

Covid-19 Vaccine Roll-out

Presentation to the Portfolio Committee on Health

5 February 2021



health

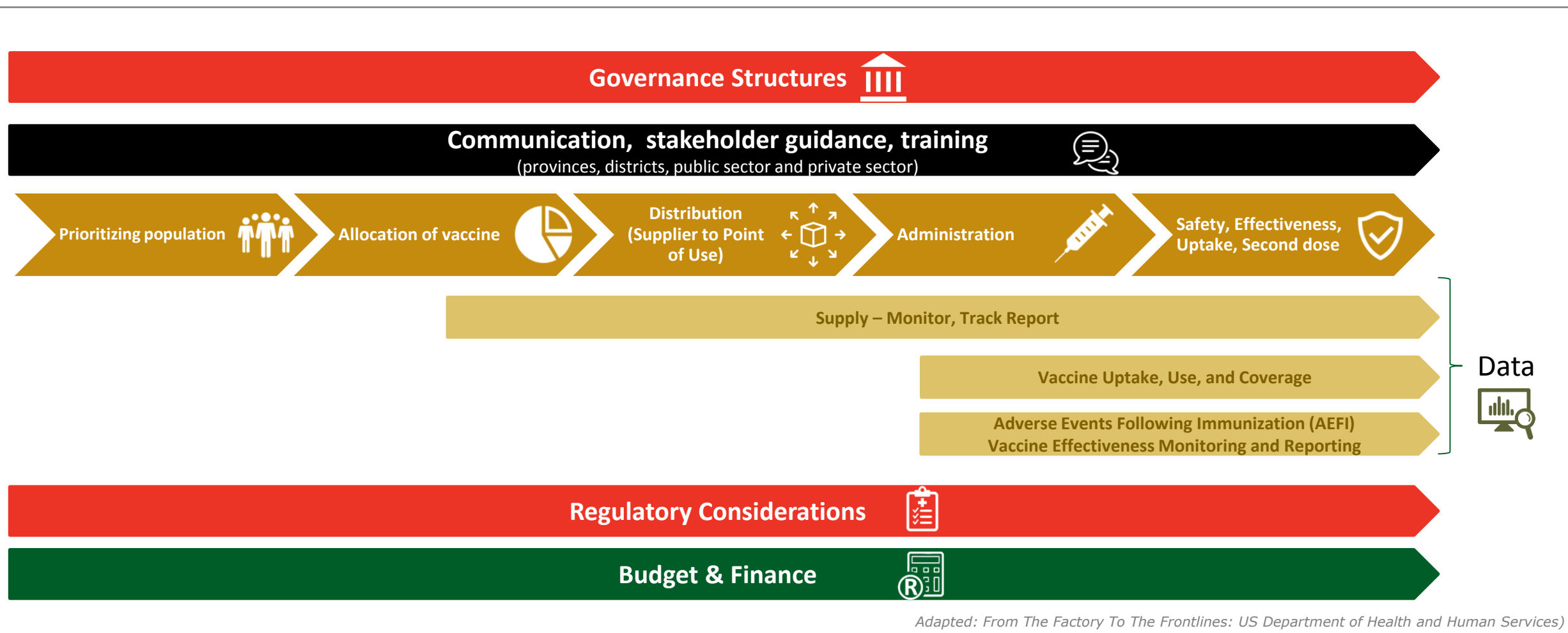
Department:
Health
REPUBLIC OF SOUTH AFRICA

Presentation Outline

- Vaccine Roll-out planning
- Vaccine procurement
- Distribution plan
- Risks and mitigation strategies
- SMME opportunities
- Vaccine security

VACCINE ROLL-OUT PLANNING

FRAMEWORK FOR VACCINE IMPLEMENTATION



INTERMINISTERIAL COMMITTEE ON VACCINATION

Overall political oversight of the vaccination programme

- Ensuring that there is adequate funding for the vaccine programme
- Ensuring that there are sufficient doses of vaccine are procured.
- Ensuring that a robust communication and demand generation plan is implemented.
- Overseeing the implementation of the vaccination programme in 52 districts and 280 wards with an emphasis on monitoring uptake and coverage, and intervening where these are sub-optimal.

- **Deputy President (Chairperson)**
- Health
- Finance
- Cooperative Governance and Traditional Affairs
- Monitoring and Evaluation
- Defence and Military Veterans
- Police
- State Security
- Transport
- International Relations and Cooperation

- Higher Education
- Public Enterprises
- Home Affairs
- Science and Innovation
- GCIS
- Minerals and Energy
- Trade and Industry
- Social Development
- Agriculture, Rural and Land Reform

GOVERNANCE, COORDINATION AND PLANNING

The Covid-19 Vaccine Ministerial Advisory Committee

- Advised the Minister on technical and other issues

MAC on Social and Behaviour Change

- will drive a concerted social mobilisation campaign to all the sectors.

The National Vaccine Coordinating Committee (NVCC)

- tasked to lead national vaccine scale-up
- provincial health departments, the private healthcare sector and other stake-holders.

Private Health Sector Coordinating Committee.

- includes Medical Schemes, HASA, Independent Practitioners Associations (IPAs), retail pharmacies and groups, specialist associations, nursing association, health professions associations, logistics providers, pharmaceutical manufacturers, employers, and business associations.

GOVERNANCE AND COORDINATION: OTHER DEPARTMENTS

Key roles of departments

Identifying beneficiaries:

- Phase I: DPSA, Correctional services, SAMHS
- Phase II: DEL, Correctional services, Education and Higher Learning, SASSA

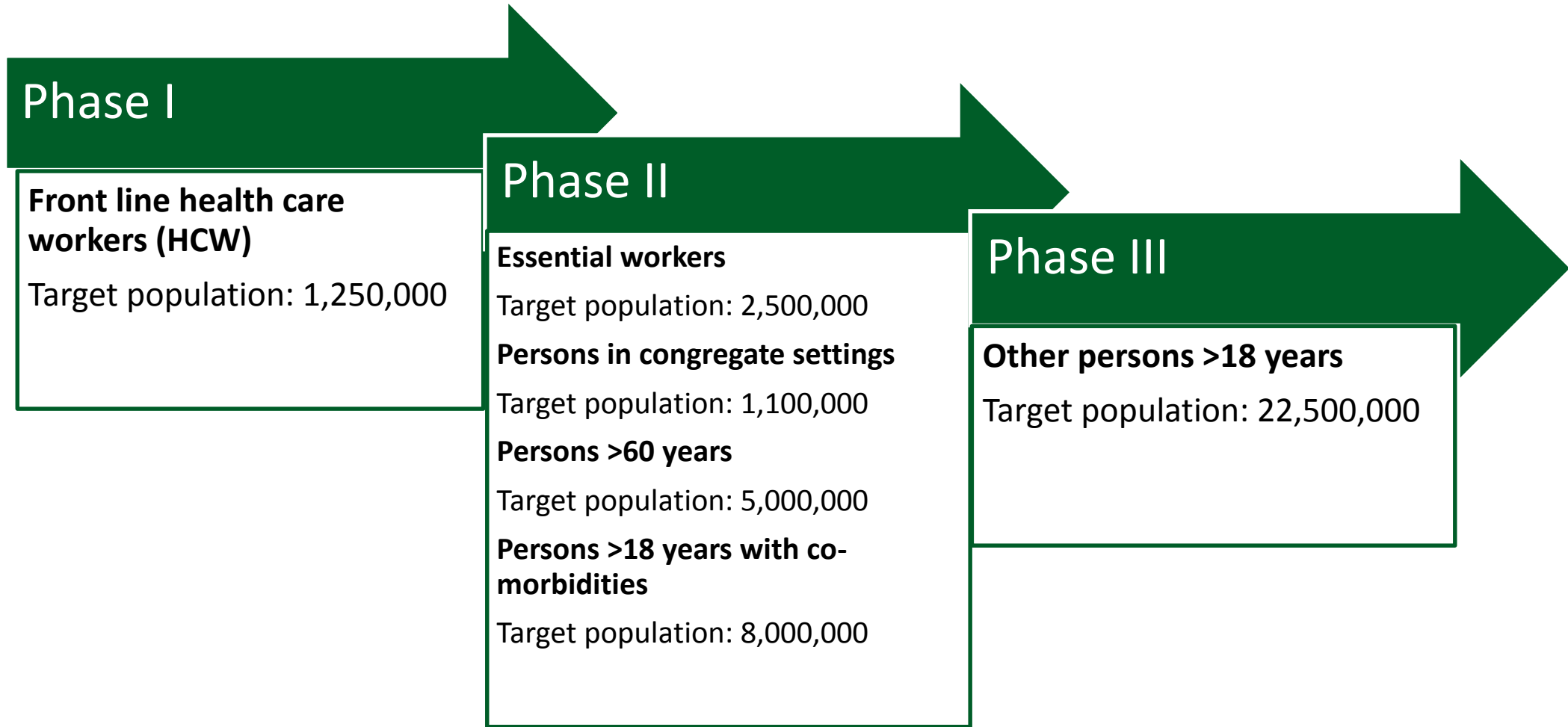
Assisting with roll out:

- Communication and mobilisation: GCIS, COGTA
- Service delivery: Department of Defence and Military Veterans, Correctional services
- Co-ordination: DEL, Education and Higher Learning, SASSA
- Security and other logistics: SAPS, SANDF

Promoting vaccine research and production in South Africa

- Science and Technology
- Trade and Industry

PHASED APPROACH FOR VACCINE INTRODUCTION





Procurement of Vaccines

Covax Initial Allocations received-29 January

VACCINE	DOSES	INDICATIVE SUPPLY SCHEDULE
ASTRA ZENECA	2,976,000-5 028 000	STARTING MID FEBRUARY Q1:25%-35% Q2: 65%-35%
PFIZER/BIONTECH	117 000	MID FEBRUARY

Johnson and Johnson

- Phase 3 trial data released 29 June 2021_15:00
- Janssen's COVID-19 vaccine candidate was **66% effective overall in preventing moderate to severe COVID-19**, 28 days after vaccination, among all participants from different geographies and including those infected with an emerging viral variant.
- The vaccine candidate was **85% effective in preventing severe disease across all regions studied**, 28 days after vaccination in all adults 18 years and older.
- The Janssen vaccine candidate demonstrated **complete protection against COVID-related hospitalization and death**.
- A review of adverse events indicated that a single-dose of Janssen's COVID-19 vaccine candidate was **generally well-tolerated and did not report any significant safety concerns** relating to the vaccine.

