



Republic of Zambia  
**Ministry of Health**

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# NATIONAL COVID-19 VACCINE DEPLOYMENT STRATEGY

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A Plan to Roll-Out the COVID-19 Vaccine

April, 2021

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## FOREWORD

The Government of Zambia, through the Ministry of Health together with its cooperating partners, plan to deploy a COVID-19 Vaccine as an integral part of the overall National COVID-19 Response. This plan shall be executed in line with global guidance and whose coordination is anchored in the Incident Management Structure at all levels to ensure seamless coordination with all relevant stakeholders through multi sectoral approach. The Immunisation planning pillars embedded therein. The Zambia COVID-19 Vaccine Introduction Plan that articulates the justification for introduction, objectives, strategies and key actions that need to be undertaken to ensure that the country achieves the required and acceptable levels for COVID-19 vaccine readiness for safe deployment. Key pillars being addressed in the plan include: planning and coordination, regulatory, prioritisation, service delivery, monitoring and evaluation, vaccines, cold chain and logistics, safety surveillance, demand generation and communication.

Working through these pillars, key actions shall ensure that the deployment of the COVID-19 vaccine is deployed in a systematic approach informed by local epidemiological data in Zambia. The plan provides an opportunity to inform policy and provide guidance for planning, implementation, and monitoring and evaluation of the COVID-19 Vaccination Introduction. The plan is designed to provide up-to- date guidance on critical actions required for all levels of service delivery, outlines the coordination structures and mechanisms to be replicated at sub-national levels to ensure smooth planning and implementation, monitoring and evaluation.

The Ministry of Health wishes to express its appreciation to those involved in the development and finalisation of the Zambia COVID-19 Vaccine Introduction Plan through financial and technical assistance.

The implementation of this plan shall not be possible the good work and dedication of all relevant staff at various levels. We wish to urge all responsible officers at the provincial and district in various capacities work diligently to contribute to the successful deployment of this life saving vaccine. The Ministry of Health assures all stakeholders of support to facilitate processes required to ensure success in this exercise.



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## List of Abbreviations

ACSM	Advocacy Communication Social Mobilisation
AD	Auto-disable
AEFI	Adverse Events Following Immunisation
AESI	Adverse Events of Special Interest
BCG	Bacillus Calmette–Guérin vaccine
CCE	Cold Chain Equipment
CCEOP	Cold Chain Equipment Optimisation Platform
CFR	Case Fatality Rate
CHAZ	Churches Health Association of Zambia
COVID	Corona Virus Disease
CVIC	COVID-19 Vaccine Introduction & Deployment Costing Tool
DMMU	Disaster Management & Mitigation Unit
DNA	Deoxyribonucleic Acid
DPT-HepB-Hib	Diphtheria, Tetanus, Pertussis, Hepatitis B and Haemophilus Influenza vaccine
EPI	Expanded Programme on Immunisation
Epi curve	Epidemic curve
EPIC	Expanded Program on Immunisation Committee
EUL	Emergency Use Listing
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HPV	Human Papilloma Virus
ICU	Intensive Care Unit
IMS	Incidence Management Structure
IPC	Infection Prevention & Control
KAP	Knowledge Attitude and practices
MAH	Marketing Authorisation Holders
MMR	Maternal Mortality Rate
MNDP	Ministry of National Development Planning
NCD	Non-Communicable Diseases
NCL	National Control Laboratory
NMRA	National Medicines Regulatory Agency
NRA	National Regulatory Authority
NDVP	National Deployment and Vaccine Plan
ODK	Open Data Kit
PHEIC	Public Health Emergency of International Concern

PPE	Personal protective equipment
RCCE	Risk Communication & Community Engagement
RED/C	Reaching Every District/ Community
RMP	Risk Management Plan
RNA	Ribonucleic acid
SAGE	Strategic Advisory Group of Experts
SARS	Severe acute respiratory syndrome
SBC	Social Behaviour Change
SBCC	Social Behavioural Change Communication
SIA	Supplemental Immunisation Activity
SIA	Supplemental Immunisation Activities
SRA	Stringent Regulatory Authority
UN	United Nations
UNICEF	United Nations Childrens' Fund
VE	Vaccine Effectiveness
VIRAT	Vaccine Introduction Readiness Assessment Tool
VLIMS	Vaccine Logistics Information Management Systems
VRAF	Vaccine Readiness Assessment Framework
WFP	World Food Programme
WHO	World Health Organisation
WHO PQ	World Health Organisation – Pre-Qualification
ZAMMSA	Zambia Medicines and Medical Supplies Agency
ZAMRA	Zambia Medicines Regulatory Authority
ZAMSTATS	Zambia Statistics Agency
ZDHS	Zambia Health Demographic Survey
ZITAG	Zambia Immunisation Technical Advisory Group
ZNPHI	Zambia National Public Health Institute



## 1. EXECUTIVE SUMMARY

The goal for the COVID-19 vaccination deployment is to contribute to the reduction of COVID-19 mortality and morbidity. This will be done by protecting health systems in order to improve the wellbeing of Zambia's population and reduce the impact on society and the economy. Against the context of supply constraints, prioritisation shall be made for specific target population groups.

The country will request for doses that shall cover 46% of the total population during Phase 1 and Phase 2 comprising 8,456,619 individuals. The first phase shall cater for 3% of the national population (Tiers A and B) comprising individuals essential in sustaining COVID-19 response and those most essential in maintaining core societal functions. The additional 17% shall cover those individuals at greatest risk of severe illness and death and their caregivers (7%) as well as populations in congregate settings (10%). The remaining 26% shall be covered in phase 2. In addition, there shall be plans for a "humanitarian buffer" in case of humanitarian situations, deployments and other emergency related situations.

Distribution of vaccines and ancillary items shall be implemented using the existing immunisation supply chain system from the port of entry to the service delivery points. During the execution of the vaccine distribution plan, pre-alert notification shall be sent to each vaccine store. Vaccine specifications including batch details of vaccines deployed to the various levels shall be documented to ensure vaccine accountability and traceability. Readiness assessments shall play a major role in informing deployment of vaccines to the country. Recognising that the initial batches of vaccines delivered to the country may have short shelf-life, the distribution of these to subnational vaccine store including service delivery points and administration to beneficiaries shall be within 8 to 12 weeks.

The planned date of vaccine introduction in the country is 7 April 2021.



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## 2. INTRODUCTION

This plan has been developed in line with the November 2020 WHO & UNICEF Interim Guidance on developing a national deployment and vaccination plan (NVDP) for COVID-19 vaccines. This document shall guide national authorities responsible for management, deployment, implementation and monitoring of vaccination in the development their local deployment and vaccination plans, designing strategies for deployment, implementation & monitoring; ensuring alignment with other COVID-19 related plans and integration into the governance mechanisms (Incidence Management Structures, IMS) as well as engagement of partner agencies that support the processes.

### 2.1. Country Background

Zambia is a landlocked country in Southern Africa. It is located between latitudes 8° and 18° south and longitudes 22° and 34° east and covers a total area of 752,612 square kilometers. The country is bordered by, The Democratic Republic of Congo to the north, Tanzania to the north-east, Malawi to the east, Mozambique, Zimbabwe, Botswana and Namibia to the South, and Angola to the west. Zambia is administratively divided into ten provinces namely: Central, Copperbelt, Eastern, Luapula, Lusaka, Muchinga, Northern, North Western, Southern and Western provinces.

Figure 1: Map of Zambia with neighbouring countries



Zambia has 116 districts. Lusaka is the Capital City of Zambia and seat of the government. The 2021 total population stands at 18,383,955. (UNDP Report 2021 Population Projection)

Health plays a critical role in the development of the country and no meaningful development can be attained without a sound health policy. Since 1991 the health sector has been making strides to improve the health delivery system in the

country. Some of these efforts include a move from a strongly centralised health system in which the central structures provided support and national guidance to the peripheral structures to a more decentralized system.

In 2017, the number of health facilities in Zambia's health system was at 2,922 health facilities. Of these 2,317 were government-owned health facilities (79%); 68 mission-owned (2%) and 584 privately owned health facilities (19%). At the time, there were, 6 third level; 34 second level and 99 first level hospitals. Urban health centers were 661 whereas rural health centers were 1161. Health posts were 953 in total. (2017 Health Facility Listing)

## **2.2. Health Status**

The current life expectancy for Zambia in 2021 is 64.12 years, a 0.45% increase from 2020. Zambia, like many Sub-Saharan countries, has high morbidity and mortality. From 1996, infant and under-5 mortality has shown a consistently decrease. However, since 2013-14, infant mortality has remained essentially unchanged, 45 to 42 deaths per 1,000 live births in 2018. During the same period, under-5 mortality has slightly declined from 75 to 61 deaths per 1,000 live births. Neonatal mortality has remained at approximately the same levels, from 24 to 27 deaths per 1,000 live births.

The under-5 mortality rate differs by mothers' education and province for the ten-year period before the survey in 2018. Children whose mothers have no education are more likely to die by age 5 (69 deaths per 1,000 live births) than children whose mothers have higher education (47 deaths per 1,000 live births). By province, under-5 mortality ranges from 26 deaths per 1,000 live births in North Western province to 110 deaths per 1,000 live births in Luapula province.

Maternal mortality includes deaths of women during pregnancy, delivery, and 42 days after delivery excluding deaths that were due to accidents or violence. The maternal mortality ratio (MMR) for Zambia is 252 per 100,000 live births for the seven-year period before the survey. The confidence interval for the 2018 ZDHS MMR ranges from 158 to 347 deaths per 100,000 live births.

In Zambia, 75% of children age 12-23 months have received all basic vaccinations—one dose each of BCG, measles vaccine, three doses each of DPT-HepB-Hib and polio vaccines. Only 1% of children did not receive any vaccinations. Basic vaccination coverage varies by province and is highest in Copperbelt (83%) and lowest in Luapula (67%). Basic vaccination coverage

increases with mother's level of education, from 66% among children whose mothers have no education to 88% among children whose mothers have higher education.

According to the 2018 ZDHS, overall, 11.1% of adults age 15-49 in Zambia are HIV positive. HIV prevalence is higher among women than men (14.2% versus 7.5%). Among adults, HIV prevalence is twice as high in urban areas (15.9%) than in rural areas (7.1%). HIV prevalence is highest in Copperbelt (15.4%) and Lusaka (15.1%), which is nearly three times higher than Muchinga (5.4%) and Northern provinces (5.6%). HIV prevalence among youth is higher in urban areas (5.3%) than in rural areas (2.6%). HIV prevalence is higher among young women than young men (5.6% versus 1.8%).

According to the 2016 WHO NCD country profile, 29% of all deaths in Zambia are attributed to NCDs.

Table 1 shows the prevalence of high blood pressure and diabetes as it increases with age in both genders. These morbidities have been documented to have higher risk of severe morbidity and mortalities in COVID-19 infections.

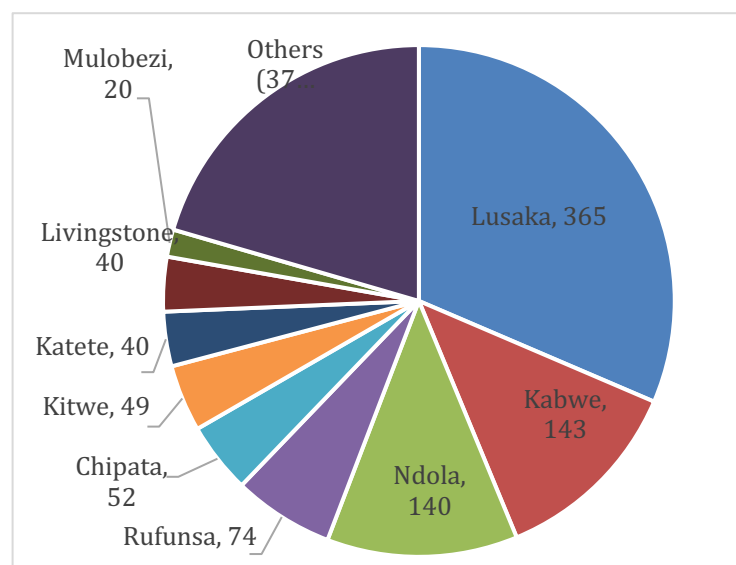
**Table 1: Zambia Prevalence of metabolic risk factors by age and gender**

Factor	Men				Women			
	18–29	30–44	45–59	60–69	18–29	30–44	45–59	60–69
Very high blood pressure <sup>a</sup>	3.2	6.2	10.3	22.5	3.3	6.7	18.0	33.6
High blood pressure	16.3	20.8	29.4	38.6	8.4	16.7	33.5	59.4
Raised cholesterol	1.8	4.3	12.0	12.7	6.2	9.3	13.5	24.6
Diabetes	3.3	6.0	11.8	17.2	3.1	7.0	9.8	22.2

## 2.3. Burden of the targeted disease

The Zambia COVID-19 statistics Daily Status update provided on 12 January 2021 recorded a total of 29,757 cumulative cases since the first case was reported on 18 March 2020. The total number of recoveries were 21, 074 (71% of the total number of cases). The cumulative number of deaths was 495 deaths of which were: 170 COVID-19 deaths; 308 COVID-19 associated deaths and 17 deaths pending classification. At the time of the report, the total number of active cases was 8,188 cases, further broken down as 234 hospitalisations and 7,954 in community management.

More cases being reported daily in the established 2nd wave than in the 1st



wave. The overall testing on average more than 6 times of that in first wave, but positivity high and is still rising. As at 10 January, 1,161 new confirmed cases were reported out of 11,700 tests (9.9% positivity). This is more than three times the cases reported on a similar day (352) a week earlier. Forty-six (46) out of the 116 districts reported cases on Sunday 10th, which is a huge leap from 16

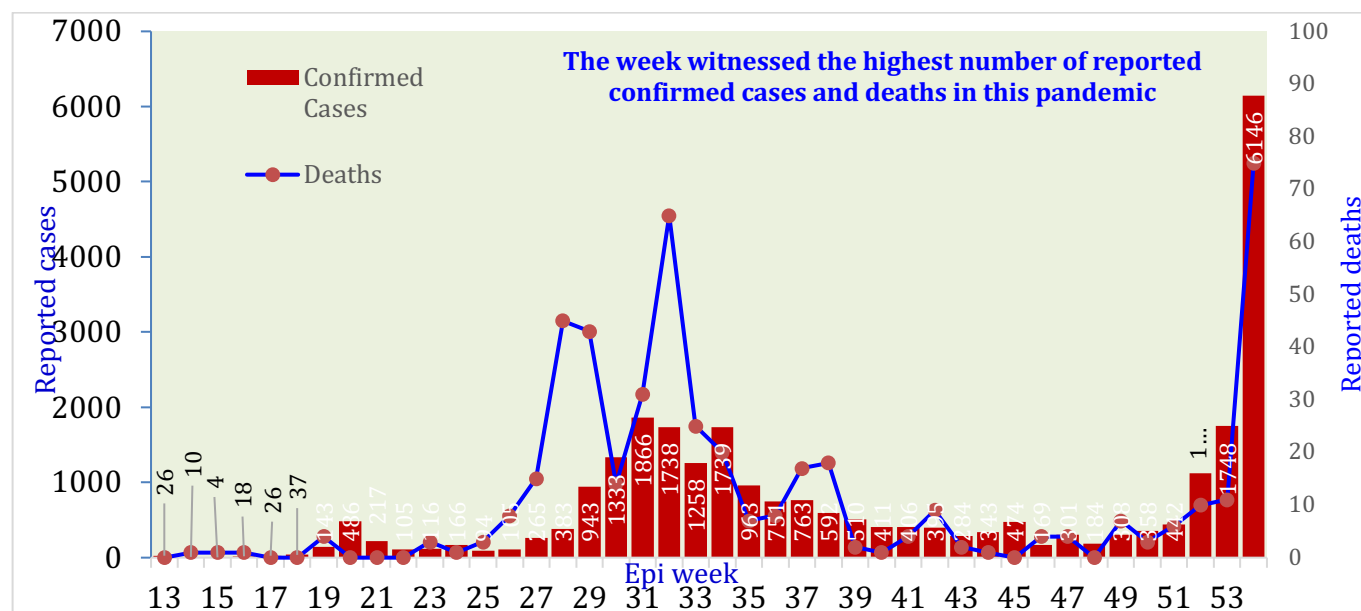
the previous 7 days (Sunday).

**Figure 2: Distribution of Covid-19 cases as at 10 January 2021**

By 10th January 2021, 27,728 confirmed cases and 469 deaths (CFR 1.7) had been reported. A total 698,215 tests had been done with 4% positivity. About 74% (20,598) of confirmed cases have recovered and discharged leaving 6,661 active cases under care in health facilities or home care. Out of the 6,661 active cases, 224 (3.4%) cases are admitted in health facilities in Lusaka (135 cases) and 89 cases in eight other provinces). This is almost double the number admitted a week ago 116 (5.5%). Out of the 224 admitted patients, 149 were on oxygen and 19 in critical condition.

