Emergency Medical Teams

Medical Surge Capacity

Recommendations for Adapting Emergency Medical Teams (EMTs) at Temporary COVID-19 Vaccination Sites

PAHO

Pan American Health Organization

World Health Organization

Americas

Preliminary document - Version 2.3 - November 2021

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PAHO Pan American Health Organization World Health Organization Regional Office for the Americas

Washington, D,C., 2022

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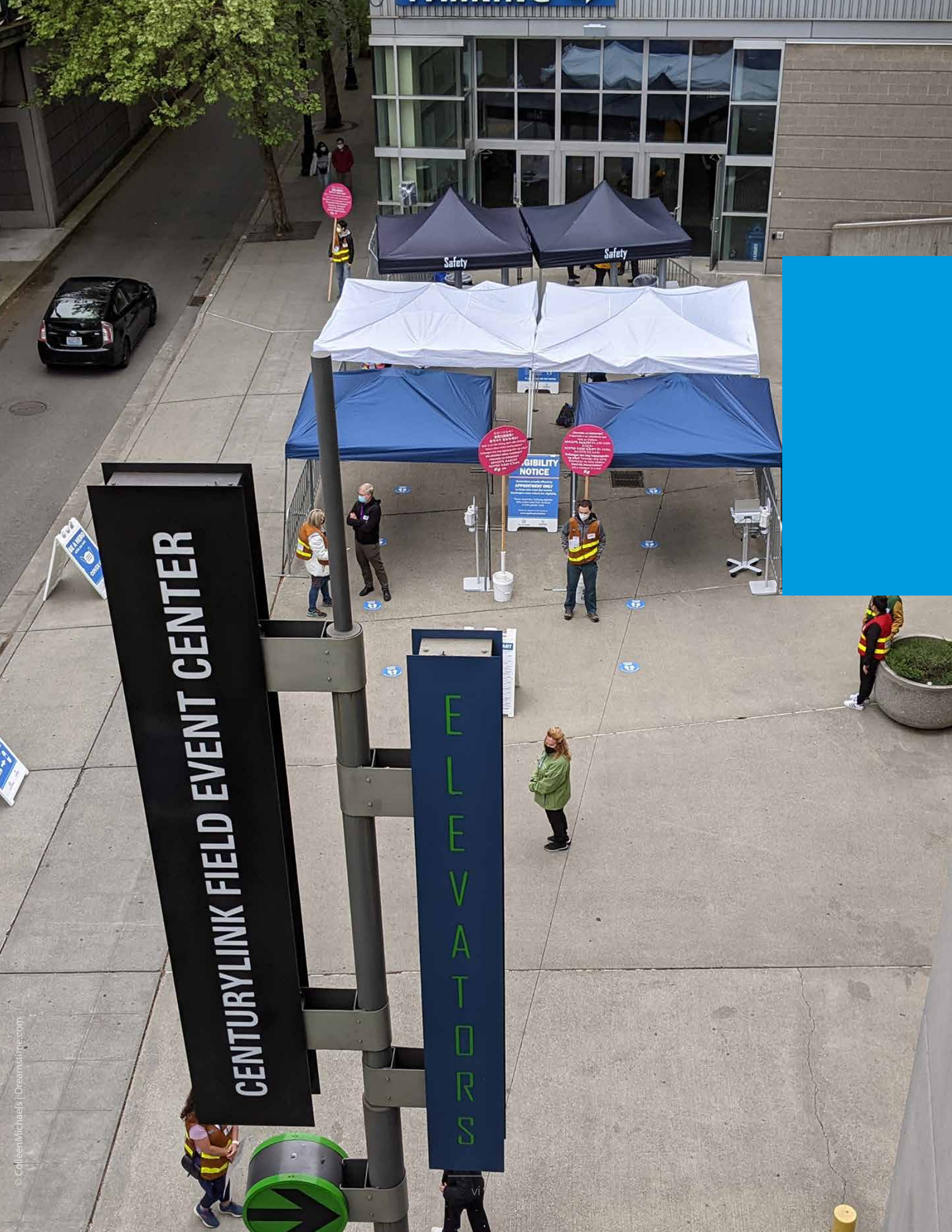

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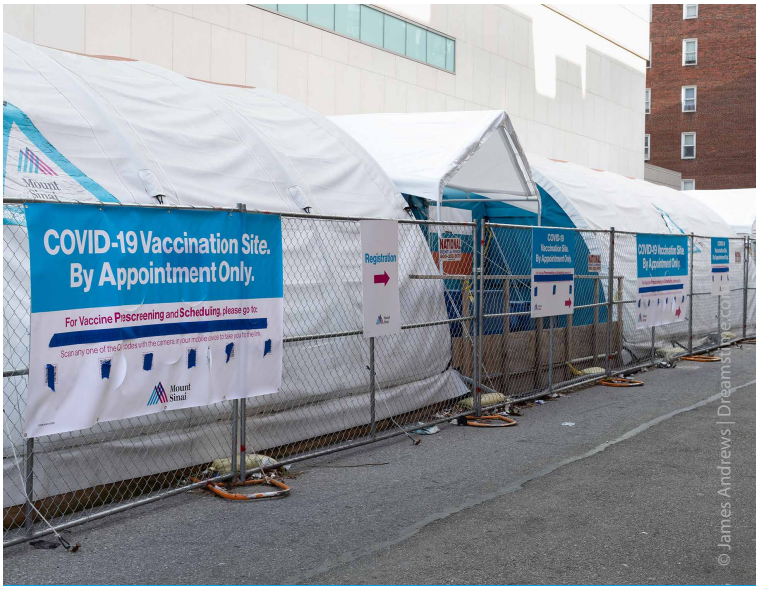

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ABBREVIATIONS AND ACRONYMS

AEFI	adverse event following immunization
AMCS	alternative medical care site
EMT	emergency medical team
PAHO	Pan American Health Organization
PPE	personal protective equipment
WASH	water, sanitation, and hygiene
WHO	World Health Organization

INTRODUCTION

Mass COVID-19 vaccination programs began in early December 2020. Since then, researchers and experts around the world have been working to develop and distribute vaccines that will be an essential tool to reduce disease, hospitalization, and death associated with COVID-19.

These vaccines, together with other public health measures and strengthening of comprehensive health services networks, will significantly support the equitable protection and promotion of human well-being and a progressive return to community, social, economic, labor, and family activities.

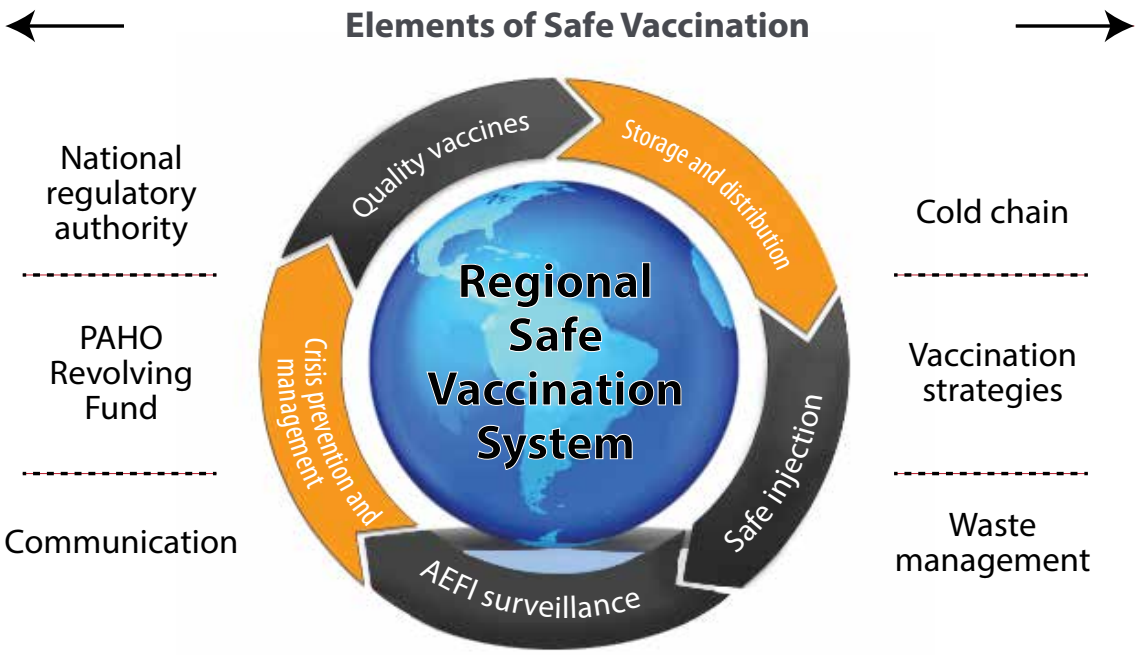
Emergency medical teams (EMTs) play an important role in strengthening health service networks in terms of their strategies and tactics for planning mass vaccination programs, especially in remote or underresourced areas or those overwhelmed by COVID-19.

EMTs, experience deploying in remote areas and handling operational challenges to ensure their response even under the most austere conditions will be of great support in facing the technical and logistical challenges to timely and equitable access to vaccines at the local level.

This guide aims to provide guidance and recommendations for EMTs to establish safe, temporary COVID-19 vaccination sites, in coordination with national and local health authorities.

Emergency medical teams play an important role in strengthening health service networks.

In addition, it is important for EMTs to be aware of the essential factors that ensure safe vaccination[1] and to be able to apply them in practice. Figure 1, shows the main considerations for safe vaccination. The recommendations in this document include discussion of the relevant aspects of safe vaccination in different situations.



Pan American Health Organization; AEFI: adverse event following immunization

Figure 1. Elements of safe vaccination

The recommendations are based on the "5S" methodology, for Systems, Structure, Staff, Stuff, and Operational Support.

1 https://www.paho.org/en/topics/vaccine-safety.

KEY CONSIDERATIONS

In order for EMTs to successfully plan their mission, they must consider three important aspects:

- Type of vaccine that EMTs will use in vaccination;
- Established flow of people to be vaccinated;
- Location of the EMTs.

Each of these is discussed in turn below.

Type of vaccine

COVID-19 vaccines have different storage, preparation, and dosing characteristics; therefore, the choice of vaccine for the vaccination campaign will affect the actions that need to be taken for each 5S component at the EMT designated as a vaccination site.

In the context of COVID-19, as shown in Figure 2 (Vaccines on the market in the Region of the Americas, by country), a considerable number of COVID-19 vaccines are being used in the Region of the Americas and, therefore, can be chosen for vaccination campaigns in which EMTs participate.