Johnson and Johnson

- Term sheet signed off for 9m doses @ \$10/dose.
- APA received **29 January 2021** – one of the preconditions is the establishment of a no-fault compensation system for adverse events.
- Meeting scheduled **02 February 2021** between Legal representatives of SA government and J&J to finalize contract

Moderna

- This company does not have a presence in South Africa hence they had no intention of filing for registration
- The company indicated that the doses will be available only in Q3. Offer of small qty in Q2 – 200,000 doses
- 2 dose m RNA vaccine, stored at -20 degree – 90% efficacy
- Priced at \$30-\$42/ dose

SUMMARY OF DIFFERENT VACCINES IN THE MARKET

Moderna



TECHNOLOGY: mRNA
RNA instructs our cells to produce the SARS-CoV-2 spike protein to trigger an immune response.
EFFICACY: 94.1%
CLINICAL TRIALS: Completed Phase 3. Authorized for use in USA, Canada, U.K., Israel, Switzerland, and EU.
DOSE: 2 doses, 28 days apart.
STORAGE: 30 days with refrigeration, 6 months at -20°C .

Pfizer-BioNTech



TECHNOLOGY: mRNA
RNA template for the spike protein.
EFFICACY: 95%
CLINICAL TRIALS: Completed Ph3. Authorized/approved in USA, Canada, U.K., Switzerland, Bahrain, Saudi Arabia, EU, Argentina, Chile, Costa Rica, Ecuador, Jordan, Kuwait, Mexico, Panama, and Singapore.
DOSE: 2 doses, 21 days apart.
STORAGE: Freezer storage at -70°C , 5 days with refrigeration.

Oxford-AstraZeneca



TECHNOLOGY: Viral Vector
A harmless virus is engineered to contain the gene for the SARS-CoV-2 spike protein
EFFICACY: 62% at the approved dosing scheme.
CLINICAL TRIALS: Completed Phase 3, authorized for use in U.K., Argentina, India (called CoviShield), and Mexico.
DOSE: 2 doses, 4 weeks apart.
STORAGE: refrigerated at $2-8^{\circ}\text{C}$.

Sinopharm




TECHNOLOGY: Inactivated Virus
SARS-CoV-2 virus is rendered inert through a chemical process that preserves the structure of the virus.
EFFICACY: Reportedly 79.34% (86% in UAE trial); unpublished data.
CLINICAL TRIALS: Phase 3 trials are ongoing; authorized/approved in China, United Arab Emirates (UAE), Bahrain, Egypt, and Jordan.
DOSE: 2 doses, 3 weeks apart.
STORAGE: refrigerated at $2-8^{\circ}\text{C}$.

Johnson & Johnson



TECHNOLOGY: Viral Vector
A harmless virus is engineered to contain the gene for the SARS-CoV-2 spike protein
EFFICACY:



Vaccine	Efficacy
Moderna	94.1%
Pfizer-BioNTech	95%
Oxford-AstraZeneca	62%
Sinopharm	79.34%
Johnson & Johnson	66%
Gamaleya	91.4%

CLINICAL TRIALS: Completed Phase 2a, expected phase 3 trial data to be released soon.
DOSE: 1- and 2-dose schemes are being tested.
STORAGE: 2 years frozen at -20°C , 3 months refrigerated at $2-8^{\circ}\text{C}$.

Gamaleya



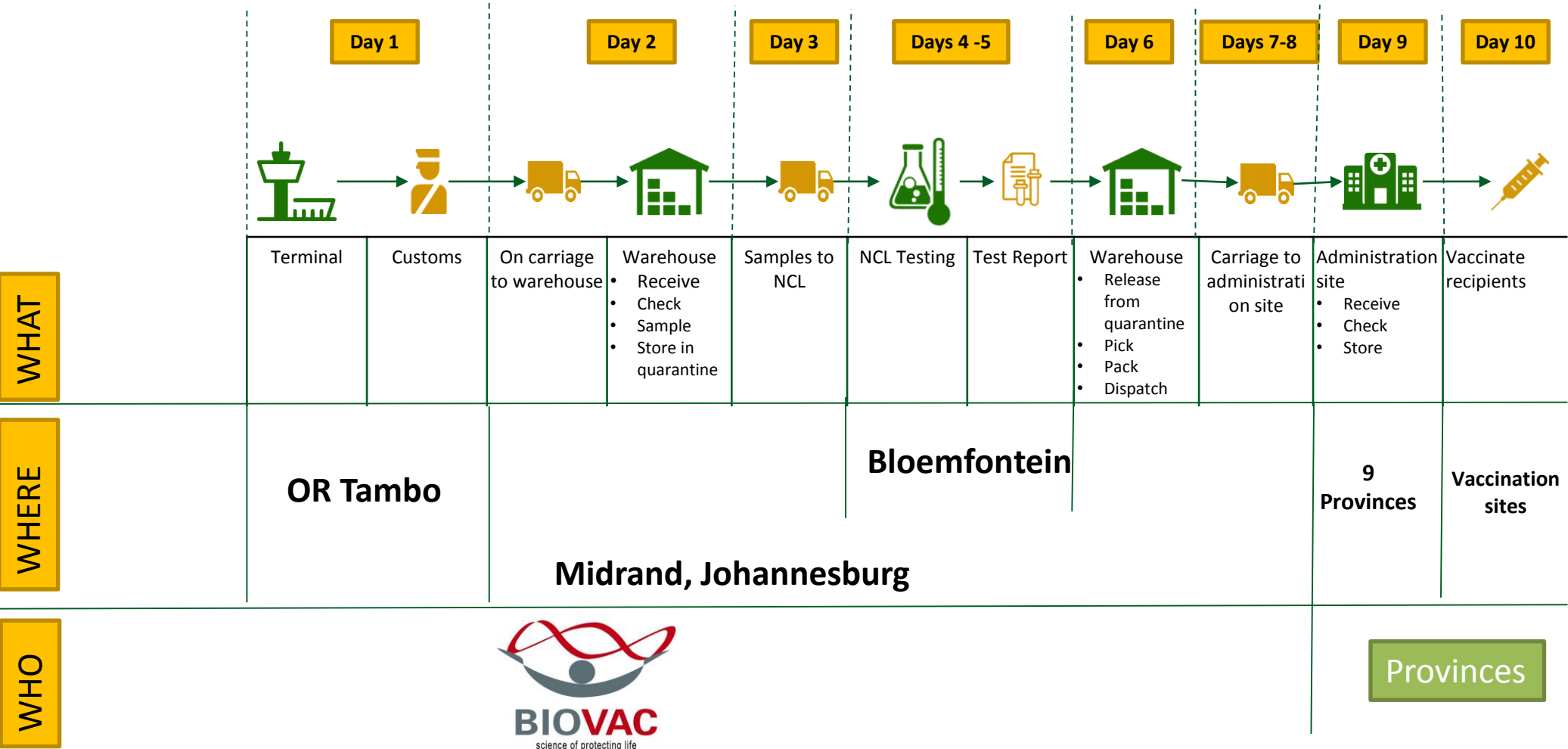
TECHNOLOGY: Viral Vector
A harmless virus is engineered to contain the gene for the SARS-CoV-2 spike protein
EFFICACY: Reportedly 91.4% (unpublished data).
CLINICAL TRIALS: Phase 3 trials are ongoing; authorized for use in Russia, Belarus, Argentina, Algeria, Bolivia, Palestine, and Serbia.
DOSE: 2 doses, 3 weeks apart.
STORAGE: Freezer storage (-20°C)

Month	Serum	Pfizer	J&J	COVAX	Shortfall
February	1 000 000	117 000			
March	500 000			900 000	- 400 000
April				666 666	- 66 666
May		2 000 000		666 666	3 933 334
June		1 500 000	1 000 000	666 666	3 933 334
July		1 500 000	1 000 000	-	4 600 000
August		1 500 000	1 000 000	700 000	2 400 000
September		1 500 000	1 500 000	-	2 100 000
October		2 500 000	1 000 000	700 000	5 100 000
November		2 500 000	1 500 000	-	5 500 000
December		3 500 000	1 000 000	-	5 500 000
January		3 500 000	1 000 000	-	5 500 000
	1 500 000	20 000 000	9 000 000	4 299 998	38 500 002