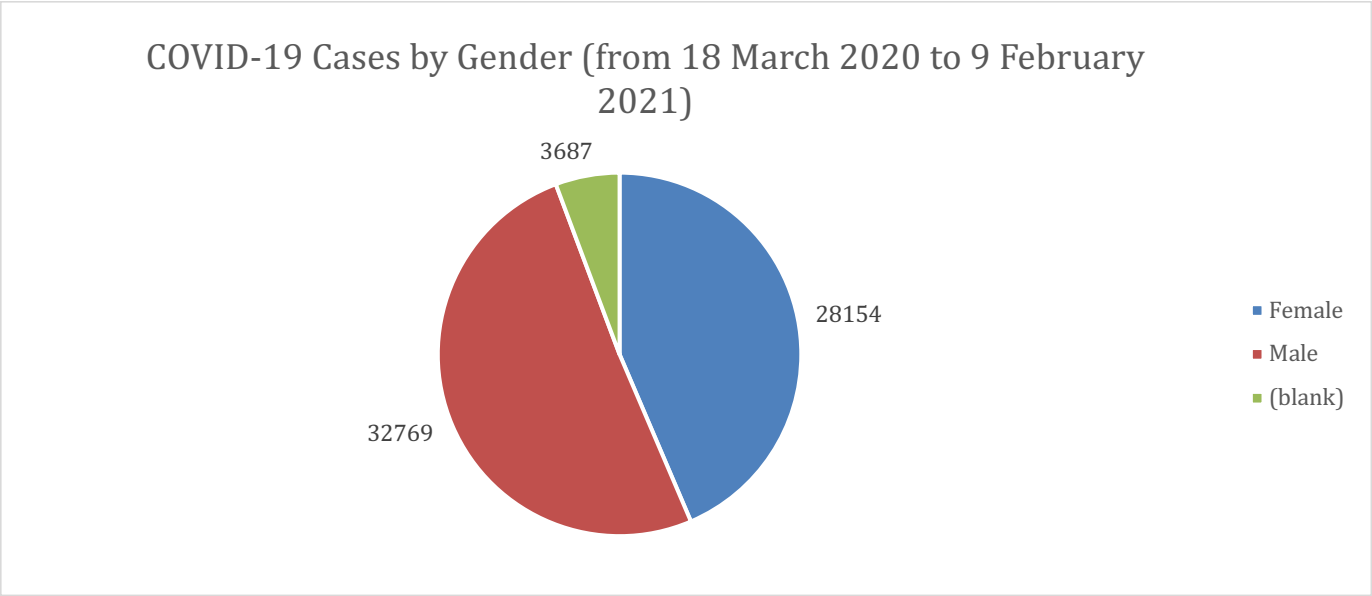
The Epi curve in Figure 3: below shows COVID-19 confirmed cases from 18th March 2020 – 10th January 2021 and illustrates a first peak between June and August and a second peak from December 2020. As at 11 Jan, 2021 regarding cumulative COVID-19 deaths, the majority (71%) were classified as community (BID) while 29% were facility deaths. Of the deaths recorded so far, 79% were recorded in Lusaka, 13% on the Copperbelt and the remaining 8% from the rest of the country.

**Figure 3: Reported cases and deaths by week 11 of 2020 – week 1 of 2021**



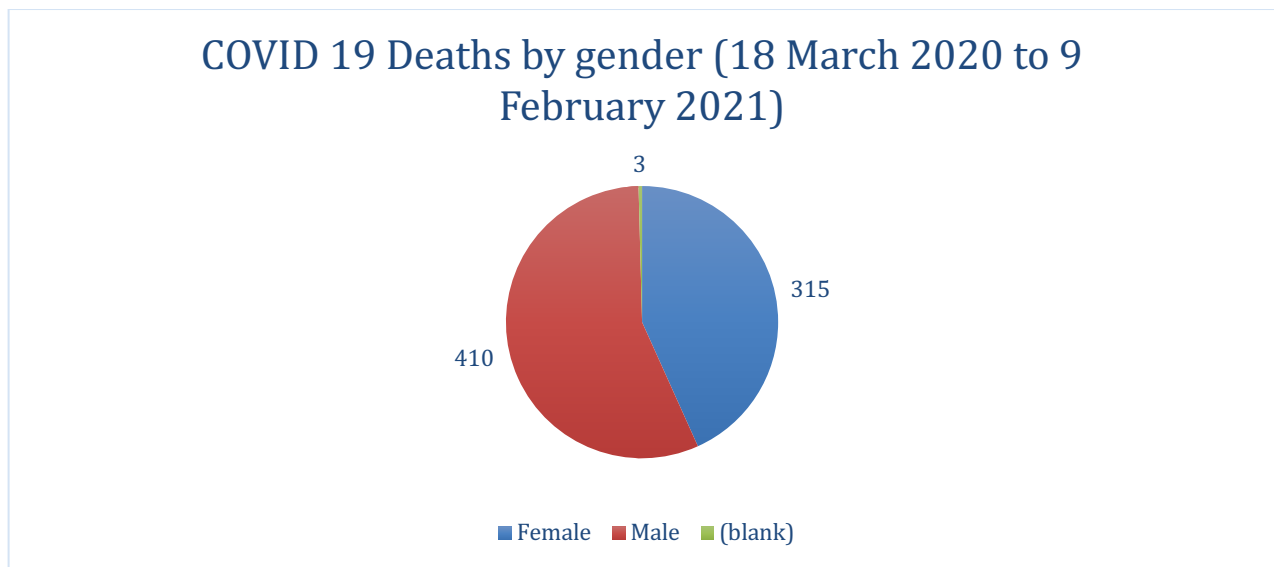
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**Figure 4: COVID-19 Cases by Gender (18 March 2020 to 9 February 2021)**



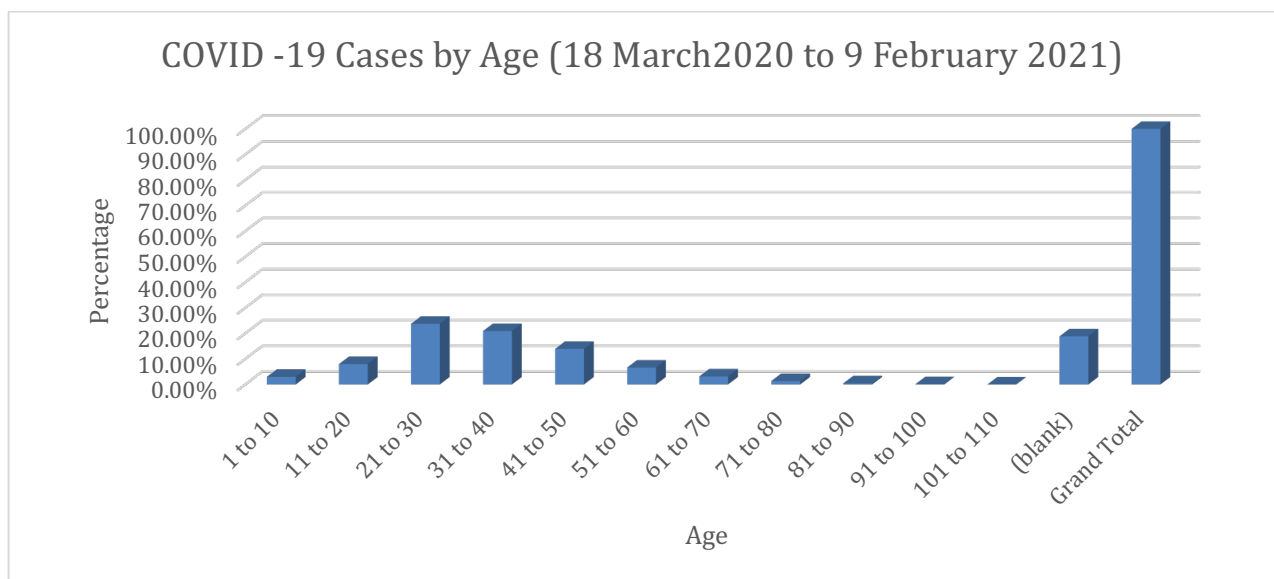
The majority of the affected population in Zambia are males (50.7%).

Figure 5: COVID-19 Deaths by Gender (18 March 2020 to 9 February 2021)



The majority of death due COVID-19 has been in males (56.3%).

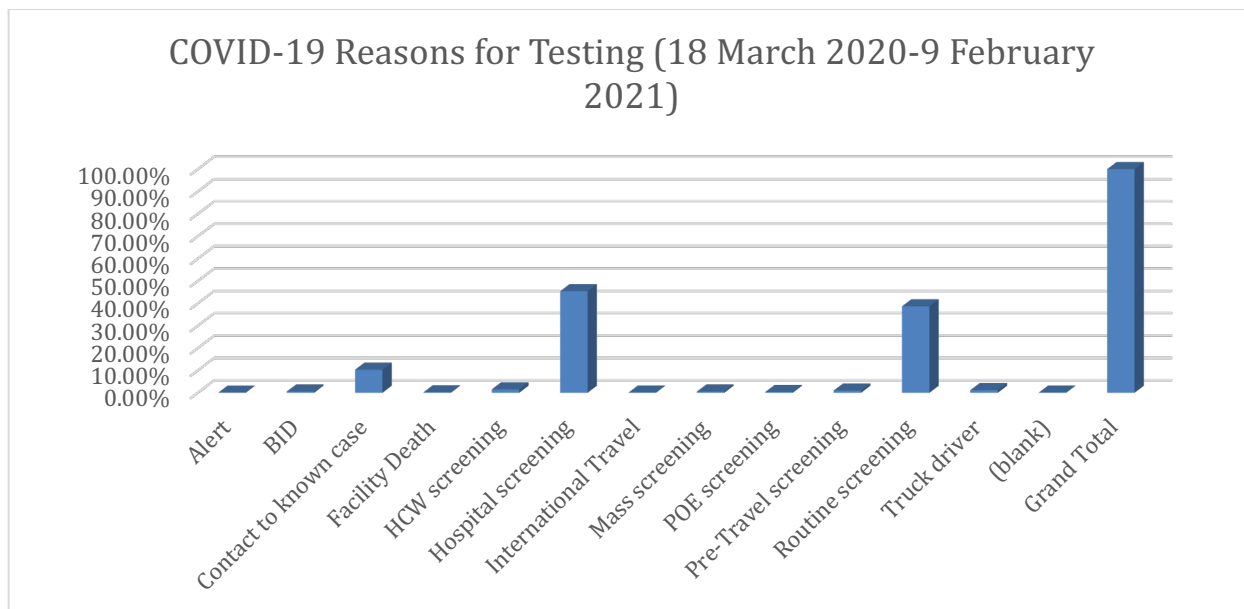
Figure 6: COVID -19 Cases by Age (18 March2020 to 9 February 2021)



The most affected age is between 21 to 60 years of age with the majority between 21 and 40 years of age.

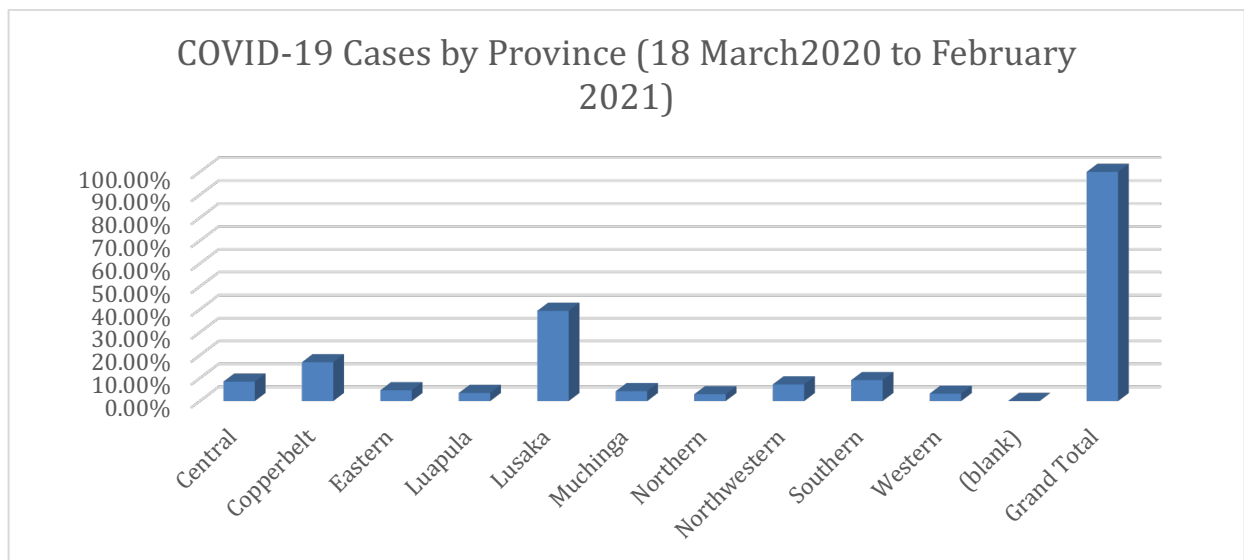


Figure 7: COVID-19 Reasons for Testing (18 March 2020-February 2021)



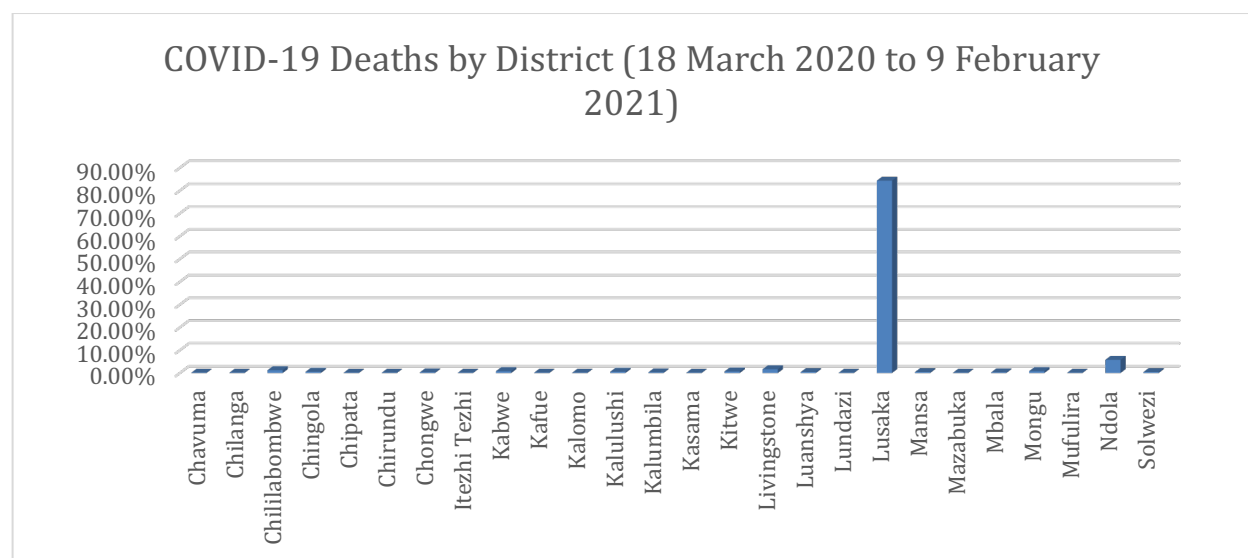
Most of tests have been done through routine (39%) and hospital screening (45%).

Figure 8: COVID-19 Cases by Province (18 March2020 to 9 February 2021)



Lusaka (39%) and Copperbelt (17%) provinces have recorded the highest number of COVID-19 cases while Western (3.2%) and Northern Provinces (3.0%) have recorded the least.

**Figure 9: COVID-19 Deaths by District (18 March 2020 to 9 February 2021)**



Lusaka (84%) and Ndola (6%) districts have recorded the highest number deaths since the start of the pandemic.

## 2.4. Lessons learned from relevant activities

The programme has learnt various lessons through the implementation of a number of vaccination activities includes new vaccine introductions, vaccine presentation/product switches, preventive and reactive SIAs. Other lessons have been learnt through programme assessments and evaluations. Below are the key lessons learnt:

- Planning (Microplanning) at levels is essential in determining and defining the target population in terms of who, where, how and numbers of who is to be reached. It also assists is planning for adequate response and possible areas for resource mobilising to meet the gap.
- Having a standard microplanning template and a microplanning review tool facilitates easy and timely review of district microplans for feedback.
- Partner mapping and engagement is key in identifying and coordinating available support.
- Community engagement is also vital in disseminating information and mobilising locally available support and resources.
- Regular review of surveillance data is essential in monitoring disease progress and informing vaccination strategies.
- Use of the Open data kit (ODK) platform for supervision and monitoring provides real time data for decision making and taking timely corrective measures.

