National Plan for COVID-19 Health Response: South Africa

FINAL DRAFT 7th May 2020

This document outlines the country plan for health sector response to the COVID-19 pandemic, especially containment and mitigation measures at the national, district and municipality levels in public and private sectors. This plan is an extension of existing Government statutes, strategies and guidelines related to COVID-19 response. It is dynamic and live, and may be updated from time to time as the epidemiological situation evolves, country needs change and as more evidence becomes available.

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National Plan for COVID-19 Health Response

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Foreword

The National Department of Health (NDOH) is proud to present this National Plan for COVID-19 Health response for the Republic of South Africa. As the COVID-19 Pandemic unfolds across the globe and cases and deaths escalate, we need to be resolute in our stance to curb the spread of the disease and reduce its associated mortality. This needs to be achieved with calmness and measure, where each of the proposed strategies and activities detailed in this document, are implemented.

I am pleased to share that the South African Government has taken numerous actions at the national and provincial levels to curtail the spread of the coronavirus. The President enforced the National Disaster Act, and national lockdown has been enforced. Laboratory capacity for diagnosis of cases has been scaled up especially to serve the public sector. Contact tracing is ongoing in all provinces and household and community screening and testing activities have also commenced. These activities are supported by the addition of 67 mobile testing sites which are allocated to districts and provinces to support case finding activities.

Noting the country's response, this plan is developed based on sound evidence and principles laid out in the South African Government's Spatial Response Strategy for the Epidemic, World Health Organization's Guidelines for COVID-19 and pandemic preparedness and response, published literature and other country documents available in public domain. It has been consulted widely and reviewed by the Ministerial Advisory Committee on COVID-19

We call on all the policymakers, programme managers, frontline healthcare workers and those who generate and analyze data to inform policy, to become familiar with the contents of this document, so that they can ensure its effective implementation.

I must stress that community-screening, testing, quarantining, isolating and treating COVID-19 patients will be the key to ensuring the success of this plan. Equally important are the social distancing and personal protective measures, which will help to prevent transmission

Whilst government will do all it can to ensure that the strategies and activities for the COVID-19 response is optimal, we require the support of all organisations and individuals to tackle the scourge of this disease.

Only by working together in concert with both public and private sector health care service providers, will we be able to outpace the virus. We should ensure that resources are shared between both sectors as preventing diseases and saving lives are common to all.

Dr Z Mkhize, MP
Minister of Health, Republic of South Africa
Date:

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Acronyms

AFRO	Africa Regional Office, WHO
AU	African Union
CDC	US Centers for Disease Control and Prevention
CFR	Case Fatality Rate
COGTA	Cooperative Governance and Traditional Affairs
COVID-19	Coronavirus Disease 2019
CPAP	Continuous Positive Pressure Airway
CSO	Community Services Organization
DIRCO	Department of International Relations and Cooperation
DoT	Department of Transport
EMS	Emergency Medical Services
EOC	Emergency Operations Centre
HCW	Health Care Worker
HR	Human Resources
IEC	Information, Education and Communication
IHR	International Health Regulations
IMS	Incident Management System
IMT	Incident Management Team
IPC	Infection Prevention and Control
KAP/B	Knowledge, Attitude, Practice and Behaviour
MAC	Ministerial Advisory Committee (on COVID-19)
MERS-CoV	Middle East Respiratory Syndrome Coronavirus
MNORT	Multi-sectoral National Outbreak Response Team
NATJOC	National Joint Operations Centre
NCCC	National Coronavirus Command Council
NDoH	National Department of Health
NGO	Nongovernmental Organization
NHLS	National Health Laboratory Service
NICD	National Institute for Communicable Diseases, a Division of NHLS
PHEIC	Public Health Emergency of International Concern
PoE	Ports of Entry
RCCE	Risk Communication and Community Engagement
RRT	Rapid Response Team
SADC	Southern African Development Community
SARI	Severe Acute Respiration Infection
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SOPs	Standard Operating Procedures
ToR	Terms of Reference
UN	United Nations
WHO	World Health Organization

Executive Summary

Introduction

The coronavirus disease of 2019 (COVID-19) has rapidly spread from Wuhan, China to nearly all countries globally, and was declared a pandemic on 11th March 2020 by the World Health Organization (WHO). Since the confirmation of first COVID-19 case in South Africa on 5th March 2020, it has spread to all nine provinces and now community transmission has been established. On 15th March 2020, the President of South Africa declared the COVID-19 outbreak a 'national disaster' announcing extraordinary interventions including travel restrictions, social distancing, large scale testing and tracing. A complete national lockdown was imposed initially for four weeks and then further extended by two weeks till the end of April 2020.

These measures have been successful in slowing the spread of the COVID-19 in South Africa, however the exponential increase in number of cases and huge related healthcare needs are imminent- as observed globally, and from the national data projections. It is understood that till the time no vaccine or effective treatment is available against COVID-19, it will remain a global threat, and South Africa can expect few more waves of the outbreaks.

This 'National Plan for COVID-19 Health Response' will guide the Government's actions in health sector to tackle the COVID-19 pandemic in South Africa- including the eight action stages across prevention, containment, mitigation and recovery phases. While the focus of this plan is primarily on 'Health sector' response, it is envisaged to be implemented using the "Whole-of-Society" and "Whole of Government" approach.

Goals and strategic priorities of the National Plan

The goal of this plan is to halt the transmission of SARS-CoV-2 in South Africa and minimize potential impact on health and wellbeing of the society and South African economy.

Strategic priorities

The overarching objective is to strengthen national and provincial mechanisms for timely detection, management and containment of the spread of COVID-19. The nine overarching strategic priorities/ pillars of the national response are to;

1. *Provide effective governance and leadership*: Strengthen coordination and governance for COVID-19 response including mobilizing the finances and resources required
2. *Strengthen surveillance and strategic information:* Strengthen health information and surveillance systems for COVID-19 at national and provincial levels to monitor trends, guide policy actions and swift changes in response at local levels.
3. *Augment health systems readiness:* Assess health systems readiness against the epidemiological curve, identify gaps and plan to ensure health services availability according to need. This includes ensuring hierarchy of facilities to deliver identified services and that these facilities have the required health workforce, medicines, equipment and products (and all that is required) to mount effective COVID-19 response

4. *Enhance community engagement:* Effectively engage the community and communicate the public health risks of COVID-19 and the related mitigation measures in various settings
5. *Improve laboratory capacity and testing:* Strengthen the NHLS and private laboratory capacity for SARS-CoV-2 testing to meet the requirements of the COVID-19 response and improve coordination between public and private sectors
6. *Clarify care pathways:* Establish clear continuum of care pathways for COVID-19 (Case detection, management and clinical pathways), which should align to the hierarchy of infrastructure established or reconfigured for the COVID 19 response
7. *Scale-up Infection Prevention and Control (IPC)Measures:* Strengthen the standard IPC measures as per national guidelines in isolation, treatment facilities and at public spaces and communities
8. *Boost capacity at ports of entry:* Enhance screening capacity at key ports of entry and augment the environmental health
9. *Expedite research and introduction of therapeutics, diagnostics and vaccines:* Institutionalize mechanisms for COVID-19 related Health Products regulation and research coordination and build in mechanisms for ongoing learning from research and experiences from other countries, to ensure these inform the response at the frontline.

Key guiding principles and values

This COVID-19 reponse Plan is guided by, and builds on, the existing Government statutes and strategies related to COVID-19 response and conforms to expert guidance from national and international bodies. At the center of this plan is the notion of 'protection of entire population' whilst ensuring special focus on the needs of the most vulnerable individuals, such as older people, the poor and people living in townships and persons with disabilities. Other values that this plan considers include equity, individual liberty, privacy and confidentiality and evidence-based decision making.

Approach to health sector response; what do we expect

The ideal goal for South Africa is to completely halt the current transmission of COVID-19, but slowing its spread is also critical to ramp up health systems capacity and buy precious time for development of new vaccines and treatments.

Whilst it's difficult to predict with accuracy how the COVID-19 pandemic will unfold in South Africa, the current national modeling data suggests that South Africa may see a large number of cases with predicted peak between early July and mid-August 2020, although huge inter and intra provincial variations are expected. A lot will depend on the interplay of 'agent-host-environment' and the effectiveness of preventive measures during the phased relaxation of lockdown as per the 'risk adjusted strategy for economic activity'. The key to South Africa's response remains the containment, mitigation and recovery while we also prepare for the next potential wave. The response will require a well-coordinated, flexible and data driven approach with primary focus on prevention, whilst preparing the healthcare systems for rapidly increasing demand generated by the COVID-19 outbreak.

Implementation of this national response plan

This response plan is envisaged to be implemented at national and provincial levels with public and private systems as well as existing governance mechanisms working in harmony. The plan provides a framework for taking a context specific, data driven and agile approach, guided by the emerging evidence. Whilst some additional resources are being allocated by the Government, the existing resources must be prioritized and utilized efficiently and effectively. The critical aspects of response would hinge on transparent and clear communication, as well as protecting and empowering the health workers, individuals and communities to take care of themselves. Besides working in harmony across the spheres of national and provincial Government, private sector and civil society- South Africa will work closely with the SADC and African Union, WHO in supporting regional and international efforts – detecting cases, sharing information and resources such as lab services.

This is a dynamic and living document. It will be updated from time to time as we learn more about the virus transmissibility in SA context, as the epidemiological situation evolves and country needs change, and as more evidence becomes available from South Africa and internationally.

1 Introduction

Since the end of December 2019, coronavirus disease (COVID-19) has rapidly spread from Wuhan, China to over 190 countries globally within a matter of few months. The World Health Organization (WHO) declared the COVID-19 to be a Public Health Emergency of International Concern (PHEIC) on 30th January 2020 and subsequently a pandemic on 11th March 2020, as COVID-19 has affected almost every country and the number of cases and deaths continue to increase globally.

The first case of COVID-19 was confirmed in South Africa on 5th March 2020 – but since then, the number of COVID-19 cases has increased sharply affecting all the nine provinces. On the 15th March 2020, the President of South Africa declared the COVID-19 outbreak a 'national disaster' in terms of Section 23 of the Disaster Management Act 57 of 2002, announcing extraordinary interventions including travel restrictions, social distancing and ramping up testing and tracing. The National Joint Intelligence structures (NATJoints) and Provincial Joint Operation Centre (ProvJOC) system were activated in collaboration with the structures activated under the Disaster Management Act. On 20th March 2020 the intervention was quickly elevated, and a four-week complete national lockdown was imposed starting 26 March, which was further extended till 30th April 2020.

1.1 Purpose of the document

The purpose of this document is to guide the Government's response at National and Provincial level to COVID-19 pandemic in South Africa. While the focus is on 'Health sector' response, the plan is envisaged to be implemented using the "Whole-of-Society" and "Whole of Government" approach, recognizing the social and economic impact.

