South Africa containment response to COVID-19 pandemic: review of outcomes

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Introduction

The pneumonia like unknown upper respiratory infection reported by China identified in Wuhan, China, first reported to the World Health Organisation (WHO) on the 31st December 2019. After investigations by WHO on this new infection in China, WHO declared an outbreak a public health emergency of international concern on the 30th January 2020. The outbreak was then named as COVID-19 by the World Health organisation on the 11th February 2020.[1] This had become a global public health problem, wrapped itself around economic, social and development catastrophe for all nations of the globe. It has not spared any part of the world population. It has left a trail of high morbidity and mortality over a very short time leaving the glob population at a panic mode. This is because this virus has no therapeutics nor a vaccine to fight it. Over this short period, whilst health experts are trying to find a cure and or vaccine, which they both take time to move them from experiment, to human use safely and proved efficacy, the only option is prevention of spread amongst humans.

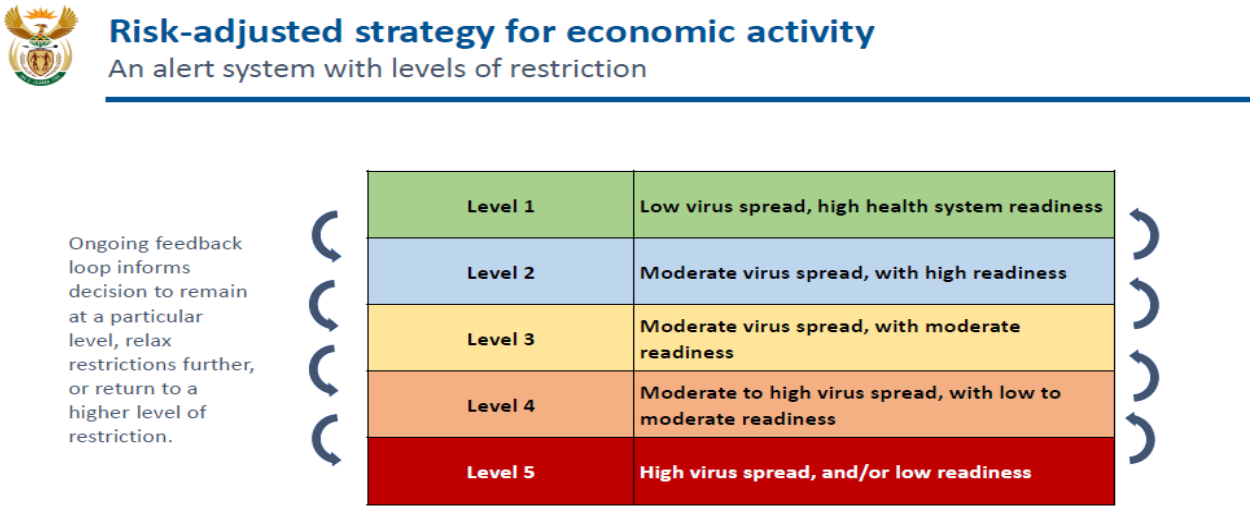
Source: WHO

Guidelines have been proposed for preventions and containment of this pandemic. Countries have quickly taken up these prevention and containment guidelines and swiftly implemented them without any experience of proven positive outcomes against this new virus.

The outcome of this pandemic over this short period globally there is over 2.8million people reported infected, 1.8 million active cases of the virus; over 199 000 deaths, over 58 000 in critical condition with over 816 000 recovered.[2] This has triggered cocktail of responses around the globe ranging from public health and health systems,

social and human behaviour, economic and developmental. All these responses are geared towards mitigating the impact of the virus on human life. It is too early to know if these will slow down the transmission, human mortality and suffering, let alone the economic devastation.

