

Mass Vaccination Center,
Pakistan



The Drive-Through and Walk-In Vaccination Station,
Namibia

Objective of this technical brief

- In coming months, countries will start receiving huge quantities of Covid-19 vaccine doses. As the supply of available vaccine increases with limited shelf-life, distribution should expand, increasing access to vaccination services for a larger population.
- To achieve the above, this brief provides countries operational considerations on choosing an appropriate delivery strategy* to enhance vaccine utilization thru
 - Hospitals / health facilities
 - Mass vaccination centers
 - Drive-thru sites
 - Mobile health units
 - Community pop-up sites
- This will help countries to:
 - Ensure high uptake in specific populations, particularly in groups that are higher risk for severe outcomes from COVID-19.
 - Provide equitable access to all targeted populations as per their NDVPs and achieve high COVID-19 vaccination coverage.

*<https://www.who.int/publications/i/item/guidance-on-utilization-of-covid-19-vaccines-before-the-date-of-expiry>

Key considerations

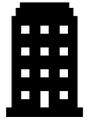
- This technical brief supplements the '*WHO Guidance on utilization of COVID-19 vaccines before the date of expiry*' and "*WHO operational Covid-19 vaccine microplanning guidance*" (under development)
- COVID-19 vaccine supply will likely be sufficient to meet demand for critical populations as well as the general public.
- Additional COVID-19 vaccine doses available will permit an increase in vaccination providers and locations.
- A surge in COVID-19 vaccine demand is possible, so a broad vaccine administration network for surge capacity will be necessary.
- Low COVID-19 vaccine demand is also a possibility, so countries should monitor supply and adjust strategies to minimize vaccine wastage.
- Planning regarding- ensuring second dose availability, managing downstream cold chain capacity.

Key principles to keep in mind - to further expand on NDVP chapter 6 'Vaccination Delivery Strategies'.

- COVID-19 vaccine rollout is a shared responsibility, with key roles for national and sub-national authorities.
- One size does not fit all - delivery strategies will need to be adapted based on population demographics, prioritization, and needs, geographic area/density, risk profile, COVID-19 positivity rates/intensity of transmission, vaccine availability, estimated size of the targeted population, etc.,
- Multiple delivery strategies can simultaneously be used or adopted as per need – with centralized delivery enabling the vaccination of masses of populations especially in the urban areas, while decentralized strategies enable the vaccination of targeted sub-groups
 - Program managers will need to devise non-traditional and novel immunization strategies for reaching priority target populations. <https://www.who.int/publications/i/item/WHO-2019-nCoV-Vaccine-deployment-2021.1-eng>
- In addition to selecting the most appropriate delivery strategy and focus on expedited delivery of vaccines for maximizing utilization, minimizing wastage; planning teams should systematically track, monitor, and incorporate equity into network design and site selection
- There are critical enablers to be considered for each strategy - some enablers are common and support all delivery strategies, while some are highly unique and nuanced for specific strategies
- Consider strategic public-private partnerships which can expedite implementation planning and offer innovative solutions

Key delivery strategies options for consideration

Fixed sites



Hospitals / health facilities



Mass immunization centres



Drive thru sites

Temporary sites



Mobile health units / outreaches



Community-based “pop- ups”

Rollout Objective

Maximize throughput

Ensure geographic coverage & equitable access

Each delivery strategy is dependent on a set of enablers

Key considerations across all strategies

Human Resource management

Expansion of staff eligibility

Recruitment and onboarding

Training at scale

Scheduling medical and support staff across vaccination sites

Workforce forecasting of resourcing requirements

Providing on-site operational processes

Required budget for additional staff

Appointment Scheduling

Multi-channel appointment scheduling

Proactive scheduling (e.g., calling/sending SMS target individuals, booking 2nd dose appointment)

Contracts with mobile network providers to send SMS for reminders

Supporting capabilities and requirements (e.g., call center)

Clear, easy to follow eligibility criteria and policies for handling those who do not meet the criteria

Walk-in/wait list policy to minimize wastage

Planning & Logistics

Availability of vaccine throughput scenarios

Demand forecasting by site for vaccines / ancillary supplies, supply planning and supply chain execution

Contingency planning and risk management

Monitoring and control to manage scenarios

Switching delivery strategies based on vaccine type availability/frequency

Consider impact of changing patients per hour, number of stations, and utilization

Communication Strategy

Communication strategy to ensure clear messaging, appropriate frequency, and effective channels

External communications to the public, emphasizing vaccine effectiveness

Internal communications to partners and health workers

Frame messaging with consideration of stakeholders and strategic partners

Community based health workers may have an important role in tracking second dose defaulters and for facilitating appointments

Strategic Partnerships

Partnerships with private vendors and CSOs can help expedite implementation of sites.