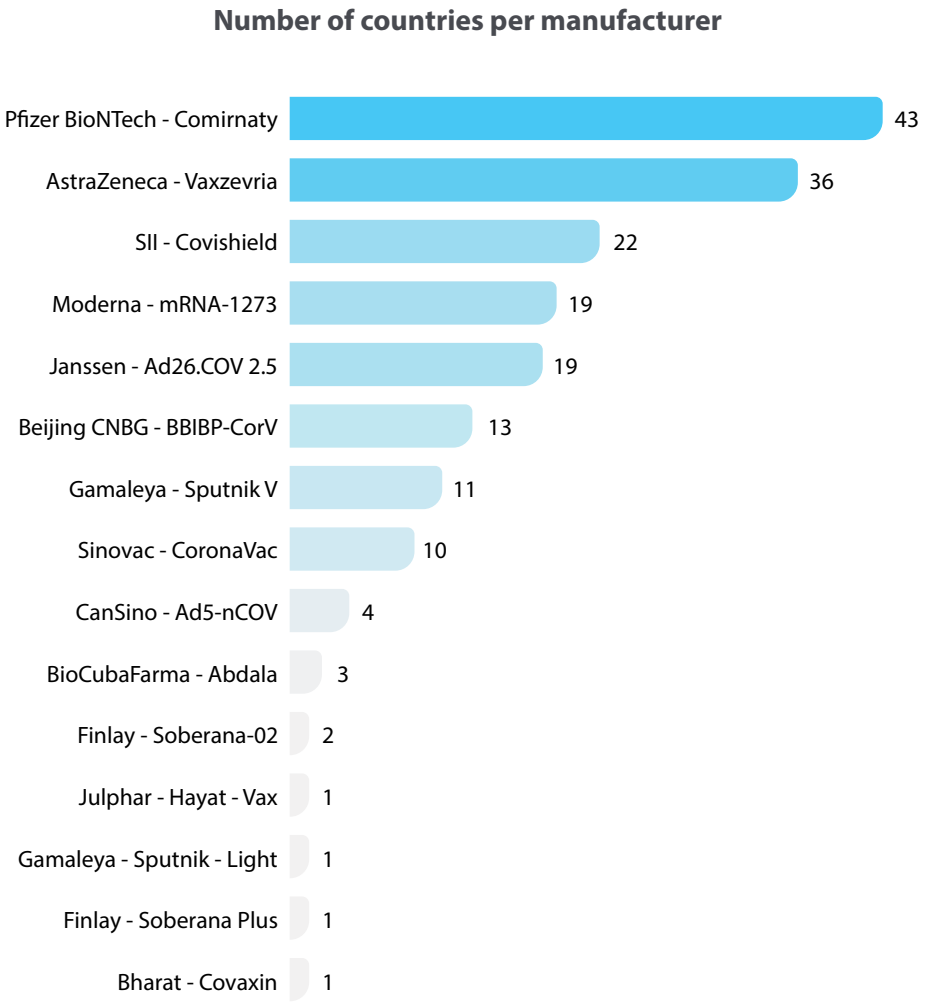


Figure 2. Types of vaccines on the market in the Region of the Americas, by country, 16 November 2021[2]

In this context, it will also be necessary to carefully consider which vaccines the EMT is going to use and determine requirements for their use. Table 1 shows recommended storage temperatures. More information can be found on pharmacovigilance website of the Pan American Health Organization (PAHO).[3]

2 https://ais.paho.org/imm/IM_DosisAdmin-Vacunacion.asp.

3 https://covid-19pharmacovigilance.paho.org/.

Table 1. COVID-19 vaccine storage temperatures

Name		Storage temperature	In transit/In use
PFIZER	Tozinameran COMIRNATY® mRN COVID-19 Vaccine	-90 °C to -60 °C until expiration date (stable up to 6 months) +2 °C to +8 °C for 31 days At temperatures below 30 °C, maximum 2 hours	Use within 6 hours of dilution, stored at +2 °C to +8 °C
MODERNA	Moderna COVID-19 Vaccine	-25 °C to -15 °C until expiration date +2 °C to +8 °C for 31 days From +8 °C to +25 °C up to 12 hours	Use within 6 hours of opening vial, stored at +2 °C to +8 °C
ASTRAZENECA	AstraZeneca Vaccine/ SKBio-COVID-19 (ChAdOx1-S [recombinant]) COVISHIELD™	+2 °C to +8 °C until expiration date	Discard 6 hours after opening, stored between +2°C and +8°C
SINOVAC	Adsorbed COVID-19 (inactivated) Vaccine CORONAVAC	+2 °C to +8 °C until expiration date	Discard multidose vial 8 hours after opening, stored between +2 °C and +8 °C
SINOPHARM	Sinopharm Adsorbed COVID-19 Vaccine	+2 °C to +8 °C until expiration date	Use immediately after opening vial
SPUTNIK V	SPUTNIK V Vaccine/ Gam-COVID-Vac Vaccine	Below -8 °C until expiration date	Use within 2 hours of thawing
JANSSEN	Janssen COVID-19 Vaccine	-25° a -15° C until expiration date (stable for 6 months) +2° a +8° C until expiration date (stable for 3 months) From +9° to +25° C for 12 hours	Use within 6 hours of opening vial at a temperature of +2° to +8°C; or a maximum of +25°C for 2 hours
BHARAT BIOTECH	Bharat Biotech BBV152 COVAXIN® vaccine against COVID-19	+2° a +8° C until expiration date (9 months) From +9° to +25° C for a maximum of 12 hours (in unopened vials)	Use within 6 hours of opening vial at a temperature of +2° to +8°C; or a maximum of +25°C for 2 hours

Recommendations for safe vaccination:

1. Ensure that distributed vaccines are authorized for use by the country's national regulatory authority, if it has one, or by the Ministry of Health if not.
2. Know the manufacturer's and the national immunization program's recommendations for use for each vaccine, including administration technique, dosage, preparation, indications, precautions, and contraindications.
3. Follow national guidelines for maintenance of the cold chain in technical documents published by the national ministries of health.

Flow of people who need to be vaccinated

In a vaccination response, an EMT may need to adapt to:

a) High flows of people who need to be vaccinated. This involves having more space to arrange vaccination stations in an orderly manner. Likewise, it will require a proportional increase in other workstations, as well as increased need for operational support. These high flows tend to be associated with cities or areas with high population density, with more infrastructure and communications. For reference in this document, high flows of people who need to be vaccinated will be considered to be flows greater than 1,500 people per day (which translates into at least six vaccination stations, considering an average of 200–300 people per day per vaccinator).

b) Low flows of people who need to be vaccinated. Less space is needed, but enough to carry out vaccination actions properly; this also implies fewer vaccination stations and, therefore, lesser need for operational support. Low flows tend to be associated with towns or areas with low population density and limited infrastructure and communications. For reference in this document, low flows of people to be vaccinated will be considered to be flows of fewer than 1,500 people per day.

People lining up to enter the EMT T1 temporary vaccination site of the Costa Rican Social Security Fund at San Vicente de Paul Hospital, Heredia, Costa Rica.

Location

The final aspect defining the service that is provided will be the location where the EMT will carry out vaccination. This involves not only the infrastructure of the vaccination site, which is in itself very important, but also the distance from the chosen location to the health facilities and logistics warehouses in the cold chains where the vaccines are kept until they are moved to the EMT, the state of security there, and weather conditions, among other factors. All this will determine the design of the implementation of the 5S's in the EMT.

As mentioned, by analyzing the type or types of vaccine, the flow of people who need to be vaccinated, and the location, three different EMT vaccination scenarios can be identified. These are comparable to the existing types, as shown in the Table 2:

Table 2. Emergency medical team (EMT) adaptation, by type

Type	Adaptation to	Recommended use
Type 1 Mobile EMT	EMT for mobile vaccination in remote areas (with a fixed logistics base and mobile vaccination capacity)	Remote areas with difficult access and small populations. Low vaccination flows are expected. Vaccines kept at +2 to +8°C
Type 1 Fixed EMT	EMT for fixed vaccination in remote areas (with logistics base and vaccination in the same place)	Remote areas with good access to main population. Small and medium-sized populations; low vaccination flows are expected. Vaccines kept at +2 to +8°C and -20°C
Type 1 Fixed EMT with higher capacity or an AMCS[4]	EMT for vaccination in urban areas	Urban areas with good access for people who need to get vaccinated. Small and medium-sized populations; low vaccination flows are expected. Vaccines kept at any temperature.

EMT: emergency medical team; AMCS: alternative medical care site

4 https://www.paho.org/en/documents/technical-recommendations-selection-alternative-medical-care-sites-amcs.

SYSTEMS

An EMT's "systems" refers to the set of guidelines, protocols, and flows that define its daily operation. These will have been previously defined in the EMT, but in order to convert the EMT into a temporary vaccination site, several aspects must be reinforced or modified, as described below.

Coordination with the authorities

An EMT must comply with the current national vaccination regulations of each country (which will include emerging regulations/processes, depending on the scenario) and coordinate with both national and local authorities during a response or mission. When supporting a vaccination campaign, this coordination should also be given greater emphasis, given that:

An EMT must comply with the current national vaccination regulations of each country and coordinate with both national and local authorities during a response.

- National authorities are called on to carry out large-scale vaccine procurement, maintenance, temporary storage, and distribution to vaccination centers authorized for dispensing.
- National authorities manage the national vaccine stock. In order to determine cold chain and supply needs, the EMT must coordinate with them regarding the type of vaccines that will be used.
- National authorities have a current map of the vaccination strategy; therefore, the EMT needs to work with them to identify the location and target population that needs vaccination.
- Following the flow of information established by the country, the EMT must report (to local, subnational, or national authorities, as appropriate) the number of people vaccinated, including individual data on each vaccinated person in order to monitor the vaccination census, as well as any additional data that the country may require.

- The EMT must also notify authorities of adverse events following immunization (AEFI) after its vaccination sessions.

Recommendations for safe vaccination:

1. An AEFI is any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine. The adverse event may be any unfavorable or unintended sign, abnormal laboratory finding, symptom, or disease.
2. The EMT must know the national guidelines and mechanisms for notification of AEFI.
3. In some countries, notification can be done electronically in any area with Internet access; other countries have paper forms that must be sent to the subnational authority responsible for surveillance. The institution responsible must be identified in advance.
4. A programmatic error is any deviation from standardized procedures recommended at any stage in the vaccine cycle, from its distribution by the manufacturer to its use, including waste disposal. Not all programmatic errors lead to an AEFI.
5. Programmatic errors must be reported in most countries in the Region. EMTs should be aware of the reporting mechanisms, including for suspicion of counterfeit or substandard products.

In summary, a system of coordination with national and local authorities must be planned to ensure that sufficient vaccines are received, that they are appropriate for the EMT's capacities, that vaccination is carried out at an appropriate and safe location under the national vaccination strategy, and that the system makes it possible to report data on the people vaccinated. In addition, the national authorities must provide the official documentation certifying vaccination, to be given to vaccinated persons (e.g., a vaccination card).

Flows

When an EMT's systems are adapted to make it a temporary vaccination site, one of the aspects that changes most clearly in is how flows are determined, especially the flows of people who need to be vaccinated and some of the materials used, such as the vaccines themselves and the refrigeration equipment for storing them.

The determination of flows in an EMT is a key tool that generally defines the needs for structures, personnel, equipment, and operational support. Details of these adaptations are discussed in the respective chapters of this document.

Flow of people who need to be vaccinated

The flow of people who need to be vaccinated in an EMT, regardless of its size and type, should follow the steps shown in Figure 3. The route should always be unidirectional, preventing people from crossing paths or backtracking during their movement through the vaccination process.