South Africa response

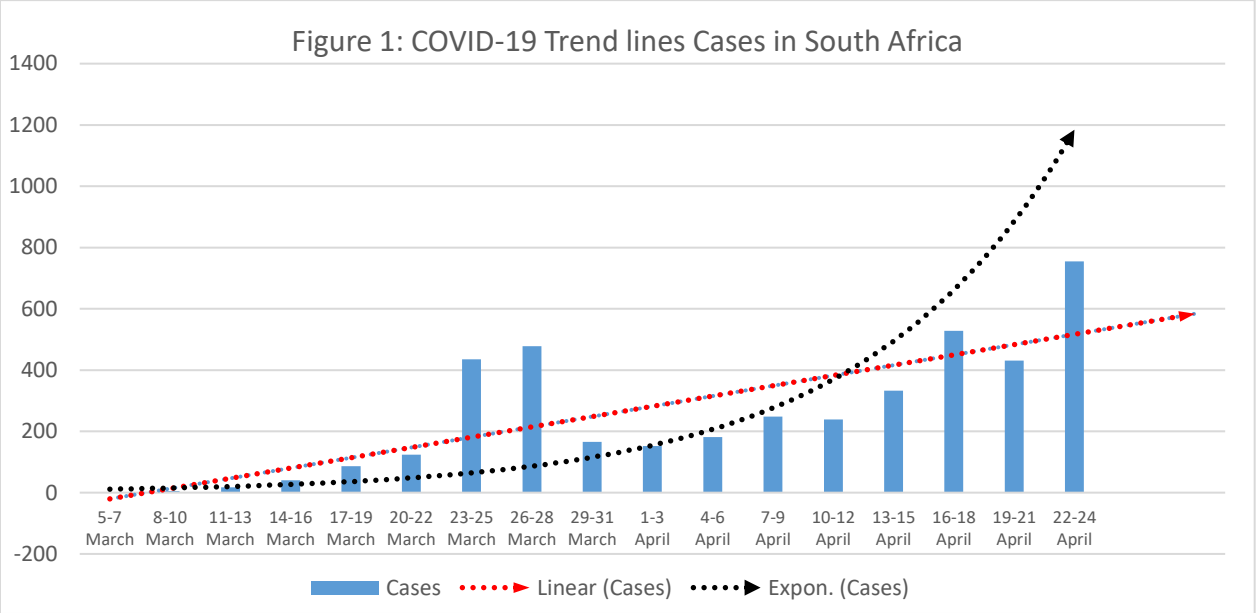


Since the first case of COVID-19 was confirmed in South Africa on 5 March 2020,[3] the national government has taken steps to minimize the spread and impact of the virus. On 18 March 2020, the Minister of Cooperative Governance and Traditional Affairs issued regulations to prevent an escalation of the COVID-19 pandemic in South Africa. On 23 March 2020, 9 days after detection of the first locally transmitted case,[4] President Cyril Ramaphosa announced a nationwide 21 day lockdown. On 9 of April 2020, the President extended the lockdown for a further two weeks. South Africa has taken lockdown restrictions are among the most extreme globally[5]. On the 21st April 2020, the President announced a comprehensive package to mitigate the impact of the virus on the population of South Africa. On the 23rd April 2020, the President announced a risk averse plan for easing the lockdown with 5 levels and specific requirements and adherence to state of disaster lockdown to relaxed.

Despite rapid and decisive actions from the Government of South Africa, COVID-19 still poses a high threat to the country. This is due to the large high-risk population such as the high prevalence of HIV, tuberculosis, and other previous conditions.[6,7], high population density in informal settlements,[8] and 3) the low-capacity of the healthcare system to cope with many patients.[9] COVID-19 also poses a threat to South Africa's economic stability. While fully opening economic activities is likely to exacerbate disease transmission, lockdown and social distancing have unavoidable economic and financial repercussions, disproportionately impacting low-income and vulnerable populations.[10] South Africa has a large population of informal workers and business-owners, about 2.5 million workers, whose livelihood and economic stability is under threat.[11]

South Africa, over the period had adopted three-pronged response to this pandemic, public health and health systems, social protection, and economic stabilisation and recovery. The aim is to is to minimal the health, social and economic impact on the population, especially the poor and vulnerable. These have to work simultaneously for maximum impact.

