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Discovery Health, South Africa's largest private health insurance administrator, releases at-scale, real-world analysis of Omicron outbreak based on 211 000 COVID-19 test results in South Africa, including collaboration with the South Africa

Johannesburg, 14 December 2021

Summary:

1. **Vaccine effectiveness:**
 - *o The two-dose Pfizer-BioNTech vaccination provides 70% protection against severe complications of COVID-19 requiring hospitalisation, and 33% protection against COVID-19 infection, during the current Omicron wave.*
2. **Reinfection risk:** *For individuals who have had COVID-19 previously, the risk of reinfection with Omicron is significantly higher, relative to prior variants.*
3. **Severity:** *The risk of hospital admission among adults diagnosed with COVID-19 is 29% lower for the Omicron variant infection compared to infections involving the D614G mutation in South Africa's first wave in mid-2020, after adjusting for vaccination status*
4. **Children:** *Despite very low absolute incidence, preliminary data suggests that children have a 20% higher risk of hospital admission in Omicron-led fourth wave in South Africa, relative to the D614G-led first wave.*

It is important to note that these insights relate to data from the first three weeks of the Omicron-driven wave in South Africa. Therefore, the insights should be considered preliminary, since they may change as the wave progresses. This data is also confounded by various factors, including high sero-prevalence of COVID-19 antibodies in the South African population as a whole.

Omicron: A highly transmissible variant causing rapid community spread

The Omicron variant of SARS-CoV-2 was first identified in Southern Africa during November 2021. It was brought to the world's attention by scientists in South Africa and Botswana and declared a Variant of Concern by the World Health Organization shortly thereafter. South Africa experienced rapid community spread (concentrated in the Gauteng province), dominated by the Omicron variant, fuelling South Africa's fourth wave of COVID-19.

“Superb genetic surveillance by the Network for Genomic Surveillance in South Africa identified that Omicron infection accounts for over 90% of new infections in South Africa, and has displaced the formerly dominant Delta variant,” says **Dr Ryan Noach, CEO of Discovery Health, South Africa's largest private health insurer.** “The Omicron-driven fourth wave has a significantly

steeper trajectory of new infections relative to prior waves. National data show an exponential increase in both new infections and test positivity rates during the first three weeks of this wave, indicating a highly transmissible variant with rapid community spread of infection.”

Real-world data relating to Omicron experience critical to guiding global response

With more than 3.7 million clients, Discovery Health has extensive data relating to claims and the utilisation of the private health system. Therefore, Discovery Health is uniquely positioned to generate at-scale, real-world insights into the impact of COVID-19.

Ryan Noach explains: “There is a social responsibility to update and inform on Omicron given the urgency on this front, nationally and globally. We are in a unique position to do so, given the dominance of the Omicron variant in South Africa and across Discovery Health’s member base of administered medical schemes, and the richness and significance of our data, spanning clinical records, vaccination records and pathology test results drawn from our substantial database.”

Over the past month, Discovery Health’s clinical research and actuarial teams have carried out the first at-scale analysis of Omicron’s real-world impact.

- Discovery Health partnered with world-leading researchers from the South African Medical Research Council (SAMRC) to provide insights into the vaccine effectiveness of the Pfizer-BioNTech vaccine against infections and severe disease linked to Omicron infection.
- Discovery Health further explored various other components of Omicron infection, including the rate of spread, the severity of illness relative to prior waves, clinical manifestations, and the relative reduction of risk conferred by prior proven COVID-19 infection.

The detailed vaccine effectiveness analysis in collaboration with the SAMRC includes more than 211 000 COVID-19 test results, 41% from adult members

who had received two doses of the Pfizer-BioNTech vaccine. Approximately 78 000 of these COVID-19 test results were from the period 15 November 2021 to 7 December 2021 during which Omicron infections were increasing dramatically.

“To-date laboratory analysis has provided early insights into potential reduction in the effect of neutralising antibodies against the Omicron variant,” says Dr Noach. “However, there remains urgency around establishing real-world data on Omicron across all areas of impact. Our research into Omicron is based on a rich and significant sample, and also relates directly to the experience of the first country in the world to face a COVID-19 wave driven by Omicron,” says Dr Noach.

Findings:

1. Two-dose Pfizer-BioNTech vaccination provides significant protection against hospitalisation in individuals with Omicron variant infection

Discovery Health’s research on the effectiveness of two-dose Pfizer-BioNTech vaccination in preventing severe disease and hospitalisation as a result of Omicron variant infection was carried out by Discovery Health’s actuarial team in collaboration with leading scientists at the South African Medical Research Council.