Some areas of partnerships (3PL) include:

- Venues
- Scheduling technology
- Distribution, logistics, storage (i.e., last mile, kitting if supplies, etc.)
- Operation management
- Non-technical & clinical resources

To select suitable options – applicability considerations of each delivery strategy – target use cases

	Hospitals / Health Centers	Mass Vaccination Centers	Mobile Health Units	Drive thru sites	Community- based Pop-up sites
Speed & Scale	High	High	Low	Medium-High	Medium
Geographic Focus (urban, rural, remote)	Where available	Urban	Rural Remote	Urban Rural	All
Equitable access	Accessible for most, with some exceptions (e.g., remote areas, mobility challenged)	Accessible for most, with some exceptions (e.g., remote areas, mobility challenged)	Offers access to remote, mobility challenged	Restrictive for those without vehicles	Can be leveraged to reach targeted sub-groups
Vaccine Specific: Best suited for...	Most accommodating in doses and temps	Most accommodating in doses and temps (outside of hospitals)	Single- dose and lower temp burden	Flexible on doses; lower temp burden	Single- dose and lower temp burden

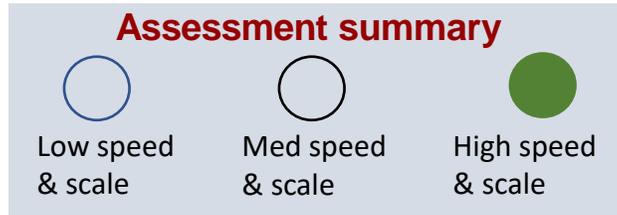
..and assess the implementation and operational burden, against the benefits of the strategy and local population needs

implementation considerations

	Hospitals / Health Centers	Mass Vaccination Centers	Mobile Health Units	Drive thru sites	Community-based Pop-up sites
Throughput ranges / hours of operation	High Extended hours	High Extended hours	Low Limited hours	Med-High Daylight hours	Medium Regular hours with some exceptions
Staffing	Additional staff (vaccinators and support) needs	Additional staff (vaccinators and support) needs	Smaller new staff needs	Additional staff (vaccinators and support) needs	Medium new staff needs
Storage Requirements	store in 2-8 C	store in 2-8 C	store in 2-8 C	store in 2-8 C	store in 2-8 C
Relative Supply Chain Complexity	Low	Low	Low	Medium	Medium
Administration Operations Complexity	Medium	High	Medium	High	Medium

Fixed site: Mass Vaccination Centers

Objective is to immunize a high volume of individuals through large sites (e.g., conversion of sports venues, football grounds, religious venues and hotel conference centres into mass vaccination sites)



Summary and triggers

- Large quantity of vaccines on-hand
- Candidate for urban centres with large gathering centres

Insights

- Throughputs of 1K-3K doses/day, but varies based on size of site
- Leveraging existing COVID-19 infrastructure (e.g., mass testing sites)
- Sourcing a high volume of staff is a key consideration

Trade-offs

Benefits

- Synergies from consolidation (e.g., workforce, standardized processes, data tracking)
- Simpler distribution as shipments would go to a fewer number of sites
- Lower risk of “no shows” and waste due to long queues of people that can backfill spots

Challenges

- Ramp up time for full operational capacity
- Logistics for physical access to sites (e.g., traffic management, parking availability)
- Security needs for potential protests and crowd management
- Large quantities of supplies to meet demand
- Transmission risk if not well-managed given large number of people onsite
- An additional challenge here might be the relative inflexibility of scaling up and scaling down such a site quickly

Operations

Implementation Considerations

- Demand planning to appropriately align inventory and resources
- Coordination with other administration strategies to ensure optimal identification of target populations within a given catchment area
- Optimized hours of operations to maximize throughput while balancing human resource constraints

Transportation and Logistics

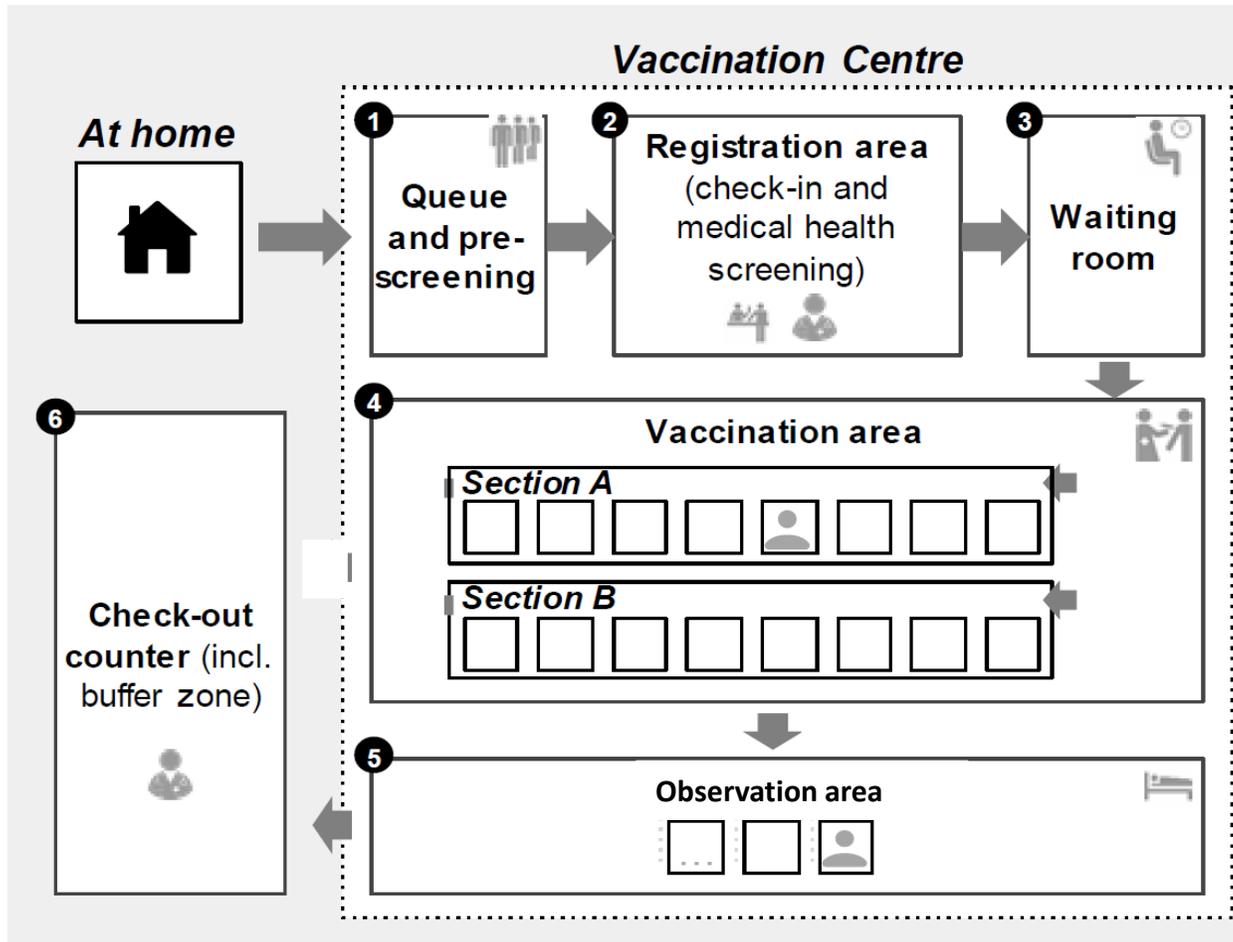
- Augment existing storage at site with required space
- Need high visibility into last mile delivery to ensure reliability of shipments and ability to vaccinate