The public health and health systems is to ensure that there are preventive measures that can be adopted by the population to prevent the spread human to human spread; functional health facilities that can provide symptomatic treatment and hospitalisation of cases and health infrastructure, equipment and human resources than can manage the condition and prevent mortality.



Data Sources: NDOH/Worldbarometer

The social security arm ensure than vulnerable populations, the poor, the elderly, children, disabilities and those that have pre-conditions have access to social security services. These would include access to food and nutrition, access to shelter during lockdowns, access to health services, water and sanitation to limit the impact of the virus in their wellbeing.

The economic stability and recovery ensures the South African economy does not collapse during this period. Poverty, unemployment and inequalities does not reach crisis proportion and become a treat to the state. Small business, including informal trading have a lifeline and recover post COVID-19 period.

These are sound, responsible approaches that can be taken by any government is such emergencies. The aim is to ensure that the pandemic does not spread to population numbers that the South African health system cannot cope, reduce the proportion of population that their living conditions can be made worse by the pandemic and reduce the South African capacity to cater for the population.

Outcomes of four weeks response

To date South Africa has reported 4 220 cases, with 2 668 reported as active cases, with 58 COVID-19 related deaths and 152 390 people tested for COVID-19. The first case was reported on the 5th March 2020. The first death related to

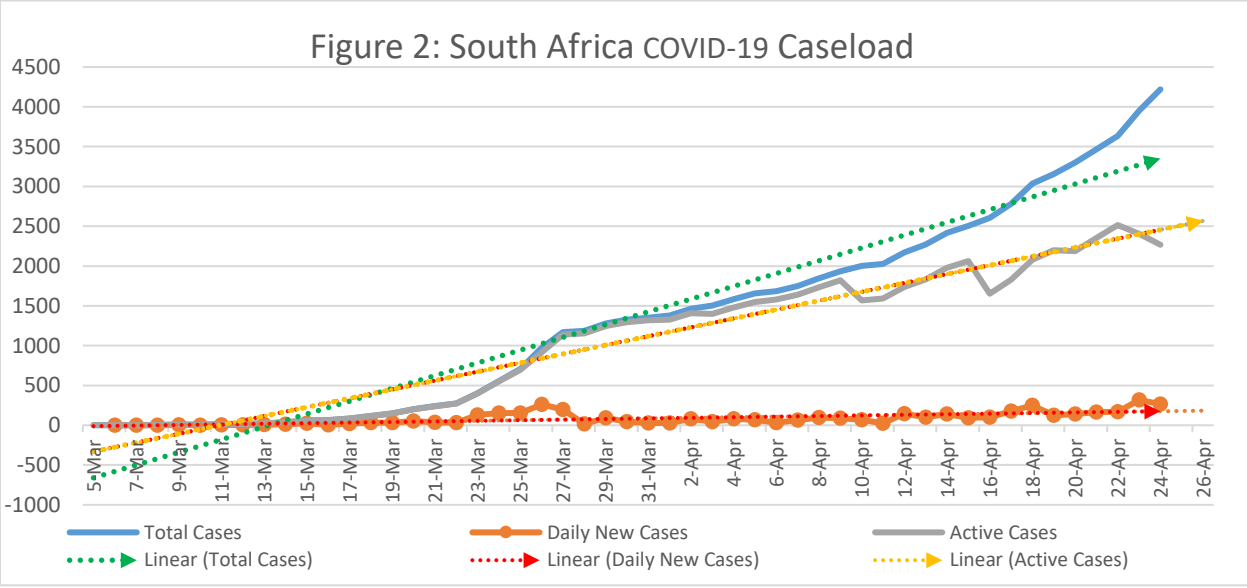
COVID-19 was reported on the 27th March 2020 and has been steadily growing over the period.

