



## FEATURE

## Covid-19: decisive action is the hallmark of South Africa's early success against coronavirus

South Africa's government officials say a swift move to lockdown and widespread screening has been the key to fighting the virus. But an abundance of caution remains, **Bibi-Aisha Wadvalla** reports

Bibi-Aisha Wadvalla *freelance journalist*

Cape Town, Johannesburg, South Africa

South Africa is no stranger to the rampant spread of infectious diseases. Long before the country's first covid-19 case was announced on 5 March, there were fears of how it would impact the public health system, already coping with a high incidence of tuberculosis and HIV. And in a country where 13% of the population<sup>1</sup> live in crowded informal settlements with poor access to running water and sanitation, there was a high risk of local transmission.

Leading the response are two men who studied medicine together in the late 1970s and early 1980s and were at the forefront of the AIDS crisis in the 1990s. One, Zweli Mkhize, is the minister of health. The other, Salim Abdool Karim, is a decorated scientist and the chair of South Africa's covid-19 ministerial committee. Anticipating a sharp upward trajectory like that seen in the UK, US, and Italy, they knew decisive action was needed from the onset. Importantly, unlike the castigation they faced during former president Thabo Mbeki's era of AIDS denial, the current president, Cyril Ramaphosa, sought their counsel.

Karim points to the lockdown that started on 27 March, announced when South Africa had just 402 known covid-19 infections and no deaths. By contrast, many countries in the global north applied lockdown measures only once cases were well into the thousands.

Seven weeks since its first recorded case, South Africa has had a relatively low 3600 cases, 65 deaths, and 241 hospitalised patients, of whom 36 were in critical care. By contrast, the UK's number of cases has now risen to over 124 000, with 16 500 deaths, although both countries initially followed a similar pattern of growth.

### Test, trace, track

Critics have viewed with suspicion countries that seem to have low numbers of cases, often citing a lack of testing. Karim dismisses that theory. "Despite early restrictive testing, we aren't seeing much evidence of clinical disease or respiratory distress that would indicate missed cases," he told *The BMJ*. He believes

the low numbers show a "genuine effect," the result of early interventions including travel restrictions.

Kerrin Begg, public health medicine specialist at Stellenbosch University, agreed. "The first wave didn't transmit to communities. The enforced physical distancing and early lockdown managed to delay transmission," she told *The BMJ*.

Tracey Naledi, chairperson of Tekano, an independent health equity organisation, told *The BMJ* that South Africa has avoided pressure on hospitals so far, but warned, "It's when we increased community testing—and targeting poorer communities in particular—that we saw an increase in new cases. This suggests that we may have been testing where we did not have cases."

Initially, the criteria for testing were limited to symptomatic people who had either recently travelled from a high risk country or who had come into contact with someone at risk for covid-19. South Africa's first case was a 38 year old man who'd returned from a holiday in Italy, and the first wave of infections was among tourists and those who'd travelled abroad, followed by those who'd come into contact with them. In the period before lockdown, 80% of tests were done by the private sector. But with the onset of local transmission, testing ramped up with the introduction of mass community screening and testing to mitigate spread. Community health workers (CHWs) were deployed for home visits throughout the country. In the first three weeks of April, 28 000 CHWs screened 900 000 people, and referred 11 000 for covid-19 testing. In a statement, Mkhize said "an average of 3.8% of referrals tested positive."

To date 133 000 tests have been done, 45 000 in the public sector. This includes the referral tests and tests of those who self-presented at health facilities and laboratories. Mkhize wants the number of total tests up to 600 000 within a month. At a rate of 0.18% testing per 1 million population, South Africa is testing far less than the UK (0.55%), Australia (1.65%), and Italy (2.16%).<sup>2</sup>

Koleka Mlisana, of the National Health Laboratory Service, is confident it can cope with the increased load. "The full national

public testing capacity is 50 000 tests a day. Currently 6000 tests are being performed a day," she told *The BMJ*.

The expanded testing capacity includes 67 mobile laboratories and 325 GeneXpert machines available at 166 facilities. Karim is also hopeful cheaper, faster diagnostics, like finger prick tests, will be available in the coming months.