Workforce

- Site managers
- Lead supervisor per shift
- Trained vaccinators and preparator (e.g., for Pfizer vaccine reconstitution)
- Coordinators (e.g., logistics, staff managers)
- Clinical staff for AEFI management
- Administrative / support staff
- Technology support
- Security

Mass Vaccination Center

Illustrative patient journey



- 1
 - Individuals with scheduled appointment or walk-in individuals, arrive at the mass vaccination center, and join the queue
 - On-site staff are present to answer any questions about their appointment, venue operations, or COVID-19 vaccines in general
- 2
 - Individuals validate their appointment at registration, or get registered if not done before
 - Staff conduct a questionnaire to screen health
- 3
 - Registered individuals wait for their appointment, adhering to physical distancing guidelines
- 4
 - At the time of their appointment, individuals are called to enter the vaccination area
 - Individuals are directed to their immunization station, are briefed by their vaccinator on instructions, side effects, and receive their vaccine & vaccination card *with 2nd dose appointment date*
- 5
 - Individuals to be monitored for 15-30 minutes, or in accordance with National clinical recommendations, prior to exiting the venue
- 6
 - Individuals leave the venue and return home

Considerations for coordinated planning for delivery strategies

Planning Considerations

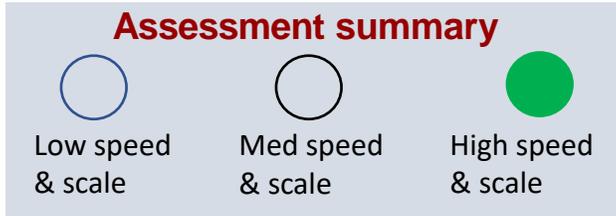
- Distribution plans
 - Fully utilize available vaccines
 - Ensure second dose is available after given time period
- National Cold Store
 - Appropriate CC equipment for available vaccines
 - Management of doses by expiration
- Transportation
 - Timing and frequency of required transport
- Social mobilization/Demand
 - Setting expectations for eligible population groups
- Sites that can utilize the available doses
 - Expected throughput and staffing needs
 - Available cold chain/logistics space
 - Management of doses by expiration

Coordinating groups

- NITAG
 - Appropriate target groups and regulatory mechanisms
- Program
 - Implementing mass vax site and staffing
 - supervision
- Logistics
 - CC readiness and availability
 - Especially UCC readiness
 - Transportation schedules
- Communications
- Partnerships and sites

Fixed sites: Hospitals / Health centers

Objective is to leverage trusted patient and provider relationships and a decentralized network of clinics to increase vaccine confidence and access to high priority, underrepresented, and vulnerable populations)



Summary and triggers

- Increased supply of vaccines that can be stored in 2-8°C requirements
- Trusted patient-provider relationships
- Urban, suburban and rural areas

Insights

- Core pillar of vaccine delivery strategies to increase equitable access and reach
- Decentralized approach leverages existing infrastructure and distributes responsibilities across stakeholders
- Throughputs of doses/day, but varies based on size of site

Trade-offs

Benefits

- Able to leverage existing infrastructure and a trained workforce that has experience in immunization campaigns
- Established relationships, increase confidence among vaccine hesitant communities
- Scalable infrastructure for an endemic scenario

Challenges

- Small spaces for physical distancing
- Need to manage day to day operations and workload from campaigns
- Complex supply chain with more endpoints

Operations

Implementation Considerations

- Primary care clinic mostly operationalized in a “pull model”