- g) Daily review meeting (pre and intra – activity implementation) provide a platform to provide feedback and track progress on implementation of activities.
- h) Regular review of readiness provide an opportunity to monitor progress at various levels of implementation and was an alert for key actions to be undertaken.
- i) Rapid Convenient Monitoring provided insight on pockets of unvaccinated populations and was an alert system for making timely remedial actions.
- j) Preregistration of eligible population using platforms such as ZEIR and e-registers used in HPV Vaccinations facilitates identification of eligible population and where they are found, prior to implementation.

## **2.5. Coronavirus disease 2019 & Prevention**

The outbreak of the coronavirus disease (COVID-19) was declared a Public Health Emergency of International Concern (PHEIC) on the 30<sup>th</sup> January 2020 by the Director-General of the World Health Organisation (WHO). The virus has now spread to many countries and territories. While COVID-19 continues to spread, it is important to take action to prevent further transmission, reduce the impacts of the outbreak and support control measures.

COVID-19 is a disease caused by a new strain of coronavirus: '**CO**' stands for corona, '**VI**' for virus, '**D**' for disease and **19** for 2019 for the first case in December 2019. The COVID-19 virus is a new virus linked to the same family of viruses as Severe Acute Respiratory Syndrome (SARS) and some types of common cold.

Symptoms can include fever, cough and shortness of breath. In more severe cases, infection can cause pneumonia or breathing difficulty, and can be fatal. Symptoms are similar to the flu (influenza) or the common cold, which are more common than COVID-19; which is why testing is required to confirm if someone has COVID-19.

The virus is transmitted through direct contact with respiratory droplets of an infected person (generated through coughing and sneezing). Individuals can also be infected by touching contaminated surfaces and touching their face (e.g., eyes, nose and mouth). The COVID-19 virus may survive on surfaces for several hours (about 10 hours), but simple disinfectants can kill it. We are learning more about how COVID-19 affects people every day. Older people, and people with chronic medical conditions, such as diabetes and heart disease, appear to be more at risk of developing severe symptoms. As this is a new virus, we are still learning how it affects children. We know it is possible for

people of any age to be infected with the virus, but so far there are relatively few cases of COVID-19 reported among children.

Scientists throughout the world have accelerated the process to develop safe and effective COVID-19 vaccines. These provoke an immune response that can block or kill the virus if a person becomes subsequently infected, without causing the disease. As part of the global efforts for rapid development of a safe and effective COVID-19 vaccine, various scientific techniques like the use of different viruses or viral parts are being developed. The vaccine development process has been fast-tracked and multiple platforms are under development. Among those with the greatest potential for speed are DNA and RNA-based platforms, followed by those for developing recombinant-subunit vaccines.

Currently, several non-pharmaceutical interventions such as wearing masks, hand hygiene and observance of social-physical distancing can limit the spread of the virus, restricting international and local travel to hotspot areas, contact tracing of people infected, quarantine and lockdowns, have been employed to reduce the number of infections and to save lives in many countries, including Zambia. Despite these measures instituted by the Government, the country continues to record a number of COVID-19 cases. Like many other countries, Zambia desires to accelerate equitable access to COVID-19 tools in order to attain adequate capacities to end the acute phase of the contagion through the introduction of the COVID-19 vaccine.

## **2.6.Zambia's considerations for COVID-19 vaccine introduction**

The deployment of COVID-19 Vaccine in Zambia shall be guided by the following principles in accordance with global guidance:

- Strong country-led, evidence-based decision-making, planning and prioritisation process that is accountable and coordinated with other components of the health system.
- A well-performing responsive immunisation programme
- Seizing the opportunity to achieve:
  - a well-trained and motivated health workforce;
  - quality education and communication about the new vaccine for the community; –
  - functional cold storage, logistics and vaccine management systems;
  - safe immunisation practices and monitoring and management of adverse events; and
  - high-quality monitoring and evaluation, including disease surveillance and immunisation coverage monitoring.

- Accountability in terms of resources, performance and management. While capitalising on opportunities to deliver vaccines as integral components of comprehensive health promotion and disease prevention and control efforts, ensure that vaccines are delivered as part of effective, feasible and affordable interventions based on the local context
- Adequate allocation of human and financial resources to introduce the COVID-19 vaccine and sustain its use without adversely affecting other programmes and services.
- Provision of a safe and efficacious vaccine that is appropriate for local use and available with an uninterrupted, sufficient supply

### **2.7. Coordination with other health programmes or sectors**

A strong multi-sectorial collaboration that shall comprise high-level officials as well as major in-country partners shall form the bed-rock to achieve timely and successful introduction of COVID-19 vaccines. The vaccination pillar is embedded in the overall National COVID-19 response structure as reflected in Figure 10 and all related subcommittees have been activated.

## **3. OBJECTIVES OF THE COVID-19 VACCINATION**

The goal for the COVID-19 Vaccination deployment is to contribute to the reduction of COVID-19 mortality and protecting health systems in order to improve the well-being of the national population and reduce the impact on society and the economy. Against the context of supply constraints, prioritisation shall be made for specific target population groups. In order to move towards the prevention and control of COVID-19 in Zambia, the following specific objectives have to be met:

The plan has two main objectives;

1. To achieve at least 95% of COVID-19 vaccination (Cov 2) coverage of the target population in Phase 1 by the end of 2021.
2. To achieve at least 95% of COVID-19 vaccination (Cov 2) coverage of the target population in Phase 2 by the end of 2022.

Strategic approaches that will be employed to attain the desired objective include:

1. Adapt COVID-19 vaccine coordination mechanism to manage deployment and vaccination operations at all levels;
2. Implement current practices and options for regulatory preparedness to ensure timely decision-making by the regulatory authority for COVID-19 vaccine deployment;
3. Determine COVID-19 vaccine introduction critical supply chain strategies/activities required to prepare for vaccine deployment and manage health care waste;
4. Prepare realistic budget and mobilise financial resources to enable COVID-19 vaccine deployment and vaccination in respect of existing essential health services;
5. Define country's prioritised target populations; delivery strategies for COVID-19 vaccine to the different identified target populations; and determine the human resource requirements, training and supervision, for the successful roll-out of COVID-19 vaccine;
6. Develop evidence-based approaches for implementing and evaluating demand generation and strategic communications activities that promote COVID-19 vaccination and address risk communication;
7. Develop and implement pharmacovigilance and vaccine safety approaches to address unique and different context for COVID-19 vaccines and medical supplies; and
8. Identify data needs and strengthen information systems to monitor progress with COVID-19 vaccination; adapt COVID-19 disease surveillance to meet vaccination surveillance objectives; conduct evaluations for COVID-19 vaccine introduction.

#### 4. READINESS ASSESSMENT

In order to guide preparations for COVID-19 vaccine deployment, Zambia has been utilising the Vaccine Introduction Assessment Tool/Vaccine Readiness Assessment Framework (VIRAT/VRAF) 2.0 to implement and monitor progress of activities against key milestones. This deployment plan serves as a road map to the Ministry of Health, partners and key stakeholders for COVID-19 vaccine introduction. The country in pre-planning for COVID-19 vaccine introduction continues to conduct the following activities using the Vaccine Introduction Readiness Assessment resource with key considerations under the following categories with roles and responsibilities highlighted:

**Planning and coordination:** The immunisation pillar is embedded in the existing National COVID-19 response with terms of reference, roles and responsibilities, which holds regular meetings. Existing TWG the National EPI Committee (EPIC) and subcommittees' membership have been expanded and activated for COVID-19 vaccine introduction activities and report progress to the National Coordinating Committee. Subnational levels shall replicate coordination mechanisms at national level for vaccine deployment.

**Regulatory:** Zambia Medicine Regulatory Authority (ZAMRA) is playing an important role and has confirmed existing regulatory processes and provisions including timelines for expedited regulatory pathway for approval of COVID-19 vaccines (i.e. emergency use authorisation, exceptional approval/waiver mechanism based on reliance/recognition, abbreviated procedure, fast track, etc.). The subcommittee is working on key milestones to be achieved to ensure regulatory readiness.

**Prioritizing, Targeting and COVID-19 Surveillance:** Terms of Reference, objectives and schedule of activities for ZITAG working group on COVID-19 vaccines (including expansion of profile of expertise required) have been developed. ZITAG have been meeting to identify prioritised target population for access to vaccines, numbers, and their geographic location using local epidemiological data and there is a report on preliminary recommendations. A monitoring framework for the ZITAG working groups shall be developed in the next ZITAG meeting and implemented for future recommendations as new evidence becomes available. COVID 19 surveillance indicators to inform vaccine implementation and policy have been defined.

**Service Delivery:** There is ongoing works to update protocols for infection prevention and control measures including adequate personal protection equipment (PPE) to minimize exposure risk during immunisation sessions. The country has Identified COVID-19 vaccine delivery strategies based on current information to best reach identified target groups. This shall also be informed by subnational level. A master list and strategy of service providers, shall be developed by end February. Protocols regarding consent to vaccinations shall be developed.

A draft inventory of potential implementing agencies supporting vaccine deployment has been developed. The process of developing the standard operating procedures for performance and reporting standards and mechanisms for complaints handling, certification of facilities, monitoring and

integrity checks for private facilities and non-routine vaccine handling facilities is in progress.

**Training and Supervision:** A draft training plan has been developed to prepare for COVID-19 vaccine introduction that includes key groups of participants, content topic areas, key training partners and training methods (in-person or virtual).

The country shall continue to engage relevant security wings to assist in vaccine deployment to assure product and personnel security regarding COVID-19 vaccines and vaccinations.

**Monitoring and Evaluation:** The process of adapting existing surveillance and monitoring framework with a set of recommended indicators (coverage, acceptability, disease surveillance etc...) for COVID-19 vaccine shall be completed by 23<sup>rd</sup> February 2021.

The country shall utilise existing systems for data protection and appropriate data governance regulation to monitor legitimate, appropriate and proportionate use and processing of data which shall be routinely collected and managed in health information systems.

A mechanism with multiple intake points for feedback and grievances in relation to the vaccine programme shall be designed.

**Vaccine Cold Chain and Logistics:** There is a functional national logistics working group with appropriate terms of reference and standard operating procedures to coordinate COVID-19 vaccines and ancillary products deployment.

A draft cold chain, logistics and waste management strategy has been developed to provide for infrastructure needs, COVID-appropriate standard operating procedures (SOPs), protocols.

Update and implement systems and protocols for tracking and monitoring the stock management and distribution of vaccines and key supplies through the existing Vaccine Logistics Management and Information System (VLMIS) and disseminate delivery and acceptance protocols.

**Safety Surveillance:** The country has in place functional AEFI committee, guidelines, documented procedures and tools for planning and conducting vaccine pharmacovigilance activities (i.e. AEFI reporting, investigation, causality assessment, risk communication and response). Trainings to be conducted to assure competent staff who shall perform vigilance activities. Additionally, provisions that require manufacturers to implement risk management plans,



collect and report COVID-19 vaccine safety data to the Regulatory authority have been identified

Active surveillance of specific COVID-19 vaccine related adverse events shall be conducted using the existing platforms.

**Demand Generation and Communication:** A draft COVID 19 communication strategy which includes advocacy, communications, social mobilisation, risk and safety communications, community engagement, and training has been developed to generate confidence, acceptance and demand for COVID-19 vaccines. This plan includes a crisis communications preparedness.

Data collection systems, including (a) social media listening and rumour management, and (b) assessing behavioural and social data shall be established.

## 5. PLANNING AND COORDINATION

The country activated a multi-sectorial COVID-19 response coordination mechanism comprising expertise in the following pillars Laboratory and sample management, case management, health promotion, surveillance, outbreak investigation, infection prevention and control, risk communication, and immunisation. Members are drawn from various programmes line ministries and other stakeholders including training institutions and the private sector.

The immunisation pillar is anchored in the existing National coordination mechanism with clear linkages and reporting responsibilities to the Incident Manager, providing updates on progress made through its actions to the overall country COVID-19 Response Plan. Key structures in the coordination of COVID-19 Vaccine introduction include the following:

### 5.1. The Zambia IMS structure/National Coordinating Committee (NCC)

Zambia COVID-19 Incident Management Committee has multi-sectorial representation. Through the IMS, the country's response vaccine shall use the existing coordination mechanism to manage deployment and vaccination operations at all levels. Its responsibilities include:

- Resource mobilise to fill the funding gap
- Establish operations process for coordination, communication and information
- Communicate with partners and the media
- Ensuring integration with existing immunisation programmes and coordination across programmes and different sectors embedding the vaccination programme into existing health system structures

## **5.2. Inter-agency Coordinating Committee (ICC)**

ICC shall continue to be engaged for COVID-19 vaccine introduction. The committee shall play an important role in:

- Coordinating partner financing and activities,
- Review and endorse proposals for support for vaccine introduction
- Supporting roll-out and evaluation of the vaccine introduction
- Resource mobilise to fill the funding gap
- Monitor progress in implementation of plans

## **5.3. EPI Committee**

This committee has been expanded to include non-traditional immunisation stakeholders required for the COVID-19 vaccine deployment and vaccination coordination mechanism. Its responsibilities include:

- Coordinate overall immunisation response
- Review global-level information related to COVID-19 vaccines and incorporate into planning and preparation
- Use Zambia Immunisation Technical Advisory Group recommendations to inform prioritisation and targeting
- Develop, finalise and cost the deployment plan
- Expedite operations processes for planning, implementation, monitoring and evaluation for the deployment plan
- Provide status reports as needed
- Communicate with immunisation stakeholders
- Coordinate the implementation of health services readiness and capacity assessments
- Monitor progress.

## **5.4. Zambia Immunisation Technical Advisory Group**

The existing committee has been equipped with relevant expertise to provide evidence-based recommendations and policy guidance related to COVID-19 vaccines. Their responsibilities include:

- Reviewing recommendations from Strategic Advisory Group of Experts on Immunisation (SAGE), Regional Immunisation Technical Advisory Group (RITAG) and other National Immunisation Technical Advisory Groups (NITAGs);
- Regular reviewing relevant country data on epidemiology of COVID-19:
  - laboratory confirmed cases
  - hospitalisation and deaths associated with COVID-19

- Advising the MoH/ EPI on priority groups and vaccination strategies based on evidence.
- Issuing vaccine-specific recommendations based on:
  - Characteristics of COVID-19 vaccines, including efficacy, immunogenicity and safety in different age and risk groups, effect of the vaccine on acquisition and transmission of infection, available supply of vaccine and supply forecasts.
  - COVID-19 vaccine specific recommendation from SAGE and RITAGs
  - changes in the landscape of non-pharmacological interventions, diagnosis and treatment of COVID-19 disease.
- Advising MoH and the National Immunisation Programme manager on the best communication approaches regarding COVID-19 vaccine introduction

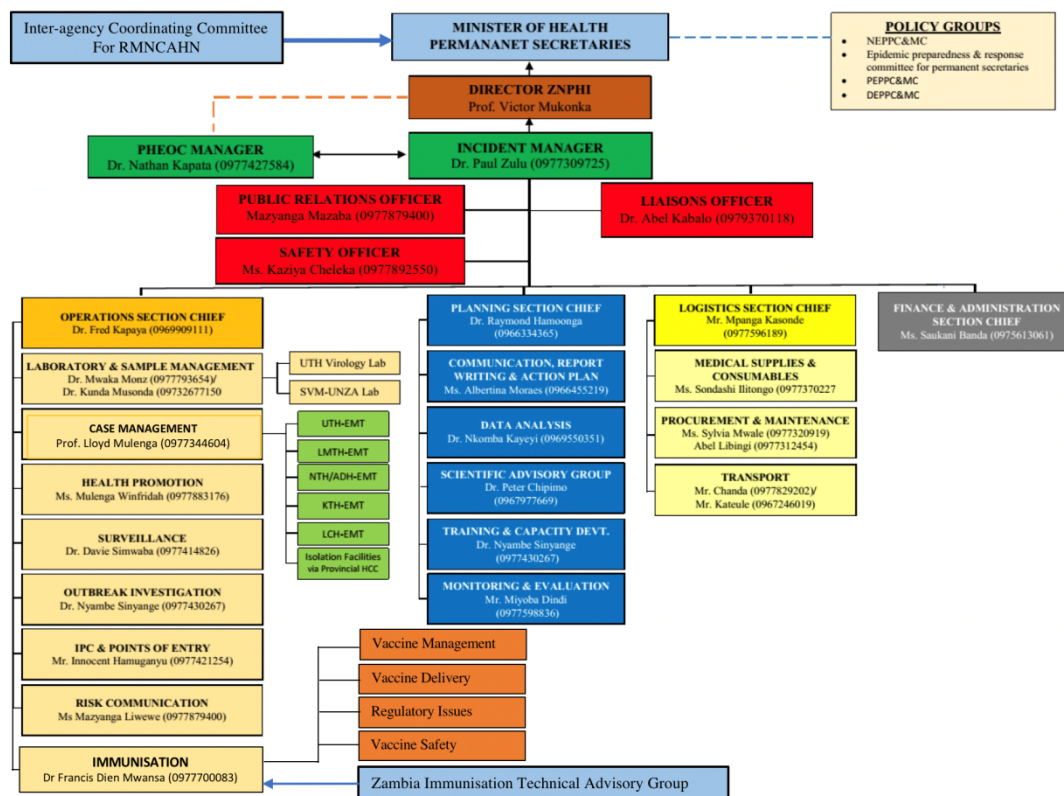
### **5.5. Reporting and management structure**

The IMS structure includes immunisation as one of the response pillar to ensure COVID-19 vaccine deployment, implementation and monitoring. To effectively deploy vaccines, vaccination shall depend on the effective management of planned activities and processes and the ability of managers to make rapid decisions at all levels.