The projections has indicated an upward trajectory of daily reported cases. Between the 17th – 28 March saw a spike in the number of new cases was far above the exponential curve line. This was followed by a drop and stagnation, which is difficult to explain, except to assume that more people presented with the symptoms and eventually tested positive to COVID-19. However after the spike and stabilisation of reported, the cases started to increase again triggering the state to declare a lockdown.

The announcement of the lockdown by the state 9th April 2020 was to flatten the exponential curve. Although the reported cases of positive COVID-19 since the lockdown increases, but it is increasing below the exponential curve, which may suggest the lockdown interventions are having some effect on transmission. Recently, the Department of Health and intensified its random screening and testing which is a better tool to measure the existence of the infection in the general population as opposed to only testing those showing clinical symptoms.

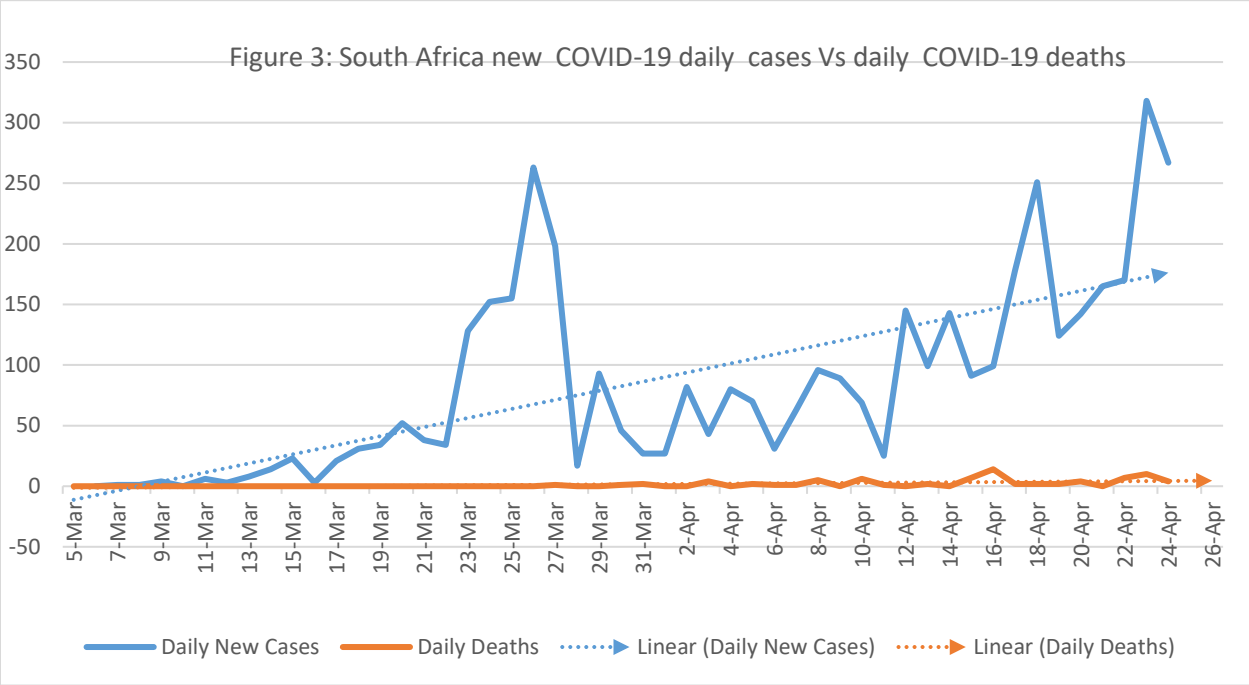
Figure 2 confirms that cumulatively, cases of new COVID-19 in South Africa are still going up the curve, however new cases are remaining steady and not spiking since the lockdown, they are also not dropping significantly. However, the number of active cases and starting to drop down below the cumulative numbers of cases. This means cases of COVID-19 are retracting which can be a result of recovery from the condition or and death.