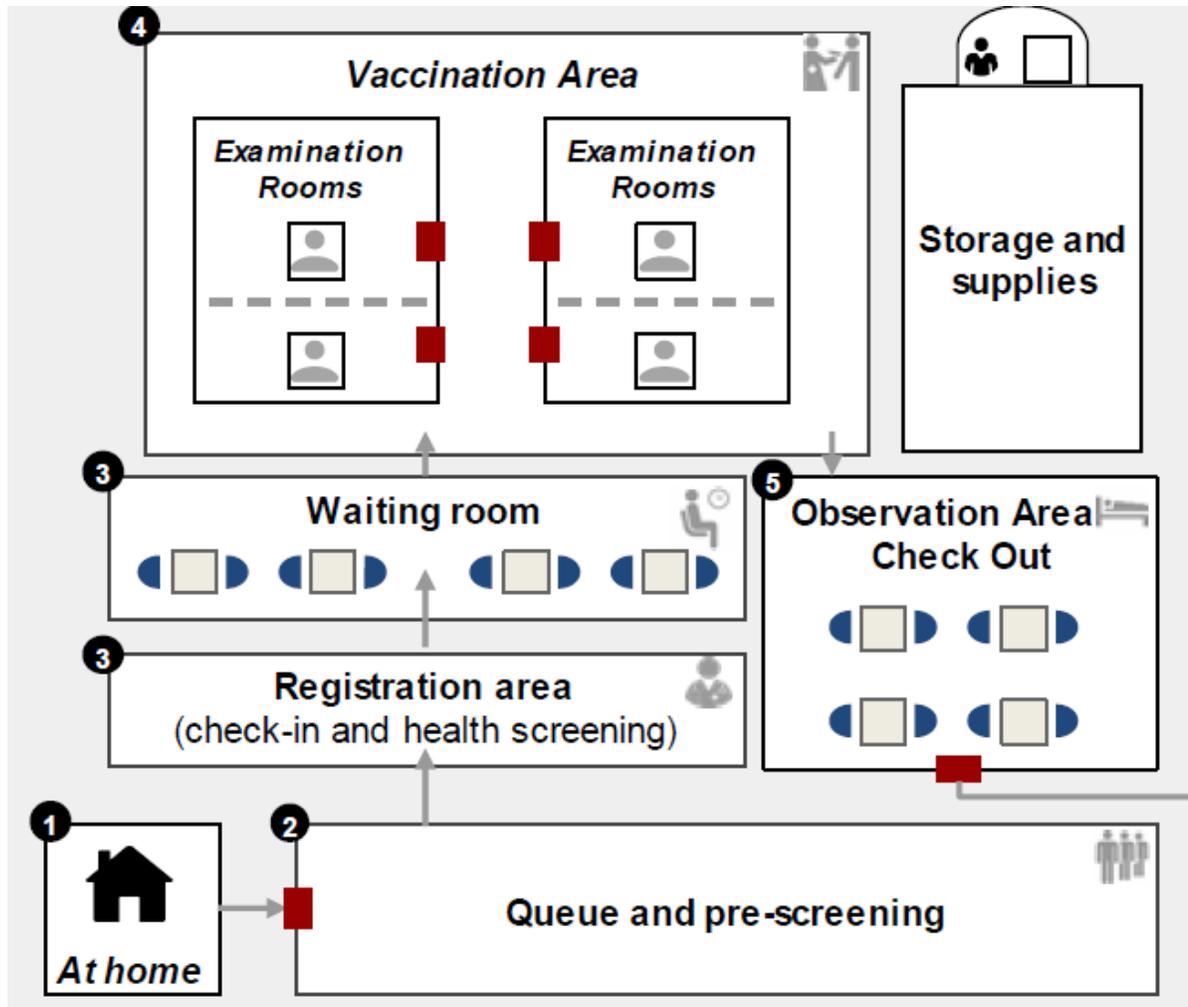
Transportation and Logistics

- Use vaccines that can be stored in thawed state (2-8°C), ideally with shelf lives longer than 1 week to enable weekly deliveries, instead of daily just-in-time deliveries

Workforce

- 1 Lead, typically a doctor, who can also respond to adverse effects
- 2-4 Vaccinators and preparator (e.g., for Pfizer vaccine reconstitution)
- 3-4 admin staff (registration, consent, reporting)
- Social mobilizer

Primary Health Care Facilities / Health centers



- 1** • Eligible individuals will be contacted by community health worker or through phone and book an appointment
- 2** • Individuals arrive at the clinic, wait in the queue, and are greeted by staff who administer a health screening questionnaire
- 3** • Individuals are checked-in at the registration area and are directed to the waiting area
• Individuals provide consent and receive the necessary education
- 4** • Vaccine is administered by a healthcare professional in one of the examination rooms
- 5** • Individuals wait in a designated area for 15-30 minutes under observation by a healthcare professional
• Proof of vaccination will be provided
• If necessary, the second dose appointment will be scheduled

Fixed sites: Drive Thru Vaccination Centres

Objective is to efficiently and conveniently immunize a high volume of individuals with minimal exposure to the virus in large open lots (e.g., stadium parking lots, amusement parks, large businesses)

Assessment summary



Low speed
& scale



Med speed
& scale



High speed
& scale

Summary and triggers

- Large quantity of vaccine supply
- Geographically scattered populations (sub-urban and rural)
- Limited access to other decentralized delivery strategies

Insights

- Multidisciplinary team and engagement with local partners required to effectively distribute responsibilities
- Major bottleneck is registration and consent; need to streamline before arriving at the drive thru

Trade-offs

Benefits

- Low disease transmission risk
- High volume throughput as there is minimal disinfection requirements
- Ability to vaccinate individuals with mobility issues and in self-isolation
- Central hub limits deliveries to other sites

