



In this Issue



CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

Newsletter

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Study examines the diagnostic performance of rapid antigen tests during Omicron and Delta waves in South Africa

The findings of two studies evaluating the performance of rapid antigen tests in identifying SARS-CoV-2 Delta and Omicron strains during the Covid waves in South Africa, are featured on page 1.

On page 2 we highlight the article “Infectious diseases and the Sustainable Development Goals: progress, challenges and future directions” published in the journal *Nature Reviews Microbiology*; and the high-level report published by the Royal Society on the effectiveness of NPIs globally, during the Covid-19 pandemic.

We report on the visit by Mayor Chris Pappas of the uMngeni Local Municipality & the Institute of Human Virology - Nigeria’s (IHVN) Fellows who participated in clinical trials training at CAPRISA research clinics, on page 3.

On page 4 the visit of the Treatment Action Campaign Chairperson, Ms Sibongile Tshabalala; and an educational outreach programme aimed at empowering learners in health education, is featured.

CONTACT DETAILS

CAPRISA
Doris Duke Medical
Research Institute (DDMRI)
2nd Floor
University of KwaZulu-Natal
Private Bag X7, Congella 4013
South Africa



T: +27-31-260 4555
F: +27-31-260 4566

E-mail: caprisa@caprisa.org



www.caprisa.org.za

Two field studies evaluating the performance of rapid antigen tests in identifying SARS-CoV-2 Delta and Omicron strains have shown robust outcomes providing data on the accuracy of detection, which hopefully will continue for future coronavirus variants.

The study by Samsunder et al. published in the *Journal of Clinical Virology* evaluated the performance of two widely used rapid antigen tests to identify Omicron sub-lineages BA.4 and BA.5, on samples collected from 540 study participants from KwaZulu-Natal, South Africa. Results showed a sensitivity of >90% in the detection of infections with Omicron BA.4/BA.5 sub-lineage.

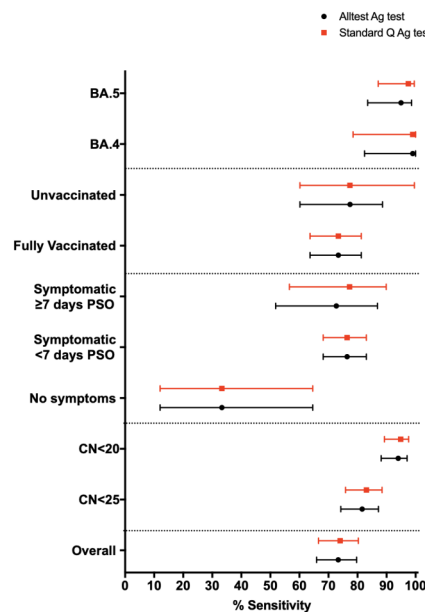
The overall sensitivities of the AllTest SARS-CoV-2 Ag test and Standard Q COVID-19 Ag test were 73.38% (95% CI 65.89–79.73) and 74.03% (95% CI 66.58

–80.31) and their specificities were 97.41% (95% CI 95.30–98.59) and 99.22% (95% CI 97.74–99.74), respectively.

Additionally a study published recently in the *Diagnostic and Prognostic Research* journal by Samsunder et al. evaluated four rapid antigen tests for identification of SARS-CoV-2 infections during the Delta wave in South Africa.

The overall sensitivity for all four tests on 1033 samples ranged between 60 and 72% with excellent specificity (> 98%). Sensitivity increased to > 80% in all tests in samples with cycle number value < 20.

They concluded that the performance of the evaluated rapid antigen tests targeting SARS-CoV-2 nucleocapsid protein were not affected by the emergence of new SARS-CoV-2 variants. Rapid antigen tests continue to play an important role in the control of Covid-19 pandemic.



For further reading see:

Samsunder N et al. Field evaluations of four SARS-CoV-2 rapid antigen tests during SARS-CoV-2 Delta variant wave in South Africa. *Diagnostic and Prognostic Research (BMC)*. 2023 July;7(1):14. <https://doi.org/10.1186/s41512-023-00151-3> Samsunder N et al. Performance of rapid antigen tests in identifying Omicron BA.4 and BA.5 infections in South Africa. *Journal of Clinical Virology*. 2023 August; 165:105498. <https://doi.org/10.1016/j.jcv.2023.105498>

Figure: Sensitivity of the AllTest SARS-CoV-2 Rapid Ag and the Standard Q COVID-19 Ag tests

Infectious diseases influence progress towards the UN SDGs

'Infectious diseases, more than any other health condition, have highlighted mutual interdependence in society' – Quarraisha and Salim Abdool Karim

The commentary titled “Infectious diseases and the Sustainable Development Goals: progress, challenges and future directions” published in the journal *Nature Reviews Microbiology* calls for ‘enhanced global collaboration and partnerships in training, surveillance, research and innovation’ to accelerate and realise the UN Sustainable Development Goal 3 (SDG3) - to “ensure healthy lives and promoting well-being for all at all ages”.