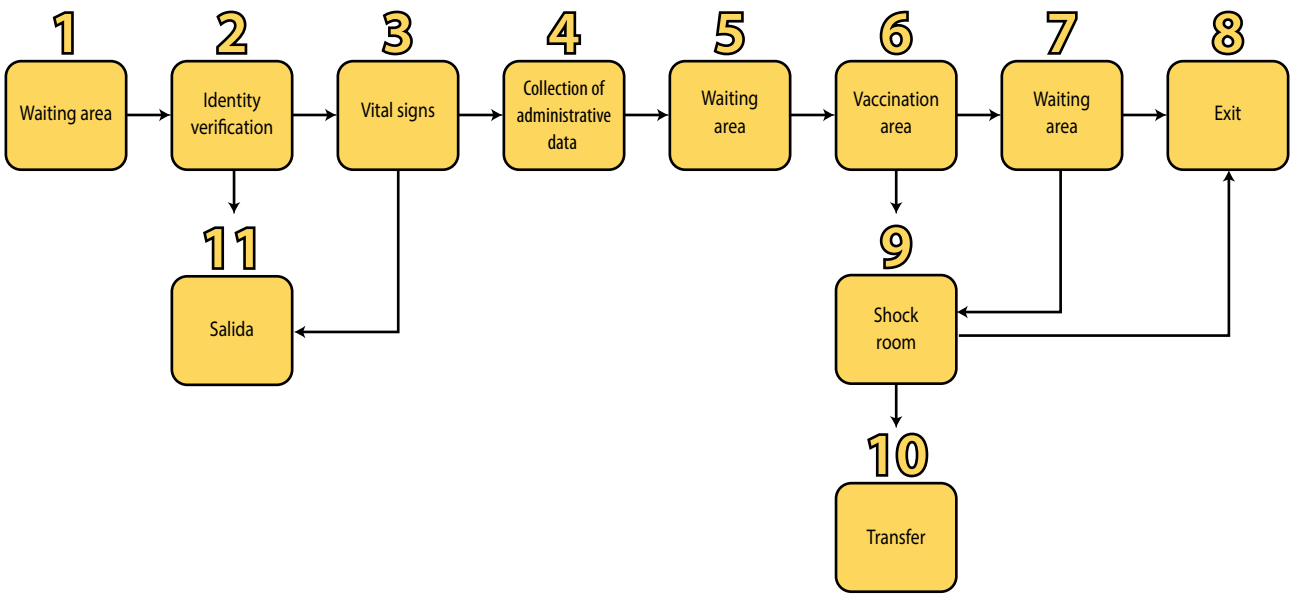


Figure 3. Flow of people who need to be vaccinated

For a better understanding of these steps, each of the flows is detailed below:

Table 3. Flow of people who need to be vaccinated

Step	Name	Description
1	Waiting area	The individual waits, while keeping a safe distance of 1.5 meters (6 feet) between people, to enter the vaccination EMT.
2	Identity verification	Identity is verified to confirm that people meet the parameters set for accessing the programmed vaccination. If the person does not fall within the programming, they must leave the premises through a designated exit (separate from the main flow). People who come to the EMT must at least wear a surgical mask. If they do not have one, they will be given one immediately. In addition, hands must be disinfected at the established points.
3	Vital signs	Vital signs are checked. People with suspected COVID-19 symptoms or who do not meet the vaccination criteria,[5] must leave the premises through an exit separate from the main flow. Depending on the vaccination regimen at the location, the person may visit a vaccination center when their symptoms have passed or follow the relevant procedures to re-schedule vaccination. People who meet the vaccination criteria move on to the second data collection point. Vital signs may be optional if permitted in the country's current regulations.
4	Administrative data collection	Personal data is recorded and a record is prepared with the necessary information about the vaccine to be administered (type, estimated date of second dose, etc.). People enter the EMT. Medical history questions need to be checked to identify conditions that indicate precaution or contraindication to vaccination. Additionally, if the person is receiving their second dose of vaccine, ask if they had any adverse events in the days following vaccination with the first dose.
5	Waiting area	A vaccination line is established. The person must wait in the line for their turn for vaccination.

5 Symptoms, according to the COVID-19 infection management algorithm at the first level of care and in remote areas (based on *Considerations for Strengthening the First Level of Care in the Management of the COVID-19 Pandemic* [PAHO]) are: fever >38 °C with dry cough and/or difficulty breathing; shortness of breath, joint or muscle pain, loss of sense of smell/taste, weakness, diarrhea, abdominal pain, persistent diarrhea, headache, chills, fatigue, and/or sore throat; patient (person to be vaccinated) with acute respiratory illness in the absence of another diagnosis that would account for the clinical presentation.

Step	Name	Description
6	Vaccination area	The person enters the vaccination station, where they are administered the respective vaccine dose and the vaccination history is recorded (on the vaccination certificate or record) that includes information on the vaccine administered. The person goes to the waiting room. If an AEFI occurs, the person is transferred to the shock area. Following vaccination, the person should always be instructed about what to do in the event of an AEFI. If a programmatic error occurs at any time, the person in charge of the vaccination station must be immediately notified and, depending on the country, it must be immediately reported through the national notification systems. Review of the advisory on the most frequent programmatic errors and vaccination conduct is recommended.[6]
7	Waiting area	After the corresponding dose has been administered, vaccinated individuals should wait for the time established by national procedures in order to detect possible adverse events. If none occurs during this time, the person is allowed to leave. If any AEFI occurs, the person is transferred to the shock room.
8	Exit	Vaccinated people leave in a unidirectional flow designed for this purpose and unconnected to other spaces in the EMT.
9	Shock room	People who have had an AEFI are examined and stabilized in the shock room. If the person recovers, they are discharged and directed to the exit; otherwise, they are transferred to the vaccination site's referral health facility. Whenever an AEFI has been detected, timely notification should be made through the appropriate national information systems.
10	Transfer	Patients are prepared and taken by ambulance to a health center.
11	Exit	People who cannot be vaccinated leave through an exit separate from the main flow.

Recommendations for safe vaccination:

1. National protocols for vaccine storage and handling must be followed.
2. National safe injection and safe waste management protocols must be followed.
3. It is imperative to identify the right vaccine for the right patient, in the right preparation, at the right dose, and with the right vaccination technique.
4. Talk to the vaccinated person about the risks and benefits of vaccination and clearly explain what to do in the event of an AEFI.

6 https://www.cdc.gov/vaccines/covid-19/downloads/covid19-vaccine-errors-deviations.pdf.

Staff flow

Working in an EMT adapted for COVID-19 vaccination does not ensure that people coming to be vaccinated are not infected, so the same protection and infection control measures used in COVID-19 treatment facilities must be followed.

Staff flow is focused on four movement zones:

- Access to the facility;
- Movement through the area of operations (lower risk of infection);
- Movement in the clinical or vaccination area (higher risk of infection);
- Exit from the facilities.

Staff entrance to the Federal Emergency Management Agency (FEMA) vaccination site in Rochester, New York, United States of America.

The movements in each zone are described in the table 4.

Table 4. Staff movement

Flow phase	Requirements
Access to the facility	• Identify yourself. • Enter the facilities through an entry point separate from the people who need to be vaccinated. • Disinfect hands and check whether surgical masks are properly positioned or require changing or adjustment. • Go to the dressing rooms to don work clothes.
Movement in the area where there is no contact with people to be vaccinated (operations area)	• Enter the area of low infection risk; work clothes must be worn. • Move through the operational support areas and perform your tasks in the assigned work areas. • Access the designated facilities in the work area, such as bathrooms, dining room, and rest area. • If you must enter the vaccination zone, you must wear required personal protective equipment (PPE), and therefore must go through the PPE donning area.
Movement in the area of contact with people to be vaccinated (clinical area)	• Prepare vaccines. • Administer vaccines. • Stabilize and treat individuals who have adverse reactions. • Prepare patients for transfer from the shock room. • Clean and disinfect the environment. • Can wash your hands. • Do administrative tasks. • Go to decontamination area and doff PPE to enter operations area.
Staff exit the facilities	• Drop off work clothes to be washed. • Shower or wash hands, depending on availability at the facility. • Change PPE. • Change clothes and exit the same way you entered the facility.

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Staff at the Bahía Esperanza Isolation and Medical Care Center, Armed Forces Personnel Welfare Office, Ministry of Defense, Argentina.

Flow of materials

Given the special conditions for the maintenance and preparation of COVID-19 vaccines, the flow of vaccines and consumables used in the process must be carefully prepared.

The vaccine flowchart (Figure 4) shows the steps that vaccines must follow from their departure from the warehouse to waste management after the vaccines have been used.

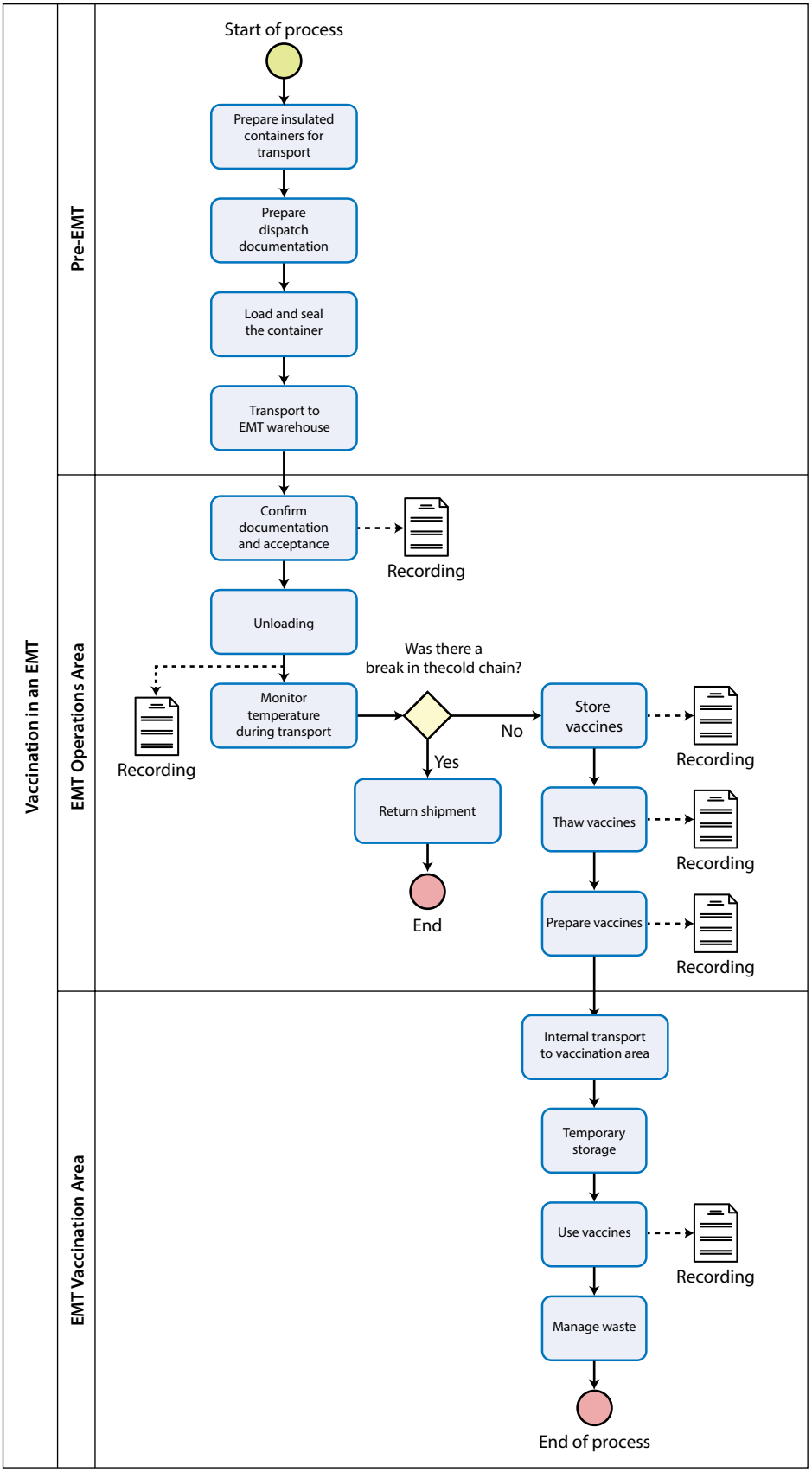


Figure 4. Vaccine flowchart

Regarding the flow of vaccines, it is important to understand that:

- Traceability of vaccine temperature will determine its effectiveness; therefore, monitor as required to ensure reliable traceability (record at least twice a day).
- The traceability process requires frequent monitoring and recordkeeping.
- Rooms and equipment must be adapted to the state and maintenance of the vaccine. To aid in adapting the diagram in Figure 4 to your situation, the cells in the diagram may be colored with a specific color, depending on what vaccine temperature range is used in that step of the process. This will offer better understanding of the design needs of the rooms and necessary equipment so that the cold chain can be correctly maintained. The use of posters with the specific color of the temperature range on equipment and in rooms can help to clarify other aspects, such as the PPE that has to be worn when working with specific equipment and in specific rooms.

Table 5. Example of colors, by vaccine type

Color	Storage Temperature
Blue	From -80 ºC y -60 ºC
Green	From -25 ºC y -15 ºC
Orange	From +2 °C y +8 °C

Recordkeeping

For an EMT's system to function properly, a set of records must show that the care provided (in this case, vaccination) is being carried out properly. These records will depend on the vaccination information system established by the country. Records can be classified based on whether they are meant for individuals to be vaccinated or for a health facility or unit established by the health authority. For more information, please review the COVID-19 vaccination monitoring document.[7]

7 https://www.paho.org/en/documents/monitoring-covid-19-vaccination-considerations-collection-and-use-vaccination-data.

