containers.**
 - **Volume to be transported:** volume of the shipping box (thermal container).
 - **Weight to be transported:** weight of the shipping box (thermal container).
 - **Transport of syringes:** volume of syringes packed by total syringes.
- Transport of vaccination teams from the health facility to different locations.
- Removal of solid waste and its transfer to its place of destruction.
- Travel of supervisory personnel responsible for monitoring and planning.
- Training, administration, and external evaluation of vaccination from the national to the subnational and local level.

Conduct an inventory of the available transport resources by management level. In addition, identify institutions, local governments, and strategic partners (private sector, faith-based institutions, nongovernmental organizations, or international agencies) that could contribute additional means of transport to cover the gaps.

Calculate fuel needs, based on the average consumption per vehicle and the daily distance traveled. Consider subnational price variations, as well as field conditions (for example, state of the roads, mountainous land barriers, rainy season, etc.).

Use Form 14 for this component.

11. Prepare a plan for communication, mobilization, and creation of demand

The guidance for preparing a plan for communication, social mobilization, and creation of demand includes:

- Form a communication team made up of members from different sectors, institutions, and organizations.

- Define and analyze the different audiences to develop messages and modes of communication more suited to their preferences.
- Consider — and adjust, if necessary — the crisis communication plan and risk communication plan for safe vaccination (17, 18).
- Partner with civil society and community organizations, scientific and faith-based organizations, and nongovernmental organizations to disseminate messages about the importance of vaccination, the safety and efficacy of the vaccines, and other key points.
- Dialogue with community and faith leaders and request their support and advocacy to generate vaccination demand.
- Get local physicians involved to discuss vaccine issues and the importance of vaccination.
- Constant monitoring: Listen to and dialoguing with communities and collect social data to address their concerns and beliefs. Adapt messages to the social data collected.
- Monitor disinformation and rumors. Prepare messages to counter this information and adapt them to the data collected, as necessary.
- Use different age- and culturally appropriate communication channels — including social media— suited to the target population.
- Determine who the spokespersons will be and train them in risk communication, if necessary.
- Describe the process for selecting the priority population groups and the reasons for this prioritization. The public must be informed that the rest of the population will subsequently be vaccinated, without specifying the date until it is actually known.
- Stress the importance of continuing to employ protective measures, such as mask-wearing and physical distancing, even after the introduction of the vaccines.
- Proactively share information about the vaccines, their development process, their contraindications, precautions, and safety.
- Communicate the location of vaccination site and schedules in local languages.
- Include training for journalists as key supporters in the response to the population’s concerns.
- Take advantage of communications about the COVID-19 vaccine to increase or strengthen public confidence in the regular immunization program.

12. Prepare a plan for managing solid waste from vaccination

Introducing the COVID-19 vaccine for the entire population will substantially increase the generation of medical waste, particularly of disposable items such as personal protective equipment, syringes, and vaccine vials.

Proper waste management procedures are essential for health worker and community safety. It is important that health facilities comply with specific national legislation governing the management of hospital solid waste.

Before commencing vaccination activities, facilities should ensure that they have effective measures in place for handling and disposing of the resulting waste, including its separation or segregation. Each facility should prepare a waste management plan that includes a budget for training and the hiring of waste handlers, the provision of waste bins and treatment technologies, and the possible subcontracting of waste treatment and disposal services to the private sector.

Each vaccination team should segregate the waste and transport it to the health facility at the end of the day for proper disposal.

Use Form 15 for this component.

13. Prepare a supervision and monitoring plan

The introduction of new vaccines and mass campaigns has shown that close monitoring of tracer indicators and supportive supervision significantly improves health worker performance and motivation. The instruments and technologies used in monitoring and supervising national vaccination programs and campaigns can be adapted to the context of the COVID-19 vaccine. However, it will be necessary to include components that evaluate the competencies required for proper handling and administration of COVID-19 vaccines.

It is recommended that sponsors or focal points be assigned as liaisons at different management levels. They can be in charge of identifying problems and proposing solutions or interventions throughout the microplanning, organization, and implementation process related to operational and implementation aspects of vaccination. Supervisors should also be assigned based on the number of vaccination teams. One lesson learned and an excellent practice has been to assign one supervisor for every 3-6 or 5-8 teams in a single geographical area in the monitoring campaigns.

During their visits, supervisors can:

- Validate the local microplanning plan.
- Retrain personnel in areas where weaknesses have been identified.
- Clear up questions or concerns.
- Provide copies of online learning materials.
- Evaluate the teams' understanding and ability to implement the guidance.
- Assess the quality of the data and support the monitoring of indicators and progress toward meeting the target.
- Conduct simulation exercises (for example, AEFI management, how to respond to rumors, etc.).
- Evaluate community leaders' participation and the involvement of other public institutions.

