

Foreword: Preparedness and response to SARS-CoV-2 in South Africa

Y Pillay,^{1,2} PhD; E Leonard,² BEng; N Mayet,³ MB ChB, MPhil; D Moonasar,⁴ DrPH

¹ Stellenbosch University, Stellenbosch, Western Cape, South Africa

² Clinton Health Access Initiative South Africa, Pretoria, South Africa

³ National Institute of Communicable Disease, Johannesburg, South Africa

⁴ National Department of Health, Pretoria, South Africa

Corresponding author: Y Pillay (ygpillay@gmail.com)

The World Health Organization's (WHO) China Country Office was informed of cases of pneumonia of unknown cause detected in Wuhan City, Hubei Province of China on the 31st of December 2019. On 7 January 2020, the causative pathogen was identified as the severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) and on 11th of March 2020, the WHO declared a global pandemic. This paper serves as an introduction to a series of research articles which consider South Africa's preparedness and response to SARS-CoV-2.

S Afr Med J 2022;112(5b):354-355. <https://doi.org/10.7196/SAMJ.2022.v112i5b.16083>

Coronavirus disease-19 (COVID-19) has swept rapidly across the world with practically every country experiencing the impact of the pandemic. South Africa (SA) was among the first of nine countries on the African continent to record a COVID-19 case. Following the first recorded case, on 5 March 2020, the COVID-19 epidemiology in SA mirrored what was being experienced globally, with widespread community transmission taking hold, straining the health system and the economy.^[5] The COVID-19 pandemic has been unprecedented in the history of SA and of the world – the disease wreaked havoc on society, ranging from loss of lives to loss of livelihoods due to financial strain from jobs loss and effects on the economy.

This foreword serves as an introductory chapter to a series of 6 papers that focus on COVID-19 preparedness and response in SA during the first two COVID-19 waves. The purpose of the series is to document the functioning of the workstreams of SA's Incident Management Team's (IMT) and the Department of Health's response to the pandemic. Lessons learnt, best practices, challenges and the way forward will be discussed. In the first chapter, the coordination and management structures used to respond to the pandemic are outlined. In chapter 2, we reflect on the data systems used to monitor the epidemiological trends in the country. Chapter 3 discusses key community-level interventions leveraged to contain the spread of transmission, covering community screening, contact tracing and movement modelling. Chapter 4 describes the risk communication and community engagement essential in mitigating the impact of outbreak. In Chapter 5, the lessons learnt from vaccinating healthcare workers during the Sisonke trial are reported on. The series concludes with Chapter 6 where we contemplate opportunities for health system transformation and recovery. The following section summarises key messages from each chapter.

Key Messages

The key messages are aimed at sharing the interventions leveraged by South Africa for preparedness and response, acknowledging the unwavering efforts of role players and stakeholders that were involved in the response, and to share lessons for improving public health preparedness not only for future outbreaks but to strengthen and improve the resilience of the public health system.

Governing a pandemic

Coordination was key to ensure an effective and rapid response to the pandemic, fortunately, a foundational coordinating structure – the Multisectoral National Outbreak Response Team existed that could be repurposed into a COVID-19 Incidence Management Team that was pivotal to coordinating and supporting the COVID-19 response. The 'all of government' response was coordinated through the National Coronavirus Command Council (NCCC) chaired by the president. The NATJOINT was the operational liaison of the NCCC while some provinces established PROVJOINTS. The existing strategic guidance from the WHO played a useful role in informing the COVID-19 response in SA.^[1] SA's coordination and response was a partnership of several organisations and stakeholders, which continues to provide the support required at national, provincial, district and facility levels.

Leveraging epidemiology as a decision support tool

The rapid development of robust data systems was necessary to support the response to the spread of COVID-19. These systems produced data streams that were used in decision-making at all levels of government. While much progress was made in producing epidemiological data, challenges remain to be overcome to address gaps to better prepare for future waves of COVID-19 and other health emergencies. Epidemiological data, as collected by the National Institute for Communicable Diseases (NICD) was one of the critical inputs that were used to guide decisions on when to impose and lift various restrictions. Economic, religious, social, and political factors were also considered in decision-making at a national level. A key lesson was the need to empower decision-makers at the ground level to ensure that interventions are rapidly implemented and context appropriate. While the data systems provided invaluable support, there were challenges and limitations to setting up standardised systems timeously. Epidemiological capacity gaps at district level remain a challenge. Ensuring uniform sustainable systems across provinces with the associated human and financial resources for implementation is important for responding to similar public health emergencies.

COVID-19 response in South African communities

SA has been able to develop and deploy a community-based

screening, testing and contact tracing system led by more than 28 000 community health workers. Movement modelling was used to develop tailored risk communication campaigns to identify hotspots to educate the population about possible symptoms, testing requirements and the risk of COVID-19 transmission. As the case numbers exploded the lack of resources to trace every contact led to a change in strategy – a change from containment to mitigation. Implementation of community-based mitigation strategies should be focused on the most severe outcomes of COVID-19: hospitalization and deaths. While it may not be optimal to investigate and monitor all individual COVID-19 cases and their close contacts, in general case investigation and contact tracing still remain a necessary public health tool for interrupting the ongoing transmission in the most vulnerable populations, especially in higher risk congregated settings.