## Capacity in inequity

South Africa has the most robust health system in Africa, but it's defined by inequity: out of a population of 59 million, the 16% who can afford medical insurance have access to the best healthcare in the private sector, while the rest rely on public facilities. Public hospitals have roughly 1500 intensive care beds, while the private sector is estimated to have at least 3500.

Mkhize has said that the government is establishing working relations with the private sector and has met with chief executives of private hospital groups. There are no specific details about what this will entail. For now, he's confident public facilities have adequate supplies of personal protective equipment (PPE), drugs, tests, and beds, despite unions expressing dissatisfaction over perceived shortages of protective gear. Some 61 staff at three private hospitals have tested positive for the virus.

Lydia Cairncross, a public sector surgeon affiliated with the People's Health Movement, told *The BMJ* there is a lack of transparency over PPE. "All staff have not been encouraged to wear masks despite asymptomatic transmission, and there's strict rationing. We need to know the rationale for the rationing and have collective decision making over the best use of available resources."

Thandeka Msibi, deputy president of the Democratic Nursing Organisation of South Africa, is concerned by a lack of training. "We don't have enough intensive care nurses, and we recommend training of nurses be expedited. All nurses must know how to manage patients with severe respiratory problems, and be taught how to use a ventilator," she told *The BMJ*.

## Beyond phase one

While South Africa has the expertise and resources to act quickly and decisively in managing the epidemic, neighbouring Zimbabwe is struggling. In west Africa, lessons learnt from Ebola are being applied. According to the World Health Organization, the number of confirmed covid-19 cases in Africa has risen to more than 23 000 and caused more than 1000 deaths. These figures could well be much higher. Matshidiso Moeti, Africa regional director of WHO, has indicated a serious challenge for many countries in the region is "the availability of testing kits, as 39 out of 47 countries in the Afro-WHO region can test and confirm."

For those that don't have the capacity to confirm test results, samples are being sent to nearby countries or to referral laboratories in Senegal and South Africa.

South Africa's response sounds like a success. But the crisis is far from over, as the country expects another spike in cases once the lockdown lifts.

The period from 10 to 16 April was deemed critical to determine what happens next. "Prior to lockdown there was an average of 72 cases a day. During two weeks of lockdown, it dropped to 67," said Karim. "If cases fall to between 45 and 89, and active cases found by health workers are 1:1000 or below, then we can ease the lockdown."

A full easing of restrictions seems unlikely any time soon. The number of infections rose from 2003 on 10 April to 2605 by 16 April, an average of just above 100 each day over six days, and then further spiked. "We're seeing clusters in supermarkets, police stations, hospitals, and manufacturing plants," said Begg. "This is to be expected, and we're moving quickly to test all staff."

She told *The BMJ* that a "high number" of asymptomatic cases have been detected, adding that the country is "now firmly in stage two of epidemic transmission, moving to stage three as cluster transmissions move to localised transmission in areas where essential workers live."

Infection prevention and control measures are challenging in densely populated areas, but Begg says that health workers are moving swiftly to test, contact trace, and move people to isolation or quarantine centres.

From 1 May, the country will move to lockdown level 4 which allows the opening of mines and some businesses, outdoor exercise, and the sale of cigarettes. The ban on alcohol sales and the stay at home order remains. In the coming weeks, there could be a differentiated restriction approach based on the number of infections in an area. Currently, six city centres are the disease hubs.

The country has a clear strategy for the months to come that involves ongoing sample testing surveillance in hotspots like mines and densely populated areas; building field hospitals for triage for milder cases; increasing the number of intensive care beds and ventilators; expanding burial capacity; and managing the psychological and social impact of covid-19.

There remains concern, however, for the estimated 2.5 million South Africans who are HIV positive but not on antiretrovirals and especially those who have low CD4 counts, and those over 60 with underlying conditions—the demographic making up most covid-19 deaths in the country.

"Until the end of September, we anticipate a partial lockdown for those over 60, plus those with diabetes and heart and respiratory disease," said Karim.

Competing interests: I have read and understood BMJ policy on declaration of interests and have no relevant interests to declare.

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