“We used a test-negative design methodology to establish the Pfizer-BioNTech COVID-19 vaccine’s real-world effectiveness against hospital admission from Omicron infection,” **says Shirley Collie, Chief Health Analytics Actuary at Discovery Health.** “We carried out three carefully constructed sensitivity analyses, with consistent results across each analysis supporting the veracity of our findings. These findings were reviewed by scientists at the SAMRC with whom we have collaborated in multiple areas of our pandemic-related research to date.”

The result shows that vaccinated individuals who received two doses of the Pfizer-BioNTech vaccine had 33% protection against infection, relative to the unvaccinated, in the first weeks of South Africa’s Omicron-driven fourth wave. This represents a significant drop from the 80% protection against infection afforded during the earlier period, probably on the basis of lower antibody

susceptibility, following the extensive spike protein mutations in the Omicron variant.

Encouragingly, though, the result shows that these same vaccinated individuals who received two doses of the Pfizer-BioNTech vaccine **had 70% protection against hospital admission in this same time period.** While protection against hospital admission **reduced from the highs of 93% in South Africa's Delta-driven wave, 70% is still regarded as very good protection.**

President of the SAMRC, Professor Glenda Gray, said, “We are extremely encouraged by the results of Discovery Health’s analysis. It is extremely important to be able to demonstrate to the public that in a real-world setting – in the presence of a highly transmissible new COVID-19 variant – the Pfizer-BioNTech vaccine provides good protection against severe disease and hospitalisation.”

Furthermore, the analysis demonstrates that **protection against hospital admission is maintained across all ages**, in people from 18 to 79 years, with slightly lower levels of protection for the elderly (67% in people aged 60 to 69 and 60% for people aged 70 to 79). Protection against admission is also **consistent across a range of chronic illnesses**, including diabetes, hypertension, hypercholesterolemia and other cardiovascular diseases.

2. Omicron reinfection risk significantly higher compared to prior variants

“With each successive wave of COVID-19 infection in South Africa, we have investigated the durability of immunity following previous infection with COVID-19 – in other words, the risk of reinfection,” explains Collie.

“Overall, the risk of re-infection (following prior infection) has increased over time, with Omicron resulting in significantly higher rates of reinfection compared to prior variants.”

- People who were infected with COVID-19 in South Africa’s third (Delta) wave face a 40% relative risk of reinfection with Omicron.
- People who were infected with COVID-19 in South Africa’s

second (Beta) wave face a 60% relative risk of reinfection with Omicron.

“While individuals who had a documented infection in South Africa’s first wave, and therefore were likely to have been infected with the SARS CoV-2 virus carrying the D614G mutation, face a 73% risk of reinfection relative to those without prior documented infection,” adds Collie.

3. Risk of severe disease and hospitalisation significantly lower in Omicron infection compared to prior variants

Discovery Health has investigated the Omicron variant’s clinical impact relative to other SARS-CoV-2 variants.

“Epidemiological tracking shows a steep trajectory of new infections, indicating Omicron’s rapid spread, but so far with a flatter trajectory of hospital admissions, possibly indicating lower severity,” explains Dr Noach. “This lesser severity could, however, be confounded by the high seroprevalence levels of SARS CoV-2 antibodies in the general South African population, especially following an extensive Delta wave of infections.”

Collie adds, “Adults are experiencing a 29% lower admission risk relative to South Africa’s first wave of infection, dominated by D614G, in early 2020. Furthermore, hospitalised adults currently have a lower propensity to be admitted to high-care and intensive-care units, relative to prior waves.”

4. Preliminary observations on Omicron experience in children

“Notwithstanding the fact that children continue to show a very low incidence of severe complications following COVID-19, Discovery Health’s data indicates that children under age 18 have a 20% higher risk of admission for complications of COVID-19 when infected with Omicron,” says Collie. “This is early data and requires careful follow-up. However, this trend aligns with the warning from South Africa’s National Institute for Communicable

Diseases (NICD) in recent days that during South Africa's third wave of infection (June to September 2021) they had seen an increase in paediatric admissions and now, in the fourth wave, they are seeing a similar increase in admissions for children under five years of age. Anecdotal reports from hospitals in South Africa indicate that most COVID-19 diagnoses in children admitted to hospital are co-incidental – many children who are admitted for non-COVID-19-related conditions, and who are not experiencing COVID-19 complications, test positive for COVID-19 on routine screening tests.”