Example of vaccination record card.

Records of vaccinated persons can be provided in the form of a vaccination certificate or card as established by the national health authority. Likewise, the information contained in this document must also be determined by the aforementioned authority. As a reference, it is suggested that it include:

i. Patient identification;
ii. Date of vaccination;
iii. Vaccine name;
iv. Dose number;
v. Lot number;
vi. Temporary vaccination site name (EMT or alternative medical care site – AMCS);
vii. Name of the reference health facility;
viii. Authorizing seal or signature;
ix. Date of next dose (if necessary).

Records must be part of the information flow established by the national health authority and must include the following at a minimum:

i. Daily log;
ii. Electronic individualized immunization registry or electronic medical record (if digital technology is available);
iii. Consolidated registry, according to the frequency set by the national health authority; e.g., monthly, every two weeks;
iv. Tally sheets;
v. Monthly or periodic reports.

The records that stay at the health facility must contain, in addition to the data already mentioned for the patient's registry, key risk factors of the vaccinated patient that may have been detected in medical screening, as well as any AEFI. When the country has an electronic registry form, it is necessary to know in advance how to access it and the institution responsible for it.

In addition to the records directly related to vaccination, a log of the vaccine cold chain must be kept, from the departure of vaccines, from the factory or the warehouse set up by local authorities to their final use or return for disposal.

Recommendations for safe vaccination:

1. AEFI notifications must be as detailed as possible. Always keep in mind that it may be the last chance you have to gather information about the patient and the event.
2. During the AEFI investigation process, national authorities may require information about the patient or the event, as well as the vaccine and vaccination process. Please facilitate the investigation process by providing the information requested.
3. You must have guidance from the national authorities for communication of AEFIs to the community or to the media. An incorrect message about vaccine safety can negatively and unnecessarily impact vaccine acceptability. Member States should have a risk communication plan for vaccine-related events. Please consult with the people in charge of the national immunization program about what action should be taken.

STRUCTURE AND FACILITIES

EMTs, which were initially prepared for clinical patient care, have to make certain changes in the design and layout of their facilities in order to repurpose them as vaccination centers. These changes will focus on reorganizing work areas, which allow flows of people who need to be vaccinated, personnel, and materials to move in an orderly and efficient manner.

Work areas, depending on the risks of infection they may represent, must be distributed by well-defined (risk) zones, and have appropriate infection prevention and control measures.

Annexes 1, 2, 3, 4, and 5 of this document contain examples of floor plans (footprints) for the reorganization of EMT facilities converted to mobile vaccination centers for remote areas (light and medium), fixed stations, an AMCS in a basketball gym, and an AMCS in a social day center (these examples are for guidance, to enable a better understanding of the reorganization of the areas mentioned in the previous paragraph).

In addition to changes in the floor plan, some work must also be done on the interior design of certain areas in the vaccination centers:

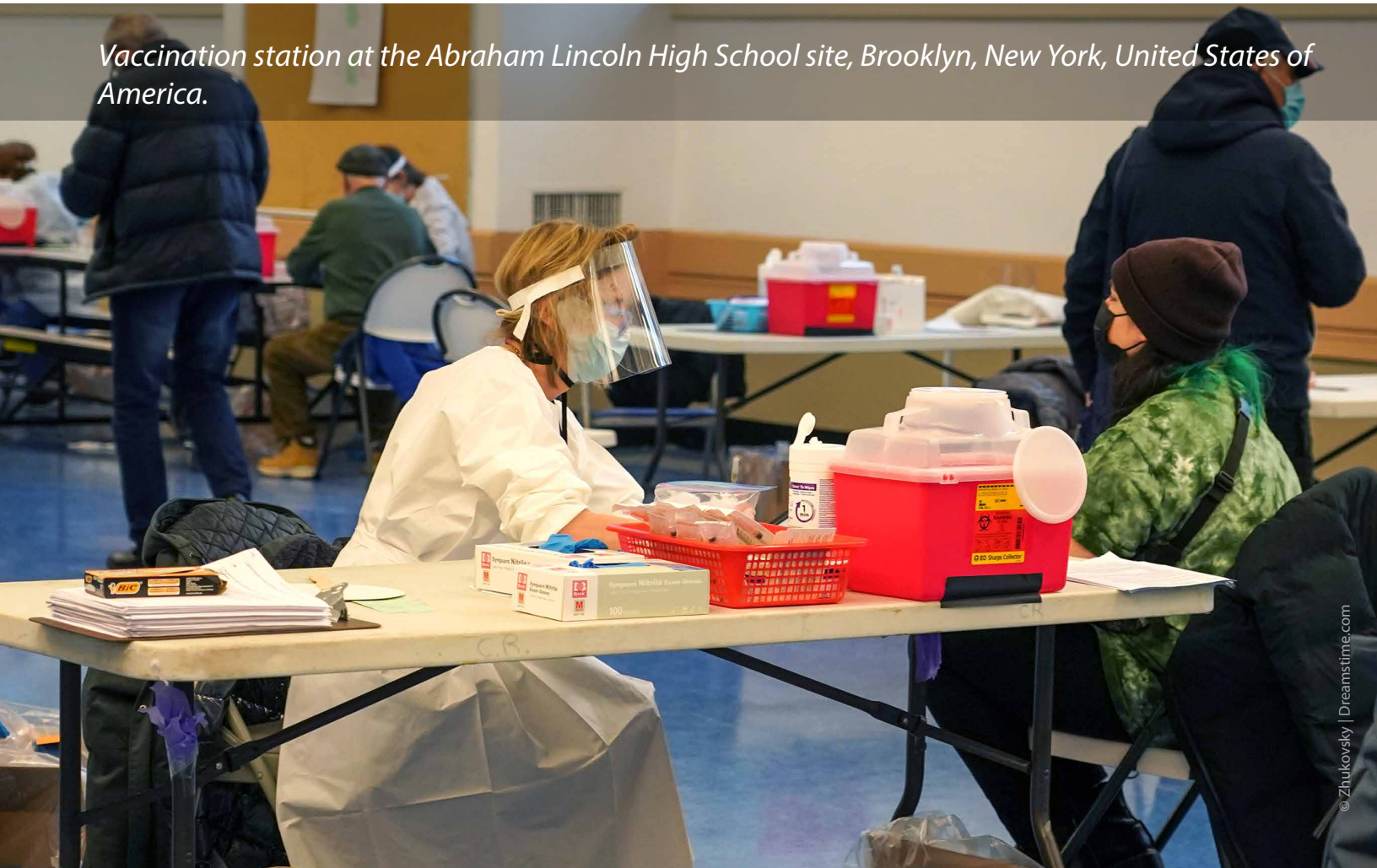
1) **Cold chain warehouse.** This is the area where the vaccines will be stored until they are reconstituted for use in vaccination, and it requires the following four zones:

    - Zone 1: prepared for the reception and dispatch of vaccine shipments (whether deep-frozen, frozen, or refrigerated).
    - Zone 2: equipment (for refrigeration) for the storage of vials of vaccines and diluents (adapted to the chosen model) until use.
    - Zone 3: for thawing, including equipment for the storage of thawed vaccines and for registry of the process.

- Zone 4: preparation of insulated containers that go to the vaccination zone for vaccine administration. (Follow established guidelines if vaccine needs to be reconstituted.)

2) **Vaccination area.** This is the area where vaccination will be carried out, when the recipient is psychologically, physically, and administratively prepared. It requires the following:

   - Vaccination stations, well identified by large, clear, and visible numbering, with a unidirectional route for entry and exit that does not intersect with other vaccination stations. The number of stations will depend on the size and the service to be provided by the EMT, adapted for vaccination;
   - Vaccination stations must be set up and large enough so that the people to be vaccinated can be seated in a relaxed way, at a 45° to 90° angle to the vaccinator;



Vaccination station at the Abraham Lincoln High School site, Brooklyn, New York, United States of America.

- The vaccine should be administered in the deltoid, preferably at a 90º angle. The vaccinator should not wear gloves during administration;
- The vaccinator must have a station prepared and equipped with, at a minimum: a refrigerator; temperature monitoring device; temperature record card; cold packs; a thermos with cold packs (properly inserted) and thermometer, to temporarily store vaccines (open vials or reconstituted vaccine) that will be administered in the vaccination session during the day; sufficient autodisable syringes for administration and reconstitution; sharps containers; and a writing area for registry tasks;
- The vaccination area should have direct access to a shock room for people who have an AEFI.

3) **Waiting area.** For observation of possible AEFIs in vaccinated people; the waiting area requires the following:

   - Big enough so that all vaccinated people can wait at least 15 minutes for observation to check for any type of AEFI;[8]

8 As there may be cases where AEFIs occur several days later, it is suggested that notices about them be posted (community-focused, strategically located, and using culturally appropriate language). These notices should include a clear explanation of what to do in these cases.

Waiting area at the vaccination site in the Gabriel González Videla city hall in La Serena, Chile.

- Chairs must be at least one meter apart from each other;
- Very well ventilated if it is indoors, and covered and protected from the weather if outside;
- Direct access to a shock room for people who have an AEFI.

4) **Shock room.** A space set up to treat anyone who experiences any type of AEFI. Recommendations for the shock room:

   - At least two shock beds should be set up, one for care and stabilization of vaccinated people who may have experienced any type of AEFI or other health condition that requires care, and another that is free in case a second AEFI occurs before the first recovers or is transferred to a health facility.
   - It should have enough space for health personnel to maneuver comfortably to check on and help vaccinated people recover.
   - It should have a pharmacy area set up for needed resuscitation drugs (anaphylaxis, cardiac arrest, etc.), with access restricted to authorized health workers.
   - It should have good access for ambulances or patient referral vehicles.

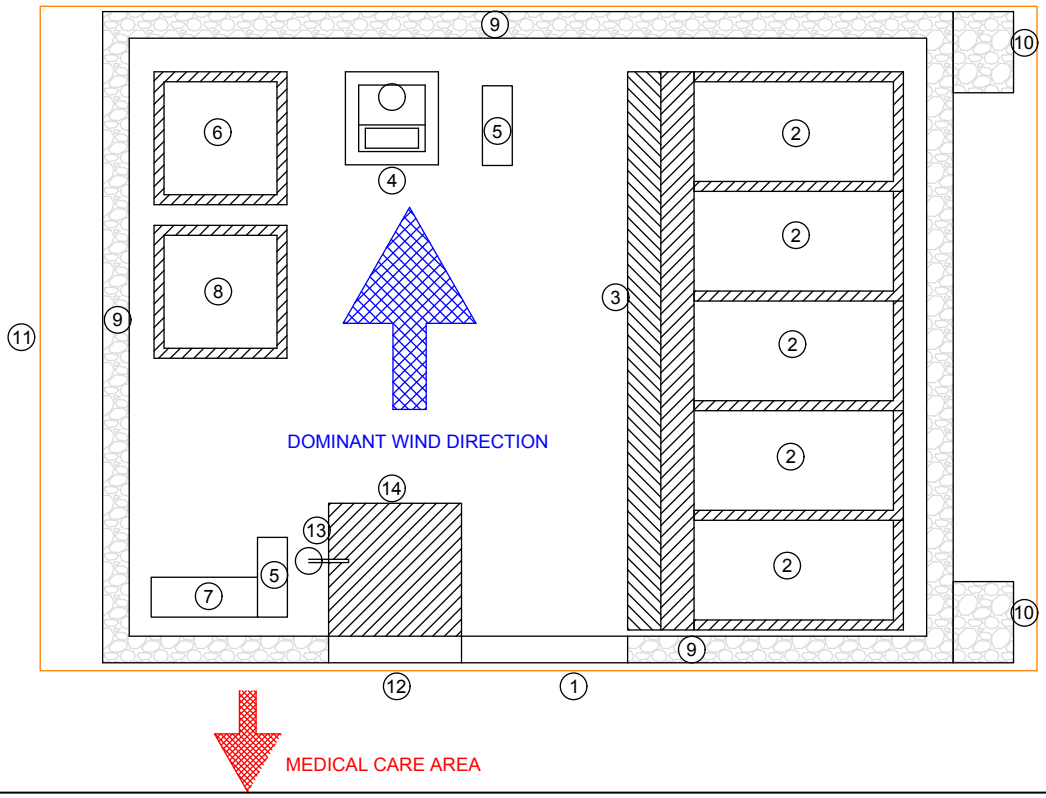
Recommendations for safe vaccination:

1. Anaphylaxis due to administration of COVID-19 vaccines occurs mainly in the first hour after vaccine administration. The necessary resources must be available to treat it appropriately.
2. Events from stress that occur immediately before, during, or after the vaccination process are common. The risk of these events should be assessed, and measures taken to prevent them. Do not confuse the differential diagnosis with anaphylaxis and syncope.[9] Please consult the specific World Health Organization (WHO) manual on these types of events.