Challenges

- Adverse weather can cause delays
- Requires significant logistical preparation and planning on the design and flow of operations
- Can result in traffic congestion; risk of traffic collisions slowing down process
- Accessibility issues for those without cars

Operations

Implementation Considerations

- Requires availability of large spaces that are accessible via vehicles and have the necessary infrastructure to limit overflow
- Low-income areas with limited transportation access cannot be covered by a drive thru

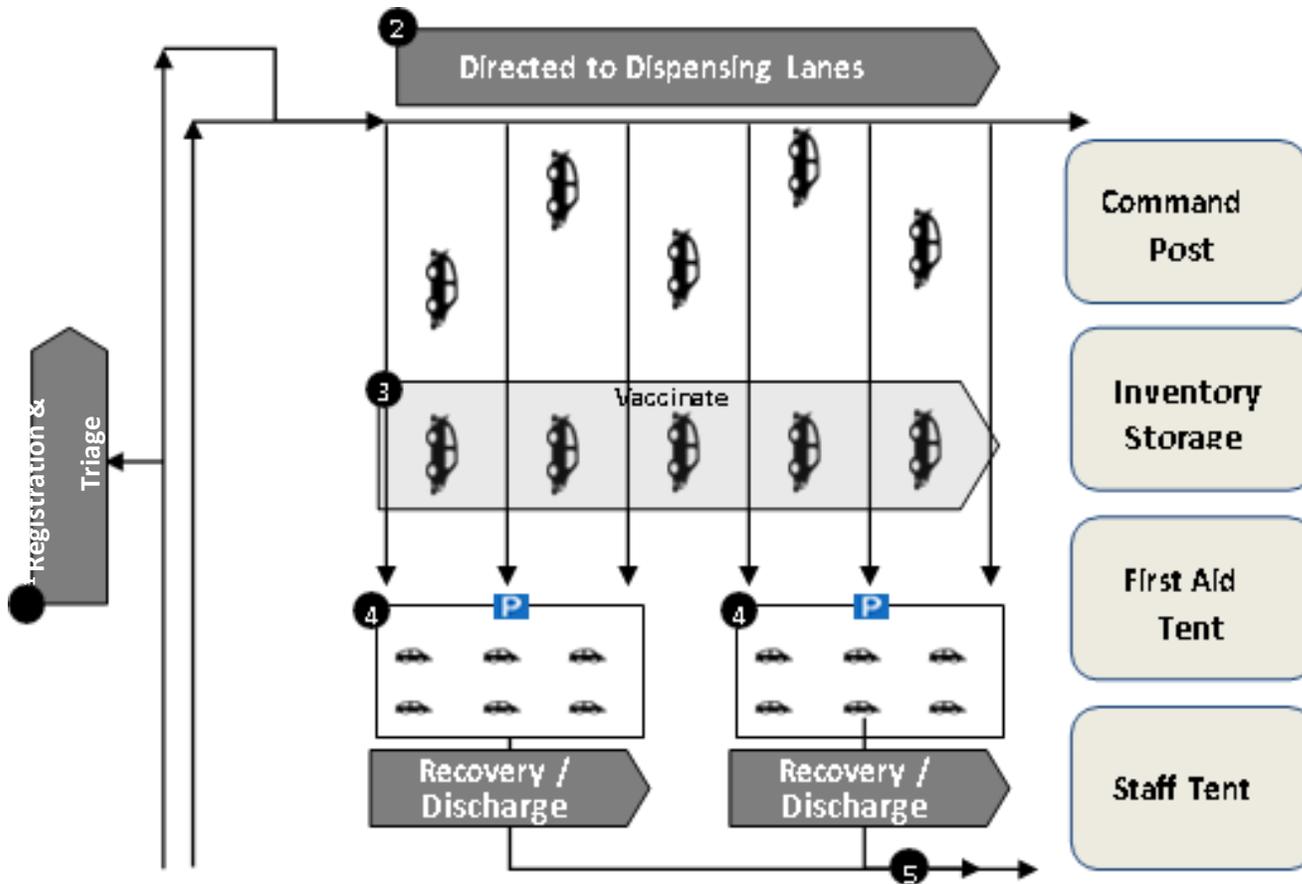
Transportation and Logistics

- Create a designated storage area with required space for doses, coolers and ancillary supplies (e.g., syringes, signage, tables)
- The transportation of the vaccines from the central hub and storage can be completed through the 2-8°C thermal coolers

Workforce

- 2-4 Vaccinators and preparator (e.g., for Pfizer vaccine reconstitution)
- Post-Vaccination Monitors
- Patient Educators / other healthcare professionals / Social mobilizer
- Emergency Medical Services
- Traffic Management
- Vaccine Monitor
- Infection Control Specialist
- Security and Policing

Drive Thru Vaccination Centres



1

- Individuals schedule their appointment, arrive at the drive thru vaccination centre
- On-site staff triage the individuals and provide the necessary registration and consent forms
- Staff administer a health screening questionnaire

2

- Individuals are directed to dispensing lanes
- On-site staff are present to answer any questions about their appointment, venue operations, or COVID-19 vaccines in general

3

- Individuals are briefed by their immunizer on instructions, expected side-effects and receive their vaccine
- Individuals are provided their record of vaccine and appointment for second dose (if appropriate)

4

- Individuals are monitored by healthcare professionals for 15-30 minutes in a designated area