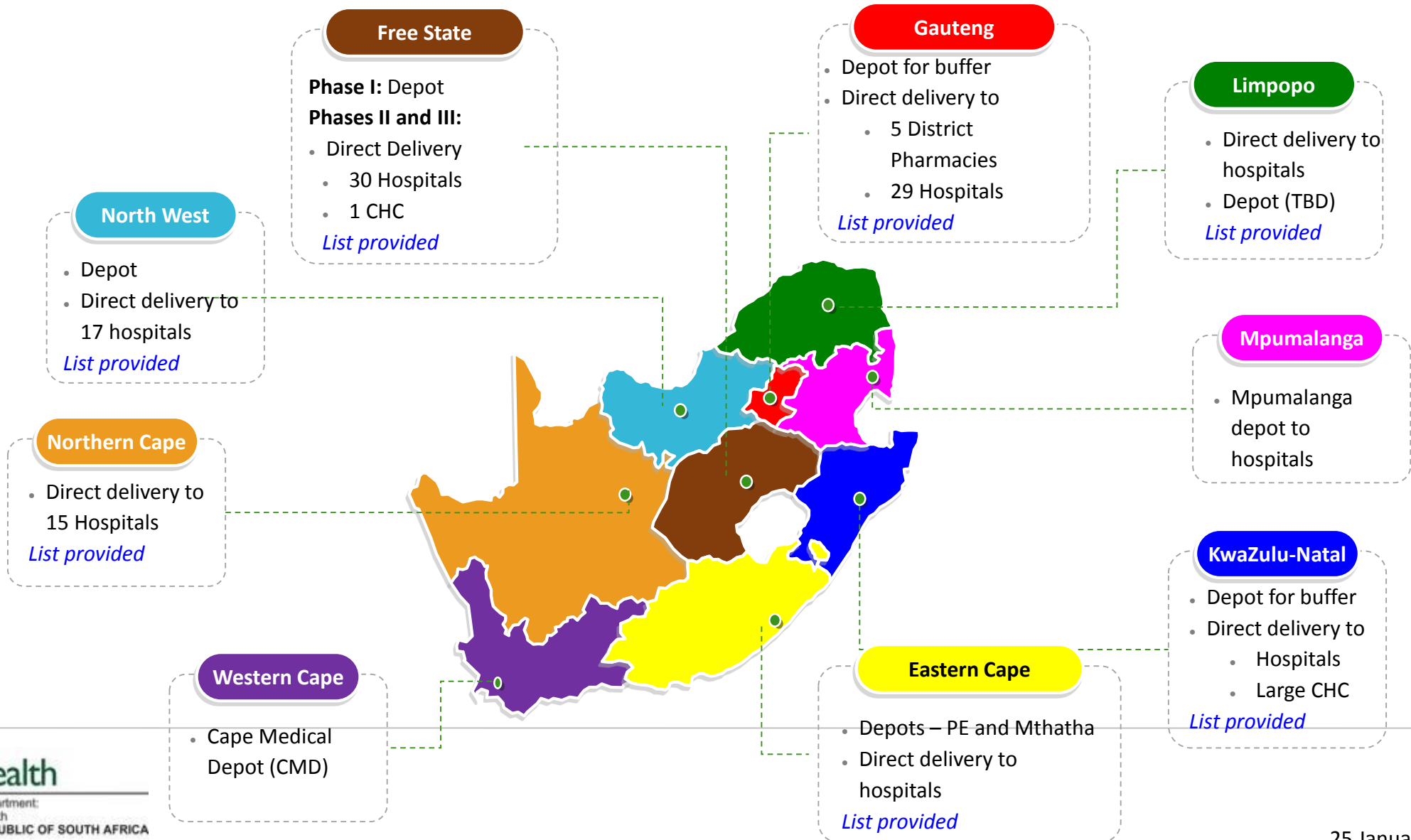


Distribution Plan Overview

COVID-19 Vaccine Supply Chain Timelines (worse case scenario)



Primary Distribution Plan Status



Geomapping: Data Sources & Methodology

Data Sources

- From each Province we received the following :
 - # of Distribution Sites
 - # of Vaccination Sites
 - # HCW Numbers
- Master Facility List
- Assumptions (Confirmed by NDoH)
- Incomplete data received from: **KwaZulu-Natal and North West** (Awaiting Data to complete calculations – updated as 1 Feb 2020)

Methodology

- Data cleansing & geocoding of all facilities included on the Master Facility List (MFL)
- Database setup and cleansing of data received as input by the provinces
- Mapping of each province's Vaccine distribution network by using data received as input. Flows include the following:
 - Flow 1 : From Biovac direct to Distribution site / Vaccination Site **or** to the Depot
 - Flow 2 : From Distribution site to Vaccination Site **or** Depot to Distribution site / Vaccination Site
- Calculate # of Vials needed at each facility (based on the # of HCWs, including assumptions)
- Flag the # of Vials at each facility which do not meet the requirement to be shipped directly from Biovac to Distribution site / Vaccination Site (**Less than 50 Vials – 1 Carton**)
- Create an interactive Power Bi Dashboard for ease of use w.r.t the Vaccine Distribution Plan per Province

Assumptions & Calculations

Assumptions

Assumption Description	Value
Wastage Factor	10%
Number of Injections	1
Employee Acceptance Factor	90%

- Wastage Factor used in Vial calculations (due to spillage or unused amounts)
- Number of Injections are set to 1 for first round
- Employee acceptance factor set to 90%, as advised by NDoH

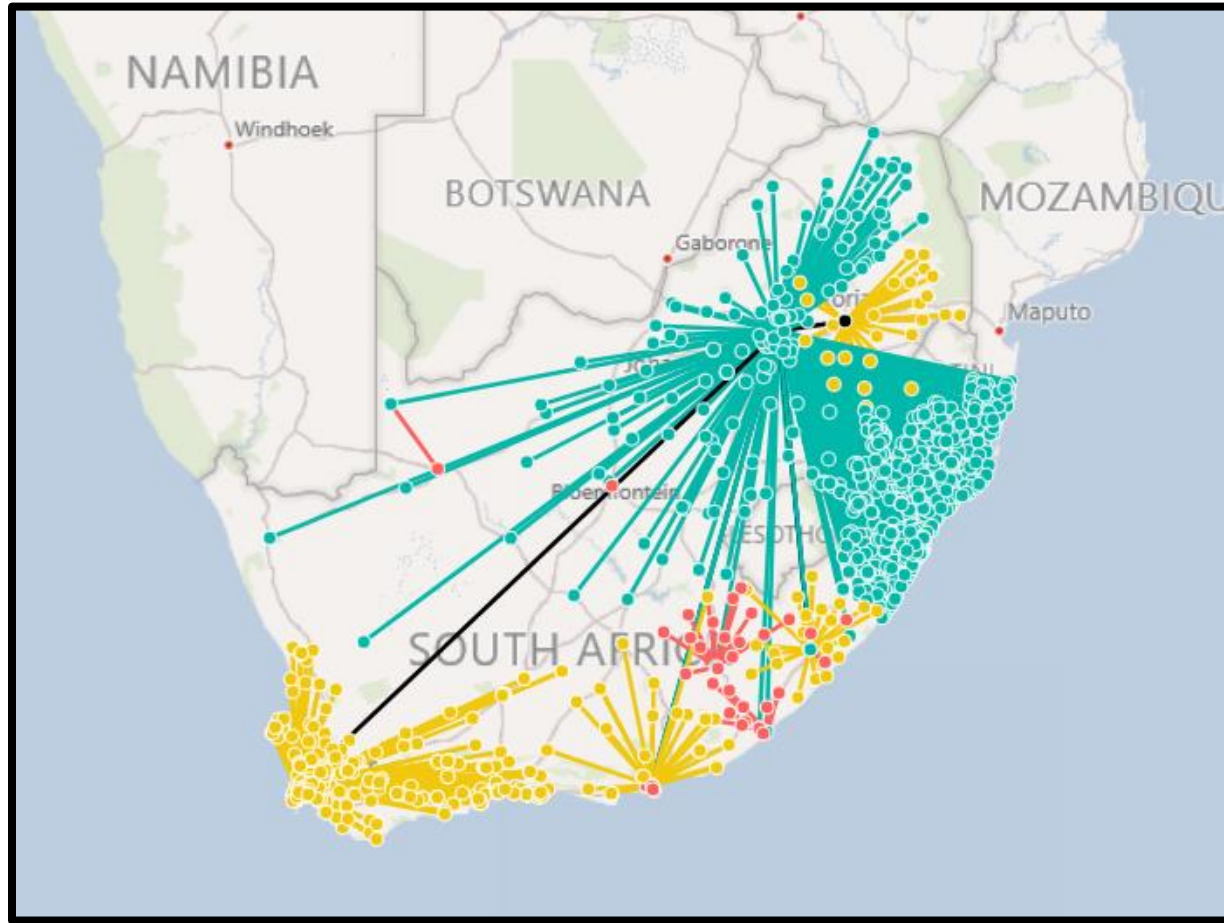
Calculations

Vaccine Description	AstraZeneca/SII
Doses per Vial	10

- Vial Calculation = $((\#HCWs) * (Employee\ Acceptance\ Factor) / (Doses\ per\ Vial)) * (Number\ of\ Injections) * (1 + Wastage\ Factor)$
- Vials are **rounded up** to the nearest whole number at **Facility Level**

National Vaccine Footprint (90% Employee Acceptance)

● Flow 1 : BioVac - Distribution Site ● Flow 1 : BioVac - Distribution Site (Depot) ● Flow 2 : Distribution Site - Vaccination Site ● Flow 2 : Depot (Distribution Site) - Vaccination Site



NDoH Vaccine Allocations

Province	HCWs	Doses	Vials	Proportion
Eastern Cape	60 231	60 500	6 050	15.26%
Free State	19 788	20 000	2 000	5.04%
Gauteng	85 605	85 500	8 550	21.56%
KwaZulu-Natal	81 519	81 500	8 150	20.55%
Limpopo	44 526	44 500	4 450	11.22%
Mpumalanga	30 341	30 500	3 050	7.69%
North West	29 081	29 000	2 900	7.31%
Northern Cape	9 993	10 000	1 000	2.52%
Western Cape	35 090	35 000	3 500	8.83%
Total	396 174	396 500	39 650	100.00%

Note :

- The Variance table below indicates all Vials that will **not** be used in the first round of injections. **Awaiting complete datasets with # of HCWs from provinces in red.**
- Doses are calculated at 90% Employee acceptance in the Output Calculations.**