Based on the current statistics the numbers shows that we are stating to experience a significant number of cases recovering from condition. Proportionally, of the total cases 1, 873 have recovered representing 44.4% of all cases. The slow recovery rate might be due to the long period it takes for COVID-19 cases to recover. From the first case reported on the 5th March 2020, we started to see cases of recovery on the 20th March 2020. This means there is a lag time from being diagnosed and the time you test negative from the disease. Thus the health system, hospitals beds are occupied by a COVID-19 patient for a long time.



Data Sources: NDOH/Worldbarometer

The cases remaining positive cumulatively remain in the cohort for some time because of the time it takes to test these patients from the time of diagnoses and the subsequent tests which will end up showing a negative test. The figures we are using they not delineate cases that are hospitalised, however, the protocol for management of this condition in South Africa requires that every positive case must be isolated and quarantined until they test negative.



Data Sources: NDOH/Worldbarometer

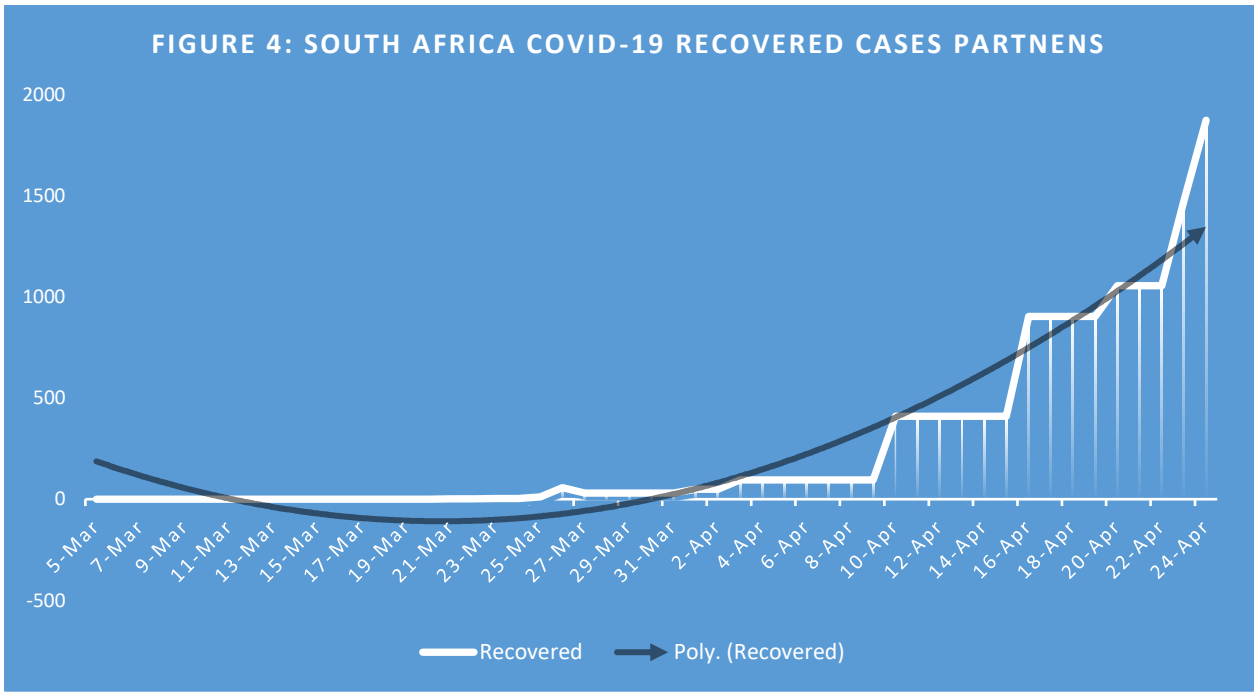
There are variables others that needs monitoring to assess to inform responsible decision on this pandemic. These variables are important to inform the extend of existence of this virus in the population, the extended in which people infected recover from the disease, the extent to which those infected do not recover and eventually die from complications associated with the virus.

