The introduction of bedaquiline to all-oral multi-drug regimens has revolutionised the treatment of drug-resistant TB. However, the emergence and transmission of bedaquiline-resistant TB threatens to reverse these gains. A systematic review and meta-analysis were performed to estimate the frequency of, and mutations associated with, baseline (transmitted) and treatment-emergent (acquired) bedaquiline resistance in clinical Mtb isolates. The meta-analysis included studies from five continents over the period from 2012 to 2022 and estimated the baseline pooled prevalence of bedaquiline resistance to be 2.4% (95% CI 1.7 – 3.5) and the pooled prevalence of acquired resistance to be 2.1% (95% CI 1.4 - 3.0).

The concerning levels of pre-treatment bedaquiline resistance likely reflect high rates of person-to-person community transmission of bedaquiline-resistant TB. On the other hand, the high levels of treatment-emergent resistance point to the potential role of adherence challenges during treatment, especially in settings where psycho-emotional, socio-economic, substance use and nutritional challenges are co-prevalent.

The meta-analysis also identified 141 resistance-associated variants (RAVs), comprising 71 unique RAVs at 58 unique sites. Four RAVs were mapped to the promoter region of the Mtb genome, 19 were mapped to the dimerization domains, and 42 were mapped to the DNA binding region. The poor concordance between genotypic resistance markers and phenotypic resistance was highlighted as a major constraint to developing a rapid molecular diagnostic test for bedaquiline resistance.

Taken together, this work calls for heightened surveillance for bedaquiline resistance, greater investment and innovation in rapid phenotypic assays, and the strengthening of National TB Programmes to eliminate the catastrophic costs associated with TB, improve treatment adherence, and maintain high levels of retention in care.
Professors Kogie Naidoo, Deputy Director and Head of Treatment Research, and Nigel Garrett, Head of Vaccines and Pathogenesis, received the South African Medical Research Council’s (SAMRC) Silver Scientific Achievement award in recognition of their research contributions and scientific excellence.

The awards, “to acknowledge outstanding contributions to health research”, were presented at the SAMRC’s 10th scientific merit awards held on 7 March 2024 in Cape Town. “The SAMRC recognises and congratulates you as an outstanding South African scientist who has contributed to raising the profile of science in South Africa,” said Professor Glenda Gray, SAMRC President and CEO.

Professor Kogie Naidoo is among South Africa’s highly accomplished medical scientists and plays a leading role in tuberculosis research. She leads several CAPRISA studies aimed at optimising treatment strategies to further reduce deaths in patients co-infected with TB-HIV and optimising outcomes for drug-resistant TB patients, many of them co-infected with HIV. She leads a large team of researchers across multiple research sites and works with a diverse team of global collaborators to improve the understanding of finding, preventing, and optimising therapeutic outcomes of TB disease in HIV infection.

Professor Nigel Garrett is the Deputy Director for Science of the BRILLIANT (BRinging Innovation to Clinical and Laboratory Research to End HIV In Africa through New Vaccine Technology) consortium – following a USAID multi-million rand grant to the SAMRC for the implementation of a programme called “HIV Vaccine Innovation, Science, and Technology Acceleration in Africa (HIV-VISTA).

“Garrett was the Co-Chair of the Sisonke and SHERPA COVID-19 vaccine implementation trials, and is currently the Principal Investigator on several HVTN and COVPN vaccine trials, and leads US National Institute of Health self-initiated grants on point-of-care technology.

Celebrating Women's Impact in Academic Science: Prof. Quarraisha Abdool Karim's International Women's Day Podcast

On 8 March 2024, Africa Science Focus featured an inspiring podcast series, showcasing conversations with notable women leaders in academic science across Africa. Among these distinguished leaders were Prof. Quarraisha Abdool Karim, an epidemiologist and Pro-Vice-Chancellor for African Health at the University of KwaZulu-Natal, South Africa, along with Dr Ameenah Gurib-Fakim, former and first female President of Mauritius and biodiversity scientist, and Dr. Marie Korsaga, West Africa's first female astrophysicist.

In her engaging interview, Prof. Abdool Karim conveyed the pivotal role of mentorship in shaping her career trajectory. Titled "Tales of Success, Setbacks, and Advice," the podcast episode captured Prof. Abdool Karim’s insightful narratives reflecting on her personal and professional journey, showcasing the profound impact of mentorship in fostering growth and resilience. Her compelling insights resonated with the overarching theme of International Women’s Day, amplifying the voices and contributions of women in academia and scientific leadership.

The podcast episode provides a transformative journey through the narratives of women in academic science, inviting listeners to engage with the enriching series. Prof. Abdool Karim's interview exemplifies the spirit of resilience, growth, and mentorship, reinforcing the invaluable contributions of women in academia and scientific leadership.

Listen to the podcast episode here: https://www.scidev.net/global/podcast/tales-of-success-setbacks-and-advice/
In March 2024, a social media campaign highlighting the importance of early diagnosis and treatment of drug-resistant TB in sub-Saharan Africa was launched to raise awareness about the complex challenges posed by drug-resistant TB and to highlight the urgent need for innovative diagnostic tools and early treatment approaches to combat this deadly disease effectively.