A graphic representation of the reporting and management structure is shown in Figure 10. It rides on existing IMS coordination mechanisms and structures for the National COVID-19 response. This structure and processes to support decision-making includes individuals or designated offices that exist within the country as outlined in Figure 10.

**Figure 10: National COVID-19 RESPONSE INCIDENT MANAGEMENT STRUCTURE**

## THE ZAMBIA COVID-19 RESPONSE INCIDENT MANAGEMENT SYSTEM



The Incident Manager (IM) is the main focal point person for the national COVID-19 response working with the rest of the response management team to effectively coordinate all related activities. The Incident Management System (IMS) structure outlines critical roles and responsibilities for key focal point persons in various aspects related to the response as outline in the pillars in figure 4. Each of these focal points or designated offices are working with existing technical working groups or structures in the IMS where gaps are identified to work with them in the specific areas (planning and management, supply chain management, training and supervision, demand creation, vaccine safety, monitoring and evaluation, IPC and surveillance). Similarly, IMS structures shall be replicated at sub-national levels to support operations during the course of deployment.

**Incident Manager (IM)** shall be responsible for managing the overall pandemic response and shall:

- Work in coordination with the incident management team and national emergencies collaboration mechanism

- Delegate responsibilities for deployment and vaccination to the Focal Point vaccine Management (FPM) and Focal Point Immunisation (FPI).
- In collaboration with the focal points or designated offices, draft final report and outcomes on the deployment and vaccination activities
- Receive regular updates on progress related to readiness and implementation from the immunisation team and other committees working on COVID-19 vaccination such as risk communication, surveillance, health promotion, M&E, IPC and vaccine safety.

**Focal Point for vaccine Management (FPM)** shall be responsible for vaccine management in the deployment of COVID-19 vaccines and shall:

- Oversee process for forecasting, vaccine receipt, storage, transport, distribution and waste management
- Propose execution schedule of vaccine shipments
- Establish processes for vaccine logistics data collection, analysis, visualisation and communication using appropriate management information systems
- Manage human resources and budgets for logistics operations
- Establish process for monitoring and evaluating vaccine deployment throughout the supply chain
- Establish linkages with the Logistics Section Chief for the purposes of leveraging on other logistical requirement for vaccine deployment

**Focal Point for Immunisation (FPI)** shall be responsible for the immunisation pillar of the COVID-19 response. The FPI shall:

- Manage vaccine acquisition and deployment related activities
- Have a supervisory role and establish a command-and-control structure for vaccine deployment.
- Facilitate processes for data collection and information using a management information system
- Facilitate processes for monitoring and evaluating vaccination activities and vaccine safety surveillance
- Manage human resources and budgets for vaccination operations and ensuring adequate staff numbers, including surge capacity; training and supervision

**Command-and-Control System** shall be established through the leadership of the FPI to ensure delivery of vaccines and supplies to each level supported by existence of six essential elements at all administrative levels specifically:

- Processes providing instruction and guidance
- Clear lines of decision-making authority
- System of communication

- Supervision and guidance for managers and supervisors
- Evaluation and monitoring before, during and after the deployment
- Simulation exercises

Existing EPI subcommittees, including 1) service delivery, 2) advocacy, communication and social mobilisation, 3) logistics and cold chain, and 4) M&E have been activated to accelerate planning and coordination. Additional subcommittees as reflected in the readiness assessment tool pillars have equally been established or embedded in the already existing subcommittees in the main IMS structure to ensure all key aspects/ categories of planning and coordination are covered. These subcommittees are to be replicated at subnational level.

## 6. RESOURCES AND FUNDING

The COVID-19 Vaccine Deployment plan shall be nested in the overall National COVID-19 Response Plan. Availability of resources shall be critical to the successful implementation and deployment of COVID-19 vaccines. The costing model will follow the vaccination delivery strategies in identifying priorities.

These shall be estimated within available general government and MoH resources (domestic and external resources). Considerations have been made to ensure that COVID-19 vaccines do not replace budgets for other essential health services including the routine immunisation budget.

The Zambia costing process is based on the CVIC tool, which is meant to help governments, partners, and other stakeholders estimate the introductory and deployment cost of COVID-19 vaccine procurement and service delivery, before detailed planning can take place. The costs included in the Zambia deployment plan include central activities, international and domestic logistics, service delivery, and demand generation and communications. In addition, the costing focuses on operational costs and selected capital expenditures.

Each component and stage of COVID-19 deployment and vaccination shall require specific budget inputs and health systems adjustments. The budgeting process shall leverage the COVID-19 national coordination mechanism to facilitate dialogue and alignment with the budget and planning departments of the MoH, MoF and the funding partners. Cost estimation of the deployment plan is based on a model of typical service delivery conditions which may vary from periods and may affect the accuracy of the estimates.

Outputs in the costing are based on specified parameters, including unit costs. The CVIC costing models final output are based on population and service delivery parameters, and unit prices for specific inputs such as the vaccine final

price, supplies, human resources, etc. The parameters used on this costing are based on local knowledge and conditions. Furthermore, the final costing is influenced by parameters such as how the target population, human resources allocated to the vaccination programme, and the number and type of health facilities involved in the programme.

Table 2: Estimated Cost Grouping for the COVID-19 Vaccination

S/No.	Cost Grouping	Total Budget (US\$)	Government Contribution (US\$)	Partner Contribution (US\$)	COVAX Contribution (US\$)	Funding Gap (US\$)
1.	Readiness Assessment	250,000				250,000
2.	Planning and Coordination	600,000			370,000	230,000
3.	Regulatory Preparedness	20,000				20,000
4.	Prioritisation and Targeting	200,000				200,000
5.	Vaccination Delivery Strategies	1,000,000				1,000,000
6.	Human Resource Management and Training	1,000,000				1,000,000
7.	Monitoring & Evaluation	500,000				500,000
8.	COVID-19 Surveillance	500,000				500,000
9.	Logistics, Cold Chain Management and Waste Disposal	135,000,000			24,116,730	110,883,270
10.	Vaccine Safety, Management of AEFI and Injection Safety	1,000,000				1,000,000
11.	Demand Generation and Communication	5,000,000				5,000,000
<b>Total</b>		<b>145,070,000</b>	<b>0</b>	<b>0</b>	<b>24,486,730</b>	<b>120,283,270</b>



The country has projected the cost for COVID-19 vaccination deployment to be at US\$145,070,000 extrapolated from previous immunisation campaigns with similar population target and demographics. In addition, the Table 2 outlines current funding sources, distribution and gaps. US\$24,491,730 has been secured funding through the COVAX Facility translating into a funding gap of US\$120,283,270.

Funding for vaccine acquisition and deployment will be sourced from various platforms including:

1. **The COVAX Facility:** Zambia stands to benefit vaccines to cover up to **20%** of the country's population from this facility having submitted all the requisite documentation and having been accepted into the facility formally.
2. **World Bank Facility:** Through the long-standing relationship with the bank, Zambia stands to benefit vaccines to cover part of the country's population once these engagements on the conditionalities of this facility are completed;
3. **AU-Africa CDC:** Zambia has been allocated vaccine doses from the following manufacturers distributed as follows: Pfizer, AstraZeneca, and Johnson & John. The advance financing for these vaccines has been arranged through the African Export-Import Bank (Afreximbank) to facilitate payments by providing advance procurement commitment guarantees of up to US\$2 billion to the manufacturers on behalf of the Member States. The MOH will work with the Ministry of Finance to see this through, once cabinet guides;
4. **The Private Sector:** There are a number of private players engaging government and are ready to play different roles in the supply chain of the vaccine. The private sector will play different roles from procurement to vaccine delivery in selected places; and
5. **The GRZ Platform:** Government through the treasury and other bilateral sources is considering bridging any gap that will arise so as to ensure that at least all eligible persons in Zambia are vaccinated, as and when these vaccines become available.

## 7. REGULATORY PREPAREDNESS

The COVID-19 vaccine has not been licensed for use in the country. As such the programme has engaged with the national regulatory authority Zambia Medicines Regulatory Authority (ZAMRA) and has confirmed the existence of regulatory processes and requirement for the acquisition of the COVID-19 vaccine. The functions of ZAMRA shall be executed using current practices and options for regulatory preparedness that will ensure timely decision-making during this public health emergency. The Ministry of Health has already engaged ZAMRA and has confirmed the existence of regulatory pathways as well as the requirements and documents needed for regulatory approvals of COVID-19 vaccines. The current regulatory framework provides for accelerated evaluation of vaccines using various collaborative reliance procedures for emergency approval purposes. The WHO PQ, Zazibona, AVAREF Joint Review and SRA are among the available platforms for registration of the COVID-19 vaccine. Approval timeline is 90 days from date of submission.

The framework also provides for issuance of importation permits within 5 working days.

### 7.1. Emergency regulatory procedures

Regulatory pathways and procedures that facilitate preparedness for public health emergencies, such as the COVID-19 pandemic shall be used. The entity has in place abridged registration pathways to ensure:

- expedited assessment of data and evidence that supports best regulatory decision-making on COVID-19 vaccine approval during the processes of registration and strain changes/variations and other post-approval changes;
- provision of import permits in the shortest time possible; and

Communication channels with stakeholders for purposes of information sharing, i.e. public health authorities – including national control laboratories (NCLs), customs authorities, procurement and deployment entities shall be established. The Zambia Medicines Regulatory Authority, National Immunisation Programme and other stakeholders shall utilise the existing structures to implement vaccine pharmacovigilance plans to monitor the safety and effectiveness of the COVID-19 vaccine(s) in use which a shift from passive to more active pharmacovigilance.

### 7.2. Pathways for emergency regulatory approval

With the existing systems in place for Proper and timely regulatory decision the authority shall ensure access to live-saving vaccines. ZAMRA shall implement regulatory pathways to assess the quality, safety and efficacy of vaccines using

a risk-based approach that shall incorporate three elements: the severity and magnitude of the harm caused by the pandemic; the severity and magnitude of harm that would likely result if a vaccine is not made available to the public; and the likely impact (risk-benefit) of making a vaccine available to the public- a regulatory function that shall continue to play an ongoing role throughout the roll-out of the novel vaccine.

The Zambia Medicines Regulatory Authority shall use already established mechanisms to implement regulatory pathways using a risk-based approach to assess the quality, safety and efficacy of vaccines, emergency approval, and/or expedited fast-track regulatory pathways and the decisions of stringent regulatory authorities (SRAs) and the use of the WHO Emergency Use Listing (EUL). The documentation required for submission using reliance and recognition pathway is the product dossier and a summary report of the approved product information from the SRA/WHO.

ZAMRA shall expedite the provision of import permits for medical products, based on a minimum number of documentation requirements, for release to the immunization programme in the shortest possible time. The Regulatory Authority, the National Immunisation Programme and other stakeholders shall implement vaccine vigilance plans to monitor the safety and effectiveness of the COVID-19 vaccine(s) in use. Importation permits are processed within 5 working days

### **7.3. Facilitate import procedures**

The authority shall apply procedures facilitating timely implementation to grant import permits expediently and followed by immediate customs clearance using existing mechanisms. The Immunisation programme shall ensure coordination of all entities relevant to import controls, including the Zambia Revenue Authority and, the National Control Laboratories and the port control authority, with the objective of enhancing and speeding up the importation and clearance of COVID-19 related medical products through already established systems. Dispatching of COVID-19 vaccines shall be initiated once all the necessary authorizations are in place. ZAMRA is yet to develop a guideline on importation waivers. However, with adequate supporting documentation and cause, a waiver may be granted.

### **7.4. Expedite lot release of COVID-19 vaccines**

Currently, the Authority does not conduct local lot release testing. However, reliance based on mutual recognition or the releasing NRA for vaccines procured through UN is acceptable.

The Zambia Medicines Regulatory Authority shall utilise the existing system to waive local release testing based on review of summary protocols and

available lot release certificate issued by Stringent Regulatory Authority regions. In cases where a lot has already been released by another National Medicines Regulatory Agency (NMRA) or National Control Laboratory (NCL), it may be possible to accept that lot for release based the existing lot release certificate. Acceptability of the lot release certificate issued by another

NMRA shall be based on the establishment of Mutual Recognition Agreements and Reliance. Acceptability of the test results provided by another NCL shall decrease on repeat testing and shall facilitate harmonization without compromising the safety and quality of the product or extending the agreement to full mutual recognition of all lot release. The test results provided by another NCL could thus be used, in addition to the protocol evaluation by the local NMRA/NCL when they evaluate the lot for release.

Further, a Lot Release Certificate issued by the National Medicines Regulatory Agency (NMRA) or National Control Laboratory (NCL) of a producing/manufacturing/ releasing country for LIN procurement shall be acceptable. The responsible NMRAs and NCLs shall be required to issue a certificate of release for vaccines that are distributed through the UN Agencies.

The Zambia Medicines Regulatory Authority shall determine timelines applicable for the review of lot release documentations and/or waiver of lot release for covid-19 vaccines.

### **7.5. Traceability of vaccines in the context of the COVID-19 pandemic**

To ensure traceability of vaccines, distribution of vaccines for prevention of COVID-19 shall be in exceptional circumstances, for example, label and leaflet information specifically expiration dates may need to be update after products have been released for use. Two-dimensional (2D) bar codes are already included in the secondary packaging of vaccines and medicines in many markets to facilitate traceability.

EPI will collaborate with ZAMRA to ensure traceability of vaccines supplied through the supply chain in case of the need to update label and leaflet information by:

- Mapping and full documentation of batches at different levels using the VLIMS.
- Orientation of personnel managing the immunisation supply chain
- Adapting activities used in post-marketing surveillance, for examples process of product recall



## 8. PRIORITISATION AND TARGETING

Zambia's decision-making on identification of target populations has been based on the WHO SAGE Values Framework for the allocation and prioritization of COVID-19 vaccination and the WHO SAGE Roadmap for prioritizing uses of COVID-19 vaccines in the context of limited supply. Local epidemiological data provided on morbidity and mortality has been analysed to identify and prioritise these group.

The decision-making process for identifying target populations has been led at country level by the Zambia Immunisation Technical Advisory Group in wide consultation with stakeholders. Accurate estimates of relevant target populations shall be critical in facilitating allocation of resources, vaccine procurement, deployment planning and to measure vaccination coverage achievements to ensure equity in vaccine access.

The principles of human well-being, equity and reciprocity have been used to identify target population and shall guide access to vaccines and other resources. Groups at increased burden or risk of COVID-19, due to underlying societal, geographic or biomedical factors have formed the key part of the target population. Although everyone is affected by the COVID-19 pandemic, its impact is not shared equally with some groups experiencing serious illness and death at higher rates specifically associated with biological factors, while other groups experiencing disproportionately greater health and other burdens because of societal factors, e.g. limitations of people living in poverty to practice physical distancing and experiencing barriers to accessing quality health care.

The first phase shall cater for 3% of the national population (Tiers A and B) comprising individuals essential in sustaining COVID-19 response and those most essential in maintaining core societal functions. Additional 17% shall cover those individuals at greatest risk of severe illness and death and their caregivers (7%) as well as populations in congregate settings (10%). The remaining 26% shall be covered in phase 2. These shall be provided based on the country's risk. In addition, there shall be plans for a "humanitarian buffer" to be made available to ensure that sufficient supplies of vaccine are available to attend to and manage humanitarian situations, deployments and other emergency related situations.

### **Defining and identifying target populations**

The Zambia Immunisation Technical Advisory Group (ZITAG) affirmed the SAGE policy recommendations on allocation, prioritisation and use of COVID-19

vaccines, taking into account the national context, policy and programmatic considerations for the use of a vaccine. The prioritisation of target population was based on the epidemiological setting scenario (Community Transmission).

The country shall uphold transparency in the decision-making processes and ultimate use of the vaccine. Clear communication strategies shall be developed to explain the selection of the priority groups and why certain groups are not receiving the vaccine.

Zambia considered the six guiding principles: human well-being, global equity, reciprocity, equal respect, national equity and legitimacy, to determine who should be allocated vaccines, and when.