On new cases, the first few weeks since the start of this pandemic, testing of people was based on presentation of clinical symptoms. This means people were tested as they present themselves to health practitioners with one of COVID-19 symptoms, after screening, the outcome would be a test required to confirm if the virus exist. The ,imitation of this approach, it does not tell us the spread of the virus amongst the population, thus many people who does not show symptoms but are infected cannot be accounted for using this approach. The National Department of Health has not started mass screening and testing of the general population. This is to measure the spread of the virus in the general population, because we now know that those who are asymptomatic can transmit the virus.

The surveillance testing may, have also influenced the increase in the number of new cases from the 12th of April 2020. This type of population testing has increased to the current figures of people testing positive to COVID-19 in South Africa. The advantage of this testing, it provide a better understanding of how the virus is behaving in the general population. South Africa needs to investing is random population testing, especially in communities that are prone

to easy transmission such as informal settlements, hostels, and townships. Other vulnerable groups that are exposed to infection are the frontline workers such as health workers, security personnel, supermarkets and pharmacy workers. These people are always in contact with the general population due to the nature of their work.

Every country across the globe has based their control and containment measures on reducing deaths from the virus. Deaths are to be contained to the best minimal. However, with no therapeutics, incidences of death are unavoidable. South Africa has seen some spikes on death but have remained far below new cases. However, the number of caseload, those that are in hospitals and quarantine centres are increasing. This is due to high numbers of new cases. What becomes a threat is when these cases progresses to critical condition in large numbers. Currently there we 36 COVID-19 cases classified as seriously ill.



Data Sources: NDOH/Worldbarometer

These cases require sophisticated and costly medical care. These containment and early detection measures are meant to reduce the number of cases that progress to critical care thus overwhelming the health system capacity. are diagnosed daily and the buying time for the state to no extreme measures this would have resulted in huge numbers of COVID-19 related admissions and deaths.

The other variable in this pandemic management is the number of cases that recover. This in an important indicator to monitor. Even though it is not known if people who recover can never be re-infected. What is known is that they have will have some immunity against the virus. The more people recover and return to the community, the transmission of the virus will be curtailed and be controlled like many other viruses that exist in the population.

Since this outbreak started in South Africa, 4,220 people have recovered. The recovery rate in increasing cumulatively albeit after some time from the date of diagnosis. The effect of the lockdown and possible compliance to the lockdown rules by the population saw reasonable compliance. However, there media

and social media reports of non-compliance. The state in response strengthened the monitoring and responses to any compliance detected during the time simultaneously.