9 https://www.who.int/publications/i/item/978-92-4-151594-8.

5) **Final waste storage.** Space designated for storage of waste produced during vaccination work, whether infectious, sharps, or general waste. Access to this space must be identified and cordoned off, preventing access by unauthorized personnel, animals, etc. Waste must be properly stored, protected from the elements, and protected from soil contamination due to leachate that may occur. If this waste will not be treated at the facility, there must be a space provided for the entry of collection vehicles, as well as for safe loading and unloading. It should be noted that the EMT must follow national waste management guidelines and regulations, at all stages.

Layout of a waste storage and treatment area in an emergency medical team



KEY :

1. Waste entrance
2. Storage segregated by waste type
3. Leachate collection channel
4. Incinerator
5. Cabinet for work and cleaning and disinfection supplies
6. Ash pit
7. Waste management work bench (crushing medications, notes, etc.)
8. Encapsulation pit
9. Perimeter drainage
10. Infiltration well
11. Perimeter fence
12. Waste management area exit
13. Wash faucet
14. Concrete slab or infiltration pit

STAFFING

The personnel needed for an EMT adapted for vaccination will depend on the vaccination scenario (see Table 1) and the desired vaccination volume, so it is difficult to determine the exact number. However, all EMTs adapted for vaccination, in addition to management teams, have the same personnel profiles, as summarized below:

- **EMT/AMCS coordinator:** Manages the operation of the temporary vaccination site, determining work shifts, vaccination flows, etc. in coordination with the local authorities in charge of the vaccination plan. The coordinator will be responsible for reporting the vaccination records to the authorities and coordinating any transfer needed due to an AEFI.
- **Vaccinator:** Health workers (physician or nurse) trained in vaccine administration and recordkeeping. These workers will be in charge of screening, preparing, and injecting the vaccine, and monitoring the necessary vaccination paperwork.
- **Auxiliary administrative personnel:** Auxiliary personnel provide help during different steps of data collection, allowing access by people who need to be vaccinated, and providing the necessary information for receiving the vaccine, along with any other information required. At least two people in this position are recommended for each vaccinator.
- **Emergency physician:** Will remain in the shock room to assist anyone who needs care, either due to an AEFI or any other incident. They will stabilize the patient and prepare them to be transferred if necessary. They will perform recordkeeping for AEFI that occur in the vaccination EMT.
- **Emergency nurse:** Will support the emergency physician during patient treatment and stabilization in the EMT. In small vaccination centers, these staff members may be optional.
- **Pharmacist:** Will manage vaccine storage (cold chain) and be in charge of the preparation of vaccines at the proper temperature, as well as recording temperature checks.

- **Operational logistics support:** Will perform the usual logistical tasks of EMT deployment, will reinforce in particular the vaccination supply chain (cold chain and consumables), and will be in charge of telecommunications equipment for vaccination oversight and registry.
- **Water, sanitation, and hygiene (WASH) operational support:** Will perform the usual logistical tasks of EMT deployment, and will reinforce in particular environmental hygiene, and management of infectious and sharps waste.

All EMT staff on a mission to support vaccination efforts must be trained in the following subjects, in addition to the usual tasks in standard EMT deployment:

- All staff:

    i. Personal protective measures: PPE use.

- Health workers:

    ii. Training in vaccination: vaccine preparation and administration.
    iii. AEFI identification and response;
    iv. Information management;

- Operational support staff:

    v. Cold chain.

To carry out their tasks, staff must always use the PPE required for the corresponding work area.

It is highly recommended that staff working in a vaccination EMT be immunized against COVID-19.

EQUIPMENT AND SUPPLIES

An EMT adapted for vaccination, regardless of its type, must be self-sufficient in its activities. It must have the equipment and materials to comply with the minimum technical standards and technical recommendations defined in the Blue Book of the EMT Secretariat of the World Health Organization (WHO).

In addition, it is recommended that the EMT have the training materials on COVID-19 vaccine administration published by WHO.[10]

Furthermore, it will have to provide the necessary equipment to monitor the vaccine cold chain and its records, both in stationary storage and in transit, if required.

Regardless of whether vaccines and their diluents are in a warehouse or in transit, the EMT must have equipment that enables proper cold-chain storage until use, following PAHO/WHO guidelines. The appropriate equipment to use depends on vaccine type, and its temperature and shelf life at the temporary vaccination site (Table 5).

Table 5. Recommended equipment according to vaccine storage temperature

Storage temperature	Recommended equipment
For vaccine storage between +2 °C to +8 °C	- Stationary upright and chest refrigerators - Insulated containers for transport (cold boxes, thermoses); insulated containers (with cold packs)
For vaccine storage between -25 °C to -15 °C	- Freezers - Insulated boxes (with frozen cold packs)
For vaccine storage between -80 °C to -60 °C	- Ultra-low-temperature freezers - Phase change packs - Insulated containers (with dry ice)

10 https://openwho.org/courses/covid-19-vaccination-healthworkers-en.

To ensure that vaccines remain at the recommended temperatures and there are no temperature changes from the time vaccines leave the warehouse until they are administered, EMTs must have temperature monitoring devices in place. These devices are classified as follows:

a) Temperature indicators:

   a. Vaccine shipment indicators;
   b. Freeze indicators (labels/indicators);

b) Temperature loggers:

   a. Data loggers, chart loggers;
   b. Electronic temperature loggers;

c) Temperature readers:

   a. Max/min digital thermometers;
   b. Laser and digital thermometers;

Regarding supplies, when an EMT is adapted for vaccination, it must pay special attention to procurement of consumables that will be used during its deployment for vaccine administration (Table 6).

Supplies on a vaccination table in the indigenous community of Concordia, Colombia.

Table 6. Supplies for an EMT adapted for vaccination

Supplies	Specifics
Autodisable syringes	Sizes may vary (0.05 ml; 0.1ml; 0.3 ml; 0.5 ml) provided that they enable accurate measurement of the dose to be injected.
Needles	Needle sizes may vary, depending on whether the injection is intramuscular (23 G × 1" or 22 G x 1½"), subcutaneous (25 G × 5/8"), or intradermal (26 G × 3/8" or 27 G × 3/8").
Sharps containers for sharps disposal	Must be sized for the necessary volume of work, and must be sealable after use to prevent removal of objects.
Alcohol-based hand rub	An EMT adapted for vaccination, regardless of the type that is deployed, is going to have a large flow of people, so a greater amount of hand hygiene and disinfection will be required, especially in a context such as COVID-19.
Cleaning supplies	The COVID-19 context requires continuous cleaning of the environment around the patient, so an EMT adapted for vaccination must have sufficient equipment and supplies for cleaning and disinfection tasks, both of the vaccination stations and the rooms through which the people to be vaccinated move.
Registry forms	As mentioned in other chapters, all vaccine- and vaccination-related steps in an EMT must be recorded, either digitally or on paper. EMTs with digital record-keeping will also have to have paper forms as a security backup for continuity of operations in case the computer system fails. They also need writing materials for this purpose.
Personal protective equipment (PPE)	All personnel, whether health workers or operational support, must have PPE that allows them to perform their duties safely. A large amount of PPE is used in an EMT adapted for vaccination in the context of COVID-19 and this must be taken into account. PPE availability must be ensured for a successful mission.

Correctly calculating the quantities and weights of consumables will make it possible to gauge storage capacity at the deployment site and to plan restocking times and quantities, so that the EMT adapted for vaccination can function normally during its mission.

OPERATIONAL SUPPORT

Finally, operational support is the nonclinical support necessary so that clinical services (in this case, vaccination) can be performed properly. In order to successfully reconfigure the EMT adapted for vaccination, the operational support team needs to reinforce or modify at least the following areas of operational support:

a) **Transport.** As this entire document shows, the supply chain is fundamental to EMT operations, so the operational support team will have to ensure appropriate transport for supplies. To do this, it will be necessary to ensure enough of the right vehicles. Supplies may be managed by local authorities or by the EMT. In addition, drivers must be trained to carry out necessary monitoring of the cold chain during transport or know what to do if problems arise.

b) **Telecommunications.** The telecommunications system must be operational from the first day of vaccination, to report to the authorities by telephone and electronically. If the recordkeeping and monitoring systems for the supply chain and cold chain, vaccination, AEFI, etc. are computerized, the necessary software and hardware must be installed in the EMT. In addition, the operational support team must have an information technology and telecommunications specialist so that if an incident occurs in the system, it can be resolved immediately. It is recommended that EMTs have additional hardware for quick replacements. Furthermore, the use of scannable data elements, such as barcodes or QR codes, can speed up recordkeeping and vaccination.

c) **Storage.** EMTs must have all the materials needed in order to be self-sufficient during the first 14 days of deployment. If the mission continues, restocking will be required. In general, restocking is not done frequently; however, in a vaccination mission, restocking of vaccines and consumables will occur more often and will involve more bureaucracy. Therefore, the operational support team that is managing storage for an EMT adapted for vaccination must be prepared to unload, store, and dispatch a greater number of items, do recordkeeping when receiving goods, and store and dispatch items according to FEFO (first expires, first out), among others.

Operational support is the nonclinical support necessary for clinical services to be performed properly.

d) **Waste management.** An EMT adapted for vaccination will produce larger quantities of (infectious) sharps waste. In the COVID-19 context, a significant volume of infectious waste will be produced from the disposal of syringes/needles, vaccine vials, and used PPE.
Similarly, high use of consumables will generate large volumes of cardboard and plastic. For sharps waste – in addition to using sharps containers and carrying out final disposal according to each country's national standards – it may also be necessary to increase the EMT's encapsulation capacity (although other treatment techniques such as sterilization and shredding can be used, if available).
Equipment for the treatment of infectious waste (sterilization, incineration, or microwave) must be available, taking into account local directives for final waste disposal. For cardboard and plastic, it is advisable to have containers and a work system to enable their classification; whenever possible, contact the local authorities that manage recyclable waste to determine whether they can be reused in the area or not. If not, they will have to be treated like the rest of the waste.

e) **Power supply.** To adapt an EMT as a temporary vaccination site, it will be necessary to recalculate the power use of the entire facility, taking into account the number of hours open to the public and during the deployment, interior lighting, etc. In the case of an adapted EMT that requires a cold chain, power supply must be ensured, in addition to the main power supply, with an uninterruptible power supply that stabilizes the signal, has a battery (providing a few minutes to seek a solution), and has a back-up power supply system, usually through an independent generator, to keep the power on in case the main power supply fails.

f) **Cleaning and hygiene.** Usually, the volume of people going through an EMT adapted for vaccination will be higher than in an EMT on another type of mission. In addition, in an infectious context, cleaning and hygiene teams should be increased, as well as the frequency of cleaning duties, following PAHO/WHO recommendations on environmental cleaning.

In addition to the aspects of operational support described here, it will be necessary to reassess all aspects in order to adapt them to the new EMT model. These include water supply, sanitation, and others.