Leading clinical epidemiologists and authors Professors Quarraisha and Salim Abdool Karim highlight the severe impact of infectious diseases, pandemics, global inequity, anti-microbial resistance, vaccine-induced immunity and re-merging pandemics on realising



SDG3.

The Covid-19 pandemic had a severe impact on global health outcomes and reversed the gains made in controlling HIV, TB and malaria. The re-emergence of old infectious diseases and the severe consequences of climate change on human health underscores the reality

of potential future pandemics and is an impediment to SDG3, say the authors.

‘Global threats require global solutions that build on international research networks and partnerships to accelerate innovation and to promote equitable access to health interventions and resources.’

Read more here: <https://doi.org/10.1038/s41579-023-00954-7>

Royal Society report examines the effectiveness of non-pharmaceutical interventions during Covid-19 pandemic

A high-level report, *COVID-19: examining the effectiveness of non-pharmaceutical interventions* published by the Royal Society examined the effectiveness of non-pharmaceutical interventions (NPIs) during the COVID-19 pandemic of 2020 – 2023 from around the world.

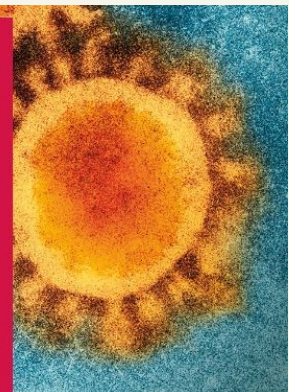
The review by an expert team of scientists convened by the Royal Society provides evidence that the implementation of a combination of measures, such as face masks, lockdowns and international border controls, reduced COVID-19 infections and are effective with early implementation in the pandemic.

Six evidence reviews analysed thousands of studies to assess the effectiveness of NPIs - masks, social distancing and lockdowns, test trace and isolate systems, border controls, environmental controls and communications in curbing the spread of the virus.

The findings of the consolidated analysis show stronger protection from infection with the early application of a combination of NPIs. Professor Salim Abdool Karim, a member of the working group on the

COVID-19: examining the effectiveness of non-pharmaceutical interventions

THE ROYAL SOCIETY



report said “The lessons of SARS-CoV-2 must feature in our thinking as we prepare for a next pandemic that could be a respiratory virus of which we have no prior exposure and so we do not have pre-existing immunity. The lessons of this report are going to feature strongly in anyone's deliberations on what actions to take in responding to the next pandemic,” he said.

Click here to read the report: <https://bit.ly/3sDdxEw>



IHVN colleagues visit CAPRISA for training in clinical trials quality processes

CAPRISA hosted fellows, Ms Blessing Uche and Mr Peter Ekele from the Institute of Human Virology, Nigeria (IHVN), who underwent a four-week training program at CAPRISA research clinics in quality control and quality assurance processes in clinical trials.

The two-week training focused on Women's Health, under the guidance of Professor Daya Moodley, uMlazi Site Director, and the Quality Control Team. This initial phase provided them with invaluable insights into the quality control and quality assurance processes from the first point of contact with the participant (Informed consent process) to the last point of contact with participant (end of study visit). They were also shown the laboratory quality control process as well as the regulatory file review. They received guidance on how to design an effective method to ensure a comprehensive quality control process.

Under the guidance of Dr Leila Mansoor, Senior Scientist, and the Quality Assurance Team at the CAPRISA eThekweni Research clinic this phase delved deep into the pivotal role of quality assurance in the clinical trial process, affording the trainees the unique opportunity to be exposed to the processes and tools that are designed to ensure the highest possible level of data quality to meet the requirements of Good Clinical Practice (GCP).