Observations on the management of COVID-19

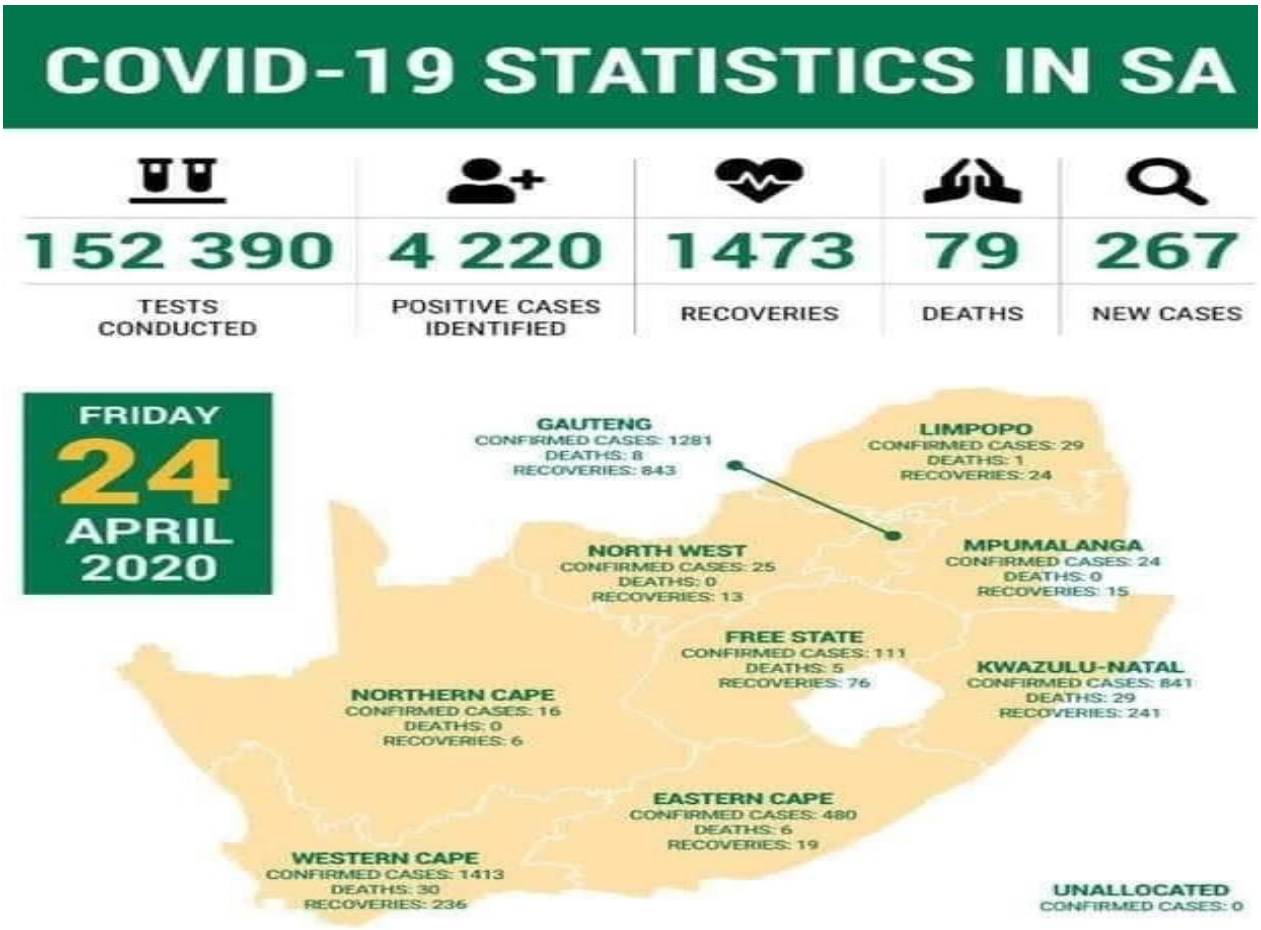
The Level 5 lockdown is coming to and on the 30th April 2020. There are number of positive outcomes that has been achieved during the current period. These have contributed in mitigated number of deaths and overwhelming the health system with huge demands of hospital beds, ICU beds, and sophisticated equipment's to manage those hospitalised for their recovery. The following is noted for the South African response to COVID-19.