Output Calculations

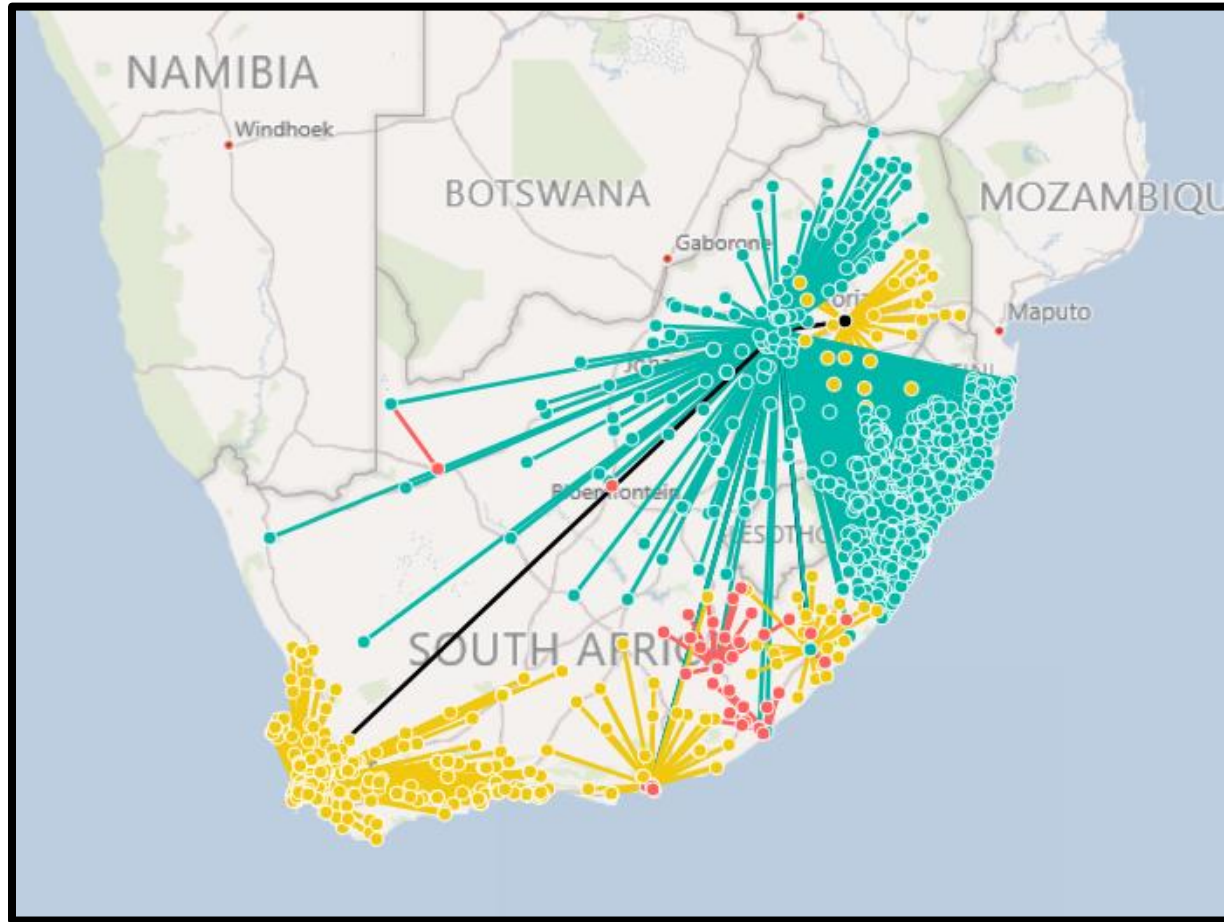
Province	HCWs	Doses	Vials	Proportion
Eastern Cape	33 369	30 032	3 346	18.76%
Free State	13 181	11 863	1 320	7.40%
Gauteng	52 121	46 909	5 179	29.04%
KwaZulu-Natal	37 600	33 840	3 852	21.60%
Limpopo	21 343	19 209	2 137	11.98%
Mpumalanga	13 923	12 531	1 393	7.81%
North West	2 997	2 697	300	1.68%
Northern Cape	3 049	2 744	308	1.73%
Western Cape	0	0	0	0.00%
Total	177 583	159 825	17 835	100.00%

Variance (Total - Calculated)

Province	HCWs	Doses	Vials
Eastern Cape	26 862	30 468	2 704
Free State	6 607	8 137	680
Gauteng	33 484	38 591	3 371
KwaZulu-Natal	43 919	47 660	4 298
Limpopo	23 183	25 291	2 313
Mpumalanga	16 418	17 969	1 657
North West	26 084	26 303	2 600
Northern Cape	6 944	7 256	692
Western Cape	35 090	35 000	3 500
Total	218 591	236 675	21 815

National Vaccine Footprint (100% HCW Acceptance)

● Flow 1 : BioVac - Distribution Site ● Flow 1 : BioVac - Distribution Site (Depot) ● Flow 2 : Distribution Site - Vaccination Site ● Flow 2 : Depot (Distribution Site) - Vaccination Site



NDoH Vaccine Allocations

Province	HCWs	Doses	Vials	Proportion
Eastern Cape	60 231	60 500	6 050	15.26%
Free State	19 788	20 000	2 000	5.04%
Gauteng	85 605	85 500	8 550	21.56%
KwaZulu-Natal	81 519	81 500	8 150	20.55%
Limpopo	44 526	44 500	4 450	11.22%
Mpumalanga	30 341	30 500	3 050	7.69%
North West	29 081	29 000	2 900	7.31%
Northern Cape	9 993	10 000	1 000	2.52%
Western Cape	35 090	35 000	3 500	8.83%
Total	396 174	396 500	39 650	100.00%

Note :

- The Variance table below indicates all Vials that will **not** be used in the first round of injections. **Awaiting complete datasets with # of HCWs from provinces in red.**
- Doses are calculated at **100% HCW acceptance** in the Output Calculations.

Output Calculations

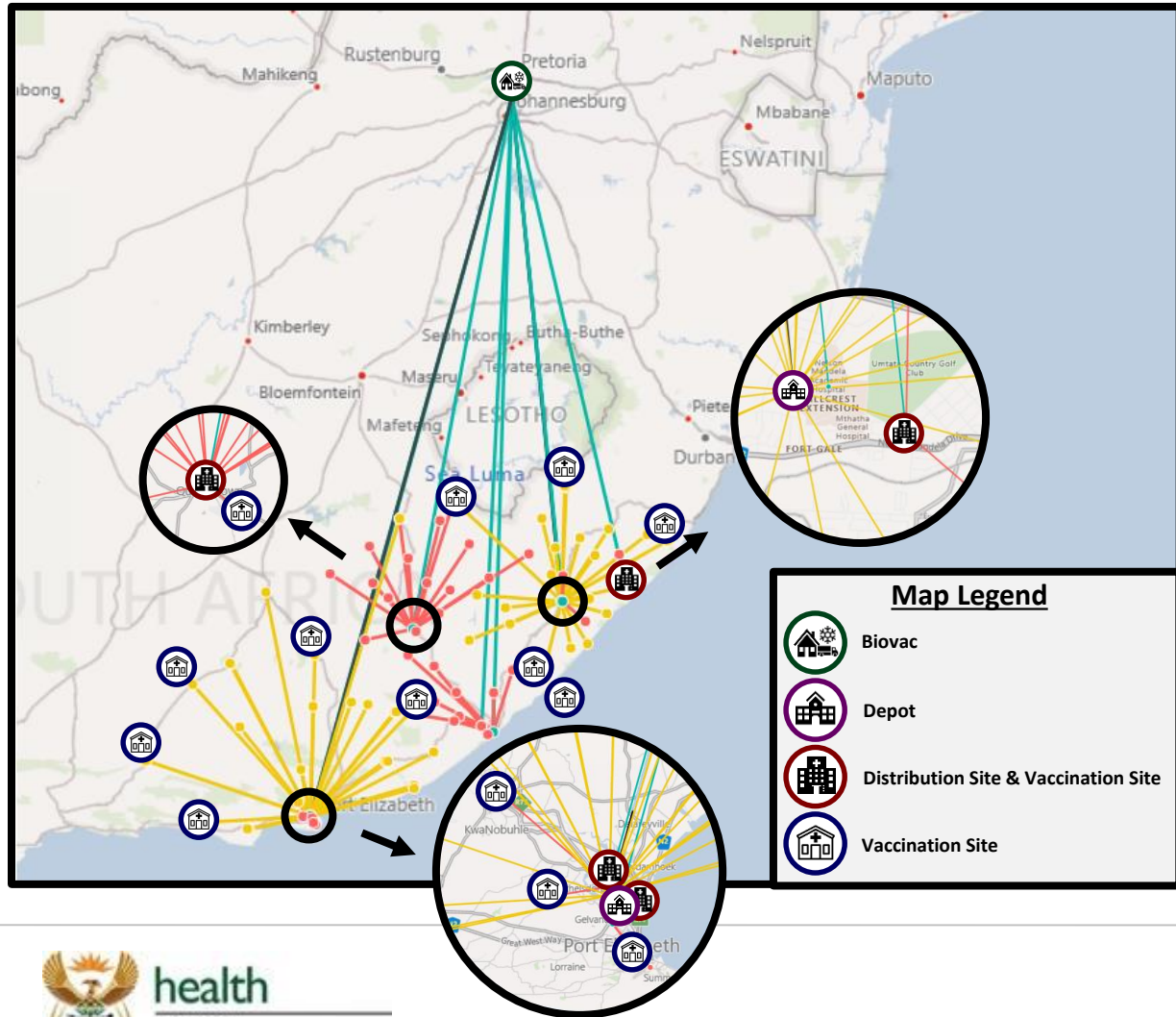
Province	HCWs	Doses	Vials	Proportion
Eastern Cape	33 369	33 369	3 715	18.77%
Free State	13 181	13 181	1 463	7.39%
Gauteng	52 121	52 121	5 750	29.05%
KwaZulu-Natal	37 600	37 600	4 271	21.58%
Limpopo	21 343	21 343	2 370	11.97%
Mpumalanga	13 923	13 923	1 549	7.83%
North West	2 997	2 997	333	1.68%
Northern Cape	3 049	3 049	341	1.72%
Western Cape	0	0	0	0.00%
Total	177 583	177 583	19 792	100.00%

Variance (Total - Calculated)