The CAPRISA TRIAD study consortium is assessing whether a novel Xpert XDR assay can be used as a triage tool for rapid, appropriate DR TB treatment in diverse African sites in South Africa, Ethiopia, and Nigeria. By shedding light on the impact of this novel drug-resistant TB diagnostic assay in sites at sub-Saharan Africa, this study seeks to make a tangible difference in the fight against TB.

The campaign emphasised the critical role of early detection, accurate diagnosis, and timely treatment in reducing the spread of drug-resistant TB and improving patient outcomes. By highlighting the innovative research conducted by the CAPRISA TRIAD study, the campaign aims to inspire action, raise awareness, and mobilise support to #EndTB and create a healthier future for individuals affected by drug-resistant TB in sub-Saharan Africa and beyond.

**Campaign To Raise Awareness and Combat Drug-Resistant TB In Sub-Saharan Africa**

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**2024 Forbes Woman Africa Award**

Prof. Quarraisha Abdool Karim, the Associate Scientific Director at CAPRISA, was honoured with the 2024 Forbes Woman Africa Academic Excellence Award in recognition of her significant contributions to academia and the advancement of scientific research in Africa and beyond.

The event also saw the recognition of other noteworthy individuals, including, African stateswoman and South Africa's former first lady Graça Machel who took home the 2024 FORBES WOMAN AFRICA Lifetime Achievement Award, Banyana Banyana head coach Desiree Ellis, South African actress Nomzamo Mbatha (2024 FORBES WOMAN AFRICA Entertainer Award), South African actress Connie Ferguson (2024 FORBES WOMAN AFRICA Media Icon Award), and CEO at EbonyLife Mo Abudu (2024 FORBES WOMAN AFRICA Businesswoman Award).

This distinguished gathering took place as part of the ninth annual FORBES WOMAN AFRICA Leading Women Summit on March 8, further underscoring the significance of the esteemed Forbes event in recognizing and celebrating the remarkable achievements of women across various fields.

**Celebrating Academic Achievement and Contributions to Public Health Research**

CAPRISA proudly congratulates Ms Nikita Chetty, a dedicated Research Assistant at CAPRISA’s Vulindlela Clinical Research Site, on the remarkable achievement of obtaining her Master’s degree in psychology from the University of KwaZulu-Natal.

Her academic journey has been marked by unwavering commitment and a passion for exploring the intersection of social media, mental health, and vaccine acceptance in the context of the coronavirus pandemic. Ms. Chetty’s dissertation, titled “Students’ Perceptions of Social Media Information Amidst the Coronavirus Pandemic and Its Impact on Mental Health and Vaccine Acceptance,” significantly contributes to the field of public health research. The entire CAPRISA community extends its heartfelt congratulations to Ms. Nikita Chetty for her outstanding accomplishments and invaluable contributions to the body of knowledge in public health research.
CAPRISA scientists presented a diverse range of research studies at the 31st Conference on Retroviruses and Opportunistic Infections (CROI), held from 3 - 6 March 2024 at the Colorado Convention Center in Denver, Colorado, USA. The in-person conference, attended by over 2000 stakeholders, featured “innovative interactive sessions, rich poster sessions, and networking opportunities”. Dr. Anushka Naidoo’s (PI INSIGHT Trial), oral presentation of data on the CAPRISA 093 INSIGHT Trial preliminary results, generated widespread media coverage and discussion.

Dr. Anushka Naidoo, Co-PI CAPRISA 018 study presented the primary outcome of the TAF implant trial in an oral presentation entitled: “Phase I Safety, Tolerability and Pharmacokinetics of Tenofovir Alafenamide Implants in African Women”. Gengiah shared the primary findings from the CAPRISA 018 study - the first-in-human trial of the TAF implant on 4 March 2024 in the session: Game Changers in Prevention of HIV and Sexually Transmitted Infections - Oral-04. A poster titled: 'CAPRISA 018 Trial: Acceptability of Tenofovir Alafenamide Implants for HIV Pre-exposure Prophylaxis (PrEP) in African Women,’ in the session: PrEP: Novel Products, Strategies, and Delivery Systems,” was presented by Mr Craig Heck, PhD candidate, Department of Epidemiology, Columbia University, on 5 March 2024. On 6 March 2024, Dr Anushka Naidoo’s presentation on an abstract titled: “Efficacy, Safety, and PK of BIC/FTC/TAF in Adults with HIV and Tuberculosis on Rifampicin at Week 24” was presented in the special session for Clinical Late-Breaking Oral Abstracts.

At one of the final sessions, a symposium titled, “Promise and Pitfalls of Biomedical Prevention: Beyond Phase III”, three presentations highlighted the status of “approved products and the need for choice”. Dr Leila Mansoor, Senior Scientist, was invited to deliver a presentation and laid out the complex journey of the dapivirine vaginal ring (DVR).