1.2 Scope of the document

- This document outlines the country's plan to respond to the COVID-19 pandemic in the health sector including prevention, containment, mitigation and recovery measures. It also briefly reflects on the eight **action stages** so far and what can be anticipated next depending on the course of outbreak. The plan further outlines roles of key players at different levels of the health system.
- This Health Plan is guided by, and builds on, the existing Government statutes, strategies and guidelines related to COVID-19 response, and is aligned with:
    - Republic of South Africa Strategic Plan to manage the COVID-19 – Spatial Response Strategy for the Epidemic
    - Ministerial Advisory Committee guidelines, including the 'eight stage approach' and regular advice provided throughout the COVID-19 response.
    - World Health Organisation's "Guidelines for COVID-19 Strategic Preparedness and Response Plan"[1],
    - International Health Regulations (IHR)-2005 to which South Africa is signatory
    - National COVID-19 Command Council policy; and National Joint Operation Centre implementation guidelines.
    - The risk-adjusted approach for economic activity, and the proposed five levels[2]
- The document outlines an interactive but consistent approach between health sectors at the national and provincial levels of South Africa covering both the public and private health systems.

[1] World Health Organization; COVID-19 Strategic Preparedness and Response Plan Operational Planning Guidelines to Support Country Preparedness and Response- Feb 2020

[2] https://sacoronavirus.co.za/wp-content/uploads/2020/04/2020-04-25-Permitted-goods-services-and-movement-Public-Comments-Version-1.pdf

- The role and support of the public in implementing this response, now and in the future would be critical.
- This is a dynamic and living document. It will be updated from time to time as the epidemiological situation evolves, as country needs change and as more evidence becomes available. (Version control is maintained by number and date of release)

2 COVID-19 "Know your epidemic": Key information & evolving scenario

2.1 Novel Coronavirus and COVID-19; what we know so far

Coronaviruses belong to a family of viruses common across the world in animals and humans; certain types cause illnesses in people. For example, some coronaviruses cause the common cold; others cause diseases which are much more severe such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), both of which often lead to pneumonia.

COVID-19, the abbreviation for coronavirus disease 2019, is caused by a novel strain of coronavirus called SARS-CoV-2[3]. This is a new virus and scientists are learning about it while dealing with the pandemic. A few things are clear;

- **Immunity:** All of the population lacks immunity since this disease is caused by an entirely novel virus and there is no vaccine. This means that COVID-19 has the potential to spread extensively.
- **How infection spreads:** It primarily spreads through respiratory droplets when an infected person coughs or sneezes. People can acquire COVID-19 if they breathe in these droplets. Some droplets land on surfaces and contaminate these for longer period of time. People can also acquire COVID-19 by touching these objects or surfaces, then touching their eyes, nose or mouths.
- **Symptoms and severity:** Key symptoms include fever, dry cough, tiredness and difficulty in breathing. Some people may experience; aches and pains, nasal congestion, runny nose, sore throat, diarrhoea. More recent guidelines have included fever with rigors, chills and loss of taste and smell
    - A majority of infected persons may have no symptoms at all or experience mild flu like symptoms and recover with symptomatic treatment. These people may still be able to transmit the infection to others.
    - Only a small percentage of infected people require hospitalization. However, because the virus has the potential to infect a large proportion of the population, this small percentage can mean a large number of people could need hospitalization.
    - In severe cases, the virus can cause pneumonia, severe acute respiratory syndrome, kidney failure and even death.
    - Elderly persons or those with pre-existing medical conditions that weaken immunity are more likely to have severe forms of COVID-19.
- **Treatment:** To date, there are no proven antiviral medicines to treat COVID-19. However, those affected should receive supportive care to relieve symptoms e.g. oxygen for patients with shortness of breath and treatment of comorbid diseases. People with serious illness need hospitalization but most people will be able to recover from COVID-19 at home. For South Africa, the' case management and treatment guidelines' have

[3] Severe Acute Respiratory Disease- Coronavirus-2

been developed by NDoH with support from NICD, and these will be modified as and when new evidence becomes available.

- **Prevention** through emphasis on four key protective measures is therefore critical:
  - *Effective Hand Hygiene* – Frequent washing with soap and water or use of alcohol-based hand rubs / sanitizers. Avoid touching eyes, nose and mouth, since hands touch many surfaces and once contaminated, hands can transfer the virus to your eyes, nose or mouth.
  - *Respiratory etiquette* – covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose-off the used tissue safely.
  - *Physical distancing*- Avoid close contact (at least 1 meter or >3feet) with any individual who is not known to be free of the above-mentioned symptoms of COVID-19. Avoid hand-shakes, practice non-touch greetings, minimize social gatherings and all non-essential travel.
  - *Wearing of Cloth Mask* by the public is recommended as it can limit the spread of COVID-19[4]. However, the use of a mask alone is insufficient to provide adequate protection unless above three measures are adopted[5]
- **Vaccine development** is an important public health intervention to reduce the epidemic spread and mitigate the disease severity. Currently, it is the key focus of multiple research groups internationally and will be supported in South Africa as described in the strategic priority on Research in the subsequent sections of this plan.

2.2 Evolving Epidemiological situation:

Global:

The COVID-19 pandemic has taken grip over nearly all countries in the world leading to millions of infections and hundred thousand of deaths. Data from many countries remains unreliable due to poor information systems and surveillance, low testing capability, but also long incubation period and high rates of infected people being asymptomatic. The key focus of country response has been on non-pharmaceutical public health measures aimed at prevention. However, there could be multiple waves of infections, with international or regional case importations. The scientists and experts predict that the COVID-19 is likely to be there for a long time- at least till effective vaccines and treatment becomes available. Therefore, countries need to have a longer-term preparedness and response plan tailored to country context.

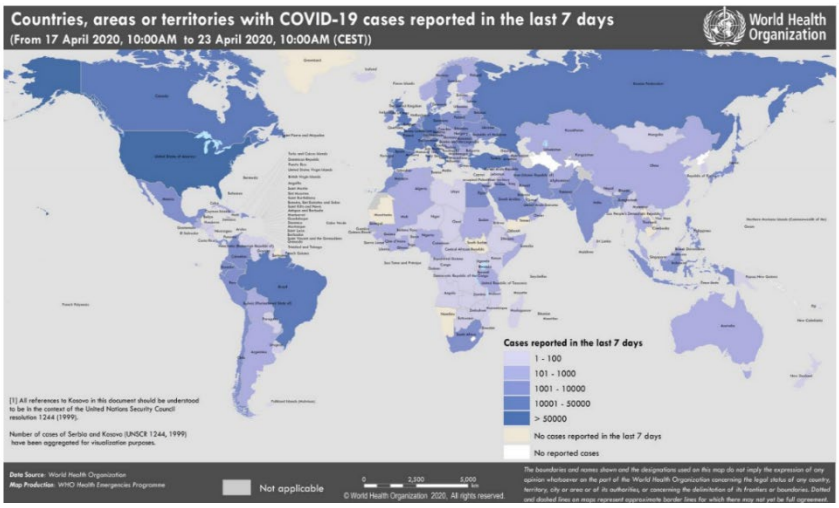

Figure 1: Global spread and burden of COVID-19 as of 24th April 2020 (Source - WHO)

[4] National Institute of Communicable Disease: Guidelines on use of cloth Mask, 15 April 2020
[5] WHO; Advice on the use of masks in the community, during home care, and in health care settings in the context of COVID-19; 19 March 2020

South Africa:
In South Africa, the first COVID-19 case was reported on 5th March 2020 from a group of travelers returning from Italy. Since then local transmission has been established in all nine provinces- with the largest proportion being reported in the provinces of Western Cape, Gauteng and KwaZulu-Natal and Eastern Cape.

3 Planning the COVID-19 Response- Key factors and guiding principles:

3.1 Socio-economic and Legal aspects

This plan is underpinned by the relevant provisions of the Constitution of the Republic of South Africa Act No.108 of 1996, the National Health Act No 61 of 2003, all regulations promulgated in terms of the National Disaster Act and International Health Regulations (IHR 2005). Whilst the five levels of 'Risk adjusted strategy for economic activity' will guide the gradual relaxation of lockdown, the health sector response will be crucial in determining the pace of moving from level five to one.

Priority needs to be given to the most vulnerable populations of South Africa to ensure suitable socio-economic support, while preventing the spread of COVID-19. The focus would be on poor and vulnerable populations many of whom have lost livelihoods and stable incomes, as well as access to essential commodities and services. While interventions to control the spread of SARS-CoV-2 are in place, country will need to work toward returning to normalcy. However, to avoid serious risks associated with premature relaxation or lifting lockdown restrictions too soon, a risk-adjusted systematic and evidence driven approach may need to be tailored to provincial or even district context.

3.2 Ethical considerations

The following values are being taken into account while implementing preparedness and response actions:

1. **Protection of the public -** Protection of the entire population remains a primary focus.
2. **Equity -** Equitable provision of care, recognising special needs especially for vulnerable individuals, such as older people, poor living in townships and persons with disabilities.
3. **Individual liberty -** Rights of the individual are upheld to the extent possible.
4. **Privacy and confidentiality –** of COVID-19 affected should be protected.
5. **Provision of care -** Healthcare is provided appropriate to the situation, commensurate with good practices and according to professional code of ethics.
6. **Stewardship -** Leaders make good decisions based on best available evidence and communicate in timely and transparently to the public and those in the health system.

Under extraordinary conditions during a pandemic, it may be necessary to override some of the aforementioned elements to protect other people living in South Africa- with the principal aim of 'prevention and treatment of the COVID-19'.

3.3 Overarching programming principles

The key overarching programming principles for this plan envisage:

1. **Existing multisectoral systems and governance** mechanisms work in harmony;
2. **Strong linkages** with existing statutes and strategies, yet any necessary changes to legislation should be taken forward quickly;
3. **Resource availability** to agencies responsible for tackling outbreak- this (amongst other) include- people, equipment and medical supplies;
4. **Empowering and enabling health-workforce, individuals and communities** to protect and take care of themselves.

5. **Dynamic data driven approach, guided by emerging evidence-**for decision making, allocating resources, and adjusting response plan;
6. **Standardized surveillance data** collection from ward, district and provincial levels and its use for action;
7. **Effective communication** with all stakeholders in management of the response;
8. **Regional and global partnerships** - working with the SADC and African Union, WHO and neighbouring countries, in supporting international efforts – detecting cases, sharing information and resources (e.g. lab services)

4 Informing the national response plan

This national response plan uses the globally recognized four phases of the epidemics; preparedness, response, mitigation and recovery.