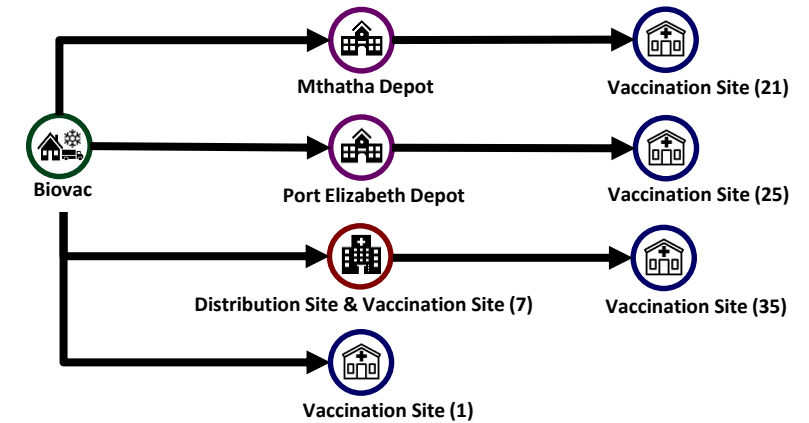
Province	HCWs	Doses	Vials
Eastern Cape	26 862	27 131	2 335
Free State	6 607	6 819	537
Gauteng	33 484	33 379	2 800
KwaZulu-Natal	43 919	43 900	3 879
Limpopo	23 183	23 157	2 080
Mpumalanga	16 418	16 577	1 501
North West	26 084	26 003	2 567
Northern Cape	6 944	6 951	659
Western Cape	35 090	35 000	3 500
Total	218 591	218 917	19 858

Eastern Cape

● Flow 1: BioVac - Distribution Site ● Flow 1: BioVac - Distribution Site (Depot) ● Flow 2: Distribution Site - Vaccination Site ● Flow 2: Depot (Distribution Site) - Vaccination Site

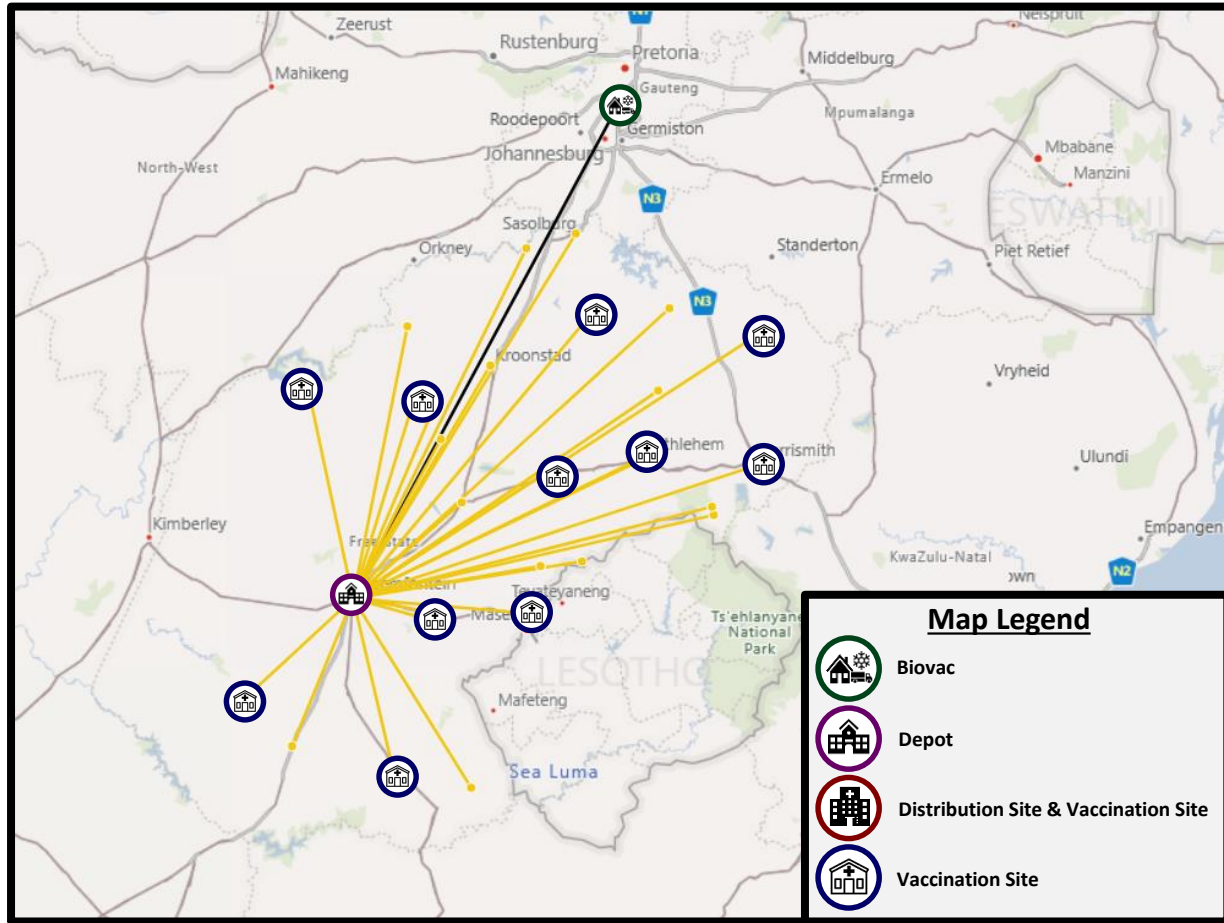


Provincial Summary		
Province	District	#HCWs
Eastern Cape	Alfred Nzo District Municipality	2 504
Eastern Cape	Amatole District Municipality	3 393
Eastern Cape	Buffalo City Metropolitan Municipality	5 266
Eastern Cape	Chris Hani District Municipality	3 743
Eastern Cape	Joe Gqabi District Municipality	1 751
Eastern Cape	Nelson Mandela Bay Municipality	6 058
Eastern Cape	OR Tambo District Municipality	8 286
Eastern Cape	Sarah Baartman District Municipality	2 368
Total		33 369



Free State

● Flow 1 : BioVac - Distribution Site (Depot) ● Flow 2 : Depot (Distribution Site) - Vaccination Site

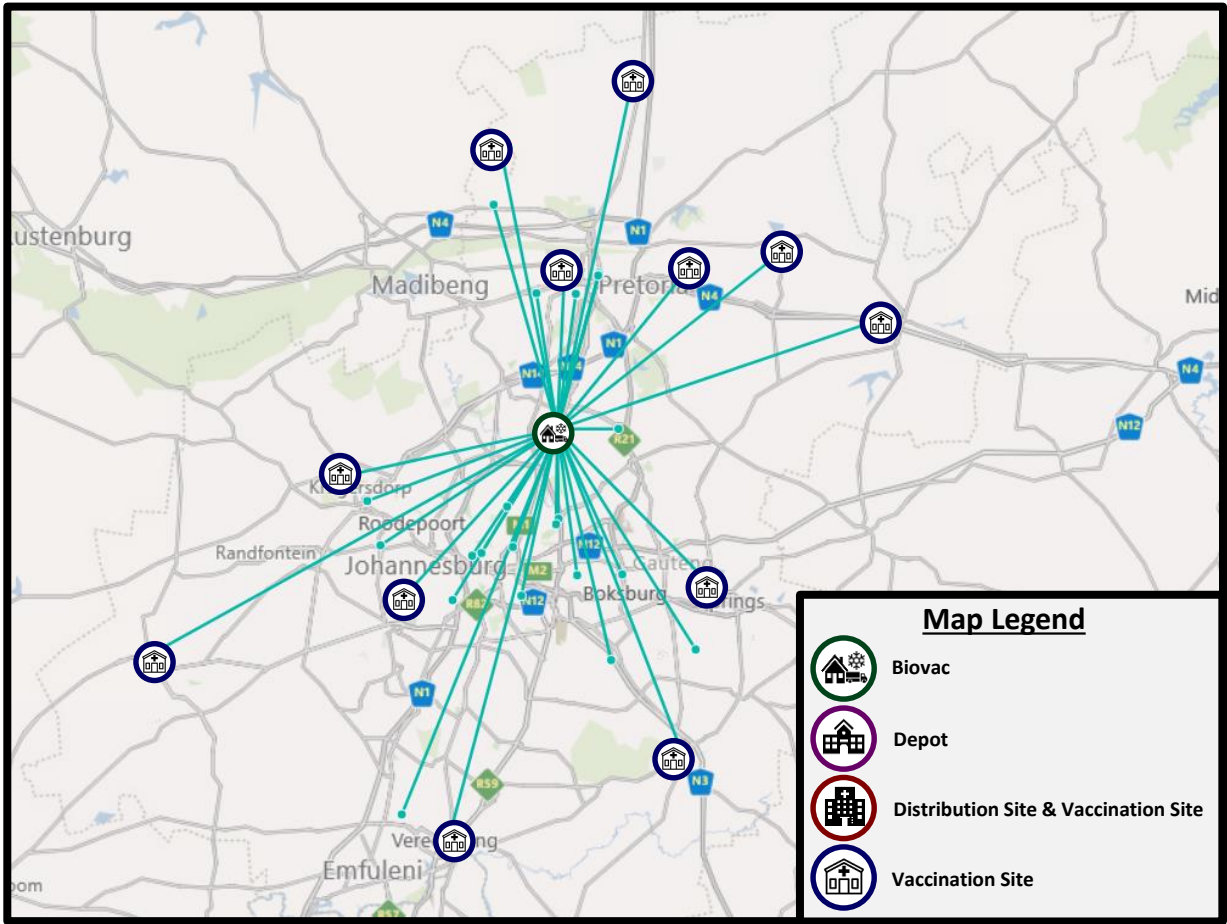


Provincial Summary		
Province	District	#HCWs
Free State	Fezile Dabi District Municipality	1 488
Free State	Lejweleputswa District Municipality	1 547
Free State	Mangaung Metropolitan Municipality	7 363
Free State	Thabo Mofutsanyana District Municipality	2 353
Free State	Xhariep District Municipality	430
Total		13 181