It is also important to note that Discovery Health's analysis shows that the risk of children testing positive for COVID-19 infections is significantly lower than in adults.

“Children were 51% less likely to test positive for COVID-19 relative to adults in the Omicron period and, overall, the risk of children being admitted to hospital for COVID-19 complications remains low,” Collie adds.

Where children require admission for complications of COVID-19, the primary diagnoses are **bronchiolitis and pneumonia**, often with severe gastrointestinal symptoms and dehydration.

“The majority of children present with mild disease, with symptoms such as a sore throat, nasal congestion, headache and fever that resolves within three days,” adds Dr Noach, based on anecdotal consensus sourced from the treating healthcare professionals.

Vigilance and vaccination remain our primary means of overcoming the pandemic

“We are encouraged that the Pfizer-BioNTech vaccine continues to offer high levels of protection from severe COVID-19 illness,” says Dr Noach.

“We are hopeful that the current experience of COVID-19 caused by the Omicron variant – mild disease for the most part – will remain unchanged. Notwithstanding this, we remain concerned that health systems could still come under pressure considering the high rate of spread of Omicron, and consequent high sudden infection burden. Our research teams will continue to monitor the progression of the fourth wave in this regard, and we will

depend on the continued stewardship of the National Department of Health to ensure health systems can cope with the disease burden.”

“The importance of COVID-19 vaccination in the current context is unquestionable, as conclusively demonstrated in the research. At the same time, we urge adherence to the important non-pharmaceutical measures of distancing, avoiding public gatherings, mask wearing and hygiene precautions.”

“We extend our sincere thanks to all the healthcare professionals, scientists and support staff working on the pandemic’s frontlines, delivering outstanding care and giving their all to bring our country and the world closer to overcoming the COVID-19 pandemic.”

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Link to Media webinar:

Topic: Media Briefing 14 Dec at 11am: Discovery Health releases first at-scale analysis of real-world experience of Omicron outbreak from South Africa

Start Time: Dec 14, 2021 10:33 AM

Meeting Recording:

https://dsycloud.zoom.us/rec/share/F90e3WwsG3hnWohegHBLZ794OqtadWO5wNTEMh-5BE7uIG-G_Rlex4WT0wtBJHtM.jBJNH9YLBdybj

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Discovery information

About Discovery

Discovery Limited is a South African-founded financial services organisation that operates in the healthcare, life assurance, short-term insurance, savings and investment and wellness markets. Since inception in 1992, Discovery has been guided by a clear core purpose – to make people healthier and to enhance and protect their lives. This has manifested in its globally recognised Vitality Shared-Value insurance model, active in 31 markets with over 20 million members. The model is exported and scaled through the Global Vitality Network, an alliance of some of the largest insurers across key markets including AIA (Asia), Ping An (China), Generali (Europe), Sumitomo (Japan), John Hancock (US), Manulife (Canada), among others.

In 2021 Vitality Health International (VHI) introduced shared value health insurance to employer groups operating in Ghana, Kenya, Nigeria and Zambia, as well as Travel for Treatment service to the rest of Africa.

Discovery trades on the Johannesburg Securities Exchange as DSY.

About Discovery Health

Discovery Health is South Africa's largest private health insurance administrator, providing comprehensive healthcare insurance to more than 3.7 million people in South Africa. Discovery Health, through its proprietary wellness programme, Vitality, partners with leading global insurers in Asia-Pacific, Europe, North America and South America, servicing more than 20 million clients globally and enabling them to live healthier, longer lives. Due to its scale and prominence in the private healthcare environment, Discovery Health has unparalleled access to a unique data set in South Africa encompassing full electronic health records, wellness data, and vaccination data for these insured lives. Discovery Group is the holding company of Vitality Group in the USA and of Vitality UK.

About the SAMRC

The South African Medical Research Council (SAMRC) is dedicated to improving the health of people in South Africa, through research, innovation, and transformation. The scope of research includes laboratory investigations, clinical research, and public health studies. Established in 1969, the SAMRC provides evidence-based information to inform health policy, practice, and research translation. Their research funding programmes provide research grants and scholarships to build health research capacity, while through health innovation programmes they develop pioneers in cutting-edge genomic research, the development of treatment regimens, vaccines, diagnostic tools, and new medicines and devices. Aligned with national health priorities, the SAMRC COVID-19 response includes a broad spectrum of public health studies, surveillance and epidemiology studies.

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