1. The government response to COVID-19 in South Africa was based on evidence and assessment of the unknown. Once the first case was diagnosed inside the country, the government announced immediately a state of disaster and engaged all the required processes and procedures to set up systems, policies, procedures and guidelines for managing the pandemic.
2. The government mobilised the entire population on being in solidarity on how to deal with the COVID-19 pandemic adhering to WHO guidelines and observe how the globe was responding to the pandemic. This included closing of borders, stopping movements of the people, learning new human behaviours such as social distancing, general hygiene (frequently washing of hands and use of sanitisers), isolation of and quarantine of infected individuals and closing down of all social and economic activities.
3. The government went on drive to ensure that frontline workers are not exposed to the virus. Health workers and other frontline workers were provided with personal protective equipment (PPE) and guidelines were developed and practised. Hospitals and health facilities were turned on to a preparedness mode. All public health and preventions methods were moved into operational mode. These efforts were put into motion to reduce the impact of COVID-19 on the health system, frontline workers, and transmission of the virus.
4. For the first time, all governments departments and agencies, at all spheres worked in synchrony. The state arms, executive, legislature and judiciary operated as a unit. The public sector, private sector and civil society operated towards the same goal. Abuza Z (March 20202)[12] says one of the indicator for good response to COVID-19 is leadership. These actions are evident of good leadership the South African government has forged since the start of the pandemic.
5. The state has approached the COVID-19 epidemic comprehensively, combining a public health, economic and social security interventions that seeks to ensure that the health of population and the economic survival are at the centre of the response. The livelihood of the population became a driver of how to minimise impact on increasing poverty, unemployment and inequalities to proportions that the state cannot recover.
6. COVID-19 is a novel virus, very little was known about its behaviour in human body. Diagnostics equipment's had to be invented and tested for the accuracy on detecting this type of virus. When these became available, South Africa started testing beyond those presenting clinical symptoms. Surveillance testing and testing population at risk are one of the

effective methods for preventing spread. South Africa has increased its testing and its testing capacity. To date, the testing sites has been increased, the number of test done per day has significantly increased, the health personnel conducting testing has also increased, thus the total number of people tested to date is reported to be above 150 000.

Conclusion

The number of new cases seem to be increasing over the few past days. This may be an indication of the spread of virus in the general population as the government intensify testing beyond clinical symptoms. The majority of the cases in South Africa are coming from three provinces, Gauteng, Western Cape and KwaZulu Natal. These provinces have few things in common that may attribute to high number of cases, they all have international airports, they have large metropolis areas, they have large informal settlements and townships close to the metropolis. These variables, given the known transmission modes of the virus they maybe a factor in the high numbers of new cases.



The early reaction of the state on taking precaution measures to slow the spread of the virus may have contributed positively in slowing down the impact of the virus. Carefully planned and coordinated responses have seen the burden on the health system being stabilised. South Africa has yet to see overflow of critical ill COVID-19 in hospitals, although as the surveillance testing intensify it may experience high demand of isolation and quarantine

facilities. With the recent announcement of plan to ease the lockdown in stages, stricter guidelines and procedures need to put in place and monitored to avoid a second spike which may overwhelm the health systems and economy.

Vulnerable groups such as the elderly, people with preconditions and those taking immuno-suppressive drugs, those working in the frontline of the economy, those that work in environments where social distancing is impossible needs a set of guidelines aimed at saving life. The government has announced that data, science and health professionals will inform the easing of the lockdown. This is a better strategy to combat this virus; however, other variables that come into play needs factoring. Social and economic variables are important to sustainable livelihood and economic recovery.

South Africa problem of high unemployment and informal economy, which has been worsened by the measures to contain and control spread of the virus, will need specific interventions to mitigate livelihood of this group. The President has announced a R500 billion package that will benefit this target. The processes and systems to ensure access for this population needs to be streamlined and simple. The informal economy provide a safety net for the poor and generate economic activities to sustain families. The economic active, unemployed people are excluded to most forms social safety nets. The package need to address their livelihood needs and possible provide some alternative safety net for this population group post COVID-19 period.

It is too early to make conclusive statements on the outcomes of the containment strategies in South Africa. However, there indications that the measures to identify people who are infected are working, as the new cases figures indicates. The number of cases that progress to critical are being kept minimal, the number of deaths are not growing in an alarming rate, they seem to steady, the number of people provided with social and economic relief, including private sector are being provided with some relief efforts. This may suggest the South African response is moving to the right direction.

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