Photo at the top: Umlazi Women's Health clinic (L-R) : Mr Sbonelo Mavundla, Driver ; Ms Natasha Govender, QA/QC Manager; Ms Sheroma Rajkumar, Regulatory officer; Mr Peter Ekele Fellow from Nigeria; Ms Thobile Mungwe , Site Administrator; Ms Zwiswa Godlwana, Site Coordinator; Ms Blessing Uche, Fellow from Nigeria; & Mr Ntuthuko Khumalo – Data Capturer

Photo at the bottom: Front row (L-R): Ms Pinky Kunene, Ms Nokuthula Zungu, Dr Leila Mansoor, and Ms Blessing Uche. Back row (L-R): Mr Tebogo Mahuleke, Ms Nokukhanya Khuzwayo and Mr Peter Ekele.

Mayor & scientist gain insight into clinical research



During his visit to CAPRISA's Vulindlela Research clinic His Worship the Mayor of uMngeni Local Municipality, Mr Christopher Pappas toured the facilities and held discussions with Dr Disebo Potloane Site Director (*photo left*), Mr Patrick Mdletshe Head of Community Programme and research clinicians. According to the uMngeni Municipality Mayor Pappas was "impressed" and congratulated CAPRISA on "their unrelenting efforts to fight the scourge of HIV and AIDS". The Municipality undertook to partner with relevant stakeholders to enhance the Municipality's role in the fight against HIV. Mdletshe said Mayor Pappas's visit marked a significant milestone for CAPRISA and the uMngeni Local Municipality in addressing HIV & TB prevention and treatment strategies in the community.

Dr Annie Elong-Ngono (*third from the left*), a scientist of the GVN Rising Stars Mentorship Program 2023 and mentee of Professor Salim Abdool Karim presented her research on Flavivirus epidemiology and host immune response and held discussions with scientists during her visit.



Photo (L-R): Dr Richard Lessells, Dr Nikita Devnarain, Dr Annie Elong-Ngono, Ms Natasha Samsunder, Prof Desh Archary and Prof Lenine Liebenberg



TAC leadership engage in discussions to address the HIV epidemic



Ms Sibongile Tshabalala, Chair of the Treatment Action Campaign (TAC) accompanied by Mr Anele Yawa, TAC General Secretary engaged in discussions with CAPRISA's leadership during their visit on 25 July. Prof Quarraisha Abdool Karim, CAPRISA's Associate Scientific Director and Mr Patrick Mdletshe, Head of Community Programme hosted the officials and discussed the status of the HIV epidemic in South Africa and strategies to strengthen HIV prevention measures in vulnerable populations, particularly in young women and adolescent girls.

Tshabalala said discussions highlighted the importance of collaboration between researchers and communities. "Our visit to CAPRISA fostered mutual understanding of the challenges facing us in HIV prevention and how we can work as a collective with researchers to address this growing concern."

Seated (L-R): Ms Sibongile Tshabalala Prof Quarraisha Abdool Karim. Standing (L-R): Mr Anele Yawa, Prof Salim Abdool Karim, Director of CAPRISA and Mr Patrick Mdletshe

Educational Outreach Program for learners addresses HIV/AIDS and teenage pregnancy

Mr Patrick Mdletshe, head of CAPRISA's Community Programme addressed learners at the Reunion Secondary School in Isipingo, Durban and Mpande High School in Vulindlela, Howick on HIV prevention, TB and sexual and reproductive health aimed at addressing the rising HIV/AIDS infection and teenage pregnancy rates among young girls. Accompanied by CAPRISA Community programme officers, fellows, and interns Mdletshe said, 'CAPRISA's commitment to empowering learners with knowledge emphasizes the importance of partnerships between research and educational institutions. CAPRISA's visit represents an investment in health education by providing accurate information and tools for informed decision-making among youth, contributing to a healthier society.'



Mr Patrick Mdletshe, left in the photo with learners at the Reunion Secondary School

Sma Mzobe receives a Recognition Award



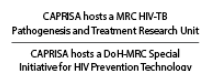
Ms Sma Mzobe, CAPRISA's Human Resources Training Coordinator (*in the photo*) was awarded the CAPRISA Recognition Award for her exceptional contributions to the Health Professions Council of South Africa's (HPCSA) evaluation of CAPRISA as a certified training institution of the Master of Psychology fellows, which is accredited by the (HPCSA). "You demonstrated excellence, efficiency, and contributed to an exceptional initial review received from the auditors", said Professor Quarraisha Abdool Karim, Associate Scientific Director at the presentation.



