



The pandemic continues its rampage, with more than 56 million confirmed cases globally, over 1.3 million dead and 220 countries under its deadly attack. Picture: Alexander Avilov/Moscow News Agency/Handout via Reuters

NEWS

With so many breakthroughs in Covid-19 vaccine development this week – including three potential vaccines showing promising efficacy from their advanced-stage trials – one could be forgiven for daydreaming about a Covid-19-free world in the near future.

However, medical humanitarian organisation Doctors Without Borders (MSF) and local medical experts are taking a more cautious approach, saying that a vaccine-enabled Covid-19-free reality is still some time away for low- to middle-income countries such as South Africa.

EQUITABLE ACCESS

They are also calling for access to these vaccines to be equitable, for transparency of the trial data to determine how safe and efficacious they are and for all the costs involved in developing the vaccines to be made public to determine fair pricing.

Meanwhile, the pandemic continues its rampage, with more than 56 million confirmed cases globally, over 1.3 million dead and 220 countries under its deadly attack, particularly the US, where second waves of infections and mortalities have reached crisis levels.

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Dr Melinda Suchard, head of the Centre for Vaccines and Immunology at the National Institute for Communicable Diseases

On Friday, Health Minister Zweli Mkhize noted his concern as new daily infections in South Africa breached the 3 000 mark, after a few months of sustained post-surge decline. When level 1 of the lockdown was announced, the number of confirmed cases stood at 762 763, with a total of 20 759 deaths.

Candice Sehoma, access campaign advocacy officer at MSF Southern Africa, this week said: "It's great news that these vaccine candidates are so effective – some as much as 95%. However, it's concerning that there's still no guarantee of access in low- to middle-income countries.

"High-income countries such as the UK, the US and European countries have secured most of these vaccines through advance purchases, which means they're guaranteed access to them as soon as they come out.

"This leaves low- to middle-income countries like South Africa scrambling for vaccines. We won't get them as soon as they hit the market because they're already secured, and these pharmaceutical companies don't have the capacity to supply them to the entire world," said Sehoma.

On Friday, multinational pharmaceutical company Pfizer and German biotechnology company BioNTech announced that they had submitted a request to the US Food and

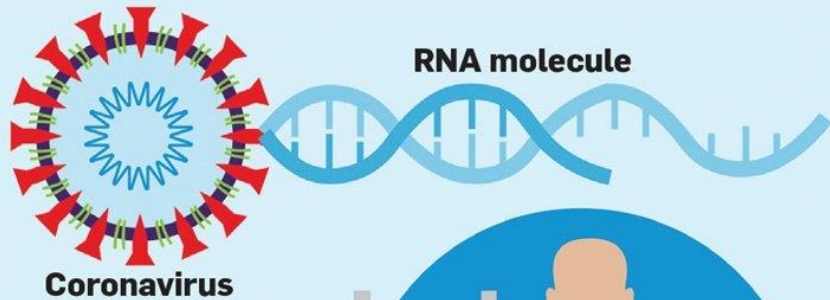
Drug Administration for emergency-use authorisation for their Covid-19 vaccine candidate.

If approved, the vaccine could be distributed and administered to high-risk populations in the US as soon as next month.

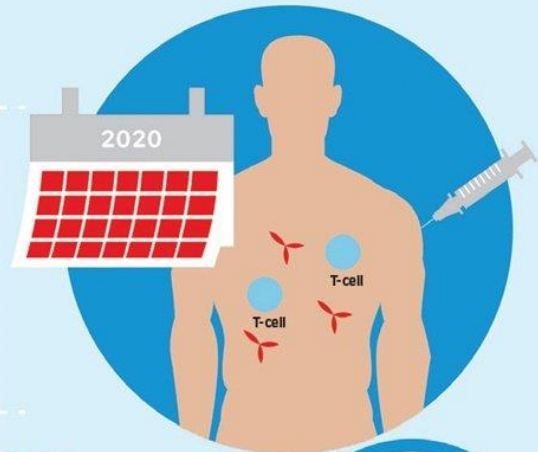
This came after a final-efficacy analysis of the companies' mRNA-based (based on a single-stranded RNA molecule which corresponds to the genetic sequence of a gene) showed that it had an efficacy rate of 95%.

