

New COVID-19 variant identified in South Africa

On Friday, 18 December 2020, Minister of Health, Dr Zweli Mkhize, [announced](#) that a new variant – called the '**501.V2 variant**' – of SARS-CoV-2 (the virus that causes COVID-19 disease) had been identified in South Africa. How does a variant originate? What does this mean for you? How does this affect our vaccine roll-out?

The COVID-19 virus' genome is made up of a single long piece of ribonucleic acid (RNA) that carries the virus's genetic code. So far, studies of the genetic evolution of SARS-CoV-2, the virus that causes COVID-19, seem to show that it's mutating slower than other RNA viruses (like the viruses that cause flu and measles), but it is changing nonetheless.

- *To better understand where the mutations that create variants originate, learn about what viruses are and how they work once they are inside our bodies.*

Why isn't it unusual for a virus to evolve and develop a new variant?

During South Africa's first wave of COVID-19 infection, we had different variants of SARS-CoV-2 spreading in the country. However, none of them became as dominant as quickly as the new 501Y.V2 variant did. That's why experts are focusing on the South African variant and want to understand it better.

Keep in mind that it's not unusual for a virus to evolve and develop a new variant. In fact, COVID-19 is itself a disease caused by a new coronavirus strain. Coronaviruses belong to a huge family of viruses that we have known about since the 1960s.

This also means that the new variants reported in South Africa and the United Kingdom are not the only COVID-19 variants that we'll see. Other dominant variants could emerge over time, which is why it's essential that we do all we can to slow the spread of infection and bring the pandemic under control.

- *Interesting fact: A dominant variant was also detected in the United Kingdom in September 2020 (it's called B.1.1.7). It's not the same as the 501Y.V2 variant seen in South Africa though the variants share some similarities. This means that if we don't curb the spread of COVID-19, it will continue to mutate and evolve around the world.*
- *Both the new variants reported in South Africa and the United Kingdom appear to be more contagious than previous strains of COVID-19. This means they spread more quickly between people, requiring restrictions to control the spread. The 501Y.V2 variant reported in South Africa has also recently been detected in other countries as people travel between regions.*

What's changed in the 501Y.V2 variant?

The new variant is different from the others circulating in South Africa and elsewhere. That is because the 501Y.V2 variant has multiple mutations (changes) in the spike protein on its surface. Keep in mind that the spike protein is the important part of the virus that binds to the receptor on the cells inside our body (host cells) and also the main target for many of the antibodies produced by our immune systems during infection or after vaccination.

How has the 501Y.V2 variant impacted South Africa's second wave of infection?

It's been suggested that the second wave of COVID-19 infection that the South Africa is currently experiencing is strongly driven by SARS-CoV-2 501Y.V2.

When the 501Y.V2 variant was announced by the National Department of Health, South African clinical infectious diseases epidemiologist Prof Salim Abdool Karim (co-chair of the South African Ministerial Advisory Committee on COVID-19 and government's top adviser on the pandemic) said the second wave was showing some early signs that it was spreading faster than the first wave. The 501Y.V2 variant has been dominant in samples analysed by the genomics team on the evolution of SARS-CoV-2.

- **Interesting fact:** *Did you know that routine genomic surveillance of SARS-CoV-2 is performed by a network of laboratories around the country called the Network for Genomic Surveillance South Africa (NGS-SA)? They picked up the new variant.*

According to an update on 18 January 2021 by Prof Karim, **the 501Y.V2 variant is 50% more transmissible** than previous variants.

Does the 501Y.V2 variant cause different symptoms or require different treatment?

No. There is no evidence that the new variant causes more severe COVID-19 than in the first wave of infection. Symptoms of the disease remain the same as they did in the past. And clinical management or treatment for this variant of COVID-19 also remains the same.

Can you be infected with the 501Y.V2 variant if you already had COVID-19 from other variants?

We know that people who have recovered from COVID-19 infection are usually protected from being infected a second time (re-infection) for at least five to six months or possibly longer. That's because they develop neutralising antibodies that remain in their blood. These antibodies bind to specific parts of the spike protein on the virus that causes COVID-19 and prevents the virus from connecting to your cells. However, its these very spike proteins that have mutated in the 501Y.V2 variant. These mutations mean the virus can escape antibody neutralisation.

According to the [National Institute for Communicable Diseases \(NICD\)](#), blood samples from half of the people tested showed that all neutralising antibody activity was lost in people who were infected with the 501Y.V2 variant. The NICD adds: "This suggests that they may no longer be protected from re-infection. In the other half, the levels of antibodies were reduced and so the risk of re-infection is not known."

"It is therefore important that people who have previously had COVID-19 continue to adhere to public health measures. The use of masks in public spaces, regular washing or sanitising of hands, cleaning of surfaces, and social distancing remain the best defence against all SARS-CoV-2 viruses, including the new lineage."

Do these mutations change the way the virus spreads between people?

No, the virus still spreads by droplets and contact with surfaces that the virus is present on. So we have to keep practicing the preventive measures we all know prevent our exposure to COVID-19 including:

- Wearing a face mask in all public areas
- Continuing to practise good hygiene protocols: frequent hand washing with soap and water (or alcohol-based sanitiser), and coughing and sneezing into your bent elbow or a tissue and washing your hands immediately afterwards
- Keeping at least 1.5 metres away from other people
- Avoiding large gatherings of people
- Self-isolating for 10 days if you've potentially been exposed to the virus
- Quarantining for at least 10 days if a laboratory test shows you have COVID-19

Can standard COVID-19 PCR tests detect the 501Y.V2 variant?

Yes, they can, so the testing process remains the same.

Are there any changes in the isolation or quarantine protocols for infections with the 501Y.V2 variant?

There are no changes. To recap:

- People who have been exposed to the virus should quarantine for 10 days.
- People who are sick with COVID-19 should remain in isolation for 10 days from when symptoms start and those who test positive but show no symptoms should isolate for 10 days from day of positive test.

Are COVID-19 vaccines effective against the 501Y.V2 variant? Does this variant change our vaccine approach?

It's unclear whether these vaccines currently approved will be effective against the new variant of COVID-19 and testing is being conducted to check this.

South Africa expects a first batch of 1.5 million doses of the Oxford–AstraZeneca COVID-19 vaccine to reach our shores between the end of January and early February.

On 19 January 2021 the National Health Laboratory Service said South African scientists would be among the first to be able to test whether the current COVID-19 vaccines would be effective against the South African variant of the virus.

Resources

[NICD FAQ on new variant of SARS COV-2](#)

[New COVID variant identified in SA](#)