**Table 3: Identifying target populations, delivery strategies and potential vaccination sites**

Target population (in order of priority)	Priority targeted delivery strategy for this population	Potential Vaccination sites	Total cumulative % of vaccines as a percentage of population
A. Essential in sustaining COVID-19 response: Medical doctors, nurses, clinical officers, pharmacists, midwives, environmental health technicians (EHTs), community health care workers (CHWs); health facilities support staff; nursing and medical schools' students and staff;			
Health care workers and support staff - COVID-19	Fixed sites	PHC facilities; Hospitals; Long-term care facilities, private clinics	1.00%
Immunisation teams and other hospital support staff			
Public health workers in outreach/frontline interventions Health care workers			
B. Most essential to maintaining core societal functions: Immigration officers, port staff, police and security, teachers, key political, religious, administrative, traditional leaders; Public Service transporters (truck, bus and taxi drivers); market and cross-border traders;			
Immigration and other port staff	Fixed site and outreach sites Temporary/mobile clinics Mass campaigns	Any of above plus special strategies, e.g. insecure areas (access negotiation, transit points vaccination teams), workplaces	2.00%
Police and security wings			
Teachers			

Government leaders and administrative and technical personnel critically needed for indispensable functions of the state (Cabinet, Security Chiefs, Permanent Secretaries)			
Transporters			
Religious & Traditional Leaders			
C. Greatest risk of severe illness and death, and their caregivers : Patients with co-morbidities, HTN, DM malignancies, cardiovascular disease, diabetes, TB, HIV, those aged 65 and older.			
i. Patients with comorbidities HTN, DM malignancies, TB and HIV <sup>1</sup> including disability	Fixed sites and outreach sites Temporary/mobile clinics	Primary health care facilities, outpatient clinics, hospitals, long-term care facilities, at workplaces, through mobile teams for those with underlying medical conditions confined at home, other public and private establishments	7.00%
ii. Individuals at elevated risk of serious COVID-19 disease death i.e individuals with cardiovascular disease, diabetes.			
iii. Adults aged 65 years and older and those living with them or otherwise providing care  iv. UN staff and other International Organizations	Fixed and outreach sites Temporary/mobile clinics Mass campaigns	Primary health care facilities, long-term care facilities, day care centres, community care centres, pharmacies, mobile teams for home visit and other public and private establishments, marketplace, parks, drive-through	
D. The population in congregate settings: Healthy persons 18-64 years not included in the above category living in highly dense areas, refugees, and disabled populations; army barracks; police camps; prisoners university and college campuses (excluding those handled in above tiers)			
Prisoners	Fixed sites and outreach sites Temporary/mobile	Primary health care facilities, outpatient clinics, hospitals, long-term care facilities, at	10%;

<sup>1</sup> Based on early 2020 in-patient demographics from Lusaka during the first wave



Refugees	clinics	workplaces, through mobile teams for those with underlying medical conditions confined at home, other public and private establishments. refugees, and differently abled populations.	
Traders			
Other congregate settings e.g. police camps, army barracks			
E. The rest of the population			
Healthy persons 18-64 years old not included in the above category	Fixed sites and outreach sites Temporary/mobile clinics	Primary health care facilities, outpatient clinics, hospitals, long-term care facilities, at workplaces, through mobile teams for those with underlying medical conditions confined at home, other public and private establishments, pharmacies, marketplace, parks, drive-through	26%
TOTAL POPULATION			46%

Phase 1 shall include health workers from both the public and private sector, who are at higher risk of COVID-19 infection. To ensure targeted use of COVID-19 vaccination of health workers in different settings (e.g. hospitals, long-term care facilities) and to address potential uptake issues, national policies/guidelines for health worker vaccination shall outline:

- the classification of different health worker categories based on assessment of risk;
- the policy for vaccination for each category; and
- strategies for managing non-compliance of health workers.

### **Estimate size of targeted populations**

COVID-19 vaccines shall target the national population but prioritize at-risk groups, and progress shall be monitored in these groups separately. National estimates of the size and definitions of each of the populations for the provinces and districts has been done by country level health experts including the Zambia Immunisation Technical Advisory Group based on the level of risk, severe disease or death; differential mortality and risk of ability to transmit disease.

## **9. VACCINATION DELIVERY STRATEGIES**

Local strategies for COVID-19 vaccination delivery shall be tailored based on the vaccine characteristics; the risk-benefit assessment for different population groups, the amount and pace of vaccine supply, and be in line with the

national specific health systems and context. The final national vaccination delivery strategy shall be defined by the characteristics of vaccine products as they become available.

Collaboration with programmes and different sectors to leverage existing service delivery structures and consideration for scaling up through other platforms delivering health services throughout the life course, to offer vaccination with COVID-19 vaccines shall be strengthened. The National Immunisation Programme shall devise non-traditional and perhaps novel immunisation strategies for reaching priority target populations. Plans for resources and implementation of infection prevention and control (IPC) and environmental measures when providing vaccination, including the use of PPE by health workers shall be developed.

### **Define recommended immunisation schedule**

Assuming two Approved Vaccines which have equivalent characteristics become available through the COVAX Facility within 3-6 months of each other, Zambia prefers to accept slower rate of receiving Approved Vaccines (e.g., by about 6 months) to avoid programmatic and logistics complications of delivering two different products.

Based on the available vaccine platform at the time of vaccine request, the preferred order ranking was follows: first option as mRNA followed by Inactivated and lastly, Viral Vector. ZITAG ranked the preferred vaccine as follow: adenoviral vector vaccines (Astrazeneca), followed by adenoviral vector vaccines (Johnson&Johnson) and lastly mRNA (Pfizer) based on the available option. Some of the factors that drove the decision were available data: Safety; Efficacy; Administration schedule and possibility of co-administration with other vaccines; Cold Chain requirements versus the current status; Vaccine registration and regulations in country, etc. The committee shall continue to review the information as it becomes available.

The preferred dose presentation is fewer doses per vials (<10 doses per vial) and fewer doses per regimen.

In terms of cold chain requirements, the most preferred choice is vaccines with traditional cold chain requirements (2-8°C) followed by those with traditional cold chain requirements (-20°C) whereas Vaccines with ultra cold chain requirements (-80°C) are least preferred. A shelf-life of not less 6 months as per regulatory authority provisions is recommended.

The final details on the vaccine schedule and recommendations for administration shall be defined once a COVID-19 vaccine product is available for use.

The country shall consider routine immunisation with periods of intensified vaccination over a specified period of time. The exact duration of these intensified vaccination period shall be determined by epidemiology, coverage and the vaccination schedule.

## **Outline of potential vaccine delivery strategies**

The potential strategies to deliver the vaccine shall depend on the vaccine properties, vaccine availability and characteristics of the target population. Innovation shall be required to reach the targeted populations.

New delivery platform for COVID-19 vaccines shall be considered for delivering health services throughout the life course through collaboration across programmes, i.e. PHC, non-communicable diseases; the overall health service delivery platforms within the health system; and across different sectors (public and private sector), e.g. finance, social welfare, pension service, education, transport, energy, to leverage on the vaccination strategies in the country.

Applicability of other vaccination experiences both local and from outside the country's borders, such as Oral Cholera Vaccination (OCV), hepatitis B vaccination for health workers, Ebola Virus Disease ring vaccination (i.e. identification of contacts and contacts of contacts), maybe explored for potential learning.

The Immunisation Programme shall use fixed, outreach and temporary/mobile clinics site settings close to the target population, to reduce travel time, minimize costs and consider logistics. Potential delivery strategies and sites for vaccinating target populations are shown in Table 3 above. District and facility microplanning will help identify the exact locations of the tiered groups, numbers and how best to reach them.

The distribution of vaccines as and when they are available will follow tiers from A to E countrywide considering among other things the availability of cold chain. The government and partners are addressing the identified cold chain gaps through various platforms.

Details of selected facilities per district to be used in vaccine delivery are found in Annex 3.

## **Infection prevention and control (IPC) measures**

In line with national IPC guidelines each of all the selected health care facilities delivery the COVID-19 vaccines shall identify and nominate an IPC focal point. Immunisation managers at all service delivery points shall ensure adequate access to IPC supplies and equipment, e.g. PPE, masks, alcohol rub or hand washing stations with soap and clean water, to enable health workers to adhere to IPC measures during immunisation sessions including outreach activities. There shall be need to ensure that there is no shared PPEs and that adequate cleaning is occurring between recipients. Immunisation centres shall also be restricted to essential personnel and recipients. Screening of recipients and their

caregivers shall also be considered to identify potential cases for further management.

Immunisation activities shall be undertaken in a clean and hygienic environment that facilitates practices related to the prevention and control of infections including ensuring adequate physical distancing during immunisation sessions and in waiting areas (limiting the size of session, use of open spaces where feasible, and changing the existing environment to allow for this). Immunisation sessions, irrespective of the vaccination strategies used, shall adhere rigorously to best practices for IPC, both to protect health workers (against communicable diseases through needle stick injuries, or close contact), protecting the recipients, and their families and community around them against COVID-19.

Attention to IPC precautions shall target avoidance of the vaccination events inadvertently becoming transmission events for high-risk populations. IPC programmes shall involve training in IPC measures. Where possible, the use of reusable PPE should be considered, as the potential waste generated could overwhelm many existing facilities that are already struggling to safely manage and treat waste.

The cost of IPC measures shall change that of conducting immunisation outreach sessions considerably. The use of IPC health care facility response assessment tool shall be used to help identify, prioritize and address the gaps in IPC capacity at health facility level.

### **Integration of COVID-19 vaccination with other health interventions across the life course**

COVID-19 vaccines shall provide opportunities to extend immunisation services across the life course, and improve integration of immunisation with other health services. Prior to COVID-19 vaccine acquisition, relevant engagement in multi-sectoral collaborations to provide comprehensive disease prevention approaches shall be embarked on. Integrated approaches shall be explored to comprehensively address populations' health needs, make efficient use of resources and improve collaboration between programmes, potentially leading to increased demand for services, which in turn can reduce morbidity and mortality.

COVID-19 vaccination shall target to be incorporated into other preventive, curative and rehabilitative services, for the target population using various platforms, as a part of their PHC visits, basic health check-up and community health campaigns; and for those with underlying conditions, COVID-19 vaccination can be added as a part of disease-specific follow up.

## 10.HUMAN RESOURCE MANAGEMENT AND TRAINING

The introduction of COVID-19 vaccine deployment shall entail having sufficient human resources and equipping them with the right knowledge, skills and attitudes. The country shall identify human resource needs, prepare a training plan, decide on their training modalities, and plan for supportive supervision. The implementation of COVID-19 vaccine shall provide an opportunity to strengthen or scale-up innovative systems, such as digital tools, for training and supportive supervision. The programme shall implement intensified supportive supervisory visits for approximately the first 2 months following vaccine introduction.

### 10.1. Identification of human resources needs

Identification and planning for the needs and surge/redeployment strategies shall be done in a comprehensive manner considering entire health workforce needs including the prevention, diagnosis, treatment and care of COVID-19 patients, as well as maintenance of other essential health services.

The novel COVID-19 vaccination may present several new challenges such as complex handling and storage requirements. An evaluation of the current immunisation workforce shall be undertaken to ascertain adequacy of staff numbers to deliver the vaccines in line with the vaccination strategy or strategies agreed upon, or whether additional staff shall be required (recruited or deployed from other departments within and outside the health sector to the immunisation programme). It shall also be important to ensure there is sufficient capacity in the other occupational groups responsible for different aspects of vaccine delivery, such as community mobilisers, supply chain management personnel, waste management, etc. Health workers recruited shall require additional training and complementary performance support, including supervision for vaccine delivery.

The Human resource needs identified for COVID-19 Vaccine Deployment will be determined as the summary in Annex 2 is completed.

### 10.2. Training Design and plan

While many of the tasks are the same as with the introduction of any other new vaccine, the presence of COVID-19 disease in the community means that traditional methods of training may not be appropriate. A comprehensive curriculum with training materials addressing all aspects of COVID-19

vaccination shall be adapted from WHO generic training materials. Preparing for vaccinator workforce, coordination with stakeholders for planning, training and supervision at different levels; conduct a training needs assessment and identify the job categories that need to be trained to include topics such as service delivery, social mobilisation, vaccine & cold chain, waste management, preparations for management of issues, negative publicity, rumours, AEFI as well as new vaccine surveillance and reporting standards.

The trainings shall not only target vaccinators, but also individuals responsible for promoting the vaccine and clinical waste handlers; define the key competencies required by each category of personnel in order to deploy COVID-19 vaccine safely and correctly; determine the training modality for each job category; review available training materials at global level and determine adaptations needed, including translation; and identify the partners within and outside of the MoH, e.g. Ministries of General and Higher Education, national training institutions such as nursing schools, and those at subnational, district and community level, that would help with training development and delivery. A training plan articulating the above and checklist shall be developed to prepare for COVID-19 vaccine introduction.

### 10.3. Training methods

Due to travel limitations, and adherence to current public health and social measures, the in-person training previously used may be substituted by online learning to train staff. Considerations for this modality shall follow a set criteria shown in Table 4 to include staff experience and motivation with online learning, as well as support mechanisms available for trouble-shooting technical problems. **Relative advantages of such modality shall be take into consideration as indicated in the table below.**

Table 4: Training delivery method decision-maker

Digital learning (self-paced)	Instructor-led learning (group)
Unable/impractical to travel to central training location (venue, work location, etc.)	Can safely travel to central training location (venue, work location, etc.)
Unable to meet in groups with mask-wearing and social distancing	Able to meet in groups with mask-wearing and social distancing
Affordable access to a laptop computer, tablet or	Fair to no access to laptop, computer, tablet or smartphone

smartphone (required)	
Access to reliable internet or smartphone connection, either via live stream or download	Fair to no access to reliable internet on laptop, computer, tablet or smartphone
Ability to learn in the available languages or translation can be done easily	Translation required

To maintain high-quality training for in-person training, the number of levels through which the training is rolled out shall be limited i.e. during cascade training. The training shall be scheduled in close coordination with the COVID-19 vaccine introduction to ensure the safety and health of staff being trained by equipping the facilities where trainings are held to enable hand hygiene and ability for staff to social distance – ideally no more than 2 or 3 weeks prior to the COVID-19 vaccine launch:

- consideration shall be made to ensure that health workers participating in general population vaccination have already received their COVID-19 vaccination prior to participation in vaccination activities;
- follow the training with supportive supervision to ensure that health workers correctly apply the new skills and procedures;
- use best practices of adult learning methods to ensure key points are understood and applied correctly in the job such as small group discussions, demonstrations and skills practices;
- use mobile phone apps or text messages to share short videos or infographics to enhance learning; and
- involvement of experts from training institutes, universities, training units of the MoH and higher education as well as from other institutions to assist in designing and conducting training that uses effective teaching methods based on adult learning principles. This shall also include the identification and development of a master list and strategy of service providers who could effectively deliver COVID-19 vaccine to various target populations.

Orientation of Trainer of Trainers (TOTs) and training of HCWs shall be articulated in the training plan developed and shall also include all relevant staff required for deployment including logisticians, healthcare waste handlers and all relevant human resources as well as volunteers. All services shall be delivered in line with national guidelines for infection prevention and control measures and shall include adequate personal protection equipment (PPE) to minimise exposure risk during immunisation sessions (General Guidance on Provision of



Essential Public Health Services during the COVID-19 Pandemic, Zambia Ministry of Health, Department of Public Health and Research, May 2020).

Procedures and mechanisms to monitor the quality of the training, especially at the service delivery levels, shall be established. Administering pre- and post-knowledge, attitudes and practices (KAP) tests at all training shall be used. For particularly complex topics such as screening and data recording, short videos shall be used to ensure standardisation of the quality of the content across different levels of training.

#### **10.4. Enhance supportive supervision**

Intensified supportive supervisory visits shall be implemented for the first 2 months following the COVID-19 vaccine introduction. In addition, new supportive supervision instruments that specifically address the competencies required for the correct use of COVID-19 vaccine shall be developed. Supervisors shall play an important role in the training process, including ensuring healthcare workers have access to online learning materials, clarifying key points from online learning, developing and encouraging the use of job aids and other performance support tools, and conducting on-the-job training sessions for health workers. To assess healthcare workers performance over time indicators shall be developed. The use of the existing digital tools (ODK platform, ZEIR) shall be used for supportive supervision, tracking of vaccinees and self-assessment, as well as monitoring dashboards.

## 11.MONITORING & EVALUATION

To respond to strong and urgent demand for data on COVID-19 vaccination the Ministry of Health shall strengthen and update information systems to be able to provide quick, frequent and accurate reporting. National planners working with the Zambia Statistics Agency (ZAMSTATS) have obtained estimates of targeted populations. Accessible and reliable home-based and provider-based, vaccination records for vaccine safety and effectiveness evaluations as well as for individual travel, professional and health purposes shall be required.

The country is adapting necessary paper-based and/or electronic monitoring tools and appropriate institutional arrangements, including vaccination cards/certificates, facility-based nominal registers, vaccination reports, medical records, immunisation records, systems entry and analytical tools to monitor progress and coverage among different at-risk categories and facilitate vaccine delivery and timely reporting. The data collection tools are expected to be ready by the 22<sup>nd</sup> of February 2021.