Gauteng

Flow 1 : BioVac - Distribution Site

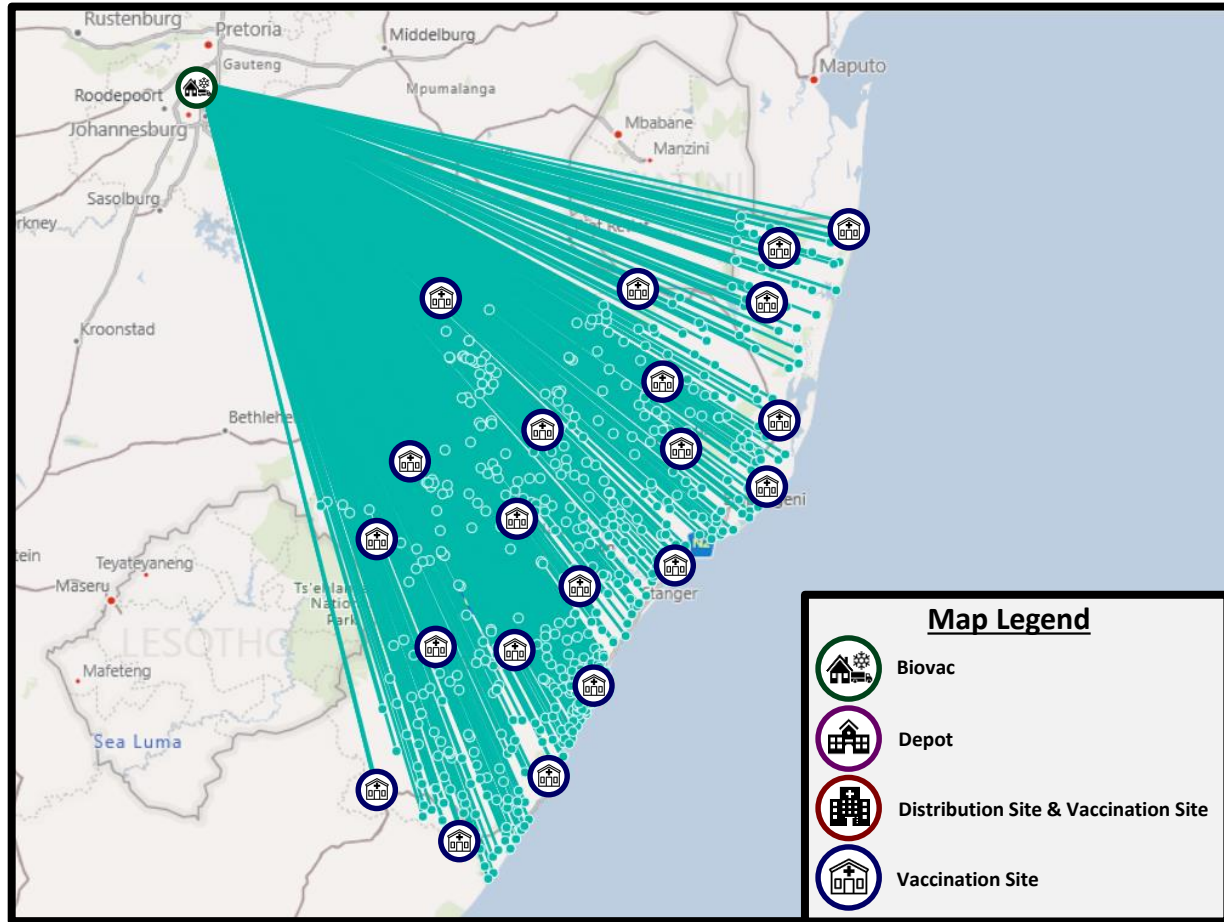


Provincial Summary		
Province	District	#HCWs
Gauteng	City of Johannesburg Metropolitan Municipal...	19 025
Gauteng	City of Tshwane Metropolitan Municipality	17 547
Gauteng	Ekurhuleni Metropolitan Municipality	8 762
Gauteng	Sedibeng District Municipality	3 028
Gauteng	West Rand District Municipality	3 759
Total		52 121



KwaZulu-Natal

Flow 1 : BioVac - Distribution Site

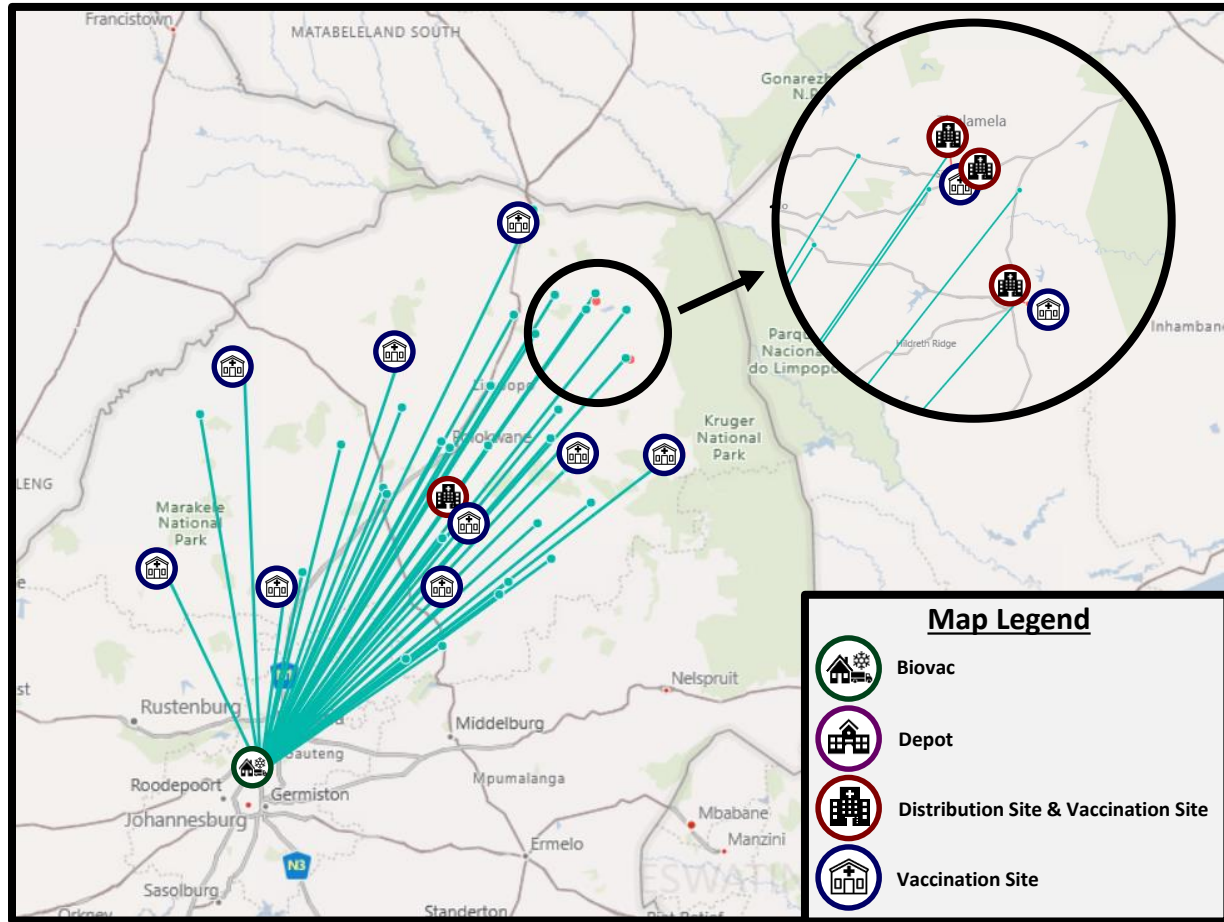


Provincial Summary		
Province	District	#HCWs
KwaZulu-Natal	Amajuba District Municipality	4 725
KwaZulu-Natal	eThekweni Metropolitan Municipality	18 629
KwaZulu-Natal	Harry Gwala District Municipality	1 274
KwaZulu-Natal	iLembe District Municipality	3 039
KwaZulu-Natal	King Cetshwayo District Municipality	0
KwaZulu-Natal	Ugu District Municipality	3 851
KwaZulu-Natal	uMgungundlovu District Municipality	0
KwaZulu-Natal	Umkhanyakude District Municipality	1 460
KwaZulu-Natal	Umzinyathi District Municipality	0
KwaZulu-Natal	Uthukela District Municipality	4 622
KwaZulu-Natal	Zululand District Municipality	0
Total		37 600

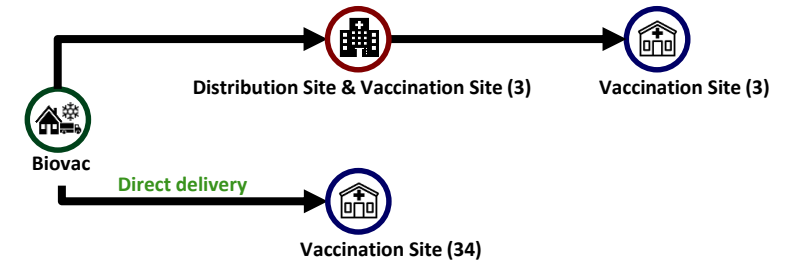


Limpopo

● Flow 2 : Distribution Site - Vaccination Site ● Flow 1 : BioVac - Distribution Site