5

- Individuals to be monitored for 15-30 minutes, or in accordance with National clinical recommendations, prior to exiting the venue

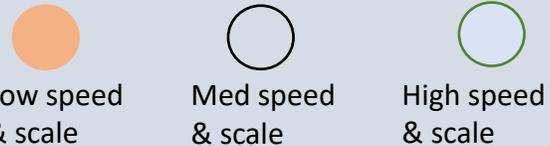


The Drive-Through and Walk-In Vaccination Station, Namibia

Temporary mobile: Mobile health units (MHU)

Objective could enable reach of vaccination in rural and remote areas, and those with greater needs for care

Assessment summary



Summary and triggers

- Low density populations; rural and remote areas
- For targeted populations in high-population density areas (e.g., elderly, hard to reach communities)
- Enables equitable access

Insights

- Not a primary vaccine delivery strategy
- Expansion to accommodate specific target populations e.g., homecare, highly rural areas, prisons, and homeless

Trade-offs

Benefits

- Access to segments that have mobility challenges, special needs, or are underserved
- Geographic coverage for remote areas which may have limited existing healthcare infrastructure, and where other delivery strategies are not accessible

Challenges

- Adverse weather can cause delays
- Individuals not ready for MHU upon arrival, potential language / cultural barriers, obtaining consent
- Not suitable for high volume & velocity needs
- Access to systems for data entry

Operations

Implementation Considerations

- Effective in congregate settings for greater throughput
- Could turn into a “push” model at later stages, versus the current “pull” model where individuals register for vaccination
- Operationally complex with day-to-day management of schedules, stocking supplies, staff availability

Transportation and Logistics

- Use a hospital hub or mass vaccination site for supply replenishment
- Use vaccines in thawed state (2-8°C)

Workforce

- 1 Lead, typically a doctor, who can also respond to adverse effects
- 1-2 Vaccinators and preparator (e.g., for Pfizer vaccine reconstitution)
- Social mobilizer
- 1 to 3 admin staff (driver,)
- 1-2 trainees can be included for on-the-job learning

Temporary mobile: Community-based pop-ups

Objective could facilitate vaccination in communities and rural areas at small event spaces (e.g., faith-based sites, community centers, schools, etc.) to increase vaccination rates in underserved and vaccine-hesitant populations

Assessment summary



Low speed
& scale



Med speed
& scale



High speed
& scale

Summary and triggers

- Moderate quantity of vaccines
- Low vaccination rates in select communities
- Urban, suburban, rural and remote areas

Insights

- Targeted at underserved populations
- Partnerships with owners of gathering spaces (e.g., churches, schools)

Trade-offs

Benefits

- Access to segments with moderate mobility challenges, or additional special needs
- Can increase vaccination rates in vaccine hesitant segments of population
- Geographic coverage for remote areas where other administration models are not accessible

Challenges

- Risk of “no shows” and product vaccine waste
- Adverse weather can cause delays
- Access to systems for data entry
- May not be within vaccine transport guidelines

Operations

Implementation Considerations

- Coordination with administrators of target sites in small communities
- In operation for up to 2-4 days as a community pop-up
- Target segments in communities with vaccine hesitancy by going to their neighborhoods (e.g., Faith-based sites, community centres)

Transportation and Logistics

- Use a hospital hub or mass vaccination site for supply replenishment

Workforce

- 1-2 Vaccinators and preparator (e.g., for Pfizer vaccine reconstitution)
- Social mobilizer
- volunteers from local community groups to manage crowds
- Municipal / regional public health authorities
- Administrators of rented building spaces
- Administration staff
- Clinical staff

End-to-end workforce management is required to quickly address the staffing needs for all administration strategies