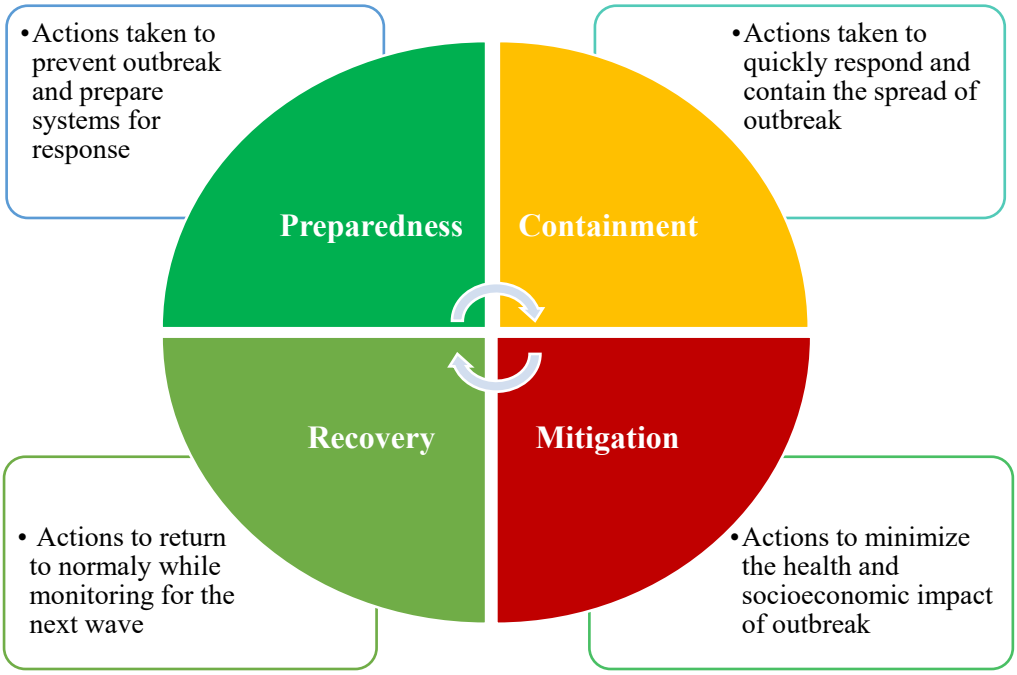

Figure 2: Pandemic phases and key actions in each phase

These four phases are not linear but cyclic, and whilst these seem to be detached, there are inherent overlaps between the phases- for instance, even in the response phase, preparation for surge capacity needed during the mitigation phase continues. Therefore, the integration of the COVID-19 response phases requires a continuous focus on risk-adjustment in accordance with the incidence of the disease. An integrated approach to preparedness, containment, mitigation and recovery is to be undertaken in concert, or in repeated cycles, as the epidemic increases or decreases. The same province may have different areas or wards in different epidemic phases depending on the disease incidence at the same time. Hence the actions under the phases require adaptation to local circumstances in accordance with disease epidemiology. This has been observed in several countries and South Africa's response considers other key learnings from the past pandemics, as well as COVID-19 related experiences from other countries[6][7][8][9][10] that have managed to significantly slow down the spread. Refer to Box-1.

[6] Legido-Quigley H, et al. Are high-performing health systems resilient against the COVID-19 epidemic? The Lancet. 2020
[7] WHO-China Joint Mission report, 24 February 2020
[8] Chen KT, et al. SARS in Taiwan: an overview and lessons learned. International journal of infectious diseases. 2005 March
[9] Wang CJ, et al. Response to COVID-19 in Taiwan: big data analytics, new technology & proactive testing. JAMA. 2020
[10] Rapid Innovations in Response to COVID-19: Examples from the Republic of Korea

4.1 Preparedness phase

This phase entails the preparation of a country for the envisaged outbreak, based on observed trends and indicators through education, primary prevention measures and scaling up capabilities. This phase is underpinned by:

- Stage 1: Preparation aiming at community education, capacity building and surveillance.
- Stage 2: Primary Prevention through social distancing, reduced gathering and closing borders to international travel.

The country executed a self-assessment of preparedness as required by the IHRs. Various governance mechanisms to deal with such epidemics are in place, some of which have been activated in terms of the National Disaster Management Act, establishment of a National Coronavirus Command Council, activation of Emergency Operation centre (EOC) and Incident Management Team (IMT). Whilst the COVID-19 caseload is limited, the health systems have the capacity to maintain routine services. However, as the caseloads increase, and/or the health workforce is reduced due to infection of health workers, strategic shifts are required to ensure that increasingly limited resources provide maximum benefit for a population - containing the pandemic at the earliest

4.2 Containment phase

During this phase optimum measures are implemented to curtail the spreading of the outbreak. The Action Stages are addressed in:

- Stage 3: Lockdown with curtailment of human interaction.
- Stage 4: Surveillance and active case-finding
- Stage 5: Hotspot identification with timeous interventions special monitoring of new cases.

COVID19 Response; Some global experiences and learning

The following are key experiences and learnings from the COVID-19 and other recent epidemics

- *Early prevention*: The COVID-19 experience from countries including China, Singapore and Japan indicates that early action and focus on public health and non-pharmaceutical measures such as early lockdown, POE screening and strict quarantine were critical to reduce transmission. South Korea did not have lockdowns nor restriction to movement- however Schools closure, recommended remote working and ban on large gatherings were complimented by use of Mask wearing, sanitizer and thermal screening at workplace/ buildings.
- *Extremely active surveillance,* to identify potential cases and their contacts, testing, admitting and treatment of all patients; and isolating suspected cases; use of data for decision making, and swift and innovative response have also been identified as key success factors.
- *Ramp up testing capacity;* In South Korea, the strategy relied on active, free and massive screening (including drive-through tests) for symptomatic individuals, case-contacts and travellers. In Japan and Singapore too, the diagnostic tests were developed early on, and lab capacity was increased.
- *Stockpile and local production:* In Taiwan Government stopped exports and stockpiled surgical face masks and took charge over pricing and distribution. Local companies were asked to step up production.
- *Coordinate and communicate*: In Singapore regular meetings between regional health managers, hospital leaders, and the Ministry of Health are held, and information is disseminated via mainstream media, online messengers and websites.
- *Financial protection and access to quality care*: In Singapore, Japan and Hong Kong all direct costs for treating patients are borne by the governments all direct costs for treating patients are covered by the governments, appropriate training and adherence to infection prevention and control measures are practiced in hospitals.
- *Integrated healthcare across levels and public-private:* In Japan, as the designated hospital capacity overstretched, the coordination between hospitals and local government proved challenging. In Singapore disseminating information to the private sector was difficult.
- *Protecting most vulnerable:* SARS experience suggested that there is need to emphasize the greater risk to certain populations: health care workers, older people, and people who have chronic diseases.
- *Maintain essential health services*: When health systems are overwhelmed, both direct mortality from an outbreak and indirect mortality from preventable and treatable conditions increase dramatically. During Ebola outbreak in W. Africa – the deaths caused by measles, malaria, HIV/AIDS, and tuberculosis attributable to health system failures, exceeded deaths from Ebola
- *Scale-up response and be flexible*: Influenza A(H1N1) pandemic clearly showed the need for the flexibility to scale the response to be proportionate to the risk associated with the current disease.

Box 1: Global experience and learnings from past and current epidemic

South African health system's ability to contain the pandemic whilst maintaining delivery of essential health services is the 'litmus test' for system readiness and resilience. The nine provinces are heterogeneous in terms of their baseline system capacities, burden of disease, and the COVID-19 transmission context (sporadic, clusters, or established community transmission) and will inform the National response during containment phase.

Identification of 'Hotspots' based on population vulnerability and active transmission context, followed by intensive interventions tailored to those contexts would be undertaken. The principle of response in this phase remains the same, i.e. containment. The ideal goal is to completely halt the spread of COVID-19, but slowing its spread is also critical. The capacity of the health system to provide treatment and care of COVID-19 patients should remain larger than the anticipated number of cases. Slowing down the epidemic reduces the number of cases that require hospital admissions and ICU admissions at any given time, which in turn allows for planning to ensure health system readiness, including giving health workers and health facilities time to prepare and respond, without becoming overwhelmed.

It also allows for the identification of COVID-19 specific treatment, and research & development of vaccines, buying us essential time to prepare and respond. The idea is to lower the peak of COVID-19 epidemic impact especially when the country moves into the 2020 winter season. Effectiveness of public health measures such as systematic and phased relaxation of lockdowns, rapid detection, isolation and case management will be decisive factors in reducing the risk of exposure, especially for the vulnerable populations that are more susceptible to be severely affected by COVID-19.

Containment would include 'all-of-society' approach, with well-coordinated involvement of the communities, private sector, researchers and all other sectors critical for this response. To continuously innovate and guide the response it would be essential to have; better understanding of the disease trends and emerging evidence at local, regional and global levels; innovative and synchronized responses, and the necessary diagnostics, drugs and vaccines for most effective models of testing and care.

- Action Stage 6: Focusing on the provision of quality medical care, and upscaling the surge capacity in preparation for the peak of transmission during the mitigation phase
- Action Stage 7: Bereavement and managing the psychological and social impact.
  These stages will continue across the containment and mitigation phases

4.3 Mitigation phase

In this phase the effects of the outbreak on the total South African community will be mitigated with emphasis on scaling-up the Stage 6 actions of medical care, and activation of a further parallel Action Stage:

- Action Stage 8; Ongoing vigilance monitoring antibody levels, vaccine actions and a vigilant ongoing surveillance for new cases/ next wave

Here the aim is to provide the best care possible for people who contract COVID-19 and become ill, support hospitals and clinics to maintain essential services and ensure ongoing support for ill people in the community to minimize the overall impact of the disease on society, public services and on the economy.

4.4 Recovery phase

This phase focuses on implementing a plan for speedy recovery- initiation and normalization of essential services and businesses. Action stages 7 and 8 will scale up further in this phase while the Action stage 6 will be scaled down.

This will also include a rapid assessment of what worked and did not, capturing the lessons learnt and putting in place robust plans and systems for dealing with future outbreaks and pandemics. The COVID-19 epidemic is anticipated to continue over a protracted period until a suitable vaccine has been developed, or with Coronavirus genetic shift and drift, with seasonal outbreaks leading to further epidemic escalation in the future.

The health system will need to remain vigilant during the recovery phase with heightened surveillance and monitoring closely to detect the 'next wave' (identify any new cases early) and deploy the response mechanisms if required.

5 Approach to health sector response in SA and key assumptions

No country can necessarily mimic the responses of other countries, as the health systems and broader demographic, socio-economic, culture and political contexts vary, and these play an important role in the country response.

The critical preparedness, readiness and response actions based on four transmission scenarios for COVID-19 (no cases, sporadic cases, clusters and community transmission) provided by WHO are quite pragmatic. In order for a more objective approach- criterion based on robust COVID-19 data and projection models is required alongside the health systems data.

The outputs of the 'National COVID-19 Epi Model'[11] (Box-2) are currently the best available projections in terms of what to expect with regards to transmission scenarios and associated resource requirements at provincial and national levels.