### 11.1. Data needs and monitoring objectives

The general objective for monitoring shall be to measure equitable uptake and coverage over time by geography, population groups, and risk groups. The specific objectives are as follows:

- Monitor to what extent national policies to prioritize at-risk groups and settings (e.g. hospital and long-term care facilities) are effectively implemented.
- Provide a personal vaccination record/certificate for any health, occupational, educational and travel purposes (as per national policies).
- Ensure that the necessary records and documentation are in place for use in surveys, safety monitoring, disease surveillance and vaccine effectiveness studies.
- Ensure that individuals can be monitored for the full course, to reduce the incidence of drop-outs in the likely case that a multidose schedule is required

### 11.2. Indicators to monitor progress

The main indicators to measure progress with COVID-19 vaccines are similar to any vaccine introduction:

#### **Vaccination Coverage,**

Specific Indicators used to track the coverage of vaccine will include:

- COV-1, COV-2, 3

- COV-c: In case multiple vaccine products with different dose requirements are used in a country, this indicator represents the number of people who received the last recommended dose for the respective vaccine product.

### **Vaccine Uptake:**

Indicators used to track the uptake of vaccine will include:

- Drop-out from COV-1 to COV-c: the proportion of people who received at least one dose of COVID-19 vaccine but did not receive the last dose in the schedule yet.

### **11.3. Adapt system to record, report, analyse and use vaccination data**

Vaccine uptake of COVID-19 vaccines shall be monitored through the MOH Health management Information Systems (HMIS) and evaluated through household health (coverage) surveys. Various dimensions of data disaggregation of vaccine coverage and uptake to be considered shall include: by geography, sex, age group, vaccine product; and where possible occupation, risk factor, context and other equity dimensions.

### **11.4. Distribute and use home-based records (personal vaccination records, vaccination cards or certificates)**

Physical, paper-based personal records shall be used in aggregate and individual systems and shall be updated to reflect COVID-19 vaccination status. They serve the following purposes:

- provide proof of vaccination for individual's travel, educational or occupational purposes;
- establish vaccination status in coverage surveys;
- provide vaccination information in case of an AEFI or in case of a positive COVID-19 test;
- provide a useful vaccination card for adults and older adults to which COVID-19 vaccines and, other recommended vaccines can be added; and
- provide guidance on any doses required to complete vaccination course

### **11.5. Update facility-based records (provider records, vaccination registers, medical record systems)**

Physical register books and provider-based digital medical record systems shall be used, and they should be updated to reflect COVID-19 vaccination status. Information captured in provider records shall include contact information of the vaccinated person – needed to issue vaccination reminders, or in case a safety concern arises with any vaccine product or batch; any characteristics of the vaccinated person that are needed for data disaggregation (sex, age, occupational group, risk profile, etc.); COVID-19 lab test results; and any AEFI. We aim to have the updated registers ready for use by 22<sup>nd</sup> February 2021.

#### **11.6. Implement frequent assessments of capacities and readiness at health facility level**

Zambia recognises that against a rapidly evolving situation, availability of accurate and up-to-date data on the capacities of health services (in terms of staff, supplies, safety measures, cold chain capacity) to deliver the COVID-19 vaccine(s) while simultaneously assuring continuity of routine vaccination programmes and other essential health services will pose a challenge.

Data collection processes may require frequent adaptation to obtain regular reports from health facilities (e.g. primary care, hospitals, long-term care facilities). Frequent health facility assessments shall be conducted to track and monitor health service capacities and bottlenecks. In view of limitation in travel, appropriate means shall be put in place proactively obtain relevant reports from health facilities. Where possible, data from the community health workforce and other service delivery platforms (e.g. home-based and long-term care) shall be captured.

The WHO Harmonized health service capacity assessments tool in the context of the COVID-19 pandemic shall be used to conduct rapid and accurate assessments of the current and surge capacities of health facilities throughout the different phases of the pandemic.

#### **11.7. Develop a COVID-19 vaccination dashboard**

A COVID-19 vaccination dashboard shall be developed to provide insights into a variety of programmatic aspects in addition to vaccination data, and to serve as a useful communication and visual tool. The dashboard shall reflect key performance indicators, bringing together data on: service availability and readiness (human resource capacity, cold chain and supply); vaccine uptake and coverage by geography, population groups, and risk groups, and over time series; and AEFI. It shall be a broader vaccination component/ surveillance that shall include (cases and deaths).

### **11.8. Evaluate introduction of COVID-19 vaccines**

The principal objective of COVID-19 vaccines post-deployment monitoring activities shall be to evaluate the programme implementation and vaccine performance in the population.

Evaluating the impact of COVID-19 vaccines on the immunisation programme shall be critical in optimizing vaccine deployment. Considerations for assessing vaccine effectiveness and impact after introduction into populations shall be made and shall be addressed by well-designed epidemiological studies. Pre-planning shall be a key element to ensure the right data are collected at the time of vaccine introduction. Programmatic lessons learned shall be documented to inform planning for subsequent rounds, other emergency responses, and for other countries still introducing COVID-19 vaccines.

#### **11.8.1. Post-introduction evaluations of COVID-19 vaccines**

A post-introduction vaccine evaluation shall be conducted to evaluate the impact of the vaccine introduction on the country's immunisation programme and to rapidly identify problems requiring attention as the vaccine is rolled out. This shall be done through the adaptation of the classical post-introduction evaluation in the event of introduction of multiple COVID-19 vaccine products or where products are targeted at different population groups.

#### **11.8.2. Vaccine effectiveness (VE) and impact of vaccination**

This will be conducted as a short-term objective that may continue to the long term depending on the characteristics of the vaccine. Scientifically rigorous VE and vaccine impact studies are not needed everywhere and shall be done as interest and if the capacity to do these is evident. Basic monitoring of vaccination status of cases shall be tracked in all COVID-19 surveillance systems.

High-quality surveillance shall be conducted to be able to assess this objective to ensure that the data generated from surveillance is considered definitive evidence of VE and vaccine impact. Considerations of this through sentinel site surveillance shall be made either through existing influenza sentinel site surveillance or through the establishment of a COVID-19 sentinel site surveillance.

### **11.8.3. Lessons learned**

The programme shall document lessons learned and best practices from deployment and vaccination operations to provide essential information about the effort.

## **12.COVID-19 SURVEILLANCE**

### **12.1. Rationale, Objectives and Types of Surveillance needed**

While COVID-19 surveillance is currently ongoing in the country, Zambia National Public Health Institute shall align COVID-19 Surveillance with COVID-19 vaccination to understand the impact of vaccination. Objectives for COVID -19 Surveillance system shall be designed to short-, medium- and long-term as related to vaccination. The Immunisation programme shall collaborate with the surveillance arm to ensure that findings are shared. The aim of the national surveillance for COVID-19 is to enable public health authorities to reduce transmission of the disease (associated morbidity and mortality).

Surveillance data shall provide evidence for implementation and adjustment for the national immunisation programme as well as policies. Data required to support monitoring vaccine impact shall leverage existing systems in place once a vaccine is introduced.

### **12.2. Defining national surveillance objectives**

Zambia has been reporting cases of COVID-19 since 18th March 2020, when the first cases were confirmed in Lusaka. By 31st December, 2021, the country had recorded cumulative number of 911,829 laboratory tests done, of 54,217 cases, 48,000 recoveries, 5454 active cases and 763 deaths (Ministry of Health, Zambia, Daily ZNPHI Health Press 2021).

Currently, Zambia is experiencing the second wave of covid-19 burden characterised by increased covid-19 cases, easy transmissibility affecting all ages and gender, increased geographical coverage with all 116 districts reporting a case of more, increased admission with increased severe to critical cases and well as increased death which has been exacerbated by inadequate compliance to public health measures.

### **12.2.1. Determining epidemiologic context to guide vaccine introduction**

This shall be a short-term objective due to the limited vaccine supply to guide vaccine introduction as outlined in the WHO SAGE roadmap for prioritizing uses of COVID-19 vaccines. Based on surveillance data, it shall be determined if there is community transmission, sporadic cases or clusters of cases, and/or no cases, and use this information to guide phased vaccine introduction

### **12.2.2. Long-term immunity, duration of immunity, and need for booster doses due to waning immunity**

This shall be a medium- to longer term objective to be achieved via a combination of influenza/COVID-19 sentinel site surveillance and research studies. The number of sites to be established and age/risk groups for data capture shall be determined at a later stage.

### **12.2.3. Guidance for COVID-19 vaccination use to stop an outbreak**

This shall be a medium- to longer term objective; its consideration shall be against a background of unclear certainty that a future COVID-19 vaccine will be effective in stopping an outbreak, as this depends on the specifics of the vaccine (e.g. time to immunity, number of doses required for immunity, ability to act as post-exposure prophylaxis). For example, influenza vaccines are not used to stop influenza outbreaks, but measles vaccines are used to stop measles outbreaks. Given this unknown, research studies shall be conducted to see if the future vaccines can stop an outbreak.

## **12.3. Collection, reporting and use of COVID-19 surveillance data**

### **12.3.1. Recommended data elements critical for answering the objectives**

The following data variables shall be collected as they shall be vital to meeting the objectives:

- age/date of birth;
- place of residence (geography);
- sex;
- occupation
- severity of disease hospitalisation, intensive care unit (ICU) admission, oxygen requirement, ventilatory support,
- COVID-19 treatments provided (e.g. dexamethasone, COVID-19 antibodies, remdesivir, etc.);
- co-morbidities;

- laboratory testing related data (type of test, test results, date of test);
- Prior history of COVID-19 prior to this and date of last positive tests.
- History of prior COVID-19 vaccine (yes, no, unknown)?
- Where there is history of vaccination the brands/dates of vaccination (to be adapted based on the number of doses needed)?

Case definitions, case investigation, specimen collection and laboratory testing shall be in line with global and national surveillance guidance. Immunisation programme staff shall collaborate with those conducting COVID-19 surveillance to ensure that surveillance is modified to meet the objectives that the country would like to achieve. This relationship shall be further strengthened to ensure that data are used to drive vaccine-related decisions.

#### **12.3.2. Address requested reporting requirements**

To allow for case-based data and informing global perspective on Vaccine Effectiveness and impact, the country shall collect surveillance data as they relate to vaccination.



## 13.LOGISTICS, COLD CHAIN MANAGEMENT AND HEALTH CARE WASTE

### 13.1. Introduction

Zambia has already established and strengthened the national logistics working group with appropriate terms of reference and standard operating procedures to coordinate COVID-19 vaccines and ancillary product deployment.

**Table 5: National Cold Storage Capacity and Identified Port Of Entry**

Storage requirement	Current total cold storage capacity at the national level	Maximum shipment size that could be received, captured (in m3)	Delivery frequency (in weeks) could shipments of this size be received
2-8°C	220m <sup>3</sup> net available	80m <sup>3</sup>	3 weeks
-20°C	20m <sup>3</sup> net available	5m <sup>3</sup>	3 weeks
-70°C (ultra-cold chain)	0m <sup>3</sup> net available	40m <sup>3</sup>	3 weeks

**Table 6: Cold Chain Storage Capacity per Port of Entry**

Ports of Entry Name: Nakonde	Port of Entry Code: NKO
Cold chain storage capacity	Two walk in coldrooms available (2460.48 m <sup>2</sup> and 2013.12m <sup>2</sup> ) net available (2-8°C)
	Freezer room available (4*4) m <sup>2</sup> net available (-20°C)
	0m <sup>3</sup> net available (-70°C)
Cold chain storage capacity available for COVID-19 Approved Vaccine	37,000 m <sup>3</sup> net available (2-8°C)
	0m <sup>3</sup> net available (-70°C)

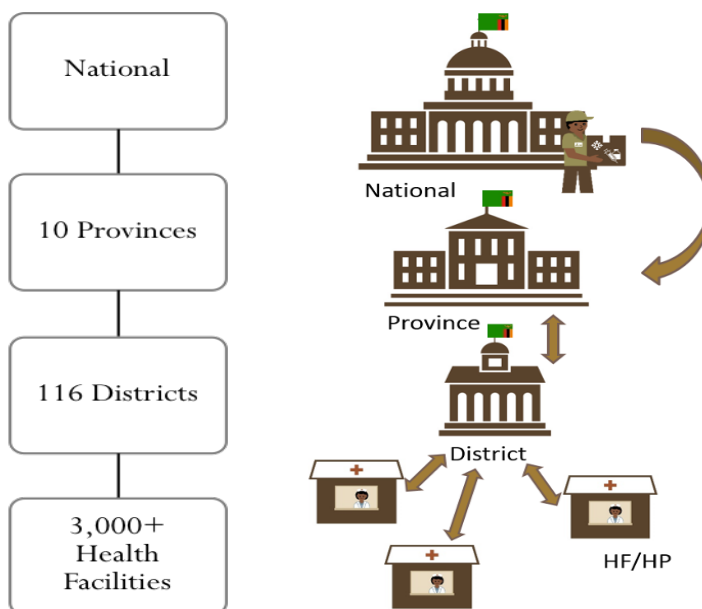
The tables above shows the availability of storage space at port of entry and National level in view of diverse COVID-19 temperature range requirements. The main port of entry for vaccines is Kenneth Kaunda International Airport while the dry materials enter through Nakonde Border Post. At the airport is a holding cold chain capacity of 37,000m<sup>3</sup> net available (+2 to 8°C) where vaccines are stored before the clearing process by the agent and transported to National level vaccine stores using the refrigerated trucks by the clearing agent.

### 13.2. Immunisation Supply Chain Structure (Capturing selected sites)

Zambia has already established and strengthened the national logistics working group with appropriate terms of reference and standard operating procedures to coordinate COVID-19 vaccines and ancillary product deployment.

There are four distribution tiers within the immunisation supply chain. Below is the immunisation supply chain structure that exists for routine immunisation of which the deployment of the COVID-19 vaccines will ride on.

**Figure 11: immunisation supply chain structure**



The Zambian immunisation supply chain runs parallel to other essential medicines, with its own cold chain and logistics system. The immunisation supply chain follows the existing administrative hierarchy, with the national level delivering vaccines quarterly to 10 provinces, 116 districts picking up vaccines monthly from each province and over 3,000 health facilities picking vaccines monthly from Districts.

Vaccines are ordered on a pull system, based on census figures for catchment populations and stock consumption. National, Provincial and District levels record vaccine stock information in Logistimo, an electronic stock management tool, while Health Facility stock information is still paper-based, using stock control cards, which are to be reported each month. Health facility staff submit a Vaccine Return Form to the District to receive their allocated stock based on consumption from the prior month.

At the national level, there are five (40m<sup>3</sup>) and one (20 m<sup>3</sup>) walk-in cold rooms storing vaccines between 2-8°C. Additionally, there is one (20m<sup>3</sup>) walk-in freezer (-20°C) and three 264 litre freezers (-15°C) at the national level. There are two back-up generators to supply power all national cold rooms and freezers in the

event of a power failure. Each of the 40m<sup>3</sup> walk-in cold rooms is equipped with an automated temperature monitoring system that notifies EPI staff via SMS if temperatures fall out of the acceptable range. The old cold room and freezer's temperature are recorded manually twice a day, including weekends and holidays.

Within each of the 10 provinces, there is a provincial hub that stores vaccines: 2 provinces have 40m<sup>3</sup> walk-in cold rooms (Copperbelt, Northern), 7 provinces have 30m<sup>3</sup> walk-in cold rooms (Central, Eastern, Lusaka, Luapula, North Western, Southern, Western), and 1 province (Muchinga) does not have a cold room. All provincial cold rooms have back-up generators, but do not have an automated temperature monitoring, therefore are done manually twice a day including weekend and holidays.

At National vaccine store exists about 5,184 m<sup>3</sup> dry storage space for dry materials. This is in addition to 5,876 m<sup>3</sup> that exists at government stores in an event for need for more space. Each of the 10 Provincial Vaccine Stores have adequate dry storage space.

### **13.3. Relevant Immunisation Supply Chain Assessments**

Zambia has conducted two Effective Vaccine Management Assessments conducted in 2011 and 2015, respectively. An Immunisation Supply Chain (iSC) remodelling was also countrywide with an aim to identify gaps and propose strategies for increasing efficiencies in the current system.

To ensure supply chain readiness for efficient deployment of COVID-19 vaccines to the target populations in line with defined vaccination strategies, the programme shall assess dry storage, cold chain capacity and infrastructure requirements versus available to identify the gap and develop costed mitigation plan. The available cold chain capacity, including surge capacity from other government agencies and the private sector shall be used for vaccine deployment strategy and mobilize resources to implement the mitigation plan.

#### **13.3.1. CCE gap analysis and how to address**

CCE gap analysis has been conducted using the country's cold chain inventory and WHO supply chain sizing tool.