Use Form 16 for this component.

14. Determine the data required for vaccination records and the information flow

Each health facility should be aware of the data requested by the national level and of the organization and flow of information.

Table 15 presents the data and recommended degree of disaggregation, as well as the use of the information. The required information should include data on the individuals vaccinated, by sex, age, personal risk, social vulnerability, and type of vaccine. It is necessary to ensure that forms, vaccination cards, necessary documentation, and the current electronic platform are available for timely recording of the doses administered.

The information generated will be available in the situation room for analysis and use in decision-making (progress toward meeting the target, coverage, AESI and AEFI surveillance).

There should be a safe and reliable mechanism for recording who has received the vaccine and providing individuals with an official document indicating their vaccination status.

Table 15. Data to consider when planning the information system

Disaggregation	Definition	Use of the information for action
Person (personal data)	By age group (for example, under 60, 60-64, 65-69, 70-74, 75-79, 80-84, 85+)	<ul style="list-style-type: none"> Age is a risk factor for severe COVID-19 illness. Acceptance and progress in vaccinating specific age groups must be monitored in order to determine compliance with prioritization policies. The groups established by the country should be disaggregated into at least 5- or 10-year age groups.
	By sex of the vaccinated person	<ul style="list-style-type: none"> Monitor equitable administration between the sexes.
	By priority occupation (for example, front-line health workers, other priority occupations)	<ul style="list-style-type: none"> Occupation is a risk factor for SARS-CoV-2 transmission. National policies should ensure that priority workers receive the vaccine. Thus, it is important to monitor vaccination progress in specific occupational groups. Evaluate compliance with prioritization policies.
	By priority comorbidity	Monitor the vaccination of people with comorbidities.
	Other groups (ethnic, linguistic, faith, and vulnerable groups)	Monitor whether progress in vaccination is occurring uniformly in the various risk groups, with special emphasis on the most vulnerable.
Place	By place of residence and vaccination, to the highest possible degree of disaggregation (region, province, municipality, neighborhood, etc.)	<ul style="list-style-type: none"> Monitor the equitable distribution or administration of vaccinations among regions and by different levels according to residence (where the person lives) and place of vaccination (where the vaccine is administered).
Time	Vaccination date	<ul style="list-style-type: none"> Monitor the number of people who received the vaccine in a given time period, or people with a complete⁴ regimen in a given time range. (day, week, month, year). Monitor the deployment of vaccination activities.

⁴ It is currently recommended that people not receive more than two doses. For the moment, only one manufacturer has a three-dose regimen.

Biological	Vaccine Manufacturer Lot	<ul style="list-style-type: none"> • Monitor coverage by recommended dose and complete regiment, based on the type of vaccine utilized. • Monitor potential problems with vaccine safety. • Evaluate compliance with indications (for example, minimum time intervals) and contraindications for the vaccine, based on the type of vaccine. • AEFI surveillance. • Vaccine inventories.
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Indicators should be based on quality criteria such as efficacy (achieving $\geq 95\%$ coverage in priority groups), homogeneity (achieving uniform $\geq 95\%$ coverage in 100% of the institutions involved), and timeliness (percentage of institutions with microplanning finalized at least one month prior to vaccination activities; percentage of municipalities or institutions that received the vaccine in the established period). Evaluating these indicators will help improve future interventions to cover the rest of the population to be vaccinated after the initial phase.

It is important to include mechanisms for daily evaluation of the degree to which targets are met; these include vaccinometers or another instrument for verifying progress in meeting daily and weekly targets, as well as the vaccination teams' productivity and performance, to reorient vaccination strategies and tactics.

More details on COVID-19 vaccination information systems are provided in the specific guide on this topic (19).

15. Establish the budget

Estimate the financing needs for transport and logistical operations and other budget lines. Evaluate budget management procedures and sources of financing and make local arrangements for resource mobilization.

Use Form 17 for this component.

16. Validate the local microplanning plan

The managers of each health facility should verify and validate the information in the microplanning plan and send it to the immediately higher management level for compilation and analysis. The purpose of this procedure is to review and validate the population estimates and necessary resources indicated on the different microplanning forms. **Table 16** describes the validation procedure. In the event of a $\pm 10\%$ difference between the population defined in the microplanning and that indicated by other data sources, a detailed review of the microplanning is recommended.