The National COVID-19 Epi Model

The National COVID-19 Epi Model is a stochastic compartmental transmission model to estimate the total and reported incidence of COVID-19 in provinces of South Africa. The model follows a generalised Susceptible-Exposed-Infectious-Recovered (SEIR) structure accounting for disease severity (asymptomatic, mild, severe and critical cases) and the assumed treatment pathway (outpatients, non-ICU and ICU beds). Key findings include;

- The initial social distancing and lockdown measures have worked- epidemic curve has been flattened and peak delayed
- Uncertainty regarding both the true scale and spatial distribution as a result of PUI criteria and testing coverage
- Predicted peak in active cases likely between early July and mid-August 2020 (affected by post-lockdown measures)
- Possibility of considerable variation in timing and scale of peaks between Provinces- greater variation between districts & sub-districts.
- Under almost all scenarios hospital and ICU capacity will be exceeded though timing and extent is uncertain.
- Requires a flexible approach to resource acquisition as more information becomes available

Box 2: National Covid-19 Epidemiological modelling; key deductions

This plan takes into account the predicted scenarios from the National epi model, and the proposed interventions are also grounded in the experience from other countries and how the pandemic has unfolded internationally (developing as well as more developed countries)

[11] Sheetal Silal, Juliet Pulliam, Gesine Meyer-Rath, Brooke Nichols, Lise Jamieson & Harry Moultrie; Estimating cases for COVID-19 in South Africa Update: 21 April 2020

5.1 'Markers' for defining the phase in the pandemic and response

The National Epi modelling data suggests that the number of active COVID-19 cases will see exponential growth through May 2020 peaking in early July and mid-August 2020 (Fig-3, Optimistic and pessimistic scenarios). Provinces will peak at different times but the ones with the highest cases are likely to start to peak early- Gauteng, Western Cape, KZN (in this order). This of course will be affected by how effective the measures under the risk adjusted strategy for phased relaxation of lockdown are. Whilst the projection models help to plan, it is the ongoing collection and analysis of real-time epidemiological and health systems data that will enable appropriate and adequate actions.

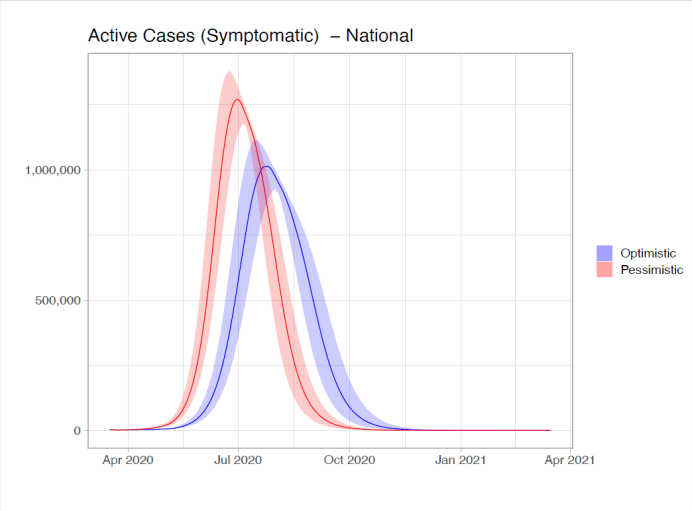

Figure 3: Projected active COVID-19 cases over time; SA (Source: National COVID-19 epi Model- as of 8May 2020)

The following four 'markers' are critical to inform the decisions on the scale and scope of healthcare response required;

1. **Number of active COVID-19 cases**[12]**/ 100,000 population**
2. **Spread/distribution of Active COVID-19 cases;** over geography and time; and
3. **Number of severe cases/ 100,000** or those requiring hospitalization/ ICU care
4. **Health systems capacity** i.e. the beds in Hospitals and ICUs; HRH and equipment to deal with these cases effectively and rapidly (whilst maintaining essential health services for existing disease burden).

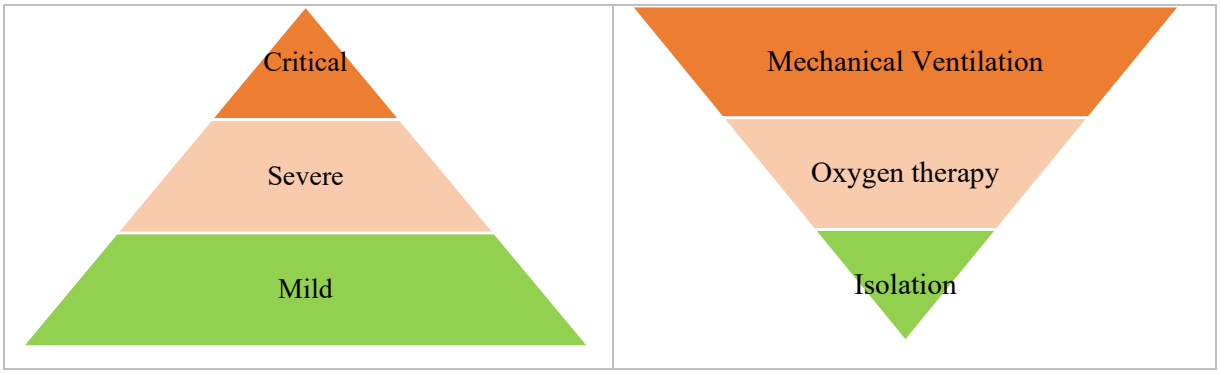

Figure 4: Severity of disease vs health system capacity requirements

It is important to note that markers 2, 3 and 4 are more critical as it is the 'critical and severe cases' that can quickly use up the critical resources such as ICU beds and major respiratory support (ventilators, CPAP, BiPAP etc) thus overwhelming the health system (Fig-3). It is likely

[12] *Active cases refer to COVID-19 cases that are symptomatic and still unrecovered (=Total COVID-19 cases confirmed- total cases recovered)

that more severe cases will be seen when higher number of total cases are reported. The total number of cases will also depend on how well the testing/lab, surveillance systems and other public health measures are working (or not).

Key data for symptomatic COVID-19 patients:

Published studies from China:

- **Of the symptomatic COVID-19 cases** About 40% have mild disease, - does not require inpatient care; about 40% of cases have moderate disease that may require inpatient care; 15% of cases will have severe disease that requires oxygen therapy or other inpatient interventions; and about 5% have critical disease that requires mechanical ventilation[13]
- Mean hospital stay of COVID-19 patients was 12.8days (Median 12 days)[14]

Modeling parameters* from South Africa National COVID-19 Epi model

- About 75% cases of COVID-19 may be asymptomatic
- **Of the symptomatic**- Severe cases 3%, critical 1.3% (ranges converted to approx. means)
- Mean hospital stay 12 days, ICU stay 18 days for those recovered and 5 days for deceased.

**various other parameters were used beyond those mentioned above*

Box 3: Key data on Symptomatic COVID-19 Cases required to assess health systems needs

5.2 Proposed 'Triggers' and strategic actions by pandemic phase

'Triggers' are the threshold levels of select 'markers' that will be inform in what phase of pandemic a specific province or district is, and the appropriate scaling up or down of the specific actions and interventions (See table-1). Whilst the majority of COVID-19 infected persons may have asymptomatic or mild disease (75% considered in the epi model), it is the severe and critical cases requiring hospitalization that are crucial to inform response plan (see Box-3 for proportions). Following considerations are required:

1. The pandemic phase triggers are based on the markers; 'active and severe/critical cases', juxtaposed against the existing 'health systems capacity' (ICU beds, medical products and equipment, health workforce etc).
    a. This will vary across and within provinces- and therefore, the triggers need to be considered as a 'broad framework' (rather than absolute) that can be applied at provincial or district levels to guide appropriate response.
    b. Important would be continuous monitoring and review of surveillance and health systems data from public and private sectors.

2. The thresholds are indicative only and have been kept at low levels, considering the existing burden of disease and associated health care needs.
    a. Many of the existing ICU and high care beds are likely to be already occupied due to provisioning of healthcare for other conditions (excluding COVID-19 care).
    b. COVID-19 cases will need to be separated from routine patients and treated in different areas further constraining the available resources (ICU beds, HRH).

3. The idea behind triggers is to help various spheres of Government to make timely decisions to balance the demands of responding directly to COVID-19, while simultaneously engaging in strategic planning and coordinated action to maintain essential health service delivery, mitigating the risk of system collapse and preventing avertable mortality/ disability due to COVID-19 or other disease.

[13] Wu, Zunyou, and Jennifer M. McGoogan. "Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention." Jama (2020).
[14] Guan, Wei-jie, et al. "Clinical characteristics of coronavirus disease 2019 in China." New England Journal of Medicine (2020). https://www.nejm.org/doi/full/10.1056/NEJMoa2002032

Table 1: Proposed Triggers for response phases and related critical actions

Pandemic Phase	Containment	Mitigation	Recovery
Triggers[#] *(to be adapted for each province according to health care capacity)*	***Active cases* <20 cases/100,000*** *(SA total <11,600)*	***>20 active cases*/100,000 or >3/100,000 currently needing ICU or specialized care*** *(SA total 1,740)*	***Recovery (< 1 active case* per 100,000),***
Objective	- ***Contain or slow the transmission and prepare for future needs***	- ***Provide healthcare to all in need, Minimize adverse health impact***	- ***Gradual return to normal, continued surveillance M&E, plan for future***
Strategies (High level actions)	• Establish simplified, well-coordinated & effective governance protocols to complement response • Establish epidemiological profile of the disease within the South African context (Time, place, person)- this requires strong health information and GIS mapping; • Minimize transmission; Detect, manage initial cases and trace contacts; • Prepare for future health system needs- hospital beds and spaces, logistics, medicines, health workforce; • Identify context relevant essential services to maintain service delivery • Establish effective patient flow (screening, triage, and targeted referral) at all levels • Provide information and best practices to health workforce and provide training as required • Empower the community and responders to manage their own risk of exposure;	• Coordinated and consistent leadership from Command Council • Regular reviews and evidence informed innovative solutions • Beef up response; Lockdown levels as required • Healthcare surge capacity in public and private sector as well as alternate modalities • Continue to communicate to engage, empower and build confidence in the community; • Rapidly re-distribute health workforce capacity including by re-assignment and task sharing; deployment of Rapid Response Teams • Remove regulatory barriers to ensure surge capacity is available; this includes addressing scopes of practice limitations • Healthcare worker support- occupational health, IPC; • Identify mechanisms to maintain availability of essential medications, equipment, and supplies; • Support and maintain quality care- consider innovative treatments • Psychosocial support, handling the deceased and safe burial arrangements • Continue monitoring the situation, analyze epi and health systems information to resource allocation and informing response measures	• Cease activities that are no longer needed, and transitioning activities to seasonal or interim arrangements; • Monitor for a second wave of the outbreak (PoE, continued surveillance); • communicate to support the return from pandemic to normal business services; and • Rapid evaluation and document learnings, revise plans, procedures and systems for next pandemic

