

## ***Beware armchair analysis of Covid-19 figures***

The problem with the numbers is they do not allow you to make any sort of extrapolation as there are too many moving parts - **Tamar Kahn: Business Day, 2 July 2020**

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SOUTH Africa's coronavirus numbers don't lie, but they don't tell the full story either. Health Minister Zweli Mkhize's nightly update on SA's Covid-19 epidemic that contains the latest tallies of cases and reported deaths in each province causes number crunchers to churn out graphs and commentary on social media within minutes. While their analysis may seem plausible, some of SA's leading public health researchers warn their conclusions are frequently misleading.

Infectious diseases epidemiologist Salim Abdool Karim, chair of the ministerial advisory committee on Covid-19, said that analysing data without an understanding of the underlying biology, transmission dynamics and the way in which the viral characteristics determine spread is a hollow exercise. He added that it results in a superficial impression but doesn't provide a detailed understanding.

University of Cape Town demographer Tom Moultrie said many people who become infected are asymptomatic, and a large proportion of those who display symptoms are not tested due to the state laboratory's limited capacity resulting in a significant undercount.

### **Frequent changes**

He said that the problem is compounded by the frequent changes to the criteria a patient must meet to qualify for a test since SA's first case was confirmed on March 5, and variations in those criteria between the state and private sector laboratories as well as between provinces, making meaningful comparisons virtually impossible. Cases are also reported as the results are released, and not linked to the dates on which specimens are collected or received by the lab. Experts agree that the reported cases are just the tip of the iceberg, but are reluctant to estimate how many more there might be. Shabir Madhi, director of the Medical Research Council's respiratory and meningeal pathogens research unit, said the problem with the numbers is they do not allow one to make any sort of extrapolation.

### **Pitfalls**

The growing commentary suggesting the Western Cape's outbreak may be reaching a peak is a perfect example of the pitfalls inherent in analysing the reported cases. The province was forced to cut back on testing due to huge backlogs and delays at the National Health Laboratory Service, limiting its ability to detect new cases. A graph contained in the Minister's June 28 statement, and a slew of similar ones flooding social media, showing the Western Cape's daily number of new cases declining through June should thus be treated cautiously.

Karim said that since March the testing criteria changed at least four times. He said simply looking at the numbers in a linear way without factoring in the way the testing strategy has changed, you may see trends that are not there, and changes that are a function of the testing strategy.

The official Covid-19 death tolls released by the Minister also don't lend themselves to simple analysis.

They reflect the aggregate numbers reported to him by provincial health departments, not fatalities on a specific day. And they are based on confirmed Covid-19 deaths in public and private hospitals, but

do not include those that occur in old-age facilities or in people's own homes. Moultrie said there is a parallel here with the UK, which saw many people dying in care homes, not just in healthcare facilities. He said there are certainly more deaths than are coming through in the official reports. This is borne out by analysis from the Medical Research Council, released yesterday, in which it was estimated there were 4 109 more natural deaths than usual in the seven weeks to June 23. These excess deaths, which are a clear signal of the devastating impact of the epidemic, are more than double the number of Covid-19 fatalities reported by the government during the same period.

### **Far greater impact**

While not all of these excess deaths are directly attributable to the disease, as some are due to people failing to obtain care because facilities are full or because they are afraid of getting infected if admitted, the data indicates the impact of the disease is likely far greater than is captured in official surveillance figures. One of the big questions about Covid-19 is how deadly it is. The government's official statements frequently contain a figure described as the mortality rate, but is in fact the case fatality rate - the ratio of reported deaths to confirmed cases. SA's figure - which stood at 1.8 percent on June 30 - appears relatively low by international standards. But it too is misleading, due to the uncertainties about the true extent of infections and the apparent underreporting of deaths. SA is still at the early stages of an epidemic that experts expect will be with us for years. The only thing that is certain is that with SA's economy opening up, the number of infections and fatalities are set to soar.