How the mRNA vaccine works

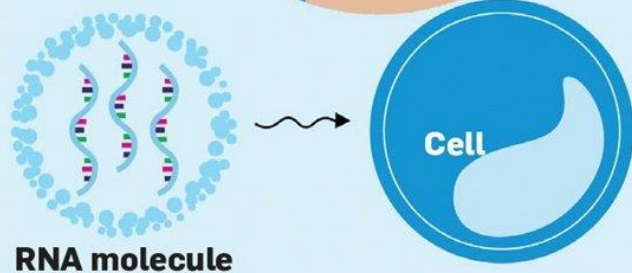
- 1 A synthetic Ribonucleic acid (RNA) molecule is designed to emulate the RNA of the Covid-19 coronavirus



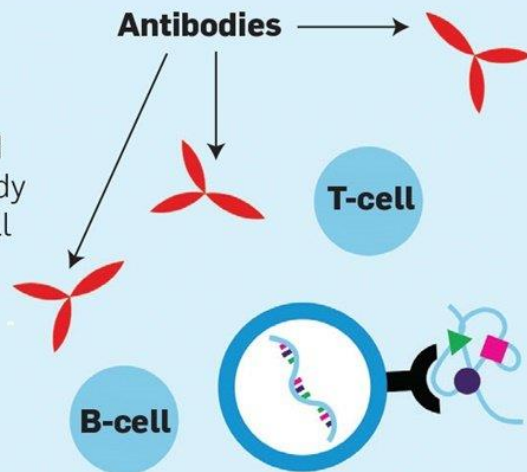
- 2 The molecule is injected into a human subject. The purpose of the vaccine is to fool the subject's body into thinking that it had been exposed to the Covid-19, and the body will try to mount an immune response



- 3 The molecule binds directly to the subject's cells, after which it will form viral antigens with solid bindings such as proteins. These proteins are identical to these found in Covid-19



- 4 The viral antigen stimulates an immunity response which, in turn, produces antibodies. In the process, the subject's T-cells – acquired immunity – are stimulated and they attack the virus. The subject's body reacts by utilising natural immunity as well as acquired immunity



- 5 In this case, B-cells are also activated. B-cells produce antibodies that can also attack other kinds of viruses

Sources: SA Medical Association, Pfizer

THEUNS KRUGER, Graphics24

This week, Dr Albert Bourla, the CEO and chairperson of Pfizer, said: "Our work to deliver a safe and effective vaccine has never been more urgent, as we continue seeing an alarming rise in the number of Covid-19 cases globally."

“Filing in the US represents a critical milestone in our journey to deliver a Covid-19 vaccine to the world, and we now have a more complete picture of both the efficacy and safety profile of our vaccine, giving us confidence in its potential.”

The week had already kicked off with Moderna – a Massachusetts, US-based biotech company – announcing that the phase 3 study of its mRNA-1273 vaccine candidate had a 94.5% efficacy rate, and that the European Medicines Agency’s human medicines committee had started a rolling review of it.

On Thursday, researchers of the Oxford University and AstraZeneca vaccine candidate, ChAdOX1 nCov-19, published the results of their phase 2 trial results in medical journal The Lancet, showing that it produced an immunity response and was safe for use in individuals who are older than 55.

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Dr Melinda Suchard

There has already been talk in medical circles about the suitability of these vaccines for the South African population.

Dr Melinda Suchard, head of the Centre for Vaccines and Immunology at the National Institute for Communicable Diseases, this week said: “I think it’s still early days. The two mRNA vaccines have to be stored at temperatures well below freezing point, but the protein-based vaccines don’t.