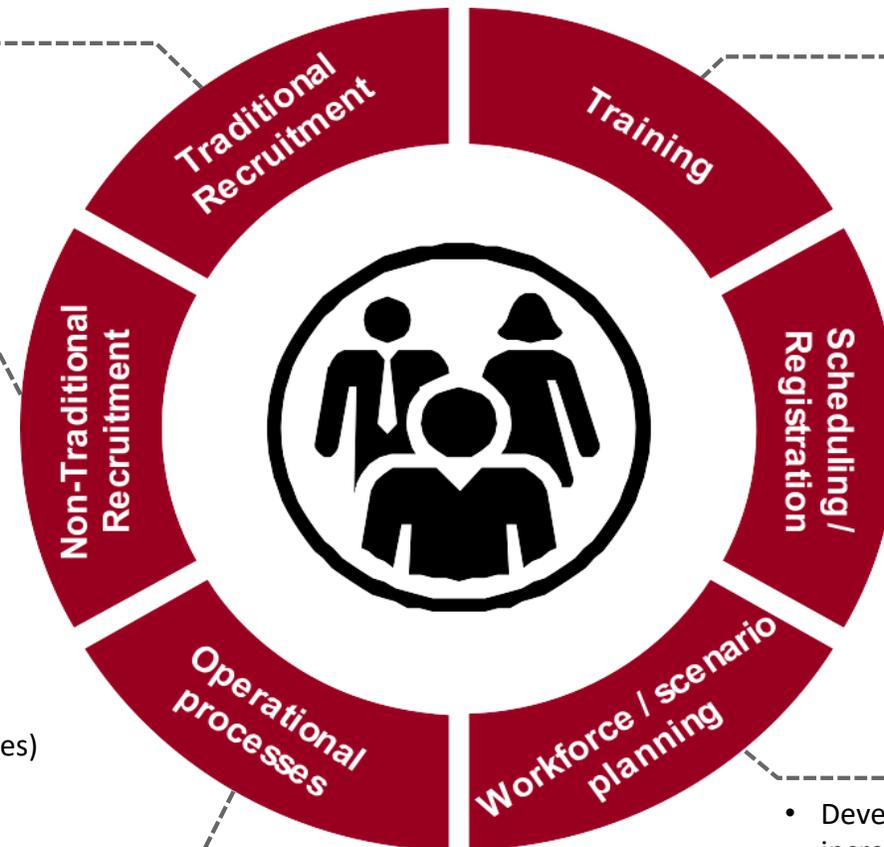
Workforce considerations

- Develop a recruitment process that balances the need for rapid recruitment at scale with the importance of ensuring appropriate levels of skills
- Utilize experienced staff from other departments that can share the resources

- Expand eligibility criteria for clinical work force e.g., utilize dentists, medical students, retired professionals, chiropractors, optometrists
- Consider partnerships with non-profits, regional volunteer groups, etc., for on-site management or administration

Design operational procedures including:

- Policies and key processes (e.g., escalation processes)
- Reporting and measurement gathering
- Decision making guides
- Emergency preparedness and response



- Design and implement a training program for vaccinators and support staff, utilizing e-learning and augmenting existing learning materials where possible
- Avoid unnecessary “red tape” for staff with existing qualifications to streamline training process

- Develop a plan to ensure appropriate staffing levels at all vaccine administration points to match appointment schedules
- Design sufficient “slack” or redundancy in workforce resourcing to account for higher than anticipated volumes or staff no-shows

- Develop workforce models for a range of scenarios, including increased vaccine supply, adverse events and surges in COVID-19 cases limiting the availability of clinical staff

Scenario planning and throughput considerations

Sample: Calculation considerations (non- exhaustive)

- **Patients per hour (by type of staff):**

- Time to validate patient information (~ 3 min)
- Time to vaccinate (~5 min)
- Time to sanitize the station (how extensive?) (~3 min)
- Time to change gloves (how often?) (~1 min)
- Will the clinician do the admin work or will support staff rotate to help?

- **Number of flow lines / stations:**

- What are the maximum number of stations that also ensures proper distancing?
- Will there be a special line for individuals with mobility issues, seniors, etc.,?
- What will be the mix between experienced and inexperienced staff?

- **Utilization:**

- Do supply limitations limit the daily volume?
- Time it takes new staff to get up to speed?
- Can scheduling reduce unproductive staff time between patients?

example of ~100 vaccinations per station per shift per day (5 min per shot)

X 8 stations (1 vaccinator / station) x 2 shifts (16 vaccinators)

Two shifts: 8 hours each

- 8am – 4pm
- 4pm – 12pm

Approx: 1,500 – 2,000 people per day

Extended hours will provide access to working class and daily wagers too

Supply forecast (vaccines and ancillary supplies), supply planning and logistics execution

Demand & Supply Planning

- Forecasting of the supplies by delivery site (across strategies) by day (or other horizon aligned to supply activities such as distribution / deliveries to delivery site) - vaccines and ancillary supplies
- Determination of supply requirements and planning of supply activities - procurement, warehouse operations (e.g., pick, pack, ship), transportation, receiving and handling at administration sites

Procurement

- Procurement of vaccines
- Procurement of ancillary supplies (medical and non-medical)
- Data / information sharing with COVAX (e.g., performance against plan, latest manufacturing and delivery status)

Warehousing

- Warehousing and distribution network design (i.e., inventory holding locations across all levels and third-party partners, e.g., 3PLs, etc)
- Capacity management for ULT, frozen and cold chain
- Pick, pack, ship operations

Distribution

- Coordination of distribution (e.g., kitting where applicable) of vaccines and ancillary supplies
- Transportation planning and execution taking into account shelf-life, delivery frequency, handling requirements, receiving capacity/windows

Administration

- Tracking of actual throughputs
- Tracking of actual usage volumes of vaccines and ancillary supplies
- Tracking of inventory on-hand
- Feedback loop to demand / supply planning



Track & Trace and E2E Visibility

Scheduling has been one of the greatest bottlenecks and a limiting factor for vaccination program

Scheduling Consideration

Before the site

Appointment Systems - Have online and call-center options available, with visibility on vaccine being administered

Eligibility Criteria - Ensure criteria is simple to follow, otherwise risk exists of high volume of exemption requests that overburden scheduling systems

Waitlist - Consider having a waitlist sign-up for eligible people in case of “no-shows” or last-minute availability to minimize wastage

Proactive Scheduling - Integrate 2nd dose scheduling options to drive overall compliance, and reach out to specific individuals (ex. old age, etc.,) to reach target population

At the site

Appointment Validation - Need to be prepared on how to handle those who don't have necessary documentation on-hand

Walk-In Policy - Clear policy on walk-ins, for both eligible and non-eligible people

Last Minute Notification - Process in place to quickly notify waitlisted patients on same-day appointment availability



Booking sites should have built-in redundancy for large surges in demand and potential cyber-attacks

Registration



Registration

Develop a simple opt-in form to collect information relevant to prioritization and scheduling

- Allow registration via website, phone, and paper-based
- Collect information about age, occupation, health, etc. based on WHO Data and Monitoring Guidelines*



Database

Bring in 3rd party to develop back-end & manage up-to-date database & secure local business support