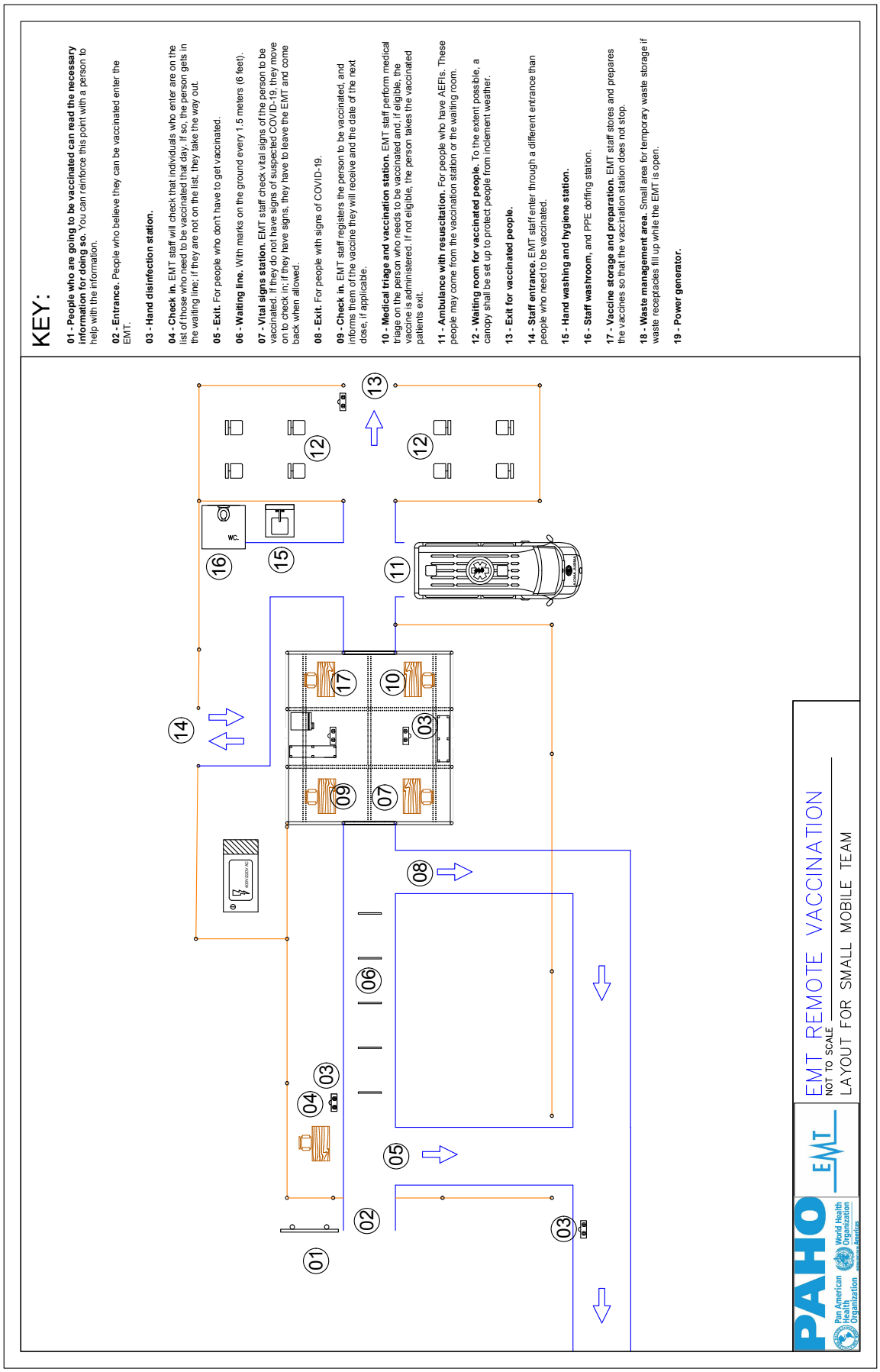
Workers collecting and recording infectious waste materials.

FINAL RECOMMENDATIONS

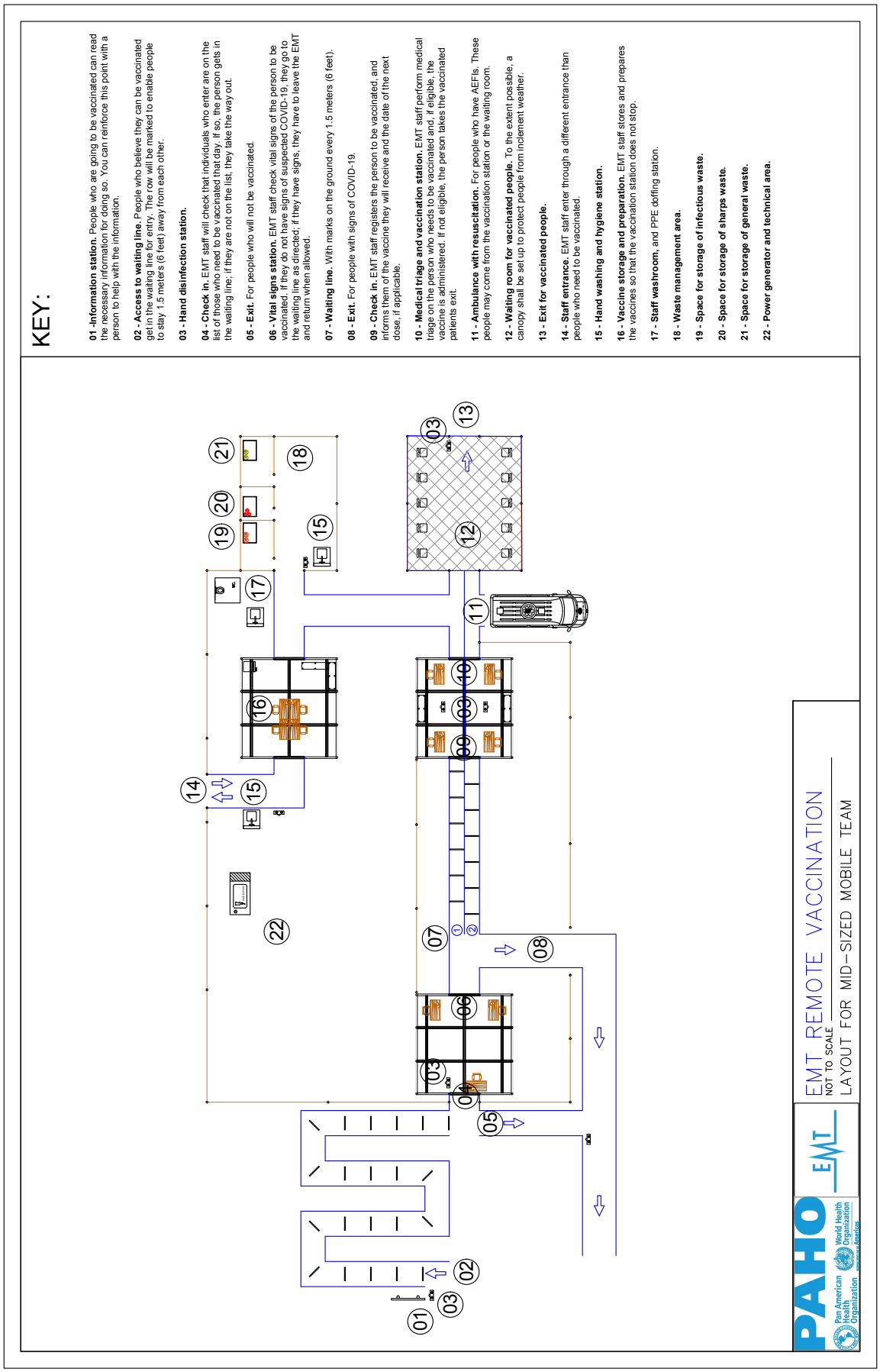
In order to support mass vaccination, EMT configuration requires operational flexibility and the capacity to provide care in the scenario in which it will be deployed. This document has described the key points that EMT managers should consider in their planning. But it is also important to remember that, in the field, each mission will involve multiple factors that require adapting the design to the conditions where it is deployed.

It is crucial for EMT managers or mission coordinators to be flexible when configuring operational and care capacities to each scenario and location, using the 5S methodology. They must also ensure that the recommendations outlined here are used to ensure that temporary vaccination sites can safely and effectively support the efforts of comprehensive health services networks to vaccinate the population.