Table 16. Microplanning validation procedure

Type of validation	Activities
Desk validation	<ul style="list-style-type: none"> • Compare the estimated size of the older adult population with the figures from local censuses (if they have been updated in the past 12-24 months), by locality. • Review the estimate of the population that needs to be vaccinated with community leaders in each locality. • Review the estimate of the population with the managers of other health programs (older adults, vector control, health promoters) or social programs. • Review the estimates of vaccines, supplies, human resources, and logistics in terms of the population that needs to be vaccinated.
Field validation	<ul style="list-style-type: none"> • Verify the geographic boundaries of each community with community leaders, guaranteeing that all areas of the locality are included. • Use the health facility’s map to determine the geographic area assigned to each vaccination team. • Randomly select several blocks of the urban area, visit homes, and record the number of older adults and people with comorbidities living in the household. This will make it possible to determine whether the population estimates reflect the reality. • Determine the consistency between the target population and the population data from other sources (e.g., national census, ministry of health projections, municipal population, or social security register).

17. Reevaluate microplanning

Once the type of vaccine to be administered and its characteristic are identified, the strategic recommendations formulated at the national level will be implemented. This could imply changes and adjustments in the following areas:

- Age at which the vaccine can be administered.
- Cold chain requirements.
- Dosage.
- Type of diluent.
- Type of syringe and route of administration.
- Contraindications and precautions.
- Vaccination of pregnant women.
- Coadministration with other vaccines.
- Policy on open multidose vials.
- Interval between the first and second dose.
- Other.

COVID-19

18. Schedule tiered vaccination based on the availability of vaccine doses

Once the number of available doses has been determined, the scheduling of tiered vaccination will be based on the actual availability of doses and the epidemiological situation of each health facility (Part 1). This could require adjustments to the microplanning (for example, the need for vaccination teams, cold chain equipment needs, transport plan, or work schedule).

COVID-19

Forms

The suggested forms for compiling the information for microplanning are presented below (Forms 1-13). They should be available in the situation room of each health facility. Note that, in addition to enabling planning, the content of the forms facilitates monitoring of the completion of the planning process, as well as progress in vaccination.

Form 1. Vaccination coordinating committee

National work teams				Departmental work teams			Local work teams		
Number	Full name	Area of responsibility	Telephone number	Full name	Area of responsibility	Telephone number	Full name	Area of responsibility	Telephone number
1									
2									

Form 2. List of health sector institutions, including training institutions and practitioners of traditional medicine

Health sector institution					Health workers							Planning and monitoring					
Number	Institution	Director	Telephone number	Municipality	Sector	Age group						Total	Date of vaccination in the institution (first dose)	Number vaccinated	Total vaccinated (first dose)	Date of vaccination in the institution (second dose)	Total vaccinated
					Public 1	No comorbidities			Comorbidities								
					Private 2	18 to 29	30 to 59	60 and over	18 to 29	30 to 59	60 and over						
1																	
2																	
					Public:												
					Private:												
					Total												

COVID-19

Form 3. Census of health workers, including training institutions and practitioners of traditional medicine

List of health workers					Comorbidities					Planning and monitoring				
Number	Full name	Age	Municipality of residence	Telephone number	Comorbidities (mark with an X; more than one option can be marked)				No comorbidities	COVID 19		Vaccination date (first dose)	Vaccination date (second dose)	Remarks
					Diabetes	Hypertension	Obesity	Other		Yes	No			
1														
2														
Total														

Form 4. List of highly vulnerable municipalities

Number	Municipality	Number of localities	Municipal administrator	Telephone number	Age of the population living in the community			Total population	Vaccination date (first dose)	Vaccination date (second dose)	Unvaccinated
					<18	18 to 59	60 and over				
1											
2											
Total											

Form 5. List of localities in each highly vulnerable municipality

No.	Locality, zone, area, neighborhood, or other division in the municipality at risk	Number of blocks, quarters, or other divisions in the locality	Number of dwellings (total for each locality)	Area administrator or community leader	Telephone number	Age of the population living in the municipality, by locality			Total population	Planning and monitoring				
						<18	18 to 60	65 or over		Vaccination date (first dose)	Total vaccinated with first dose	Vaccination date (second dose)	Total vaccinated with second dose	Total unvaccinated
1														
2														
Total														

COVID-19

Form 8. Vaccine and supply needs

Number	Need	Presentation	Unit	Loss factor	Amount required
1	Vaccines				
2	Diluents				
3	Syringes for diluents				
4	Syringes to administer the vaccine				
5	Hand sanitizer gel with 60% alcohol				
6	Cotton for cleansing				
7	Liquid soap				
8	Vaccination record forms				
9	Personal vaccination card				
10	Biohazard boxes				
11	Red and black bags				
12	Vaccine thermoses				
13	Cryogenic gloves				
14	Cold packs				
15	Masks				
16	Vehicles				
17	Fuel				
18	Vaccination manual				