- Reach out to remove those who have been vaccinated
- Set-up process to cancel registration if they have already received vaccine



Outreach

Use contact information to keep registrants engaged and informed

- Ensure all new registrants receive confirmation email/SMS
- Send weekly updates regarding their place on list
- Send info to people when eligible to schedule appointment



Transparency

Use registration as powerful tool to track uptake and equity

- Identify gaps in registration by key demographic groups
- Use high throughput and success of administration to advocate for greater supply to site

* <https://www.who.int/publications/i/item/monitoring-covid-19-vaccination-interim-guidance>

Partnerships can bolster infrastructure and vaccine delivery capabilities for mass vaccination

Strategic partnership options for consideration

Service Infrastructure Partnerships

Venues

Partnerships with venues to enable large scale, pop-up and decentralized administration sites

Large stadiums, arenas, and amusement parks
Community centres, churches, banquet halls etc. Pharmacy chains

Resources

Partnerships with local governments, private corporations, and CSO to supply ancillary equipment

- Partner with private and public transportation services to develop mobile vaccination centers, utilizing currently idle vehicles.

Technology

Partnerships with technology providers for analytics, scheduling and optimizing operations

Service Delivery Partnerships

Workforce

Non-traditional partnerships with clinical and non-clinical work forces to enable effective operations

- Volunteers (e.g., Red crescent) can help with traffic control and security
- Multiple GP clinics are partnering together to balance daily workload and demand for vaccinations

Capabilities

Public-private partnerships can enhance non-core operational capabilities and distribute workload

Event management companies are being leveraged to help manage operations at large sites
Leveraging private sector expertise (e.g., Crown Agents, UPS, Coca-Cola, DHL, fresh food industry, etc.) for logistics support

Access

Community-based partnerships are required to increase access to vulnerable and underrepresented communities

- Taxi companies, local religious and community centers help increase access to administration sites
- Use mobile vaccination centers to reach communities without access

Vaccination Microplanning Pfizer's Vaccine

Vaccination Microplanning

- Planning before vaccine arrives
- Vaccine storage conditions most suitable for a site
- Vaccine needs
- Site type
- Staff needs
- Systems validations and reporting
- Ancillary supplies
- Training

Pfizer supply chain assumptions by vaccination site

Vaccination site	Ordering assumptions			Operating Assumptions				
	Order size	Storage conditions	Patient's flow	Number of vaccinators	Patients per vaccinator	Hours per day	Vaccines per day	Shipment model
Hospital 	5 trays (4,875 doses)	2-8C fridge, for product estimated at site for 7 days	≈ 1000/day	7 vaccinators (hospital outpatient clinic or C19 vx designated site)	6 patients/hour (≈ 10min/Vx)	8 hours / shift (2 shifts/day)	672	1 tray; every week
Health facility (PHC) 	1 tray (975 doses)	2-8C fridge, for product estimated at site for 10 days	Variable	2 vaccinators	6 patients/hour (≈ 10min/Vx)	8 hours / day	96	1 tray; every 10 days
Mass Vaccination Center 	5 trays (4,875 doses)	2-8C fridge, for product estimated at site for 5 days	≈ 1000 - 2000/day	10 vaccinators	6 patients/hour (≈ 10min/Vx)	8 hours / shift (2 shifts/day)	960	1 tray; every week
Drive-thru 	1 tray (975 doses)	2-8C fridge, for product estimated at site for 10 days	Variable	2 vaccinators	6 patients/hour (≈ 10min/Vx)	8 hours / day	96	1 tray; every 10 days
Mobile/outreach 	1 tray (975 doses)	2-8C fridge, for product estimated at site for 10 days	Variable	2 vaccinators	6 patients/hour (≈ 10min/Vx)	8 hours / day	96	1 tray; every 10 days
Community pop-ups 	1 tray (975 doses)	2-8C fridge, for product estimated at site for 10 days	Variable	2 vaccinators	6 patients/hour (≈ 10min/Vx)	8 hours / day	96	1 tray; every 10 days

Additional technical resources

Planning and delivery

- [WHO Guidance on Utilization of COVID-19 Vaccines before the date of expiry](#)
- WHO guidance on Covid-19 vaccine microplanning – *coming soon*
- [Open WHO Course Content](#), with Pfizer-specific resources
- Preparing the Pfizer Vaccine Instructional Video (some updates required, consult with WHO)
- [Management of anaphylaxis training video](#)

Cold Chain

- Guidance Note: Ultra freezers for AMC countries in support of Pfizer vaccine roll-out
- Training on handling, storing and transporting Pfizer BioNTech COVID-19 Vaccine COMIRNATY® (Tozinameran)

Social Mobilization

- [Data for action: achieving high uptake of COVID-19 vaccines through measuring behavioral and social drivers](#),
- [The vaccine misinformation guide](#)
- [C-19 Vaccine Health Worker training](#)
- [COVID-19 vaccine safety surveillance manual –chapter 9 \(communications\)](#)
- [VACCINES EXPLAINER SERIES](#)
- *Pfizer vaccine key messages – coming soon*

Appendix

Adapting National Guidelines and SOPs for Mass Vaccination Sites

- Vaccine supply
 - Availability of second doses
 - Supply to support a mass vaccination site
- Vaccine logistics
 - Frequency of transport to ensure effective vaccines are delivered AND administered (esp with stringent temp requirements)
- Demand
 - Approaches to reach target populations