 # Triggers are indicative only. Need to consider other factors including underlying Health systems capacity (Beds, ventilators, HRH etc.), existing burden of disease and separate areas for COVID and routine patients. Nationally 7,217 critical beds, 3,318 ICU beds, 2,722 High care beds are available (NDOH COVID-19 sitrep)
****Active cases refer to COVID-19 cases that are symptomatic/ still unrecovered (=Total cases confirmed- total cases recovered)***

5.3 Major Assumptions for planning the COVID-19 response

The following planning assumptions have been made to guide specific decisions and activities in this plan:

1. The spread and severity of COVID -19 in South Africa (or any country) will be **difficult to forecast** and characterize with accuracy. Available information therefore used to guide this planning.
2. A high number of confirmed cases will result in **increased hospitalizations** especially amongst high risk populations including hypertension, diabetes, HIV/TB and underlying lung disease, thus straining the existing health systems and putting an excessive burden on health workforce.
3. High global demand, constrained supply chains and severely limited availability will adversely affect South Africa and will likely result in **significant shortages of health and other commodities** for government, private sector and individuals.
4. The pandemic **can last several months** and can involve multiple waves of illness until an effective vaccination programme can be launched.
5. The **unified national response** will involve departments and agencies beyond the health sector, and at provincial levels to function in an integrated, well-coordinated and synchronized manner. This will include the public and private health systems.
6. A sustained response will require **prolonged social distancing measures** such as national or provincial lockdowns, alternate work arrangements, whilst maintaining essential services including law and order
7. The response will need **regular review and revisions** according to emerging epidemiological, scientific and public health evidence

6 Goals and strategic priorities of the National Plan

6.1 Goal

The goal of this plan is to halt the transmission of SARS-CoV-2 in South Africa and minimize potential impact on health and wellbeing of the society and South African economy.

6.2 Strategic priorities:

The overarching objective is to strengthen national and provincial mechanisms for timely detection, management and containment of the spread of COVID-19. The nine overarching strategic priorities/ pillars of the national response are to;

1. *Provide effective governance and leadership*: Strengthen coordination and governance for COVID-19 response
2. *Strengthen surveillance and strategic information:* Strengthen health information and surveillance systems for COVID-19 at national and provincial levels to monitor trends, guide policy actions and swift changes in response at local levels.
3. *Augment health systems readiness:* Assess health systems readiness against the epidemiological curve, identify gaps and plan to ensure health services availability according to need. This includes ensuring hierarchy of facilities to deliver identified services and that these facilities have the required health workforce, medicines, equipment and products (and all that is required) to mount effective COVID-19 response
4. *Enhance community engagement:* Effectively engage the community and communicate the public health risks of COVID-19 and the related mitigation measures in various settings

5. *Improve laboratory capacity and testing:* Strengthen the NHLS and private laboratory capacity for SARS-CoV-2 testing to meet the requirements of the COVID-19 response and improve coordination between public and private sectors
6. *Clarify care pathways:* Establish clear continuum of care pathways for COVID-19 (Case detection, management and clinical pathways), which should align to the hierarchy of infrastructure established or reconfigured for the COVID 19 response
7. *Scale-up Infection Prevention and Control (IPC)Measures:* Strengthen the standard IPC measures as per national guidelines in isolation, treatment facilities and at public spaces and communities
8. *Boost capacity at ports of entry:* Enhance screening capacity at key ports of entry and augment the environmental health
9. *Expedite research and introduction of therapeutics, diagnostics and vaccines:* Institutionalize mechanisms for COVID-19 related Health Products regulation and research coordination and build in mechanisms for ongoing learning from research and experiences from other countries, to ensure these inform the response at the frontline.

The next nine sections (7-16) of the narrative elaborate the strategic priorities, underlying sub-objectives and related actions/activities. Work on all the strategic priorities continues and needs to be further reinforced and updated based on the pandemic phase and emerging needs.

7 Coordination and Governance of COVID-19 response

The Outbreak is led by the National Coronavirus Command Council (NCCC) and technical work coordinated within the National Joint Operation System (NatJOINTS) and coordinated within the Emergency Operation Centre (EOC) approach of the World Health Organisation with Incident Management Teams (IMTs) within the Emergency Operation Centre guiding the health-related actions.

7.1 National and Provincial structures

National

Figure-6 provides the current Governance structures at the national and provincial levels. The "command and control" structure implemented at the National Department of Health is reflected in each of the Provinces.

South Africa's National Emergency Operations Center (EOC) has been activated and an Incident Management Team (IMT) has been set up. The IMT is the technical arm and its primary functions include (but are not limited to), developing functional areas with clear deliverables and focus around leadership, partner coordination, information and planning, health operations, technical expertise, operations support, logistics, finance and administration.

Provincial

Coordination structures at national level have been cascaded to the provincial level through a Provincial Joint Operation Centre (ProvJOC), with the Health Streams, Provincial Emergency Operation Centre with its Incident Management Teams, incorporating the multi-sectoral, multi-disciplinary provincial outbreak response teams which is in turn cascaded to district and sub-district levels.

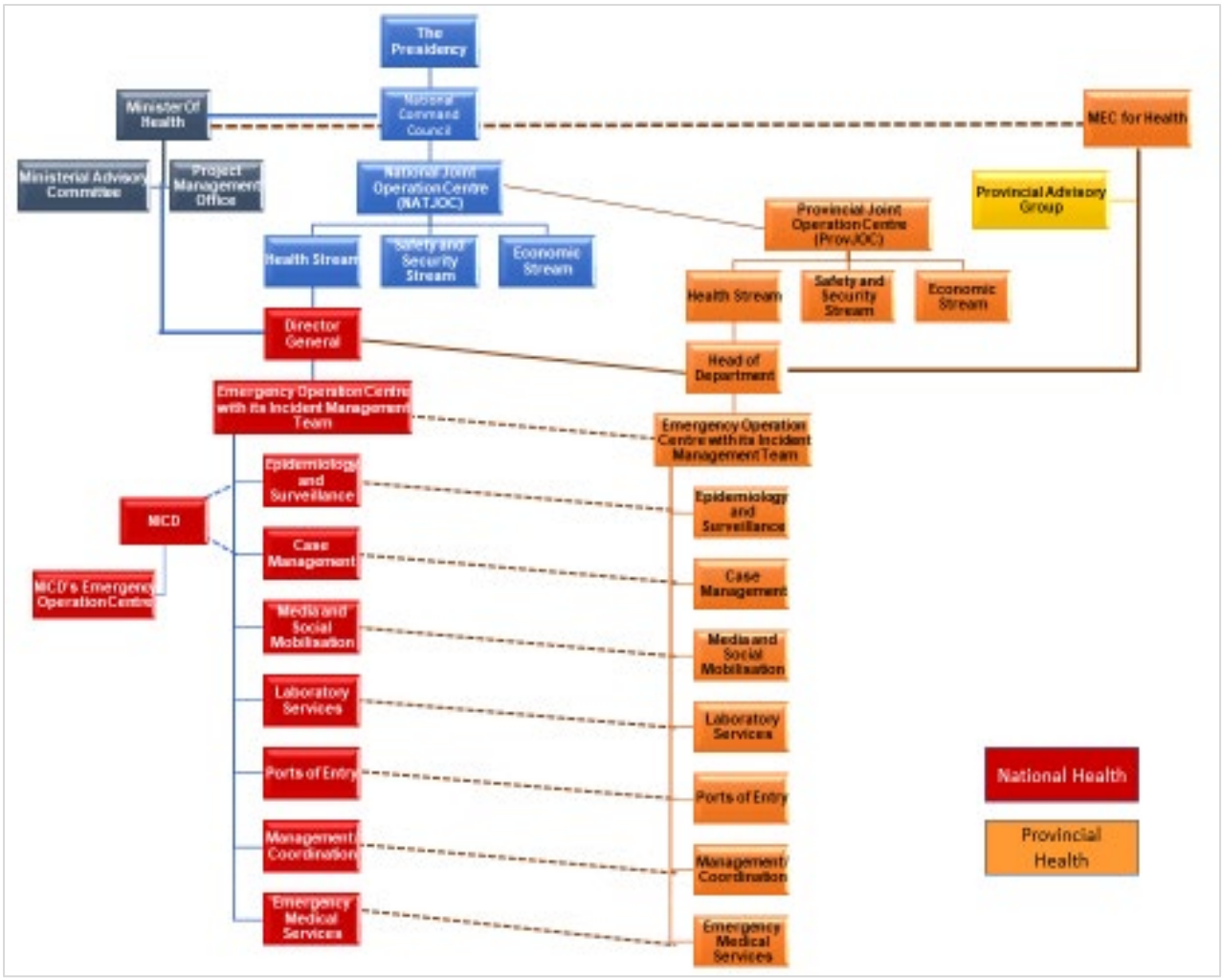

Figure 5: Governance structures for the COVID-19 Response at national and provincial level

Partners

Multiple sectors and partners are engaged in the COVID-19 response led by the National Department of Health and government agencies as well as the private health sector, research community, UN agencies and development partners.

7.2 Strengthen coordination and governance for COVID-19 response

Strengthen leadership and coordination of multisectoral response for COVID-19

1. The overall health response is led by the Minister of Health and the Members of the Provincial Executive Committees (MECs).
2. Coordinated guidance, coordination and governance through the NatJOINTs, Ministerial Advisory Committee and partners.
3. Establish Incidence Management Team at all levels with clear roles and responsibilities.
4. Draft Terms of Reference for the IMT to ensure each functional area of the IMT is fully engaged and provides structured reports for decision making and to guide interventions
5. Clear decision-making pathways and execution guidelines to ensure that a comprehensive situation report is issued and widely disseminated focused on gap analysis and actions taken.

7.3 Financing and Resource Mobilization for COVID-19 response

Ensure mobilization of resources to adequately finance the COVID-19 response

1. Cost the national health sector COVID-19 preparedness and response plan and identify resource gaps
2. Engage with the treasury to ensure adequate and timely financing for COVID-19 response plan
3. Undertake budget reprioritization from the existing funding for other programmes
4. Engage with the private sector, local and international donors mobilize to implement the COVID-19 operational plan
5. Establish mechanisms for strategic purchasing of COVID-19 healthcare services from the private providers

7.4 Effective oversight of response

Provide oversight through regular reviews and M&E of the COVID-19 response

1. Develop monitoring and evaluation framework to track the implementation, effectiveness and impact of planned health actions.
2. Monitor implementation of COVID-19 Response plan based on key performance indicators and produce regular situation reports at all level, consolidated into district, provincial and national situation reports and widely disseminated and actioned.
3. Monitor the patient care needs (COVID-19 related and the essential services) against the health system capacity.
4. Conduct regular operational reviews to assess implementation progress and epidemiological situation, and adjust operational plans as necessary.
5. Conduct after action reviews in accordance with IHR (2005) as required.
6. Use COVID-19 outbreak to test/learn from existing plans and document lessons to inform future preparedness and response activities.