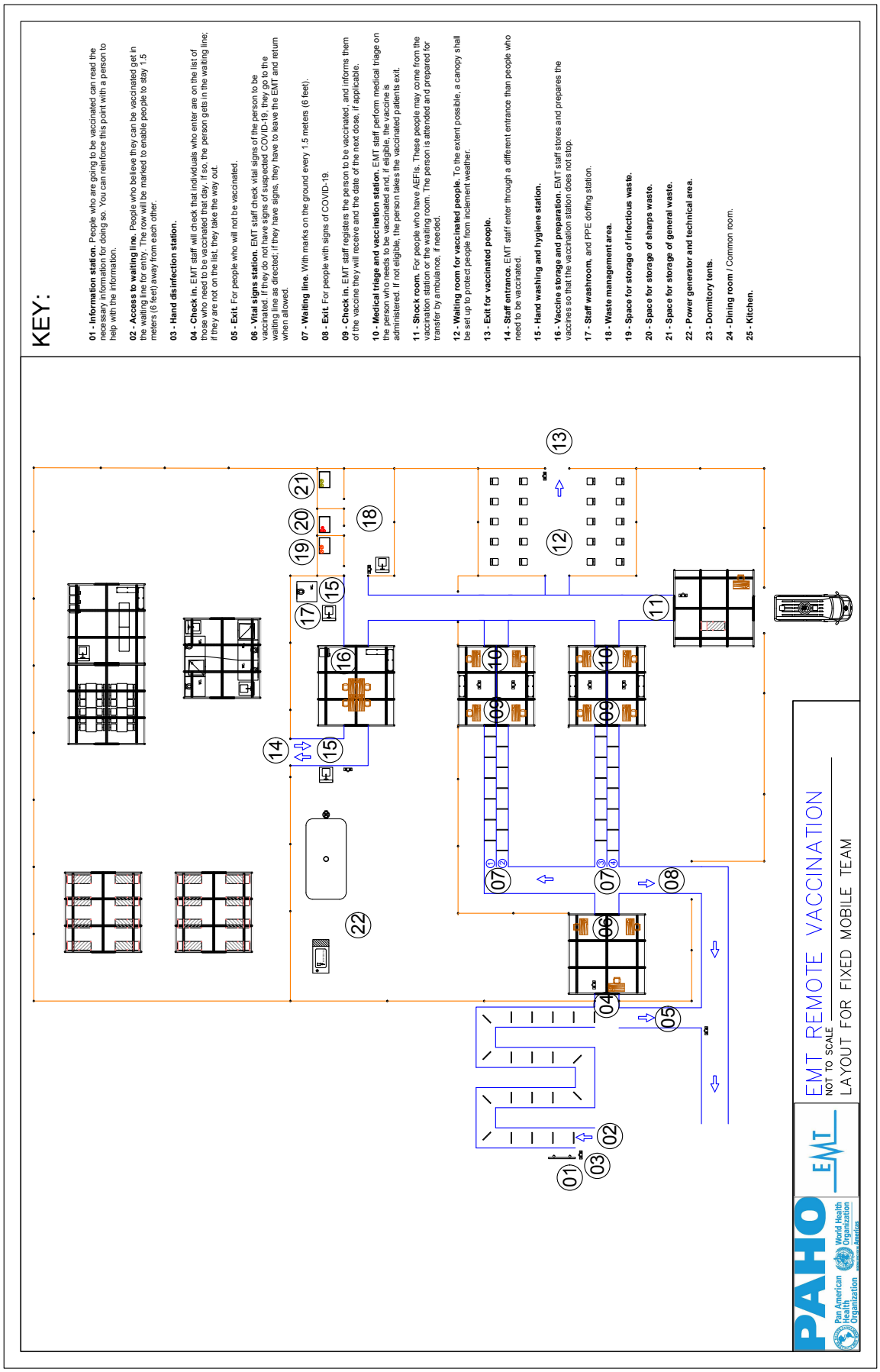
Annex 1


KEY:
01 - People who are going to be vaccinated can read the necessary information for doing so. You can reinforce this point with a person to help with the information.
02 - Entrance. People who believe they can be vaccinated enter the EMT.
03 - Hand disinfection station.
04 - Check in. EMT staff will check that individuals who enter are on the list of those who need to be vaccinated that day. If so, the person gets in the waiting line; if they are not on the list, they take the way out.
05 - Exit. For people who don't have to get vaccinated.
06 - Waiting line. With marks on the ground every 1.5 meters (6 feet).
07 - Vital signs station. EMT staff check vital signs of the person to be vaccinated. If they do not have signs of suspected COVID-19, they move on to check in; if they have signs, they have to leave the EMT and come back when allowed.
08 - Exit. For people with signs of COVID-19.
09 - Check in. EMT staff registers the person to be vaccinated, and informs them of the vaccine they will receive and the date of the next dose, if applicable.
10 - Medical triage and vaccination station. EMT staff perform medical triage on the person who needs to be vaccinated and, if eligible, the vaccine is administered. If not eligible, the person takes the vaccinated patients exit.
11 - Ambulance with resuscitation. For people who have AEFIs. These people may come from the vaccination station or the waiting room.
12 - Waiting room for vaccinated people. To the extent possible, a canopy shall be set up to protect people from inclement weather.
13 - Exit for vaccinated people.
14 - Staff entrance. EMT staff enter through a different entrance than people who need to be vaccinated.
15 - Hand washing and hygiene station.
16 - Staff washroom, and PPE dofing station.
17 - Vaccine storage and preparation. EMT staff stores and prepares the vaccines so that the vaccination station does not stop.
18 - Waste management area. Small area for temporary waste storage if waste receptacles fill up while the EMT is open.
19 - Power generator.
W.C.
PAHO
Pan American Health Organization
World Health Organization
EMT
EMT REMOTE VACCINATION
NOT TO SCALE
LAYOUT FOR SMALL MOBILE TEAM

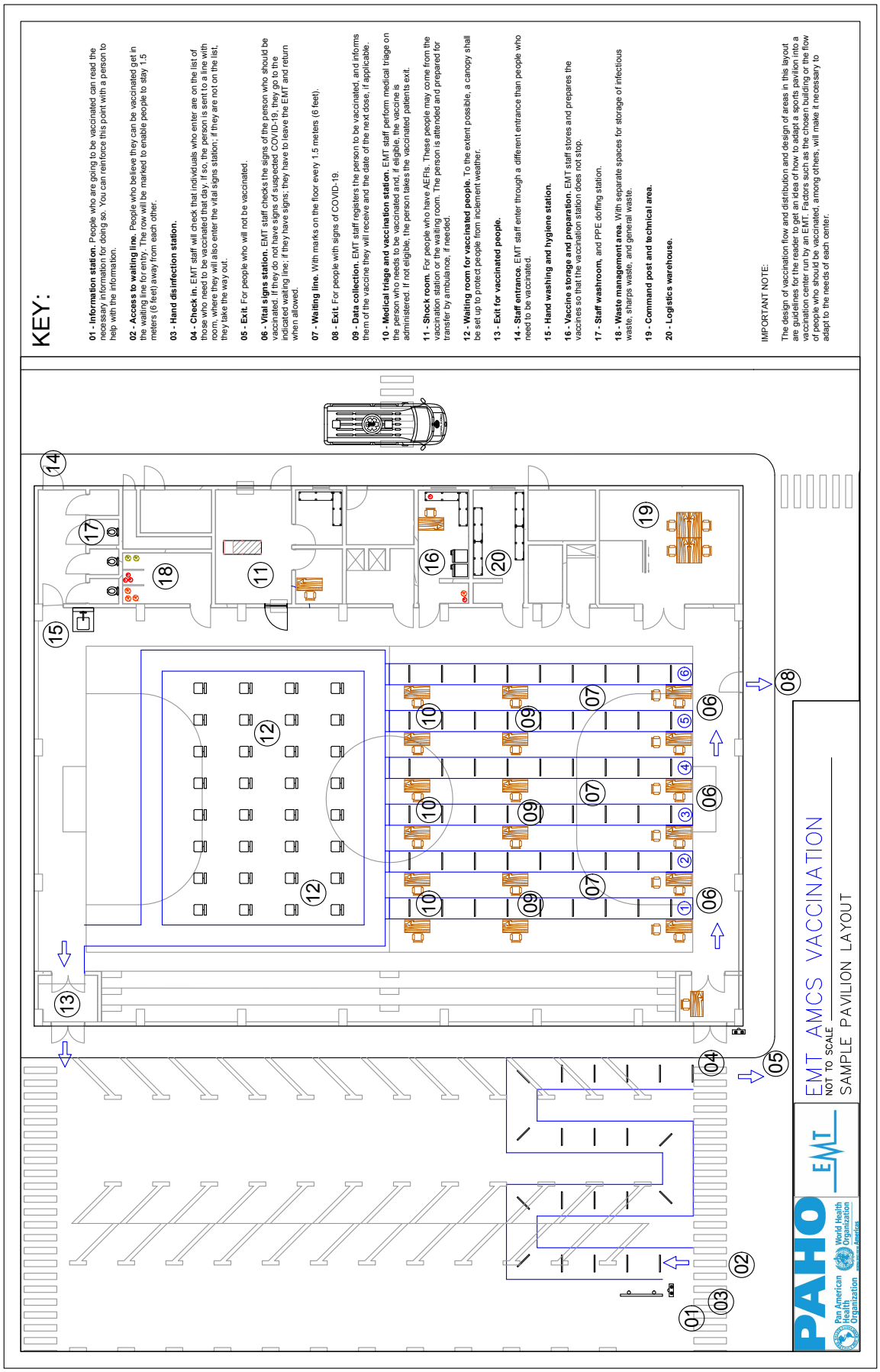
Annex 2


KEY:
01 -Information station. People who are going to be vaccinated can read the necessary information for doing so. You can reinforce this point with a person to help with the information.
02 - Access to waiting line. People who believe they can be vaccinated get in the waiting line for entry. The row will be marked to enable people to stay 1.5 meters (6 feet) away from each other.
03 - Hand disinfection station.
04 - Check in. EMT staff will check that individuals who enter are on the list of those who need to be vaccinated that day. If so, the person gets in the waiting line; if they are not on the list, they take the way out.
05 - Exit. For people who will not be vaccinated.
06 - Vital signs station. EMT staff check vital signs of the person to be vaccinated. If they do not have signs of suspected COVID-19, they go to the waiting line as directed; if they have signs, they have to leave the EMT and return when allowed.
07 - Waiting line. With marks on the ground every 1.5 meters (6 feet).
08 - Exit. For people with signs of COVID-19.
09 - Check in. EMT staff registers the person to be vaccinated, and informs them of the vaccine they will receive and the date of the next dose, if applicable.
10 - Medical triage and vaccination station. EMT staff perform medical triage on the person who needs to be vaccinated and, if eligible, the vaccine is administered. If not eligible, the person takes the vaccinated patients exit.
11 - Ambulance with resuscitation. For people who have AEFIs. These people may come from the vaccination station or the waiting room.
12 - Waiting room for vaccinated people. To the extent possible, a canopy shall be set up to protect people from inclement weather.
13 - Exit for vaccinated people.
14 - Staff entrance. EMT staff enter through a different entrance than people who need to be vaccinated.
15 - Hand washing and hygiene station.
16 - Vaccine storage and preparation. EMT staff stores and prepares the vaccines so that the vaccination station does not stop.
17 - Staff washroom, and PPE doffing station.
18 - Waste management area.
19 - Space for storage of infectious waste.
20 - Space for storage of sharps waste.
21 - Space for storage of general waste.
22 - Power generator and technical area.
PAHO
Pan American Health Organization
World Health Organization
EMT
EMT REMOTE VACCINATION
NOT TO SCALE
LAYOUT FOR MID-SIZED MOBILE TEAM