Risk communication and community engagement

Without an effective communication campaign, it is not possible to get every South African sustaining non-pharmaceutical interventions aimed at preventing transmission. Communicating effectively and accurately was crucial to keeping the public and affected communities informed of preventative and care seeking measures. Data-driven communication messaging was key to ensuring that accurate and appropriate messages were delivered and reached the intended audiences.^[2]

Lessons learnt from the Sisonke phase 3B open-label study

Vaccination, together with non-pharmaceutical interventions, are key pillars to control the COVID-19 pandemic. Approximately 96 COVID-19 vaccines are at various stages of clinical development.^[4] The SA national vaccination roll-out was paused in February 2021 following reports of low efficacy of the ChAdOx1 SARS-CoV-2 vaccine against the Beta variant. Given that the Johnson and Johnson vaccine was tested during a phase 3 randomised, double-blind, placebo-controlled study on healthcare workers, it was decided that this vaccine should be rolled out to health workers. Health workers were prioritised to protect the health sector given the large number of health workers infected during the first wave. The key lessons learnt were that vaccine-related questions and hesitancy should be addressed through webinars, posters/leaflets, social media engagements and interviews on local and national news outlets. There is a need to develop clear guidelines for vaccine storage, pharmacy staff and vaccinators. Transparency and reporting of both non-serious and serious adverse events are also key to dispelling myths about vaccines. While the target of vaccinating 70% of all South Africans has not been reached, more than 60% of those aged >60 have been vaccinated. These people are amongst the most vulnerable for severe disease and death.

Recovery and transforming the South African health system

As in many countries ravaged by the COVID-19 pandemic, the SA health system was adversely affected by the pandemic. As was reported in the Global Fund and WHO surveys, routine services were

affected by both the lockdowns as well as patient concerns. This was the case in SA as well with institutional maternal mortality increasing dramatically, and with declines in childhood immunisation coverage, antenatal attendance, as well as testing for HIV and TB testing.^[6] A major reason for these declines was the restriction of movement which increased non-attendance at clinics and hospitals. The period reviewed included: significant lockdown travel restrictions, health facilities either being closed or perceived to be closed or short staffed, lack of transport, fear of infection, as well as stigma.

Maintaining comprehensive health services during the pandemic is as critical as an effective response to the pandemic itself. The re-escalation of comprehensive services and the promotion of early health seeking behaviour between waves and post - pandemic needs to be a major intervention strategy to enable the health system, to not only recover to pre-pandemic levels, but also to build back better.

Conclusion

The COVID-19 pandemic has unmasked major disparities in the health system at all levels of the healthcare service, and has demonstrated a significant lack of reserve capacity within the public health system to deal with disasters. It is vital that the lessons from the COVID-19 response are used to radically transform the SA health system and to prepare for future outbreaks. Our work begins....

Declaration. None.

Acknowledgements. The authors acknowledge the efforts of the National Department of Health and all planners, stakeholders and decision-makers who provided the required support to respond to the COVID-19 epidemic in South Africa.

Author contributions. Equal contributions

Funding. The papers in the series have received funding support from Clinton Health Access Initiative (South Africa), the National Institute for Communicable Diseases, the Modelling and Simulation Hub, Africa (MASHA) [Wellcome Trust 2114236/Z/18] and the South African Medical Research Council. The funders had no role in study design, the collection, analysis and interpretation of data, the writing of the reports, or the decision to submit the articles for publication. All researchers were independent of funders and sponsors.

Conflicts of interest. None.

1. World Health Organization. 2019 novel coronavirus (2019-nCoV): Strategic preparedness and response plan AND RESPONSE PLAN. WHO; Geneva, 2020. <https://www.who.int/publications/i/item/strategic-preparedness-and-response-plan-for-the-new-coronavirus>. (accessed 6 August 2021)
2. Risk Communication and Community Engagement Technical Working Group. COVID-19 social and behaviour change communication strategy. July 2020. (accessed 6 August 2021)
3. Blumberg L, Jassat W, Mendelson M, Cohen C. The COVID-19 crisis in South Africa: Protecting the vulnerable. *S Afr Med J* 2020;110(9):825-826. <https://doi.org/10.7196/SAMJ.2020.v110i9.15116>
4. Olliaro P, Torreele E, Vaillant M. COVID-19 vaccine efficacy and effectiveness – the elephant (not) in the room. *Lancet* 2021;2(7):E279-E280. [https://doi.org/10.1016/S2666-5247\(21\)00069-0](https://doi.org/10.1016/S2666-5247(21)00069-0)
5. Moonasar D, Pillay A, Leonard E, et al. COVID-19: Lessons and experiences from South Africa's first surge. *BMJ Glob Health* 2021;6(2):e004393. <https://doi.org/10.1136/bmjgh-2020-004393>
6. Pillay Y, Pienaar S, Barron P, Zondi T. Impact of COVID-19 on routine primary health care services in South Africa. *S Afr Med J* 2021;111(8):714-719. <https://doi.org/10.7196/SAMJ.2021.v111i8.15786>