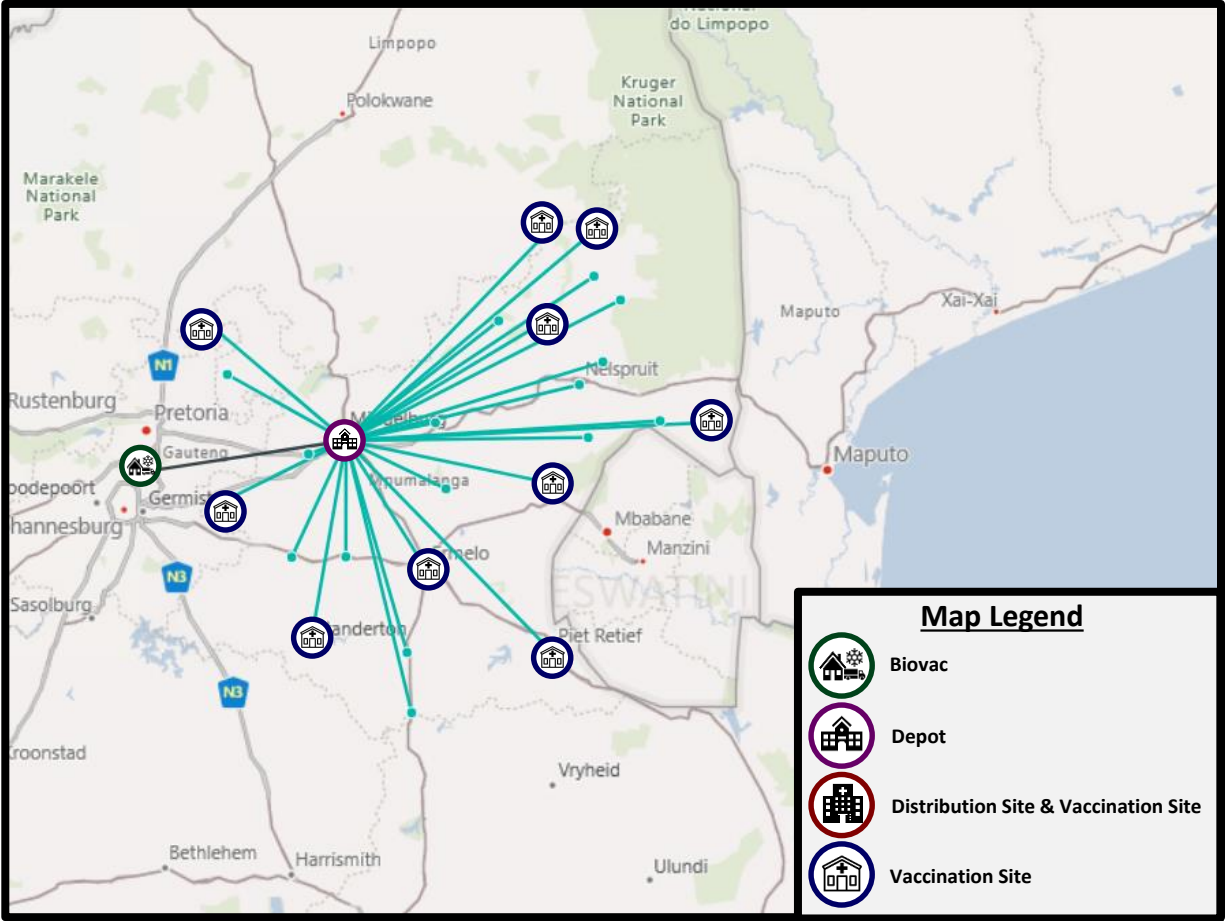


Provincial Summary		
Province	District	#HCWs
Limpopo	Capricorn District Municipality	6 006
Limpopo	Mopani District Municipality	3 481
Limpopo	Sekhukhune District Municipality	3 392
Limpopo	Vhembe District Municipality	5 436
Limpopo	Waterberg District Municipality	3 028
Total		21 343



Mpumalanga

● Flow 2 : Depot (Distribution Site) - Vaccination Site ● Flow 1 : BioVac - Distribution Site (Depot)

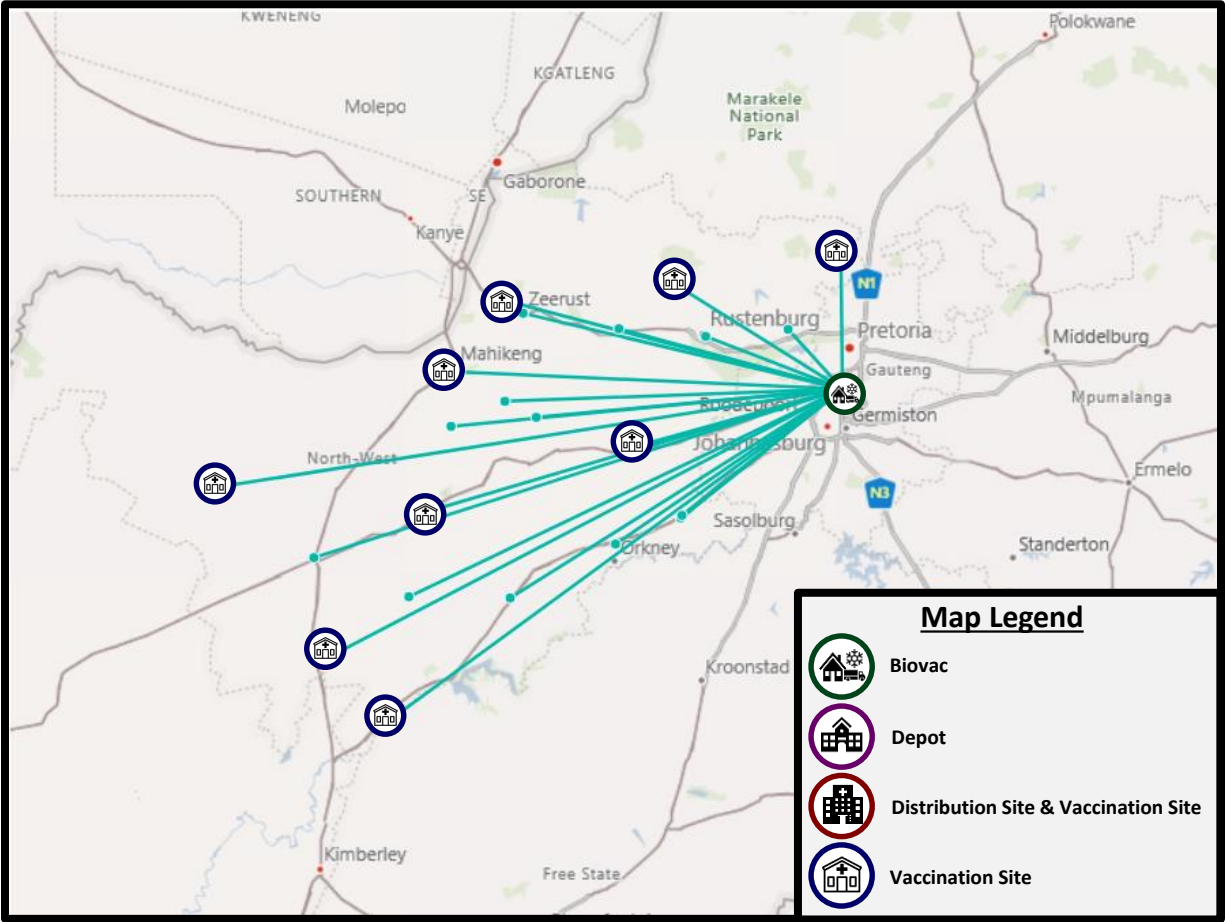


Provincial Summary			
Province	District	#HCWs	Facilities
Mpumalanga	Ehlanzeni District Municipality	6 696	13
Mpumalanga	Gert Sibande District Municipality	3 777	11
Mpumalanga	Nkangala District Municipality	3 450	9
Total		13 923	33



North West

Flow 1 : BioVac - Distribution Site

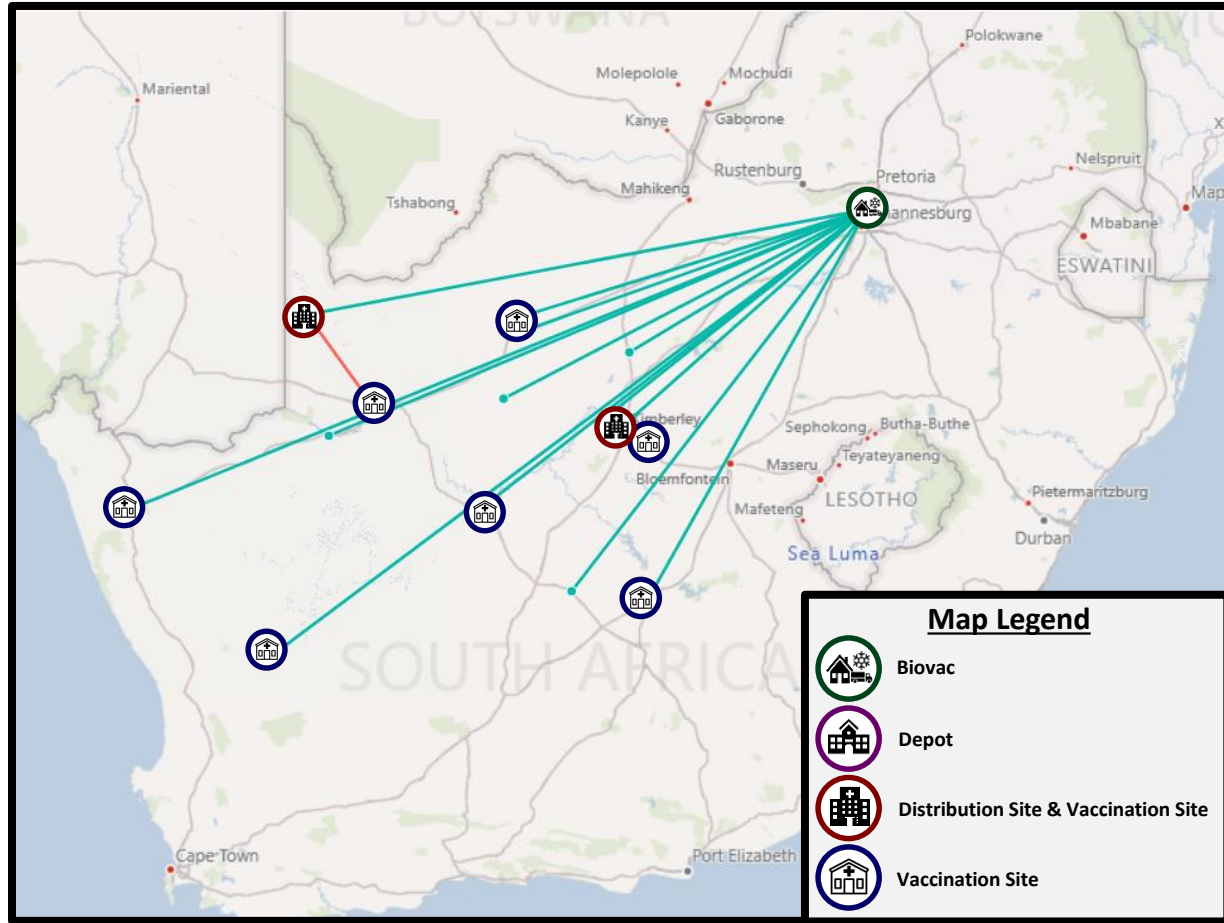


Provincial Summary		
Province	District	#HCWs
North West	Bojanala Platinum District Municipality	0
North West	Dr Kenneth Kaunda District Municipality	0
North West	Dr Ruth Segomotsi Mompati District Municipality	0
North West	Ngaka Modiri Molema District Municipality	2 997
Total		2 997