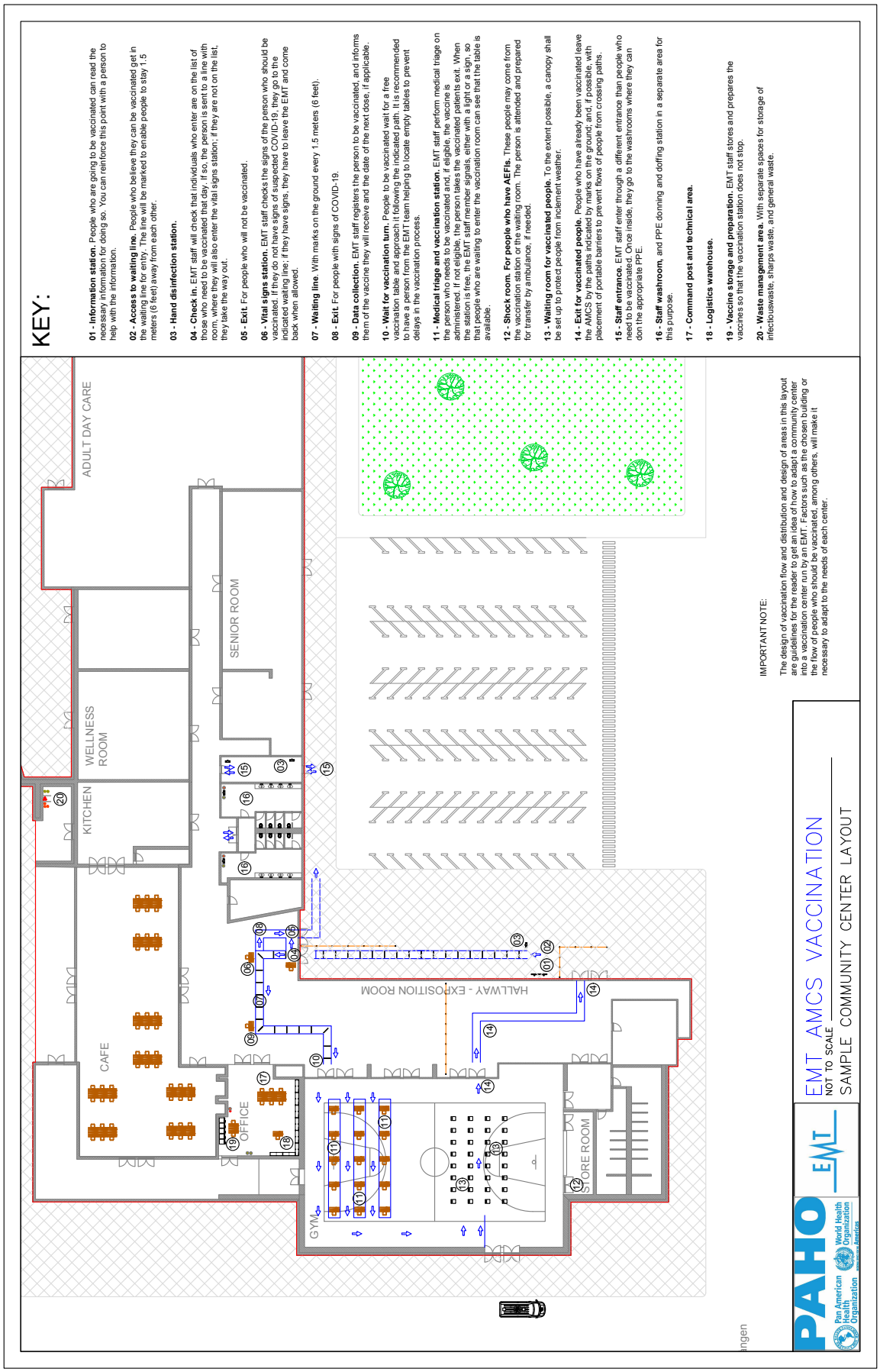
Annex 3


KEY:
01 - Information station. People who are going to be vaccinated can read the necessary information for doing so. You can reinforce this point with a person to help with the information.
02 - Access to waiting line. People who believe they can be vaccinated get in the waiting line for entry. The row will be marked to enable people to stay 1.5 meters (6 feet) away from each other.
03 - Hand disinfection station.
04 - Check in. EMT staff will check that individuals who enter are on the list of those who need to be vaccinated that day. If so, the person gets in the waiting line; if they are not on the list, they take the way out.
05 - Exit. For people who will not be vaccinated.
06 - Vital signs station. EMT staff check vital signs of the person to be vaccinated. If they do not have signs of suspected COVID-19, they go to the waiting line as directed; if they have signs, they have to leave the EMT and return when allowed.
07 - Waiting line. With marks on the ground every 1.5 meters (6 feet).
08 - Exit. For people with signs of COVID-19.
09 - Check in. EMT staff registers the person to be vaccinated, and informs them of the vaccine they will receive and the date of the next dose, if applicable.
10 - Medical triage and vaccination station. EMT staff perform medical triage on the person who needs to be vaccinated and, if eligible, the vaccine is administered. If not eligible, the person takes the vaccinated patients exit.
11 - Shock room. For people who have AEFIs. These people may come from the vaccination station or the waiting room. The person is attended and prepared for transfer by ambulance, if needed.
12 - Waiting room for vaccinated people. To the extent possible, a canopy shall be set up to protect people from inclement weather.
13 - Exit for vaccinated people.
14 - Staff entrance. EMT staff enter through a different entrance than people who need to be vaccinated.
15 - Hand washing and hygiene station.
16 - Vaccine storage and preparation. EMT staff stores and prepares the vaccines so that the vaccination station does not stop.
17 - Staff washroom, and PPE doffing station.
18 - Waste management area.
19 - Space for storage of infectious waste.
20 - Space for storage of sharps waste.
21 - Space for storage of general waste.
22 - Power generator and technical area.
23 - Dormitory tents.
24 - Dining room / Common room.
25 - Kitchen.
PAHO
Pan American Health Organization
World Health Organization
EMT
EMT REMOTE VACCINATION
NOT TO SCALE
LAYOUT FOR FIXED MOBILE TEAM

Annex 4


KEY:
01 - Information station. People who are going to be vaccinated can read the necessary information for doing so. You can reinforce this point with a person to help with the information.
02 - Access to waiting line. People who believe they can be vaccinated get in the waiting line for entry. The row will be marked to enable people to stay 1.5 meters (6 feet) away from each other.
03 - Hand disinfection station.
04 - Check in. EMT staff will check that individuals who enter are on the list of those who need to be vaccinated that day. If so, the person is sent to a line with room, where they will also enter the vital signs station; if they are not on the list, they take the way out.
05 - Exit. For people who will not be vaccinated.
06 - Vital signs station. EMT staff checks the signs of the person who should be vaccinated. If they do not have signs of suspected COVID-19, they go to the indicated waiting line; if they have signs, they have to leave the EMT and return when allowed.
07 - Waiting line. With marks on the floor every 1.5 meters (6 feet).
08 - Exit. For people with signs of COVID-19.
09 - Data collection. EMT staff registers the person to be vaccinated, and informs them of the vaccine they will receive and the date of the next dose, if applicable.
10 - Medical triage and vaccination station. EMT staff perform medical triage on the person who needs to be vaccinated and, if eligible, the vaccine is administered. If not eligible, the person takes the vaccinated patients exit.
11 - Shock room. For people who have AEFIs. These people may come from the vaccination station or the waiting room. The person is attended and prepared for transfer by ambulance, if needed.
12 - Waiting room for vaccinated people. To the extent possible, a canopy shall be set up to protect people from inclement weather.
13 - Exit for vaccinated people.
14 - Staff entrance. EMT staff enter through a different entrance than people who need to be vaccinated.
15 - Hand washing and hygiene station.
16 - Vaccine storage and preparation. EMT staff stores and prepares the vaccines so that the vaccination station does not stop.
17 - Staff washroom, and PPE doffing station.
18 - Waste management area. With separate spaces for storage of infectious waste, sharps waste, and general waste.
19 - Command post and technical area.
20 - Logistics warehouse.
IMPORTANT NOTE:
The design of vaccination flow and distribution and design of areas in this layout are guidelines for the reader to get an idea of how to adapt a sports pavilion into a vaccination center run by an EMT. Factors such as the chosen building or the flow of people who should be vaccinated, among others, will make it necessary to adapt to the needs of each center.
PAHO
Pan American Health Organization
World Health Organization
EMT
EMT AMCS VACCINATION
NOT TO SCALE
SAMPLE PAVILION LAYOUT

Annex 5


KEY:
01 - Information station. People who are going to be vaccinated can read the necessary information for doing so. You can reinforce this point with a person to help with the information.
02 - Access to waiting line. People who believe they can be vaccinated get in the waiting line for entry. The line will be marked to enable people to stay 1.5 meters (6 feet) away from each other.
03 - Hand disinfection station.
04 - Check in. EMT staff will check that individuals who enter are on the list of those who need to be vaccinated that day. If so, the person is sent to a line with room, where they will also enter the vital signs station; if they are not on the list, they take the way out.
05 - Exit. For people who will not be vaccinated.
06 - Vital signs station. EMT staff checks the signs of the person who should be vaccinated. If they do not have signs of suspected COVID-19, they go to the indicated waiting line; if they have signs, they have to leave the EMT and come back when allowed.
07 - Waiting line. With marks on the ground every 1.5 meters (6 feet).
08 - Exit. For people with signs of COVID-19.
09 - Data collection. EMT staff registers the person to be vaccinated, and informs them of the vaccine they will receive and the date of the next dose, if applicable.
10 - Wait for vaccination turn. People to be vaccinated wait for a free vaccination table and approach it following the indicated path. It is recommended to have a person from the EMT team helping to locate empty tables to prevent delays in the vaccination process.
11 - Medical triage and vaccination station. EMT staff perform medical triage on the person who needs to be vaccinated and, if eligible, the vaccine is administered. If not eligible, the person takes the vaccinated patients exit. When the station is free, the EMT staff member signals, either with a light or a sign, so that people who are waiting to enter the vaccination room can see that the table is available.
12 - Shock room. For people who have AEFIs. These people may come from the vaccination station or the waiting room. The person is attended and prepared for transfer by ambulance, if needed.
13 - Waiting room for vaccinated people. To the extent possible, a canopy shall be set up to protect people from inclement weather.
14 - Exit for vaccinated people. People who have already been vaccinated leave the AMCS by the paths indicated by marks on the ground; and, if possible, with placement of portable barriers to prevent flows of people from crossing paths.
15 - Staff entrance. EMT staff enter through a different entrance than people who need to be vaccinated. Once inside, they go to the washrooms where they can don the appropriate PPE.
16 - Staff washroom, and PPE donning and doffing station in a separate area for this purpose.
17 - Command post and technical area.
18 - Logistics warehouse.
19 - Vaccine storage and preparation. EMT staff stores and prepares the vaccines so that the vaccination station does not stop.
20 - Waste management area. With separate spaces for storage of infectiouswaste, sharps waste, and general waste.
IMPORTANT NOTE:
The design of vaccination flow and distribution and design of areas in this layout are guidelines for the reader to get an idea of how to adapt a community center into a vaccination center run by an EMT. Factors such as the chosen building or the flow of people who should be vaccinated, among others, will make it necessary to adapt to the needs of each center.
ADULT DAY CARE
WELLNESS ROOM
KITCHEN
SENIOR ROOM
CAFE
OFFICE
HALLWAY - EXPOSITION ROOM
GYM
STORE ROOM
PAHO
Pan American Health Organization
World Health Organization
EMT
EMT AMCS VACCINATION
NOT TO SCALE
SAMPLE COMMUNITY CENTER LAYOUT

BIBLIOGRAPHY

- Centers for Disease Control and Prevention. COVID-19 Vaccination Program Interim Playbook for COVID-19 Vaccination Program Jurisdiction Operations. Atlanta: CDC; 2019. Available at: https://www.cdc.gov/vaccines/covid-19/downloads/COVID-19-vaccination-program-playbook-annex.pdf.

- FEMA. Community Vaccination Centers Playbook. Washington, D.C.: FEMA; 2021. Available at: https://www.fema.gov/sites/default/files/documents/fema_community-vaccination-centers_playbook_04-23-2021.pdf.

- Pan American Health Organization. Considerations for Strengthening the First Level of Care in the Management of the COVID-19 Pandemic. Washington, D.C.: PAHO; 2020. Available at: https://iris.paho.org/handle/10665.2/53190.

- Pan American Health Organization. COVID-19 Vaccination in the Americas. Available at: https://ais.paho.org/imm/IM_DosisAdmin-Vacunacion.asp.

- Pan American Health Organization. Technical Recommendations for the Selection of Alternative Medical Care Sites (AMCS). Washington, D.C.: PAHO; 2020. Available at: https://www.paho.org/en/documents/technical-recommendations-selection-alternative-medical-care-sites-amcs.

- SHEA. Statement for Healthcare Settings Preparing for COVID-19 Vaccination. USA Arlington: SHEA; 2020. Available at: https://secureservercdn.net/50.62.172.157/d0e.59e.mwp.accessdomain.com/wp-content/uploads/2021/11/SHEA_Vaccine_Planning_Considerations_071221.pdf.

- UNEP. Waste Management during the COVID-19 Pandemic From Response to Recovery. No place: UNEP; 2020. Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/33416/WMC-19.pdf?sequence=1&isAllowed=y.

- Washington, D.C.: PAHO; 2021. Available at: https://ais.paho.org/imm/IM_DosisAdmin-Vacunacion.asp.

- World Health Organization, UNICEF. Guidance on developing a national deployment and vaccination plan for COVID-19 vaccines. Geneva: WHO; 2020. Available at: https://apps.who.int/iris/handle/10665/341564.

- World Health Organization. Background document on the Bharat Biotech BBV152 COVAXIN® vaccine against COVID-19. Geneva: WHO; 2021. Available at: https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE-recommendation-bbv152-covaxin-background.

- World Health Organization. Immunization in the context of COVID-19 pandemic. Frequently asked questions (FAQ). Geneva: WHO; 2020. Available at: https://apps.who.int/iris/handle/10665/331818.

- World Health Organization. Interim recommendations for use of the Bharat Biotech BBV152 COVAXIN® vaccine against COVID-19. Geneva: WHO; 2021. Available at: https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE-recommendation-bbv152-covaxin.

- World Health Organization. Planning and implementing high-quality supplementary immunization activities for injectable vaccines using an example of measles and rubella vaccines: field guide. Geneva: WHO; 2016. Available at: https://apps.who.int/iris/handle/10665/330568.

- World Health Organization. Safe management of wastes from health-care activities. Geneva: WHO; 2014. Available at: https://apps.who.int/iris/bitstream/handle/10665/42175/9241545259.pdf.

- World Health Organization. The Guide to Tailoring Immunization Programmes (TIP). Copenhagen: WHO; 2013. Available at: https://www.euro.who.int/__data/assets/pdf_file/0003/187347/The-Guide-to-Tailoring-Immunization-Programmes-TIP.pdf.

- World Health Organization. WHO guideline on the use of safety-engineered syringes for intramuscular, intradermal and subcutaneous injections in health care settings. Geneva: WHO, 2016. Available at: https://apps.who.int/iris/handle/10665/250144.

Links of Interest on Safe Vaccination

https://www.paho.org/en/documents/guidance-implementing-regional-covid-19-vaccine-aefiaesi-surveillance-system.

These guidelines, which should be available in the countries, can provide information about the components of information systems for AEFI surveillance:

https://www.paho.org/en/documents/how-monitor-and-report-covid-19-vaccines-side-effects.

https://www.paho.org/en/documents/communicating-about-vaccine-safety-guidelines-help-health-workers-communicate-parents.

Toolkit with PAHO COVID-19 vaccination documents

https://www.paho.org/en/covid-19-vaccines#covid-19-vaccination-toolkit.

PAHO

Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

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