8 Health Information and surveillance systems

Strengthen health information and surveillance systems for COVID-19 at national and provincial levels to monitor trends and guide preparedness and response actions

8.1 Information System (Hardware and software) including GIS mapping

Put in place the appropriate health information systems to provide real time information on COVID-19 cases, surveillance, disease burden and trends

1. Disseminate definitions for persons under investigation and confirmed cases in line with WHO guidance and investigation protocols to healthcare workers (public and private sectors).
2. Agree on an integrated data management platform for capturing COVID-19 epidemiological, lab and surveillance data with GIS mapping capabilities.
3. Identify software and hardware requirements at different levels.
4. Procure and install necessary devices, equipment and computing peripherals to enable information management system up and running.
5. Capacitate National and provincial staff to use the information systems.
6. Utilise Geo-spatial resources in support of pandemic response.

8.2 Data standardization, flow and management

Ensure that standardized data is collated, analyzed and synthesized for action on regular basis

1. Set-up reporting framework with timeline for reporting with due consideration of national and global protocols (IHR2005).
2. Regularly update the data in the system (preferably real time data collection on case, contacts and diagnostics.
3. Actively monitor and report disease trends- disaggregated by geography, age, gender and vulnerable population groups.

8.3 Surveillance systems and Capacity

Enhance surveillance systems and capacity

1. Assess gaps and enhance existing surveillance systems to enable monitoring of COVID-19 transmission and adapt tools and protocols for contact tracing and monitoring to COVID-19.
2. Monitor trends of the disease, rapidly detect new cases and manage appropriately
3. Provide epidemiological information to conduct risk assessment at the national, provincial and district and/or sub-district level
4. Establish detailed contact surveillance (linked to EpiSurv) as a key component of the containment response.
5. Implement WHO First Few X Cases (FFX) within the notification system, reverting to standard levels of information capture once an appropriate number of cases have been evaluated;
6. Step up virological surveillance for high sensitivity case-finding, as required
7. Recruit Health hotline -a free 24-hour telephone advice service administered by the Department of Health

8.4 Information products and dissemination

1. Situation reports produced at district, provincial and National level
2. Data and information used to identify hotspots and to initiate actions intended to flatten the epidemic curve at district, provincial and national level
3. Share good practices on Covid-19 response across provinces
4. Scenario modelling of pandemic impact (e.g. potential numbers of ICU beds required in a day) on ongoing basis

9 Health Services availability and Facility readiness for COVID Response

Assess and improve health services availability and facility readiness for COVID Response

9.1 Strengthen the Hospitals/clinical service delivery platform

Ensure adequate space and facilities are available for providing COVID-19 services: High Care, ICU Beds, Dedicated hospital/facility spaces Isolation and Quarantine sites

1. Assess the existing capacity of service delivery at all levels of care including number of beds, bed occupancy rates and average length of stay to manage mild, moderate as well as severe COVID-19 admissions
2. Determine and quantify the surge capacity of all facilities to meet the COVID-19 service requirements; quarantine/ isolation facilities, hospital beds and ICU beds required based on different scenarios

3. Develop a national Plan for expanding the number of earmarked facilities with adequate space and capacity for providing COVID-19 services
4. Ensure that adequate life support equipment, oxygen and personnel are available and trained in managing severe acute respiratory failure.
5. Use innovative means such as using stadiums and building makeshift facilities to rapidly expand country capacity for isolation and treatment of the COVID-19 patients
6. Ensure that sufficient resources are available for the provision of non COVID-19 essential health services such as or NCDs, HIV, TB and maternal and child health related

9.2 Strengthen the health workforce:

Ensure that adequate health workforce with appropriate skill-mix and competences is available to provide high quality COVID-19 services

1. Assess the critical workforce and competences required to provide COVID-19 services in Public and Private sectors as well at a community level, across the continuum of care
2. Build capacity, provide training, and job aides using appropriate methodologies and platforms.
3. Identify any health workforce gaps through ongoing monitoring of supply and demand against the epidemiological curve; identify and source the required surge capacity and coordinate closely with all teams (i.e. cross functional teams meet regularly to identify and ensure workforce needs are met)
4. Remove regulatory barriers, scopes of practice limitations where needed.
5. Clarify any barriers to redeployment or short-term contracting of health workers for the purposes of surge capacity.
6. Protect the physical health of frontline health workers. Regard health workers as a risk group.
7. Access to personal protective equipment (PPE) for the health workforce in all services (public and private, community and hospital), along with clear guidance on how and under what circumstances to use it, how it can be accessed, and how to report shortages.
8. Ensure that health workers have adequate rest and recuperation time and consider putting in place other measures to protect them and their families, such as dedicated accommodation facilities for highly exposed staff to use during rest periods.
9. Anticipate and address mental health needs of the health workforce. Establish a dedicated hotline for psychological support, and monitor job burnout. Improve working spaces and working conditions and ensure measures for occupational health and safety are in place and that regular assessments are conducted.
10. Monitor healthcare personnel exposed to confirmed cases of COVID-19 for respiratory illness and track infections among health workers; utilize information to identify problem areas or systems challenges to be addressed.
11. Conduct surveillance of frontline health workers to monitor rate of COVID-19 infections among health workers.

9.3 Health Products and commodities (PPE, Medicines, ventilators, CPAP etc)

Ensure required health products commodities and supplies are available for the response

1. Map available resources and supply systems in health and other sectors; conduct in-country inventory review of supplies utilising guidance such as per WHO Disease Commodity Package (DCP) and COVID-19 patient kit and develop a central stock reserve for COVID-19 case management.

2. Assess the capacity of local market to meet increased demand for medical and other essential supplies, and coordinate international request of supplies through national, regional and global procurement mechanisms.
3. Fast track procurement processes (including importation and customs) for medical and other essential supplies, and encourage local sourcing to ensure sustainability.
4. Monitor and review the supply chain control and management system for medical and other essential supplies, including PPE, COVID-19 DCP and patient kit reserve in-country.
5. Coordinate alignment of requirements with infrastructure placement and epidemiological analysis and surveillance.
6. Plan and maintain a strategic stockpile as reserve

9.4 Emergency Medical Services (EMS)

Augment EMS capacity to respond effectively and efficiently

1. Assess and monitor and guide the functioning of available emergency medical capabilities and take appropriate corrective measures.
2. Assess the existing EMS capacity including workforce and competences required to provide COVID-19 services, identify gaps and implement corrective actions.
3. Ensure that adequate life support equipment and personnel are available and trained in managing severe acute respiratory failure.
4. Coordinate and guide the execution of EMS capabilities with infrastructure placement.
5. Plan a strategic reserve for EMS capabilities.

9.5 Treatment protocols and Therapeutics

Institutionalize the standard Treatment Protocols and Therapeutics use for COVID-19

1. Widely disseminate and keep updating the standard treatment Protocols and the therapeutics for COVID-19. Mobile/digital health platforms could be used.
2. Supply easy to use job aids including decision trees for use of the frontline health workers, including weekly mortality and morbidity reports prepared by the MRC and NICD.
3. Use very opportunity to understand patient care, outcomes using technology and training opportunities such as grand rounds and Mortality and Morbidity analyses.
4. Continuous medical education with academic training towards certification and disseminated training through Grand Rounds hosted by the Minister of Health.

9.6 Monitoring Outcomes/Patient Conditions;

Monitor patient outcomes and other systems performance indicators (Recovery and de-isolation)

1. Develop and finalise a simplified 'minimum data set' that needs to be reported on by all facilities, and indicate the frequency of reporting
2. Institutionalize mechanisms for patient outcome reporting from facilities to the province, and to national and relevant governance structures on daily basis, preferably using or as required per the afore-mentioned electronic data management and surveillance systems using NIDS.

10 Risk Communication and Community Engagement (RCCE)

Effectively engage the community and communicate the Health risks of COVID-19 and the related mitigation measures in various settings

10.1 Implement risk communication strategies

1. Implement national risk-communication and community engagement plan for COVID-19, including details of anticipated public health measures (use the existing procedures for pandemic influenza) besides the current lockdown
2. Conduct rapid behaviour assessment to understand key target audience, perceptions, concerns, influencers and preferred communication channels
3. Prepare local messages, pre-test and roll out specifically targeting key stakeholders and at-risk groups
4. Identify community groups (local influencers such as community leaders, religious leaders, politicians, health workers, community volunteers) and local networks (women's groups, youth groups, business groups, traditional healers, etc.) and engage them in local risk communication
5. Establish rapid clearance processes for timely dissemination of messages and materials

10.2 Communicating the COVID-19 risk and preventative actions

Continuously communicate the risk of COVID-19 and preventative actions to the communities and Monitor and evaluate

1. Engage with existing public health and community-based networks, media, local NGOs, schools, local governments and other sectors such as healthcare service providers, education sector, business, travel and food/agriculture sectors using a consistent mechanism of communication
2. Utilize two-way 'channels' for community and public information sharing such as hotlines (text and talk), responsive social media such as U-Report where available, and radio shows, with systems to detect and rapidly respond to and counter misinform
3. Establish large scale community engagement for social and behaviour change approaches to ensure preventive community and individual health and hygiene practices in line with the national public health containment recommendations
4. Systematically establish community information and feedback mechanisms including through: social media monitoring; community perceptions, knowledge, attitude and practice surveys; and direct dialogues and consultations
5. Ensure changes to community engagement approaches are based on evidence and needs, and ensure all engagement is culturally appropriate and empathetic.
6. Document lessons learned to inform future preparedness and response activities

11 Strengthen lab Services

Strengthen the laboratory capacity for SARS-CoV-2 testing to meet the requirements of the COVID-19 response

11.1 Reduce turnaround time for testing

Enhance turnaround time and efficiency for SARS-CoV-2 testing

1. Adopt and disseminate standard operating procedures for specimen collection, management, and transportation for COVID-19 diagnostic testing
2. Adopt standardised systems for molecular testing, supported by assured access to reagents and kits
3. Identify hazards and perform a biosafety risk assessment at participating laboratories
4. Ensure specimen collection, management, and referral network and procedures are functional

5. Share genetic sequence data and virus materials according to established protocols for COVID-19
6. Fast track linking of laboratory data with key epidemiological data for timely action
7. Implement surge plans to manage increased demand for testing; consider conservation of lab resources in anticipation of potential widespread COVID-19 transmission
8. Monitor and evaluate diagnostics, data quality and staff performance, and incorporate findings into strategic review of national laboratory plan and share lessons learned
9. Develop a quality assurance mechanism for point-of-care testing, including quality indicators

11.2 Increase testing capacity

Increase SARS-CoV-2 testing capacity to meet the increased demand

1. Procure and distribute adequate supplies of polymerase chain reaction (PCR) test kits and RDTs (when registered by SAPHRA) to meet the needs for the COVID-19 response
2. Increase the number of NHLS and private laboratories performing COVID-19 tests
3. Procure and distribute COVID-19 GeneXpert test kits to labs with GeneXpert analyzers in all provinces
4. Support labs with GeneXpert analysers in all provinces to start conducting COVID-19 testing
5. Increase the number of mobile vehicles that collect samples for testing
6. Increase the national sample processing capacity in public and private sector commensurate with the response requirements
7. Establish electronic means to communicate lab results back to the referring doctor and to the patient

12 COVID-19 – Continuum of care pathways

Establish clear Continuum of care pathways for COVID-19 (Case detection, management and clinical pathways)

12.1 Case Detection

Ensure adequate capacity and systems for early case detection

1. Develop and/or update clear protocols on community-based screening, referral pathways, quarantine and isolation.
2. Identify, train and deploy adequate HR for community screening. Teams to be provided support supervision
3. Monitor availability of testing kits and maintain quality and safety of testing
4. Establish and implement harmonized app based digital testing and contact tracing systems
5. Map vulnerable populations with risk of local transmission and focus screening and testing in these areas

12.2 Case Management

Ensure appropriate management of all COVID-19 cases

1. Update case management protocols and guidelines at all level of care (including home care) A Clinical Guideline Working Group has been established the current guideline is available. These cover management of mild, severe and critical disease (and include home management for mild cases).

