

More news on Covid-19

COVID C-19: Costs Vaccines will cost between R12-bn and R20-bn

In February health experts and Business for SA (B4SA) task team estimated that it will cost between R12-bn to R20-bn to vaccinate the entire country. This includes the distribution costs. The private sector has offered to cover R7.1-bn through medical schemes. The government has set a target to vaccinate 40-m people by the end of 2021.

In March Health Minister Zweli Mkhize told Parliament that the government might miss its target of vaccinating 40-m people by the end of the year because there may not be enough shots available.

On March 19, *BusinessDay* reported “A month since the government began dispensing Johnson & Johnson’s (J&J’s) coronavirus shots to healthcare workers, a mere 0.3% of SA’s population has been vaccinated. SA is lagging countries such as Ghana, Panama and Uruguay.

26 March 2021. *News24* “Millions of Johnson & Johnson COVID-19 vaccine doses expected to arrive in the country from April may be delayed by weeks because of a failure by the government to timeously meet a key contract clause in its agreement with the US-based drug maker,”

R200 billion Covid-19 loan plan looks like it has failed

- BusinessTech 17 March 2021

“The Banking Association of South Africa (BASA) says that as of 27 February 2021, R18.01 billion in loans had been approved by banks and taken up by small businesses under the Covid-19 Loan Guarantee Scheme. In the preceding two weeks, participating banks received only 258 applications for loans, of which only 61 were approved, the association said. Announced by president Cyril Ramaphosa in April 2020 alongside other measures, the scheme aimed to encourage banks to lend more money, on more favourable terms, to businesses whose operations had been affected by the pandemic.

<https://www.medicalbrief.co.za/archives/political-blows-to-astrazeneca-vaccine-may-boost-vax-hesitancy/>

Covid-19 rollout Private sector still waiting on Department of Health

In April: The National Department of Health has yet to finalise a pricing structure for COVID-19 vaccines for the private sector, leaving medical schemes and healthcare providers unsure how to make financial provision for the rollout, reported *BusinessLIVE* (20 April 2021)

Accredited private sector vaccination sites will be paid an administration fee to cover professional fees and the cost of consumables, and will be reimbursed by medical schemes, but these costs are still being calculated;

DoH asks Treasury for more money due to Covid-19

In May News24 reported that basic health services such as testing for HIV/AIDS and TB, maintenance, filling vacancies and the purchasing of new equipment were severely hampered in the last financial year as the National Health Department (DoH) shifted its resources. A performance plan and budget for the 2021/2022 financial year was presented to National Treasury to acquire additional funding following the reduction of about 16% in the health budget.

Price of COVID-19 vaccine seems to have doubled

Although Health Minister Zweli Mkhize previously told Parliament each dose of Pfizer and J&J vaccine was expected to cost R140 (VAT excluded) the price has since doubled.

In a circular on May 14, the Department of Health has announced that private medical aids will be charged R308,48 per dose for the Pfizer vaccine plus VAT, a total of R354.75 per dose. The Johnson & Johnson jab will cost R286.96 plus VAT, a total of R330.00 per dose.

Containment, rather than herd immunity should be SA's Covid-19 goal

“The stop-start nature of South Africa’s Covid-19 vaccine roll-out is not the only reason herd immunity is an unrealistic goal for this year. A scarce supply of vaccines and new variants of concern circulating in the country play a role, too.” – *Maverick Citizen* (2 June 2021)

To read an explanation of the maths behind herd immunity and containment by Barry Schoub, chair of SA’s Ministerial Advisory Committee on Covid-19 vaccines, click on the button below.

“Achieving full community protection, or herd immunity, against Covid-19 through vaccinations by 2022 is no longer on the table for South Africa. The country now sets its sights on a less lofty goal called “containment”, which aims to immunise just enough people so that Covid hospital admissions put no more strain on the health system than any other illness would, experts say.

Health Minister Zweli Mkhize initially aimed to immunise 41 million people by the end of 2021.

Nearly halfway through 2021, however, South Africa’s vaccination rollout has immunised only just over a million people with one dose of Covid vaccine. Only about half of them – [the 479,768 who received the Johnson & Johnson](#) vaccine via the Sisonke trial (the vaccine consists of one dose only) – are fully vaccinated. The other half have received only one shot of Pfizer’s two-dose vaccine. In other words, only 479,768 – 0.8% of the population – has been fully vaccinated against Covid.

The immunisation drive has faced various hurdles, starting with the February news from a small study that found AstraZeneca’s vaccine is mostly [ineffective against the Beta variant](#) dominant in South Africa. As a result, the health department sold the AstraZeneca supply to other African countries.