COVID-19

Form 9. Needs of vaccination teams

No.	Vaccination strategies	Length of the work day (hours)	Estimated doses to be administered in a work day (4-5 h)	Number of vaccinators	Members of the basic team		Number of vaccination teams	Number of work days
					Expanded team	Basic team		
1	Fixed sites and dense population (institutional or interned)				Expanded team	Member in charge of IPC		
						Vaccinator		
						Vaccination recorder		
						Vaccinator's assistant		
						Supervisor		
2	Mobile units				Expanded team	Member in charge of infection prevention and control		
						Vaccinator		
						Vaccination recorder		
						Supervisor		
						Health promotor/ community leader		

COVID-19

Form 10. List of vaccination team members

No.	Full name	Telephone	Roles and responsibilities
1			
2			

Form 11. Training plan

Training plan								
	Participants	Number	Training strategy (in-person, online)	Party responsible for the invitation	Party responsible for training	Scheduled date	Place	Time
1	Local authorities							
2	Community leaders							
3	Instructors							
4	Health workers							
5	Vaccination team							
6	Other groups							

COVID-19

List of needs	Presentation	Amount required	Party responsible
Technical materials			
Vaccination manual			
Forms for exercises			
Pencil			
Sulphite paper (drawing paper)			
File folder			
Internet connection (if necessary)			
Markers			
Other			

Form 12. Work schedule

Preparatory, managerial, and coordination activities										
No.	Activities	Party responsible	Telephone number	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Define the target population									
2	Prepare microplanning									
3	Verification, reevaluation of microplanning									
4	Training									
5	Communication and mobilization									
6	Vaccine distribution									
7	Monitoring and supervision									
8	Other activities									

COVID-19

Vaccination activities											
No.	Location of vaccination site	Administrator of the vaccination site	Telephone	Party responsible for transport	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1											
2											

Form 13. Vaccine and supply delivery plan

No.	Health facilities or vaccination teams	Director of the institution	Telephone number	Party responsible for delivery	Date	Time	Transport required	Party responsible for transport	Telephone	Remarks
1										
2										

Form 14. Transportation plan

No.	Type of vehicle	Vehicle capacity	Condition of the vehicle	Type of fuel (gasoline or diesel)	Cost of fuel (per gallon or liter)	Institution that owns the vehicle	Party responsible for the vehicle	Remarks
1.								
2.								

COVID-19

No.	Activities	Number of vehicles	Kilometers that must be traveled	Workdays	Type of fuel (diesel or gasoline)	Cost of fuel (per gallon or liter)	Amount of fuel required	Total required cost	Source of financing	Remarks
1	Vaccine and supply distribution									
2	Distribution of materials									
3	Training									
4	Transport of vaccinators									
5	Solid waste management									
6	Other activities									

Basic calculations for estimating needs
1 gallon = 3.7 liters
100 km = 8-10 liters

Form 15. Solid waste management plan

No.	Activities	Party responsible	Telephone	Execution date	Remarks
1	Health workers				
	Workers who handle vaccination waste (syringes, masks, needles, vaccine vials)				
2	Organization of waste management needs				
3	Coordination with company responsible for final waste management				
4	Supervision and monitoring of waste management				
5	Other activities				

COVID-19

Form 16. Supervision plan

No.	Health facilities or vaccination teams	Director of the institution	Telephone number	Assigned supervisor	Supervision date	Transport	Party responsible for transport	Telephone	Remarks
1									
2									

Form 17. Budget

No.	Necessary elements	Presentation	Population to vaccinate	Amount	Unit cost	Total Cost	Source of financing	Remarks
1	Vaccines							
2	Syringes							
3	Cotton							
4	Liquid soap							
5	Masks							
6	Biohazard box							
7	Cryogenic gloves							
8	Red bags							
9	Black bags							
10	Vaccination record forms							
11	Vaccination cards							
12	Pencil							
13	Folders							
14	Fuel							
15	Vehicle rental							
16	Communication materials							
17	Cost of publicity on local radio							
18	Other							

COVID-19

Conclusions

Almost a year into the COVID-19 pandemic, scientists worldwide are making rapid progress in developing safe and effective vaccines to reduce illness, hospitalizations, and deaths associated with COVID-19.

Supplies of the first doses in the short and medium term will be limited. It is therefore necessary to identify the priority populations to receive the vaccine while supplies are limited. It is important for the countries of the Region of the Americas to progressively advance the planning and organization of COVID-19 vaccination at all levels. This will facilitate immediate vaccination once vaccine(s) arrive in the countries. Close monitoring of readiness in each health facility is highly recommended. Only facilities that have completed their microplanning to the satisfaction of the immediately higher management level should receive the vaccines.

Finally, it is important to take advantage of the lessons learned from the introduction of new vaccines (20) and the H1N1 influenza pandemic (21).

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