2. Capacitate human resources at all level of care in case management, IPC, referral protocol and intensive care. Online training programme has been developed, with support from academic institutions and professional associations.
3. Provide comprehensive medical, nutritional, and psycho-social care for those with COVID-19

12.3 Clinical pathway and Outcomes

Establish clear clinical pathways and monitor outcomes of cases and contacts

1. Establish dedicated and equipped teams and ambulances to transport suspected and confirmed cases, and referral mechanisms for severe cases with co morbidity.
2. Provide post-discharge advice on rehabilitation and continued protective isolation.
3. Develop / adopt guidelines on safe corpse handling and dignified burial practices.
4. Regular reporting of patient outcomes and clinical performance by health facilities in health information system.
5. Analyse information to institute corrective measures or address problems timeously.

13 Infection Prevention and Control

Strengthen the standard IPC measures as per national guidelines in isolation and treatment facilities

13.1 Enhance IPC in health facilities, PoE and community

Enhance IPC in health facilities, PoE and community

1. Assess IPC capacity at all levels of healthcare system, including public, private, traditional practices and pharmacies.
2. Assess IPC capacity in public places and community spaces where risk of community transmission is considered high e.g.: Taxis stands and public transport, supermarkets, including spazas, prisons etc.
3. Roll out the national IPC strategic framework and the practical IPC guidelines out across the country
4. Develop and implement a rapid plan for monitoring of healthcare personnel exposed to confirmed cases of COVID-19 for respiratory illness
5. Develop an emergency national plan to manage PPE supply (stockpile, distribution) and to identify IPC surge capacity
6. Monitor correct and or appropriate use of PPE at different levels of care and according to risk exposure

13.2 Capacity building and M&E for IPC

Upscale the capacity building for implementation and M&E of the IPC

1. Engage trained staff with authority and technical expertise to implement IPC activities in local facilities
2. Record, report, and investigate all cases of healthcare-associated infections
3. Implement triage, early detection, and infectious-source controls, administrative controls and engineering controls; implement visual alerts (educational material in appropriate language) for family members and patients to inform triage personnel of respiratory symptoms and to practice respiratory etiquette
4. Provide access to water and sanitation for health (WASH) services in public places and vulnerable community spaces most at risk
5. Monitor IPC and WASH implementation in healthcare facilities and public spaces using the Infection Prevention and Control Assessment Framework, the Hand Hygiene Self-

Assessment Framework, hand hygiene compliance observation tools, and the WASH Facilities Improvement Tool

14 Ports of Entry (PoE) & Environmental Health

Enhance screening capacity at key ports of entry (PoE) and augment the environmental health

14.1 Screening of travellers

Strengthen systematic screening of travellers

1. Update ports of entry guidelines and tools for public health emergency
2. Deploy adequate human resources strategically at the Ports of entry
3. Equip and train staff to identify high risk travellers and suspected cases and to take appropriate action.
4. Regularly monitor and take corrective measures to strengthen ports of entry screening processes

14.2 Medical Evacuation and Isolation facilities

Designate and equip isolation facilities for suspected cases

1. Develop SoPs for Medical Evacuation of COVID-19 or non COVID patients to and from South Africa
2. Prepare rapid health assessment/isolation facilities to manage ill passenger(s) and to safely transport them to designated health facilities that provide appropriate care

14.3 Raising awareness for travellers and PoEs staff

Raise awareness on COVID-19 for travellers and PoEs staff

1. Provide regular and updated information packages about COVID-19 to travellers and all PoEs stakeholders
2. Monitor travellers' awareness on COVID-19 and take appropriate actions

15 COVID-19 related Health Products' regulation and research Co-ordination

15.1 Generation and use of evidence; prevention, diagnostics, therapeutics

Coordinate the generation and use of evidence for COVID-19 response

1. Participate in clinical expert network/s to learn from global experiences and improve clinical care for better patient outcomes
2. Identify key areas and questions for operational and clinical research based on emerging needs
3. Coordinate and prioritise COVID 19 related operational research and clinical trials to continuously inform current practices and support decision making for the response
4. Synthesise, produce research briefs and disseminate to all levels to ensure translation of findings into policy and practice
5. Update and implement protocols as and when new evidence is generated, reviewed and adopted

15.2 Regulation of new health products and interventions

1. Fast track the assessment of potential/ new diagnostics, therapeutics, and vaccines for compassionate use (especially consider issues around regulatory approval, market authorization, and/or post-market surveillance)
2. Ensure rapid introduction of proven COVID-19 diagnostic or therapeutic products

16 Financing for the COVID-19 Response

It is quite difficult to accurately project the funding needs to the COVID-19 response, as seen in many other countries. Based on National COVID-19 Epi model the additional cost of response at national and provincial levels have been estimated at ZAR 12.8-17.1 billion, between April and September 2020. This takes into account the projected number of cases by severity and the required number of ICU and general hospital beds (ventilator, equipment, staff and testing capacity and their ability to be re-purposed for the COVID-19 response).

Whilst these estimates could serve as a navigating instrument, the projection team is wary that it is quite difficult to accurately predict how the COVID-19 pandemic will pan out in South Africa- and how the internal and external factors will affect the response measures and associated costs.

The National Treasury revision of the fiscal framework in view of COVID-19 response includes 1) estimating the additional health care costs needed for different phases of disease progression, and 2) reprioritizing expenditure towards the identified health care costs including the funds from existing Conditional Grants on HIV, TB, Malaria and Community Outreach Grant. The financing through Conditional Grant Framework focuses on;

- Scaling up community screening, testing and contact tracing;
- Standardised and enhanced surveillance and data collection, monitoring and reporting mechanisms
- Procurement of medical, laboratory diagnostic and Infection Prevention and Control (IPC) supplies and PPE;
- Ongoing clinical management trainings and wellbeing of health workers and support staff.

The prices of several central resources are currently subject to strong market forces as many countries around the world are competing for the same set of materials. Additionally, the increase in lead times on deliveries resulting from manufacturing countries' travel and trade bans means that even if the budget is made available, supply might not be complete or in time.

One thing is clear that Government through National Treasury will continue to assess the situation and adequately resource the health sector response to COVID-19 and ensure effective financial resource are mobilized. The gaps in the resources requirement will be identified and plugged, if required from the private sector and international development partners.

17 M&E Plan

On a daily basis an IMT daily monitoring and reporting framework for the respective work-stream leads are compiled. The framework includes updates for the SitRep, Cases, Labs, Community Screening, Contact Tracing, Hospitalization, Quarantine and Facility Readiness work-streams. A complete set of Data elements and Indicators are compiled in the NIDS for the COVID-19 response based on the following functional areas:

1. Global and Africa overview –SitRep Update
2. Epi/ Surveillance
3. Labs
4. Community Screening
5. Contact Tracing
6. Hospital Data
7. Case Mgmt
8. Medicines
9. Quarantine
10. Facility Readiness
11. Human Resources for Health
12. Port and Environmental Health
13. Emergency Medical Services
14. Occupational Health and Safety
15. Communications
16. Program Mgmt

Some proposed indicators for the national COVID-19 response plan are mentioned below. This does not constitute a comprehensive list and may be updated as per the needs.

Table 2: Monitoring and Evaluation; List of Key indicators and associated matadata

#	Patient Journey	Indicator	Target	Numerator	Denominator	Type
1	Screening	Field workers reporting rate		Number of field workers reporting screening data	Number of field workers deployed for Covid-19	Input
2	Screening	Field worker Covid-19 Screening coverage		Number of persons screened for COVID-19 by field workers	Target population for Covid-19 screening	Output
3	Screening	Field worker referral rate for Covid-19 test		Number of persons referred for COVID-19 test and quarantined *(meets the PUI definition)*	Number of persons screened for COVID-19 by field workers	Process
4	Testing	Turnaround time (<48hours) of Covid-19 tests		Number of Covid-19 tests with results < 48 hours	Number of Covid-19 tests conducted	Process
5	Testing	Covid-19 Testing coverage		Number of Covid-19 tests conducted - Total	Number of persons referred for COVID-19 test and quarantined *(meets the PUI definition)* + *Number of contacts referred for COVID-19 test (meets the PUI definition)*	Output
6	Testing	Covid-19 Testing coverage (population)		Number of Covid-19 tests conducted - Total	Total Population / 100 000 population	
7	Testing	Covid-19 Positivity Rate		Number of confirmed covid-19 cases - Total	Number of Covid-19 tests conducted	Outcome