“The Moderna vaccine has now been said to remain stable in a fridge for up to one month. I suspect the mRNA vaccines will also undergo tests to see how long they remain stable at refrigerator temperatures. But then transporting them will still be a problem.”

Suchard said coalitions such as the Covax initiative were attempting to ensure equitable access to vaccines in different countries.

Covax – coordinated by Gavi, the Coalition for Epidemic Preparedness Innovations and the World Health Organisation – aims to negotiate the pricing and pool purchasing of vaccine candidates with an initial aim of 2 billion doses available by the end of next year.

South Africa is reportedly still negotiating an agreement with Covax after signing a nonbinding confirmation that it would participate in the facility last month.

However, even then, there are also other limitations at play.

“The Covax initiative doesn’t plan for any country to acquire a vaccine for more than 20% of its population [to ensure equitable distribution].

“South Africa will probably acquire a vaccine upfront [from developers such as pharmaceutical companies] for about 5% of the population, and there’d have to be prioritisation of who these doses would be allocated to. The obvious first target would be healthcare workers,” said Suchard.

LONG PATH TO ROLL-OUT

“The logistics alone for these vaccines have been a point of discussion, as some of them require a specific sort of freezer that isn’t currently in our cold chain,” Suchard explained.

There is currently no licensed vaccine against Covid-19. However, there are 11 candidate vaccines in phase 3 trials and 164 in pre-clinical trial testing.

All candidate vaccines first go through phase 1 trials to test their safety and phase 2 trials to reveal their immunogenicity (whether they will induce an immune response). Finally, they go through phase 3 trials (human clinical trial stage) to see whether they offer protection against the virus.

However, very few vaccines make it to phase 3 trials, which usually involve tens of thousands of people to determine dosages and identify potential side-effects.

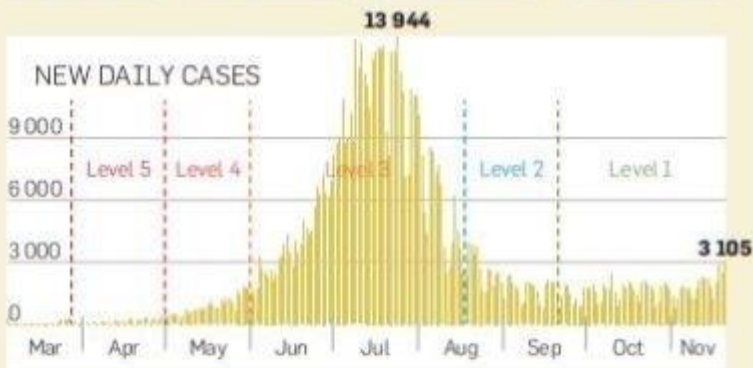
South Africa is involved in the ongoing Pfizer and Oxford trials, which Suchard believes will count in the country’s favour once the candidate vaccines have been checked and approved.

“Our department of health is engaging and building relationships with the manufacturers, which puts us on a good footing to acquire the vaccines,” she said.

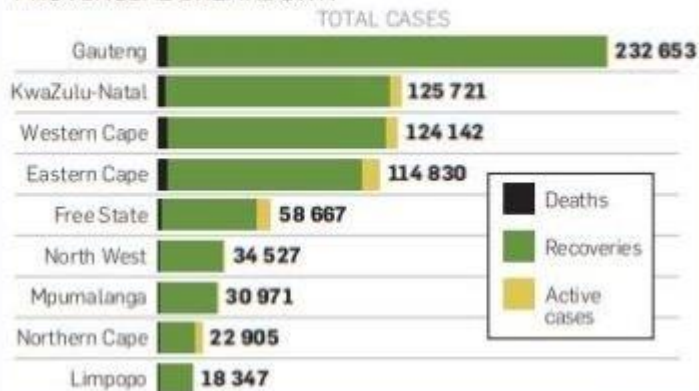
COVID-19 STATISTICS IN SA

Numbers on **November 20**

Level **1**



PROVINCIAL BREAKDOWN



Source: Department of health

Graphics24



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