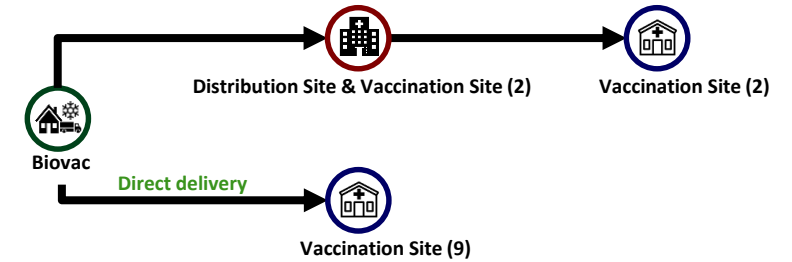


Northern Cape

● Flow 1 : BioVac - Distribution Site ● Flow 2 : Distribution Site - Vaccination Site

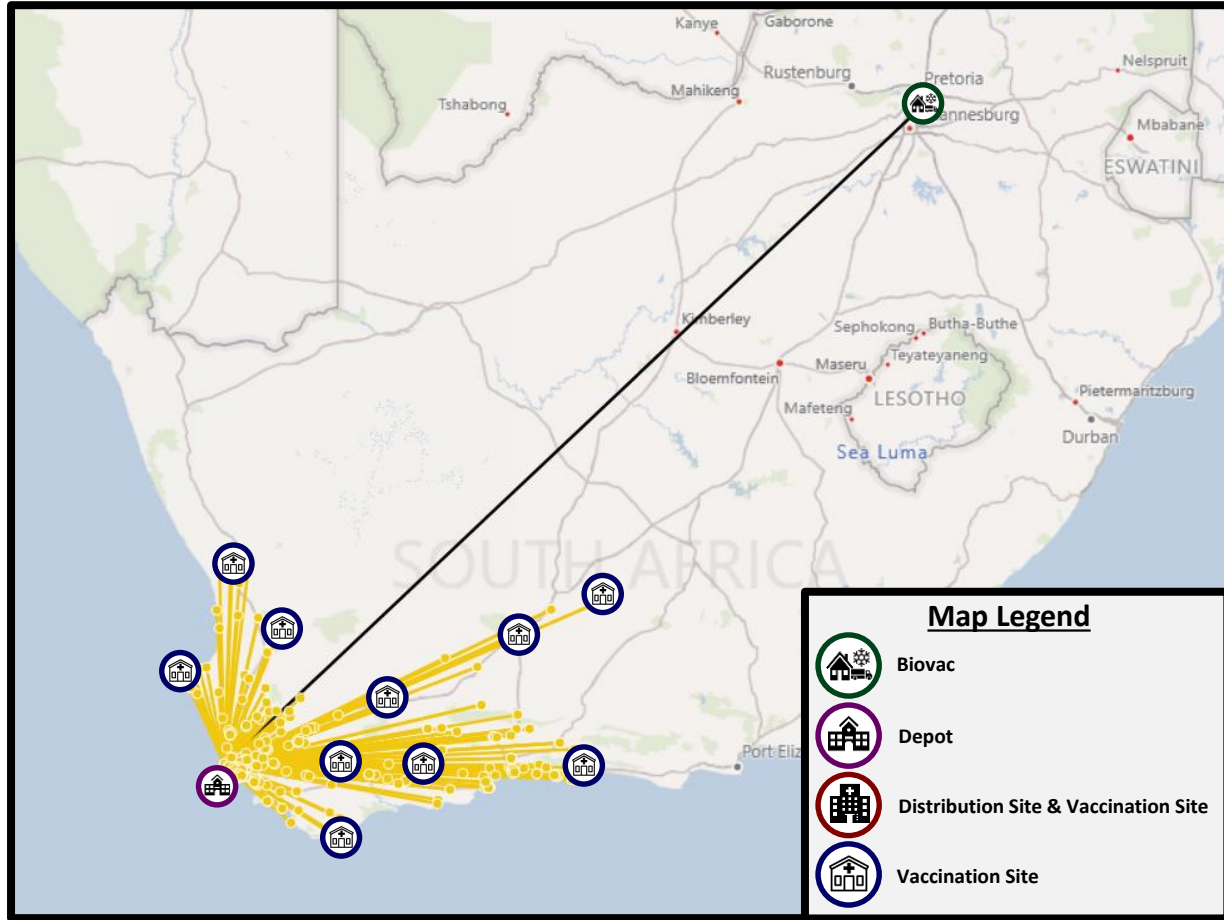


Provincial Summary		
Province	District	#HCWs
Northern Cape	Frances Baard District Municipality	1 553
Northern Cape	John Taolo Gaetsewe District Municipality	311
Northern Cape	Namakwa District Municipality	160
Northern Cape	Pixley ka Seme District Municipality	322
Northern Cape	ZF Mgcawu District Municipality	703
Total		3 049



Western Cape

● Flow 1 : BioVac - Distribution Site (Depot) ● Flow 2 : Depot (Distribution Site) - Vaccination Site



Provincial Summary		
Province	District	#HCWs
Western Cape	Cape Winelands District Municipality	3 148
Western Cape	Central Karoo District Municipality	471
Western Cape	City of Cape Town Metropolitan Municipality	21 169
Western Cape	Garden Route District Municipality	2 449
Western Cape	Overberg District Municipality	986
Western Cape	West Coast District Municipality	1 319
Total		29 542



Note :

- HCW numbers in table above was used from an old PERSAL data extract. Have not received any data from Western Cape on HCWs.



Risks and Mitigation Strategies

Risks and Mitigation Strategies

Risk	Mitigation Strategy
Possible malfeasance in procurement	Strengthening of internal controls Proactive engagement with AG identify possible risks
Possible vaccine theft	JCPS Cluster involvement
Storage capacity at sites to accept allocation	Coordinate with provinces to stagger deliveries in line with capacity
Initial order volumes need to be prioritised	Provinces to indicate priority distribution sites
Allocation of vaccine quantities to sites	Provinces to sign off on allocation plans and prioritize delivery sequence.
Vaccine hesitancy resulting in over supply to sites	Do not provide full allocations in the first delivery Supply plans have factored for lower acceptance (90%)
Private sector data for distribution purposes	Engagement with private sector to include data in current models
HCW Data accuracy	National engaged with provinces to validate PERSAL numbers and add contract workers within a facility to ensure all HCW on site are covered.
Ability of direct delivery sites to accept multiples of 50 vials	Provinces to approve distribution site allocations and provide alternative distribution sites if necessary.

RISK MITIGATION

RISK	MITIGATION STRATEGY
Inaccurate and or missing facility data on the MFL (both private and public)	Provinces and private groups given access to register on the MFL to correct / add facility master data
Viability of distribution plan	Distribution plan is in the process of being vetted by all provincial stakeholders and will be passed by Biovac to ensure all proposed delivery sites can be reached without compromise to the cold chain - a similar exercise will be done for the private sector.
Accuracy of private sector personnel data	Private sector Data being collated and validate by Insights - a organisation chosen by the private sector to perform this role

SMME Opportunities

SMME Opportunities



- The phase 1 roll out will be managed Biovac in terms customs clearance, logistics, warehousing, storage and distribution to the provinces
- For phase 2 and 3, an open bid will be advertised on 5 February 2021, which will be open to SMME that qualify and this will be advertised centrally, and multiple awards will be made
- Procurement of ancillary supplies (syringes, needles, swabs, medical waste supplies) will be done by provinces and some provinces have existing contracts for these supplies



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Security of Vaccines

Scope



Security plan covers the following areas:

- **Coordinating structure (JCPS Cluster with Health included)**
- **Phase one**
 - ORTIA
 - Transit security to Biovac
 - Biovac
 - Transit security to NCL
 - Transit security to primary distributions
- **Phase two**
 - Transit security to secondary distributions
 - Security at distribution sites



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Covid-19 Vaccine Security Plan



- **Phase one**

ORTIA:

- Was uneventful- security was

Transit security to Biovac :

- Transported by two trucks fitted with tracking device monitored of site.
- Trucks were escorted by SAPS and G4S security.
- Uneventful

Covid-19 Vaccine Security Plan



Biovac

- Both SAPS and SSA augmented security at Biovac for the duration of the vaccine warehousing
- Arrangements to escort samples for testing in NCL (Bloemfontein) are made with SAPS.
- Transit security to primary distributions will be done by vehicles fitted with tracking system.
- Vehicles will be escorted by Fidelity Armed Response as contracted by Biovac supported by SAPS.
- Transportation of vaccine will be done mainly during curfew hrs.

Covit-19 Vaccine Security Plan



- **Phase two**
- Provincial HODs briefed on the plan and are updating their plans through ProvJocs
 - Transit security from primary distribution to secondary distribution points
 - Security plan at all distribution sites.
 - Security plan at all small distribution sites (CHCs and Clinics)



Thank you



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