Table 7: CCE gap analysis (based on the WHO supply chain sizing tool).

Supply Level	Required Capacity(Ltrs)	Available Capacity after routine (Ltrs)	Gap	CCE required by model
National	36,623	0	36,623	4 WICR 40M3:To be supported through COVAX facility
Provincial	36,623	41,359	10,349	i. 1 WICR 30 m3 ii. 1 WICR 20 m3 iii. 2 WICR 10 m3 iv. 4 TCW 4000 AC  To be supported through COVAX facility
District	36,623	17,571	23,441	i. 1 WICR 10 m3 ii. 1 WICR 20 m3 iii. 1 WICR 30 m3 iv. 23 TCW4000 AC v. 87 TCW3000 AC vi. 14 TCW80 AC vii. 10 TCW 2000 AC viii. 4 TCW 2043 SDD ix. 3 MKF AC
Hospitals	6,436	0	6,436	32 TCW 4000 AC 153 TCW 3000 AC 4 TCW 80 AC

Zambia has secured all implementing agencies in readiness for vaccine introduction (e.g., vaccine warehousing, transport, waste management, cold chain capacity, etc.). In the event that the country is allocated COVID-19 vaccine requiring ultra-cold chain storage (UCC) temperatures (e.g. -70 °C) shall explore practical solutions including commissioning logistic service providers to deploy the UCC equipment to facilitate vaccine transportation and reverse logistics. The identified gaps in Cold Capacity Chain will also be addressed

through the COVAX CCE platform, CCEOP, partners (e.g. World Bank, WFP) and government. Additionally, 40,000 litres from CHAZ and 30,000 litres from Zambia Medicines and Medical Supplies Agency (ZAMMSA) (2-8 degrees) has been secured from private sector to hire.

### **13.3.2. Vaccine transport structure**

At national level, vaccines are transported by four 15 tonne trucks that are maintained and operated by the MOH to each of the provinces on a quarterly basis. Vaccines are transported by a driver who is accompanied by a Stores Officer or Stores Assistant. The national EPI uses 20 litre cold boxes with conditioned ice packs. District MOH staff generally pick-up vaccines from the provinces using a district Toyota Land Cruiser or other appropriate vehicle on a monthly basis and also use 20 litre cold boxes with conditioned ice packs. Health facilities use a variety of transportation methods, such as motorbikes, oxcarts, bicycles and boats.

### **13.3.3. Human Resource for Vaccine and Cold chain Management (Gap and training)**

All staff responsible for storing, handling, transporting and tracking the movement of the vaccines shall be adequately briefed on the deployment plan and trained on the relevant guidelines and Standard Operating Procedures, including on IPC and proper management of phase change material (PCM) required for managing UCC equipment, prior to vaccine arrival.

Currently all the 10 provinces, 116 districts and 69 hospitals have a staff dedicated for vaccine management. These have been identified for training and overseeing logistics implementation activities.

All 116 districts have a designated person to at least handle minor routine and corrective cold chain maintenance. There have been numerous cold chain trainings in the past few years on installation, maintenance and repair of cold chain equipment to ensure a well-trained cadre of health care workers is available to maintain and repair equipment. A refresher course is planned for the technicians in response to COVID-19.

### **13.3.4. Distribution Plan and safe delivery**

Distribution of vaccines and ancillary items shall be implemented using the existing immunisation supply chain system from the port of entry to the service delivery points. During the execution of the vaccine distribution plan, pre-alert notification shall be sent to each vaccine store. Vaccine specifics including

batch details of vaccines deployed to the various levels shall be documented to ensure vaccine accountability and traceability.

The existing supply chain information system shall be strengthened on stock management and distribution to include monitoring and reporting of vaccine utilisation and wastage rates to the COVID-19 vaccine. The programme has experience with stringent vaccine accountability. Examples include vaccine vial accountability for mOPV2. In this case, the programme utilized tools to track vials to throughout the supply chain. A similar approach will be used to track and monitor COVID-19 vaccine.

Once vaccines are available, they will be managed and distributed according to the manufacturers' instructions and guidance on storage and handling.

#### **13.3.5. Reverse Logistics**

The country has sufficient experience on reverse logistics such as HPV and mOPV2. The programme will adapt existing strategy, SOPs and tools for managing reverse logistics. As most vaccines will neither have VVM nor expiry date, any unused vials at the end of the vaccination exercise/ campaign shall be returned to the National Vaccine store for proper management.

#### **13.4. Health care waste Management**

Zambia has in place National Health Care Waste Management Guidelines. Management of waste related to COVID-19 vaccination requires special attention, due to the infectious nature of the virus. The country shall ensure that safe and effective methods, including waste segregation into colour coded or well labelled plastic bags/containers, to manage and dispose off waste are in place prior to vaccine deployment. Proper waste management procedures are critical for the safety of health workers and the community. To minimize risk to the communities, each vaccination team shall practise on-site waste segregation and implement reverse logistics, where health care waste is taken back to the facility by the vaccination team to be disposed of properly along with other hazardous wastes. A costed waste management plan shall be developed with budget for training and employment of waste handlers, provision of waste containers and treatment technologies, and with consideration of possible outsourcing to the private sector services for waste treatment and disposal prioritising the use of best available technologies in accordance with the Stockholm Convention where possible.

#### **13.4.1. Disposal strategy, methodology and destruction**

The country shall use existing disposal methods according to the National Health Care Waste Management Guidelines. Waste shall be disposed mainly through incineration and burn-and-bury methods or a combination of these or other accepted methods according to these guidelines. Treated waste shall be disposed of at an appropriate landfill.

### **14. VACCINE SAFETY MONITORING, MANAGEMENT OF ADVERSE EVENTS FOLLOWING IMMUNISATION (AEFI) AND INJECTION SAFETY**

The monitoring of COVID-19 vaccines safety is unique and complex and shall require specific attention arising from the many unknowns concerning the vaccine.

Zambia has finalised AEFI guidelines and tools for reporting, investigation and conducting causality assessment for AEFI which were developed in 2018. There is also a functional AEFI Committee comprised of 11 experts in place. Trainings in AEFI surveillance have been done for National level staff from the immunisation programme and the Zambia Medicines Regulatory Authority.

AEFI guidelines include information on standardized routing, timelines, activities, roles and responsibilities of various stakeholders and data sharing mechanism with in-country and international stakeholders.

Zambia has not yet achieved the target of a minimum level of 10 annual AEFI reports per 100 000 surviving infants. Routine AEFI surveillance still remains weak with some years not receiving any AEFI report. An AEFI situation analysis whose report is yet to be finalised, was also conducted in 2020, to better understand the factors affecting AEFI Surveillance with an aim to identify strategies for capacity building of Health Workers in AEFI Surveillance.

In order to meet the minimal capacities in AEFI Surveillance, the country shall build capacities to:

AEFI reporting : Training of subnational to health facility level shall be conducted to enable them identify, manage and report AEFI cases according to the standardized routing, timelines and activities as per National AEFI guidelines. To strengthen management of AEFI and prepare for potential risk of anaphylaxis, HCWs shall be trained to identify, manage and report cases of anaphylaxis. The country shall ensure availability of AEFI kits at all service delivery points. The country shall strengthen the existing monitoring system to ensure real-time monitoring (ODK); knowledge sharing and communication mechanisms

are aligned to the requirements for COVID-19 vaccine safety. Online reporting tools such as ODK, DHIS 2 AEFI reporting package shall be used to complement paper-based reporting from district to national level.

AEFI case investigation: training of investigation team and district, provincial and national level to investigate serious AEFI and AEFIs causing community concern. The country shall print, distribute and disseminate adequate national AEFI guidelines and case investigation forms to subnational levels including health facilities.

AEFI Causality assessment: There is also a functional AEFI Committee comprised of 11 experts from diverse clinical and para-clinical expertise in place. The members were officially nominated and trained on Causality Assessment of AEFI cases that have been investigated in the field, data collected and presented for assessment by a functional AEFI secretariat. The committee shall be trained in COVID-19 vaccine safety surveillance.

Risk communication and response to serious AEFI: Working with the Advocacy, Communication and Social Mobilisation (ACSM) pillar, the country shall develop COVID-19 vaccine specific Risk Communications and Community Engagement (RCCE), and related social mobilisation plans which shall include preparedness for responding to vaccine-related events and AEFI. A crisis communications plan shall be developed to respond to rumours and AEFI related to COVID-19 vaccination in a coordinated manner. (Details in Chapter 15: Demand Generation And Communication).



### **14.1. Key vaccine pharmacovigilance considerations**

Using the “COVID-19 vaccines: safety surveillance manual in preparation for vaccine introduction” developed by WHO, the country shall strengthen its preparedness prior to, during and after the introduction for staff in the immunisation programme all levels, regulatory authority, partners and pharmacovigilance centres.

Vaccine safety monitoring will be a shared responsibility between the Immunisation Programme, ZAMRA and other stakeholders (e.g. disease surveillance). For the purpose of traceability, vaccine pharmacovigilance systems shall be case-based AEFI reporting, paying special attention to the vaccine brand name and the manufacturer including details such as batch numbers and documentation of dates in case of new updates during the process of implementation.

A listing of various stakeholders with clearly defined roles and responsibilities regarding handling end-to-end COVID-19 vaccine safety issues shall be developed to shorten the response time during a crisis and ensure a harmonized approach to routine activities and managing a crisis and unexpected events prior to vaccine introduction. The MAH is expected to implement a Risk Management Plan (RMP) which shall include: a Pharmacovigilance system and organisation, risk identification, risk assessment, vaccine traceability and recall process, contingency plan and risk reporting. structures shall be established, and strategies developed which shall include an oversight mechanism to ensure that the RMPs are in place and functional.

Financing mechanisms for pharmacovigilance activities (training, reporting, investigation, data collection and transmission, causality assessment, etc.) shall be established during the planning stage and funds mobilised for this purpose. Mechanism for private sector involvement and their roles in safety monitoring and reporting shall be established prior to vaccine roll-out.

In anticipation of adverse events of special interest (AESI), the operational and regulatory definitions for AESI shall be used in the local context and such events shall be confirmed through predefined mechanisms, followed up and evaluated by a group of experts.

Country capacities shall be reviewed and strengthened to ensure they are adequate and prepared for causality assessment for AEFI and specific specialized analyses for AESI. Feedback on findings of the investigation and causality assessment shall be communicated to all stakeholders including the reporting health worker and the patient. The existing AEFI Surveillance guidelines

and tools shall be adapted to align to current global safety guidelines for both AEFI and AESI as well as to local context.

To maintain quality surveillance key parameters shall be adhered to including timeliness and completeness for reporting, investigation, analyses and causality assessment as they are critical for decision-making and communication.

Key to communicating with various audiences, communications approaches shall be prepared by the regulatory body in collaboration with the immunisation programme beforehand focusing on existing safety systems, their functions and limitations to prime communities before signals occur as well as how to interpret this information to build resilience against misinformation.

The following activities shall be used to strengthen vaccine safety:

- Disseminating and making available guidelines, documented procedures and tools for planning and conducting vaccine pharmacovigilance activities (i.e. AEFI reporting, investigation, causality assessment, risk communication and response to surveillance facilities/sites).
- Training adequate human resources to conduct surveillance of events attributable to vaccination.
- Training the AEFI committee to review COVID-19 Vaccine safety data (e.g., causality assessment of serious AEFI, clusters of AEFI, emerging safety concerns etc.).
- Identifying and securing channels of data sharing mechanisms to share COVID-19 vaccine safety data and findings with relevant regional and international partners.
- Defining roles and responsibilities and establish a coordination mechanism between relevant stakeholders (ZAMRA, EPI, MAH, MOH, WHO and others) for exchange of COVID-19 Vaccine safety information.
- Establishing compensation schemes in the event that there are unintended health consequences as result of vaccines, including no-fault liability funds, and ensure that associated policies

## **14.2. Ensuring safe vaccination delivery**

The Immunisation Programme has been implementing safe injection practices since 2005 and only uses AD syringes for provision of immunisation services. Refresher training for vaccinators on the importance of safe injection practices shall be done. Additional injections for COVID-19 vaccine administration shall increase the quantities of safe injection supplies needed, such as autodisable syringes and safety boxes. These additional supplies, including IPC measures, to

ensure their timely availability shall be quantified and costed in the planning process.

Additional steps shall be undertaken to ensure injection safety. Injection safety practices shall be upheld at every step of the vaccination process as the existing programme only uses safe injection equipment.

### **14.3. Safeguard injection safety**

Injection safety is the safe handling of all injection equipment, routine monitoring of the availability and use of safe injection equipment, and correct disposal of contaminated injection equipment. To prevent risk of infection to the community and to health workers, the safe disposal of used needles and syringes is a critical component of any immunisation programme. An adequate supply of safety boxes and their proper disposal shall be assured. Health care waste shall be managed in accordance with the provision in the guidelines for management of infectious health care waste.

## 15.DEMAND GENERATION AND COMMUNICATION

The demand generation and communication plan that supports the COVID-19 vaccines rollout in Zambia seeks to disseminate timely, accurate and transparent information about the vaccine(s) to alleviate apprehensions about the vaccine, ensure its acceptance and encourage uptake. The planned activities will also serve to guide national, provincial and district level communication activities, so that the information on the COVID-19 vaccines and vaccination process reaches all people, across all provinces in the country.

The overall objective of demand generation and communication efforts around the COVID-19 roll-out is ensuring high levels of COVID-19 vaccine acceptance and uptake among most at risk populations and the general public. The specific objectives will include:

- Increase community awareness and knowledge on COVID-19 vaccines being deployed in Zambia
- Build/increase the proportion of the population that is confident with the idea of taking COVID-19 vaccine
- Create an enabling environment and social support for COVID-19 vaccine uptake.

The demand generation and communication plan operates around the following strategic positions:

- **Coordination and Planning:** reactivate existing coordination mechanism(s) for strategic planning and to develop a targeted, multi-component and costed plan to achieve high acceptance and uptake of the COVID-19 vaccine.
- **Gather and use local evidence:** behavioural and social data, digital listening and media monitoring, and other relevant sources, to inform the design and evaluation of interventions.
- **Implementation of the Advocacy, Communication and Social Mobilisation (ACSM) plan:** includes the following activities:
  - National advocacy and stakeholder engagement
  - Communications and media engagement for public information, including key messages by target group
  - Risk Communications and Community Engagement (RCCE), and related social mobilisation (includes preparedness for responding to vaccine-related events and AEFI – see chapter on AEFI and vaccine safety).
  - Misinformation management, including tracking and analysis from social listening.
- **Audience segmentation:** identify targets and focus messages based on needs and concerns.

The expected results will include:

- The general public is aware and understands the importance and benefits of COVID-19 vaccines
- At least 90% of the eligible population have comprehensive knowledge about COVID-19 vaccines by end of 2021
- Reduce the proportion of refusals to take the COVID-19 vaccine to less than 5% by end of 2021

Key indicators related to demand generation and communication that will be monitored are:

- % of health workers who will trust and receive vaccine
- % of health workers who are willing to explain the importance and safety of vaccine and recommend it to general public
- % of aged people above 65 who believe COVID-19 vaccines are safe
- % of the aged who are willing to take the vaccine
- % of population who can recall at least three benefits of COVID-19 vaccine

### **15.1. Main Activities for enhancing Demand Generation and Communication**

The main activities will be clustered in the thematic areas as listed below

#### **15.1.1. Effective Multi- Sectorial Coordination and Planning**

- a) Strengthen multi-sectoral coordination mechanisms through agreeing key platforms for vaccine communication coordination and ensuring regular effective meetings (agendas, minutes etc.).
- b) Share global and regional SBCC guidance to the national partners for adaptation
- c) Strengthen the operations of the IMS sub-committee on RCCE at national level
- d) Develop an evidence-based standalone Advocacy, Communication and Social Mobilisation (ACSM) plan on the introduction and roll-out of COVID-19 vaccines, applying behavioural insights. This plan will include strategies for the development of Social Behaviour Change (SBC) materials, advocacy, public communication, social mobilisation, Risk Communication and Community Engagement, capacity building and rapid assessment. The plan will be aimed at building community trust, increase acceptance of the high impact interventions and creating demand for COVID-19 vaccination.
- e) Through a comprehensive M&E framework, support coordination on implementation and monitoring of the ACSM plan aligned with the COVID-19 Multi-Sectoral Contingency Response Plan and RCCE plans

- f) Conduct regular multi-sectoral risk and safety communication assessments to identify gaps and resource needs
- g) Engage Cooperating Partners to mobilize resources and coordinate partner activities as part of the RCCE and ACSM Plans

*Key Stakeholders:* Under the leadership of the Ministry of Health and the ZNPHI, the demand creation national coordination of the COVID-19 Emergency Plan will be led by Chief of Health Promotion at MoH supported by stakeholders including UN agencies, NGOs, and CSOs and in close collaboration with the EPI Advocacy, Communication and Social Mobilisation subcommittee.