#	Patient Journey	Indicator	Target	Numerator	Denominator	Type
8	Outcome	Covid-19 Incidence Rate		Number of new confirmed covid-19 cases	Total Population / 100 000	Outcome
9	Contact Tracing	Covid-19 case tracking rate		Number of confirmed covid-19 cases tracked to obtain a list of their contacts	Number of confirmed covid-19 cases	Process
10	Contact Tracing	Covid-19 Contact tracing rate		Number of contacts traced	[number of contacts identified for tracing] - [Number of contacts transferred out to another district] - [Number of un-traceable contacts] + [Number of contacts transferred in from another district]	Output
11	Contact Tracing	Covid-19 Contact Monitoring rate		Number of contacts monitored	[Number of contacts traced] - [Number of contacts completing their 14-day monitoring]	Output
12	Contact Tracing	Covid-19 Contact referral rate		Number of contacts referred for COVID-19 test (meets the PUI definition)	Number of contacts monitored	Output
13	Contact Tracing	Covid-19 testing coverage among contacts of confirmed cases		Number of contacts tested for Covid-19	Number of contacts referred for COVID-19 test (meets the PUI definition)	Output
14	Contact Tracing	Covid-19 positivity among contacts traced		Number of contacts tested positive for Covid-19	Number of contacts tested for Covid-19	Outcome
15	Readiness					
16	Case Management	Bed Utilisation Rate Covid-19: low care		Number of inpatients with Covid-19: low care bed	Number of isolated low care beds for Covid-19	Process/Output
17	Case Management	Bed Utilisation Rate Covid-19: Standard care		Number of inpatients with Covid-19: standard care bed	Number of isolated standard care beds with oxygen supply for Covid-19 patients	Process/Output
18	Case Management	Bed Utilisation Rate Covid-19: Critical care		Number of inpatients with Covid-19: ~~high~~ critical care bed	Number of isolated critical care beds (High care and ICUs) with ventilators for Covid-19 patients	Process/Output
19	Case Management	Bed Utilisation Rate Covid-19 - Total		Number of inpatients with Covid-19 - Total	Number of Isolated beds for Covid-19 (sum of low care, standard care, and critical care)	Process/Output
20	Case Management	Average length of stay - Total		Number of inpatients with Covid-19 - Total	Separations - Total	Process/Output
21	Outcome	Case Fatality Rate for covid-19: < 5 years		Number of deaths in positive covid-19 cases < 5 years	Separations Covid-19 cases <5 years (sum of *deaths, discharges and transfers out)*	Outcome
22	Outcome	Case Fatality Rate for covid-19: 5 - 60 years		Number of deaths in positive covid-19 cases 5 - 60 years	Separations Covid-19 cases 5-60 years *(Sum of deaths, discharges and transfers out)*	Outcome
23	Outcome	Case Fatality Rate for covid-19: >60 years		Number of deaths in positive covid-19 cases >60 years	Separations Covid-19 cases >60 years *(Sum of deaths, discharges and transfers out)*	Outcome

18 Annexures

18.1 Immediate Health Systems interventions (irrespective of transmission scenario)

Action Area	Public health Intervention
Health facility readiness	1. Undertake a health facility readiness assessment to evaluate established health facilities response capacity. 2. Establish or reinforce screening and triage protocols at all points of first access to the health system, including primary health care centres, clinics, and hospital emergency units.[6] 3. Ensure that each facility is able to implement basic emergency care (BEC) for seriously ill patients and then activate referral if needed. 4. Develop a supply procurement and distribution plan for personal protective equipment (PPE) and biomedical equipment (including oxygen, ventilators), including contingency plan for shortages and strategic reserves. 5. Develop policies for visitor restriction, e.g. visitors to confirmed cases or visitors who are sick with acute respiratory infection (ARI), including for parents or caregivers accompanying minor patients. 6. Assess testing and lab capacity, define testing strategy, and plan for surge.
Health staff readiness	1. Ensure staff dedicated to communicating with patients, visitors, and media as required. 2. Strengthen infection prevention and control (IPC) measures to mitigate health care worker (HCW) and nosocomial infection; this includes identification of IPC focal points, COVID-19 IPC training, ensuring availability of key documents at all levels of care (SOPs, communication materials – visual alerts for screening), visitors' policy, and IPC supplies 3. Strengthen clinical management; training on clinical management of COVID-19 for designated clinical staff, ensuring key documents are available (SOPs, guidance). Develop staffing plans to identify and appropriately supervise staff for repurposing and surge at health facility level, based on local and national strategy. 4. Strengthen measures for protection of occupational health, safety, and security of health workers – prevention of violence, addressing fatigue, and access to health care and social support.
Referral system readiness	1. Communicate the details of COVID-19 designated facilities to all command and dispatch centres for appropriate destination triage. 2. Dedicate transfer vehicles and ambulances for all suspected or confirmed COVID-19. Ensure that IPC measures are always respected during patient retrieval and transport and that vehicles are disinfected properly. 3. Consider establishing expanded screening and appropriate referral pathways in community settings (e.g. fever clinics).
Designate COVID-19 treatment areas within health facilities	1. Establish COVID-19 treatment areas within health facilities (rooms/ward/unit) or designate separate COVID-19 hospitals. a. COVID-19 treatment areas should be designed to allow implementation of all required IPC interventions. b. COVID-19 treatment areas should be designed to deliver life-saving oxygen therapy. Most patients hospitalized with severe disease will need oxygen, and a smaller proportion will require ventilation. 2. Establish COVID-19 surge plan. a. Plan for repurposing of wards for severely or critically ill patients. b. Plan for community facilities for isolation of mild or moderate patients or for self-isolation at home. 3. Re-evaluate COVID-19 discharge criteria and disposition during recovery period.
Maintain essential health services	Establish simplified, purpose-designed, governance, and coordination mechanisms to complement response protocols. The impact of repurposing health system capacities for COVID-19 care should be evaluated on a regular basis. 1. Ensure context-relevant core health services and business continuity are not compromised. 2. Optimize or modify service delivery platforms as per context-relevant core health services. 3. Redistribute health workforce capacity as needed. 4. Develop a consultative and collaborative mechanism to establish non-urgent care priorities.

Source: WHO- Operational considerations for case management of COVID-19 in health facility: interim guidance

18.2 Critical actions for all transmission scenarios of COVID-19

	No Cases	Sporadic Cases	Clusters of Cases	Community Transmission
Transmission scenario	No reported cases.	One or more cases, imported or locally acquired.	Most cases of local transmission linked to chains of transmission.	Outbreaks with the inability to relate confirmed cases through chains of transmission for a large number of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories.
Aim	Stop transmission and prevent spread.	Stop transmission and prevent spread.	Stop transmission and prevent spread.	Slow transmission, reduce case numbers, end community outbreaks.
Priority areas of work				
Emergency response mechanisms	Activate emergency response mechanisms.	Enhance emergency response mechanisms.	Scale up emergency response mechanisms.	Scale up emergency response mechanisms.
Risk communication and public engagement	Educate and actively communicate with the public through risk communication and community engagement.	Educate and actively communicate with the public through risk communication and community engagement.	Educate and actively communicate with the public through risk communication and community engagement.	Educate and actively communicate with the public through risk communication and community engagement.
Case finding, contact tracing and management	Conduct active case finding, contact tracing and monitoring; quarantine of contacts and isolation of cases.	Enhance active case finding, contact tracing and monitoring; quarantine of contacts and isolation of cases.	Intensify case finding, contact tracing, monitoring, quarantine of contacts, and isolation of cases.	Continue contact tracing where possible, especially in newly infected areas, quarantine of contacts, and isolation of cases; apply self-initiated isolation for symptomatic individuals.
Surveillance	Consider testing for COVID-19 using existing respiratory disease surveillance systems and hospital-based surveillance.	Implement COVID-19 surveillance using existing respiratory disease surveillance systems and hospital-based surveillance.	Expand COVID-19 surveillance using existing respiratory disease surveillance systems and hospital-based surveillance.	Adapt existing surveillance systems to monitor disease activity (e.g. through sentinel sites).
Public health measures	Hand hygiene, respiratory etiquette, practice social distancing.	Hand hygiene, respiratory etiquette, practice social distancing.	Hand hygiene, respiratory etiquette, practice social distancing.	Hand hygiene, respiratory etiquette, practice social distancing.

Laboratory testing	Test suspect cases per WHO case definition, contacts of confirmed cases; test patients identified through respiratory disease surveillance.	Test suspect cases per WHO case definition, contacts of confirmed cases; test patients identified through respiratory disease surveillance.	Test suspect cases per WHO case definition, contacts of confirmed cases; test patients identified through respiratory disease surveillance.	Test suspect cases per WHO case definition and symptomatic contacts of probable/confirmed cases; test patients identified through respiratory disease surveillance. If testing capacity is overwhelmed prioritize testing in health care settings and vulnerable groups. In closed settings test the first symptomatic suspect cases.
Case management strategy	Set up screening and triage protocols at all points of access to the health system; Prepare to treat COVID-19 affected patients; Set up COVID-19 hotline and referral system; Ready hospitals for potential surge.	Screen and triage patients at all points of access to the health system; Care for all suspected and confirmed patients according to disease severity and acute care needs; Ready hospitals for surge; Ready communities for surge, including by setting up community facilities for isolation of mild/moderate cases.	Screen and triage patients at all points of access to the health system; Care for all suspected and confirmed patients according to disease severity and acute care needs; Activate surge plans for health facilities.	Screen and triage patients at all points of access to the health system; Care for all suspected and confirmed patients according to disease severity and acute care needs; Scale up surge plans for health facilities and ad-hoc community facilities, including enhancement of COVID-19 referral system.
Case management recommendations by case severity and risk factors	Test suspect COVID-19 cases according to diagnostic strategy. Mild cases and moderate cases with no risk factors: Isolation/cohorting in: • Health facilities, if resources allow; • Community facilities (i.e. stadiums, gymnasiums, hotels) with access to rapid health advice (i.e. adjacent COVID-19 designated health post, telemedicine); • Self-isolation at home according to WHO guidance For moderate cases with risk factors, and all severe/critical cases: Hospitalization (in-patient treatment), with appropriate isolation and cohorting.			
IPC	Train staff in IPC and clinical management specifically for COVID-19.	Train staff in IPC and clinical management specifically for COVID-19.	Train staff in IPC and clinical management specifically for COVID-19.	Retrain staff in IPC and clinical management specifically for COVID-19.
	Prepare for surge in health care facility needs, including respiratory support and PPE.	Prepare for surge in health care facility needs, including respiratory support and PPE.	Advocate for home care for mild cases, if health care systems are overwhelmed, and identify referral systems for high risk groups.	Implement health facilities surge plans.
Societal response	Develop all-of-society and business continuity plans.	Implement all-of-society resilience, repurpose government and ready business continuity plans.	Implement all-of-society resilience, repurpose government, business continuity, and community services plans.	Implement all-of-society resilience, repurpose government, business continuity, and community services plans.

Source: WHO- Critical preparedness, readiness and response actions for COVID-19: interim guidance 19 March 2020

19 Additional resources

1. National Department of Health http://www.health.gov.za/index.php/outbreaks/145-corona-virus-outbreak/465-corona-virus-outbreak
2. National Institute for Communicable Disease https://www.nicd.ac.za/diseases-a-z-index/covid-19/
3. South African Health Products Regulatory Authority http://www.sahpra.org.za/be-prepared-for-covid-19/
4. National Health Laboratory Services https://www.nhls.ac.za/covid-19/covid-19-technical-resources/
5. World Health Organization Guidelines and Technical Material https://www.who.int/emergencies/diseases/novel-coronavirus-2019