Researchers then rushed to get an implementation study up and running to immunise healthcare workers with Johnson & Johnson’s (J&J) vaccine. But the

study lost out on two weeks of its vaccination time, when it was [temporarily paused](#) while the country's medicine regulator, the South African Health Products Regulatory Authority (SAHPRA), investigated unusual blood clots linked to the J&J shot.

The stop-start nature of the rollout is not the only reason herd immunity is an unrealistic goal for this year – a scarce supply of vaccines and new variants of concern circulating in the country play a role, too.

This article explains the maths behind herd immunity and containment with the help of Barry Schoub, chair of South Africa's Ministerial Advisory Committee on Covid-19 vaccines.

How is herd immunity calculated?

A community can be protected from an infectious disease such as Covid through herd immunity. This means enough people in the community develop a resistance to the disease, which prevents them from falling ill. This resistance means the spread of the disease is slowed down throughout the community.

Herd immunity is based on how many people get infected from one person who already has a germ (also known as the reproductive number) – in the case of Covid-19, the germ is the SARS-CoV-2 virus. The goal is to get to a point where each infected person is unlikely to spread the disease to anyone else. This way, the virus can be contained and will no longer be spreading within a population.

South Africa had estimated that 67% of people in the country would need to be vaccinated in order to reach this point – but [some scientists argued that the figure was actually much higher](#).

Schoub explains how to calculate the number of people who need to be vaccinated:

- The reproductive number in South Africa (factoring in the Beta variant) is 1.97;
- The calculation for herd immunity is: $1 - (1/Rt)$;
- So for South Africa, it looks like this: $1 - (1/1.97) = 1 - 0.51 = 0.49$;
- That number needs to be multiplied by 100 to get the percentage: 49%.
- Now here's where it gets a bit tricky – because one starts making assumptions.

We don't yet know how many people won't get reinfected because they have protection (in other words their bodies have produced antibodies that can fight off SARS-CoV-2) from previously being infected.

So based on the assumption that some people will have immunity, you can lower the estimate for how many remaining people need to be vaccinated, to 46%.

You work out what 46% of the total population of South Africa is (the population is [estimated to be around 59.62 million](#) people) which gives you 27.43 million.

This number then needs to be put into the context of the adult population in South Africa (which is 40.35 million people, according to data provided by Discovery Health), as these are the people who will actually receive the vaccine.

So, if you divide 27.43 million by 40.35 million, we get to the end goal of needing to vaccinate 68% of the adult population.

But these calculations are not perfect and the numbers can vary, depending on what the epidemic looks like.

“The estimate for herd immunity isn’t based on hard science. It’s based on what we know about other viruses and we’ve just kind of extrapolated it to SARS-CoV-2,” Schoub says.

How many people you actually need to reach with a vaccine in order to attain herd immunity also depends on the level of protection the vaccine can provide – and this varies, depending on which vaccine is being used. You can calculate how much immunity you’ll have by multiplying the vaccine’s efficacy by the number of people you’ll be vaccinating.

For example, the Johnson & Johnson vaccine has an [efficacy of 64%](#) against the Beta variant and we’re planning to vaccinate 67% of the population. Multiplying these two numbers gives you a population immunity level of 43%.

In the case of the Pfizer vaccine – the other vaccine that South Africa will be using – its [efficacy is around 91%](#) against Covid-19 (not caused by the Beta variant), so the level of protection would be 61%.

Unlike J&J, Pfizer concluded its clinical trial before the emergence of the variant, meaning that there is limited data on the level of protection its vaccine can provide against this new form of the virus.

Schoub explains that calculating the herd immunity threshold requires considering a number of factors, including how effective a vaccine is, which variants are circulating and how people behave.

Moving towards containment

Within the context of these variables – in calculating a herd immunity threshold and also the barriers standing in the way of achieving it – South Africa has now moved towards a containment strategy.

This means the country is trying to achieve a level of immunisation which will cause the least amount of strain on the country’s healthcare system, Schoub says, in much the same way a winter illness might.

Previously, South Africa tried to use other diseases, such as measles, as a guide for how to respond to Covid.

Schoub explains: “For many of those acute viral infections, we can define herd immunity quite precisely. In the early days, we thought that we could do the same for Covid. But now with all those variables... it has become apparent that it’s going to be impossible to precisely define that figure of herd immunity.

“So what we are aiming at is containing the virus to a tolerable level... to a level where it doesn’t cause too much hardship.”

Schoub believes South Africa could reach this level of containment by 2022, provided “the vaccine rollout goes without too many hitches”.

Calculating what the country’s herd immunity threshold should be, is tricky, but achieving herd immunity is even trickier.