A selection of scientific papers published in 2023

- *45 **Samsunder N, Lustig G, Ngubane S, Maseko TG, Rambaran S, Ngcapu S, Magini SN, Lewis L, Cawood C, Kharsany ABM, Abdoool Karim Q, Abdoool Karim S, Naidoo K, Sivro A.** Field evaluations of four SARS-CoV-2 rapid antigen tests during SARS-CoV-2 Delta variant wave in South Africa. *Diagnostic and Prognostic Research.*2023;7(1):14. doi:10.1186/s41512-023-00151-3.
- 46 **Samsunder N, Lustig G, de Vos M, Ngcapu S, Giandhari J, Tshiabuila D, San EJ, Lewis L, Kharsany AB, Cawood C, de Oliveira T, Abdoool Karim Q, Abdoool Karim S, Escadafal C, Naidoo K, Sivro A.** Performance of rapid antigen tests in identifying Omicron BA.4 and BA.5 infections in South Africa. *Journal of Clinical Virology.*2023;165:105498. doi: 10.1016/j.jcv.2023.105498.
- 47 **Abdoool Karim Q, Abdoool Karim SS.** Infectious diseases and the Sustainable Development Goals: progress, challenges and future directions. *Nature Reviews Microbiology.*2023. doi: 10.1038/s41579-023-00954-7.
- 48 **Ngema S, Dookie N, Perumal R, Nandlal L, Naicker N, Letsoalo MP, O'Donnell M, Khan A, Padayatchi N, Naidoo K.** Isoniazid resistance-conferring mutations are associated with highly variable phenotypic resistance. *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases.*2023;33:100387. doi:10.1016/j.jctube.2023.100387.
- 49 **Lewis L, Sookrajh Y, van der Molen J, Khubone T, Maraj M, Sosibo P, van Heerden R, Little F, Kas-sanjee R, Garrett N, Dorward J.** Long-term usage patterns and clinical outcomes in a community-based differentiated antiretroviral therapy delivery programme in South African *Journal of the International AIDS Society.*2023;26(7):e26141. doi: 10.1002/jia2.26141.
- 50 **Perumal R, Shunmugam L, Naidoo K.** Long COVID: An approach to clinical assessment and management in primary care. *South African Family Practice.*2023;65 (1): a5751. doi:10.4102/safp.v65i1.5751.
- 51 **Naicker N, Rodel H, Perumal R, Ganga Y, Bernstein M, Benede N, Abdoool Karim S, Padayatchi N, Sigal A, Naidoo K.** Metformin Increases Cell Viability and Regulates Pro-Inflammatory Response to Mtb. *Infection and Drug Resistance.*2023;16:3629-3638. doi:10.2147/IDR.S401403.
- 52 **Masson L, Wilson J, Amir Hamzah AS, Tachedjian G, Payne M.** Advances in mass spectrometry technologies to characterize cervicovaginal microbiome functions that impact spontaneous preterm birth. *American Journal of Reproductive Immunology.*2023;90(2):e13750. doi:10.1111/aji.13750.
- 53 **Dorward J, Sookrajh Y, Lessells R, Bulo E, Naidoo J, Naidoo K, Bodley N, Khanyile M, Van Vuuren CJ, Moodley P, Samsunder N, Lewis L, Drain PK, Hayward G, Butler CC, Garrett N.** Point-of-Care Viral Load Testing to Manage HIV Viremia During the Rollout of Dolutegravir-Based ART in South Africa: A Randomized Feasibility Study (POWERS). *Journal of Acquired Immune Deficiency Syndromes.*2023;15:93(5):403-412. doi:10.1097/QAI.0000000000003212.
- 54 **Moore PL, Gray G.** COVID-19 as a catalyst for vaccine manufacturing: A South African experience. *Cell Host Microbe.*2023;31(6):839-842. doi:10.1016/j.chom.2023.05.015.
- 55 **Abdoool Karim S, Abdoool Karim Q, Abdoool Karim SS.** Science Under Stress - COVID-19: The Challenge of Global Vaccine Inequity. *Social Research: An International Quarterly.*2023; 90(1): 75-109. doi:10.1353/sor.2023.0003.
- 56 **Lin Z, Bashirova AA, Viard M, Garner L, Quastel M, Beiersdorfer M, Kasprzak WK, Akdag M, Yuki Y, Ojeda P, Das S, Andresson T, Naranbhai V, Horowitz A, McMichael AJ, Hoelzemer A, Gillespie GM, Garcia-Beltran WF, Carrington M.** HLA class I signal peptide polymorphism determines the level of CD94/NKG2-HLA-E-mediated regulation of effector cell responses. *Nature Immunology.*2023;24 (7):1087-1097. doi:10.1038/s41590-023-01523-z.

* continuation from previous newsletter

For the complete list of publications see here: <http://bit.ly/3IRvjZd>

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