The strategy will be implemented by the Office of the Vice President (DMMU) and other stakeholders such as the Ministries of National Development Planning (MNDP), Health, Finance and Cabinet Office as well as Provincial and District Administrations.

### **15.1.2. Local Evidence Base**

Developing the ACSM plan will start with listening to and understanding target populations, to generate behavioural and social data on the drivers of uptake and to design targeted strategies to respond.

The approach includes the following;

- a) Review existing research literature, including KAP studies on COVID-19 in Zambia carried out in 2020, and previous social listening reports produced by the RCCE sector.
- b) Under the leadership of the research sub-group, the RCCE sub-committee shall review and coordinate polling on COVID-19 attitudes, evaluate data collected during the November 2020 Child Health Week, and through other polls, and the planned poll on the 'Internet of Good Things' platform.
- c) Organise a training workshop to share global behavioural insights research on promoting vaccine take-up.

### **15.1.3. Intervention of Advocacy, Communication and Social Mobilisation (ACSM) Plan**

The ACSM plan will build an integrated and evidence-based costed plan around the four main areas listed below. This will help ensure an approach that will:

- a) build a supportive and transparent information environment, and addresses misinformation through social listening and assessments that inform digital engagement initiatives;
- b) build trust and acceptance of the vaccines through engagement of communities by civil society organisations, particularly for vulnerable target populations;
- c) provide health workers with the requisite knowledge of COVID-19 vaccines as first adopters, trusted influencers and vaccinators, giving them the skills to communicate effectively and persuasively with target populations and communities; and
- d) prepare the country to respond to any reports of AEFI and develop a plan to mitigate any resulting crises of confidence.

#### **15.1.3.1. Social listening, digital engagement and misinformation management**

**Continuing social listening work** - the 'Dynamic listening' sub-group will lead the monitoring of the 'conversation' around COVID-19 vaccines in Zambia. The ACSM plan will establish data collection systems, including:

- a) Community feedback, social media listening and rumour management,
- b) assessing behavioural and social data through rapid assessments by conducting KAP surveys;
- c) Conduct at least two rapid behaviour assessment to inform decision making;

**Social and digital media listening** – Establish / designate a social media team either with the government or a partner agency that is dedicated full-time to support COVID-19 roll out and crisis communication.

Engaging public and prominent local online figures as influencers to promote positive messaging and information about the vaccines and vaccination drive, and be ready to respond on issues.

Undertake 'misinformation surveillance' to identify the most prominent sources of misinformation, channels being used and groups who are most likely to be influenced by the misinformation and rumours. The team will also track information from various channels to understand the underlying themes, key concerns and potential impact on the vaccination drive.

Undertake swift, real time and effective counter measures through development of effective counter messages addressing the concerns and beliefs.

### **15.1.3.2. Risk communication and community engagement**

One of the most important lessons learned from past disease outbreaks is the central role of trust in enabling an effective outbreak response. Some of the key activities that will be implemented to build trust by the communities will be:

- a) Orient and partner traditional and community leaders, religious clerics, other local influencers and civil society groups.
- b) Conduct social mobilisation activities to sustain the vaccination momentum to ensure adherence to complete dosage and prevent dropouts. Continue public communication, before, during and after COVID-19 vaccination.
- c) Engage politicians, celebrities and social media influencers for trust and confidence generation. Consider partnership / training opportunities to better inform them.
- d) Produce/translate/reproduce to local context multimedia materials and infographics on COVID-19 for social media platforms. Translate documents to local languages where relevant. Dissemination of factual information that is incremental, persistent and consistent addressing the concerns through various online and other media platforms.

Interventions will be conducted to reinforce the demand for the service, adherence to complete dose schedule, collective benefits of high vaccination coverage and support for vaccination.

Intervention to increase intentions and overall motivation that are structural or systems oriented will:

- a) work within the confines of the updated national risk-communication and community engagement plan;
- b) scale up the implementation of the national risk-communication and community engagement plan;
- c) strengthen community engagement for social and behaviour change approaches;
- d) Upscale COVID-19 timely, accurate and transparent information dissemination through mass media platforms on COVID-19 vaccines focusing on its importance and safety to increase vaccine acceptance and public confidence;
- e) Promotion of risk communication and community engagement activities on vaccines roll-out along mobility corridors and POEs;
- f) Develop and disseminate behavioural change strategies for engaging different groups such as traditional and civic leaders, refugees, churches and other faith-based communities, Schools, markets, transport hubs;



- g) Develop, print and distribute COVID-19 vaccines information, education and communication materials for differently abled persons in accessible formats;
- h) Develop, update and distribute COVID-19 vaccines information, education and communication materials for the public;
- i) Support development of subnational ACSM plan integrating into the overall COVID-19 RCCE Contingency and Response Plans;
- j) Support orientation of provincial and district stakeholders in the implementation and monitoring of provincial and district RCCE/ACSM plans supported by the Incident Management System (IMS); and
- k) Coordinate and engage sub-national efforts to reinforce messaging and communication.

#### **15.1.3.3. Empowering frontline health workers**

Key objectives are to educate health workers on the COVID-19 vaccine; increase health worker uptake and satisfaction with the vaccine as early, priority recipients; and improve health workers' ability to communicate and engage with priority groups and caregivers and endorse COVID-19 vaccination.

Demand activities should initially focus on health workers and other high-risk groups (e.g. older adults) that have been prioritized by the country.

Key activities that will be implemented under this thematic areas:

- a) Orientation of community-based volunteers (CBVs) and their catchment facility staff on the importance, safety and risk communication on COVID-19 vaccines.
- b) Capacity build Health Promotion Officers at sub national level, media personal and CBVs for effective implementation of the planned interventions
- c) Develop, print and distribute COVID-19 vaccines information, education, and communication material for health care provider at the vaccination sites.

#### **15.1.3.4. Crisis communications**

When a new vaccine is introduced, there will likely be public concerns regarding the safety of the vaccine and its possible side-effects. As a result, there may be negative rumours and sentiments about the vaccine, which could discourage some among the general public from being vaccinated. Effective community engagement and consultation in the early stages of planning will also help with mitigation of vaccine-related events.

The follow will be the key activities implemented:

- a) Develop a crisis communications plan to response to rumours and AEFI related to COVID-19 vaccination in a coordinated manner.
- b) Establish a core team to manage crisis communication events, with an established SOP.
- c) Partnership with media: Create / maintain an updated media list including credible and reputable local reporters and journalists;
- d) Re-orientation of call centre agents and supervisors;
- e) Capacity building for media personnel as well as Risk Communication and Community Engagement teams;

## **15.2. Audience segmentation:**

Tailored messages will be developed and adapted based on the identified targets and focusing on needs and concerns of the various audiences as listed below.

### **a) Primary**

- i. Health workers, community health workers and persons aged 65 and above
- ii. Adults with pre-existing health conditions
- iii. Politicians and other influential people

### **b) Secondary**

- i. Family members, reference groups (including faith based, and local authorities, NGOs, development partners etc.)
- ii. General public

### **c) Tertiary**

- i. National and local leaders including traditional and faith leaders.
- ii. Political leaders and other influencers

## 16.ANNEXES

### Annex 1: Composition of a vaccination team

A vaccination team should comprise of 6 people.

Responsibility	Total Number
Crowd Control and social mobilisation (community volunteers) *	1
Registration team to check the target age group	1
Tally doses	1
Vaccine Preparation team – maintain cold chain and prepare the vaccines / Tally, give attendance card and finger marking	1
Vaccinators – administer the vaccine	1
Safety person (IPC and AEFI)	1
Total	6

(One supervisor will oversee at least five vaccination teams).

\*For high volume facilities consider 2 crowd controllers

The standard vaccine team comprising 6 persons (2 vaccinators and 4 volunteers) shall vaccinate between 25-38 persons per hour in optimum conditions.

For the COVID-19 vaccination rate has been adapted from the 2020 MR SIA guidelines and reduced allowing for the following:

Urban/dense Population:      38 vaccinations/ hour  
   300 vaccinations/ day

Rural/sparse Population:      25 vaccinations/ hour  
   200 vaccinations/ day

The number of teams required shall be determined by targets population (urban/rural) and the rate of vaccination.

**Annex 2: Template for identified of Human resource needs for COVID-19 Vaccine Deployment**

	<b>Role in COVID-19 Vaccination</b>	<b>Number Required</b>	<b>Number Available</b>	<b>Gap</b>
1	Vaccinators (Health Worker)			
2	Logisticians			
3	Cold Chain			
4	Waste Management			
5	Social Mobilisation			
6	Community mobilisers			
7	Monitoring/ Evaluation			
8	AEFI/ Pharmacovigilance			
9	Supervisors			

### **Annex 3: Detail of selected facilities per district**



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## Annex 4: Capacity and characteristics for technologies recommended at each level.

Level of institution	Capacity	Technology	Characteristics and maintenance
Health centre (rural and urban)	2m deep & filled to a depth of 1-1.5m	• Land disposal with safe burying	<ul style="list-style-type: none"> <li>• Burial site line with low permeability.</li> <li>• Suitable for hazardous and quantities of chemical waste.</li> </ul>
	One bag at a time. 100- 200 kg/day at 300-400 °C	• Brick incinerator	<ul style="list-style-type: none"> <li>• Appropriate for infectious and general health care waste.</li> <li>• Not suitable for chemical residues pharmaceutical, genotoxic, radioactive, inorganic compounds, thermal resistant waste, pressurized containers, halogenated plastics and heavy metals</li> <li>• Easy to operate but not suitable where air pollution is a problem.</li> </ul>
First Level (District Hospital)	As above	• Land disposal with safe burying	As for health centre
	80°C for 45 minutes. 7-73% concentration	<ul style="list-style-type: none"> <li>• Chemical disinfection</li> <li>• Formaldehyde (HCHO)</li> </ul>	<ul style="list-style-type: none"> <li>• Inactivate microorganisms, used on dry and solid waste with steam</li> <li>• Corrosive to metals with exception of stainless steel and aluminium</li> <li>• Suitable where safety is guaranteed.</li> </ul>
	37-55% at 60-80 % humidity for 4-12 hours.	• Ethylene oxide	<ul style="list-style-type: none"> <li>• As for formaldehyde except it is corrosive to rubber and plastics</li> <li>• Not recommended because it irritates the skin, eyes and it is carcinogenic (health hazards)</li> </ul>
	2% for 5min. & 10hrs. on spores	Glutaraldehyde (CHO-(CH <sub>2</sub> ) <sub>3</sub> CHO)	<ul style="list-style-type: none"> <li>• As for formaldehyde</li> <li>• Not to discharge into sewers</li> </ul>
	2 – 12% active chlorine	• Sodium hypochlorite (NaOCl)	<ul style="list-style-type: none"> <li>• Active on bacteria, viruses, &amp; spores but ineffective on blood and stool</li> <li>• Corrosive to metal &amp; safe to plastic</li> <li>• Mild health hazards</li> </ul>

	0.5 to 3 tones/hr. at 1200 – 1600°C	<ul style="list-style-type: none"> <li>• Rotary kiln incinerator</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate for infectious, chemical and pharmaceutical waste</li> <li>• Not suitable for non-risk, radioactive, pressurized containers and heavy metals</li> <li>• Require trained personnel</li> </ul>
Second Level (General Hospital)	25 (50LA)	<ul style="list-style-type: none"> <li>• Land disposal with safe burying</li> </ul>	<ul style="list-style-type: none"> <li>• As for health centre</li> </ul>
	200 kg to 10 tons / day at 800 – 900°C	<ul style="list-style-type: none"> <li>• Pyrolytic incinerator</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate for infectious, pathological, pharmaceutical and chemical residue waste</li> <li>• Not suitable for non-risk, genotoxic, radioactive, pressurized National Health Care Waste Management Plan Ministry of Health Page 84 containers and heavy metals</li> <li>• Expensive and requires trained personnel to operate and maintain</li> <li>• Suitable for larger facilities</li> </ul>
	As above	<ul style="list-style-type: none"> <li>• Chemical disinfection</li> </ul>	<ul style="list-style-type: none"> <li>• As for first level</li> </ul>
	5 – 8kg requires 60 minutes. At 121°C	<ul style="list-style-type: none"> <li>• Wet thermal or steam treatment (autoclaving)</li> </ul>	<ul style="list-style-type: none"> <li>• Inactivate microorganisms.</li> <li>• Sterilize reusable medical equipment</li> <li>• Suitable for infectious waste &amp; sharps &amp; not pathological, cytotoxic or radioactive wastes</li> </ul>
Third Level (Central Hospital) including National Reference (University Teaching Hospital, Chainama, Liteta,)	As above	<ul style="list-style-type: none"> <li>• Land disposal with safe burying</li> </ul>	<ul style="list-style-type: none"> <li>• As for health centre</li> </ul>
	As above	Pyrolytic incinerator	As for general hospital
	As above	Chemical disinfection	As for district hospital
	As above	Wet thermal or steam treatment	As for general hospital
	250kg/hr	Microwave irradiation disinfector (teaching hospital)	Potential operation and maintenance problems
Regional waste disposal site (Two centralized incinerators stationed in Lusaka and Copperbelt provinces)	As above	Land disposal with safe burying	As for health centre
	As above	Chemical disinfection	As for district hospital
	As above	Pyrolytic incinerator	As for general hospital
	160kg/hr or one for 500kg/hr 4 - 7hrs / day	Incinerator 350 LA or one for 1000 LA wood/coal fired	<ul style="list-style-type: none"> <li>• Multiple chamber design with automatic temperature control</li> <li>• Hygienically destroy putrescible waste (hospital, abattoir,</li> </ul>

			sewage works, industry, municipalities, etc.) <ul style="list-style-type: none"><li>• Spare parts readily available in South Africa and requires trained personnel</li></ul>
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### Annex 5: Implementation modality for each NVDS prioritised group

S N	Prioritised target group	Implementation strategy for COVID-19 vaccination	Means of identification
1	<b>Tier A: Essential health care workers and support staff.</b> Medical doctors, nurses, clinical officers, pharmacists, midwives, environmental health technicians (EHTs), community health care workers (CHWs); health facilities support staff; nursing and medical schools' students and staff;	<ul style="list-style-type: none"> <li>- Use existing "selected" routine immunisation (RI) vaccinators through existing EPI fixed centres in public and private facilities.</li> <li>- Outreach and mobile approach by additional vaccinators.</li> </ul>	MOH-HQ, PHO, DHO, Health facility (public and private), NHCs, HCC, community volunteer's database and National Identification Card (NID)
2	<b>Tier B. Maintaining core societal functions</b>  Immigration officers, port staff, police and security, teachers, key political, religious, administrative , traditional leaders; Public Service transporters (truck, bus and taxi drivers); market and cross-border traders;	<ul style="list-style-type: none"> <li>- On schedule if nearby a health facility by "selected" RI vaccinators</li> <li>- Outreach and mobile approach by additional vaccinators.</li> <li>- For uniformed services use existing "selected" RI in the medical division within the uniformed services. MOH will provide technical and supply (vaccine and non-vaccine)</li> </ul>	Ministry of Education, Ministry of Home affairs, Ministry of Defence, NID, and employee ID
3	<b>Tier C. Risk of severe illness population and death.</b> Patients with co-morbidities, HTN, DM malignancies, cardiovascular disease, diabetes, TB, HIV, those aged 65 and older.  UN staff and other related organisations. *	<ul style="list-style-type: none"> <li>- On schedule if nearby a health facility by RI vaccinators</li> <li>- Additional vaccinators, using three strategies of fixed, outreach and mobile</li> </ul>	Hospital Registers, Specialised clinic registers/database and NID  UN and other international Organisations databases,
4	<b>Tier D. Congregate settings</b>  Healthy persons 18-64 years not	<ul style="list-style-type: none"> <li>- Localized mass campaigns for 18-64 and disabled populations through using on schedule if nearby a health facility by RI</li> </ul>	Database of concerned Government Ministry NGOs, University IDs, Private sector

S N	Prioritised target group	Implementation strategy for COVID-19 vaccination	Means of identification
	included in the above category living in highly dense areas, refugees, and disabled populations; army barracks; police camps; prisoners; university and college campuses (excluding those handled in above tiers)	vaccinators; by additional vaccinators through fixed, mobile or outreach conduct either mobile or outreach.	and UNHCR databases and NID
5	<b>Tier E. Rest of the population</b> Rest of the population aged 18 or older	- Country wide mass campaigns for 18 years and older through using on schedule if nearby a health facility by RI vaccinators; by additional vaccinators through fixed, mobile or outreach conduct either mobile or outreach.	NID, Community Registers and other related ID

\*The UN staff will be required as we vaccinate tier D and hence ought to themselves have been vaccinated in prior tiers, and hence tier C.

**Note:**

1. The final choice of treatment and disposal should be made carefully after taking into consideration advantages and disadvantages and other factors at play.
2. Use deep pits in rural areas
3. No disposal of health care waste for landfill on municipal dumpsites

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