Prof Nigel Garrett, national Co-PI of SHERPA, and International Co-Chair of Ubuntu and collaborators presented the main findings of the SHERPA and Ubuntu mRNA-1273 COVID-19 vaccine trials, an immunology sub-study of the HVTN 108 trial, and a costing study from the CAPRISA 091 STREAM HIV implementation trial. Garrett presented a Late Breaker Poster Presentation titled, “Heterologous mRNA-1273 Boost After Ad26.CoV2-S Prime in Health Workers in South Africa: SHERPA Trial”.

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Prof Nigel Garrett and Dr Anushka Naidoo, alongside Dr Leila Mansoor and Dr Tanuja Gengiah, at the CROI conference, delving into discussions on rare viruses and opportunistic infections at the Colorado Convention Center.

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CAPRISA hosted the first HPV and Cervical Cancer Prevention Workshop on 19 March 2024 at the Africa Health Research Institute, Nelson R. Mandela, School of Medicine. The workshop was co-chaired by Prof Busiswe Ncama, Deputy Vice-Chancellor and Head of the College of Health Sciences at the University of KwaZulu-Natal (UKZN), and Dr Nivashnee Naicker, lead investigator on the CASCADE Clinical Trials Network at CAPRISA. Guests included representatives from the provincial Department of Health, UKZN’s Cancer & Infectious Diseases Epidemiology Research Unit (CIDERU), the National Health Laboratory Service (NHLS) and the provincial Department of Education. The meeting agenda included talks on HPV epidemiology, cervical cancer and current policy, modalities for HPV testing and HPV vaccination by senior scientists at CAPRISA as well as external speakers.

The workshop provided a substantial opportunity for discussion and engagement with key stakeholders involved in cervical cancer prevention efforts in KwaZulu-Natal. Dr Naicker, who will be undertaking relevant clinical trials in women living with HIV through the NIH-funded CASCADE Clinical Trials Network, said that “the workshop was a seminal event bringing together key role-players in the field, with a wider aim of meeting the WHO 90-70-90 targets for cervical cancer prevention locally, in keeping with the Global Strategy for Cervical Cancer Elimination. While several gaps exist in current care pathways for women, reducing these gaps must remain a high priority, particularly in regions with a high burden of HIV, where women are most affected by cervical cancer.”
Community Engagement: Zikhalakanjani? Ungayphethe i-Condom!

The CAPRISA Community team made a significant impact during their visit to the Mangosuthu University of Technology, KwaZulu-Natal, South Africa, on 7 March 2024. The primary focus of the outreach was to raise awareness about HIV, emphasising the importance of safe sex practices and reproductive health. Mr. Patrick Mdletshe, Head of Community Programmes, delivered a compelling address, discussing critical topics such as unplanned pregnancy, abstinence, and safe sex under the theme: Zikhalakanjani? Ungayphethe i-Condom, which means “How could you have sex without a condom”. Zikhala Kanjani is a South African HIV response youth-led programme targeting youth in high-learning institutions. The engagement session effectively highlighted the potential risks associated with unprotected sexual activity, underlining the importance of informed decision-making regarding sexual health.

This event showcased CAPRISA’s commitment to fostering open conversations and education around essential public health issues. Community engagement plays a pivotal role in dispelling myths, creating awareness, and equipping individuals with the knowledge to make responsible choices for their health and well-being. The proactive efforts of the Community team at CAPRISA underline the organisation’s dedication to promoting health and well-being within the community. By actively engaging with educational institutions and community members, CAPRISA continues to foster a culture of open dialogue and awareness, empowering individuals to make informed decisions that positively impact their health and the well-being of their communities. The visit to the Mangosuthu University of Technology exemplifies CAPRISA’s commitment to fostering dialogue, awareness, and empowerment in the fight against HIV and other critical public health challenges.

Symposium On Emerging Tuberculosis Drug Resistance: Insights from CAPRISA Deputy Director and Research Fellow

Prof Kogie Naidoo, CAPRISA Deputy Director, served as a member of the organising committee of the Symposium on Emerging Resistance to Novel Tuberculosis Drugs held on March 20th and 21st, 2024, at the Columbia University Irving Medical Center in New York. Dr Norbert Ndjeka, Chief Director of TB Control and Management at the SA National Department of Health, also a CAPRISA Research Fellow, delivered a presentation titled, “New drugs for drug-resistant TB in a high TB burden setting: Leadership, opportunities, and the challenges of emerging drug resistance in South Africa”.

The symposium had global representation with attendees that included among others, academics, clinicians, scientists, policymakers, implementers, advocates, TB survivors, journal editors, and technology partners. "This symposium was undoubtedly one of the best TB conferences of the year!” said Columbia University’s Prof Max O Donnell.

CAPRISA’s Dr Leila Mansoor at the Gilead Investigator Research Update Meeting

Dr Leila Mansoor, Senior Scientist at CAPRISA, attended the international stage at the Gilead Investigator Research Update Meeting in Denver, Colorado on 3 March 2024. Her exceptional contributions were highlighted as she joined a select cohort of 60 Investigators from 12 countries, extending CAPRISA’s impactful presence on the global research landscape. The meeting provided a significant platform for Dr Mansoor and other Investigators to engage in comprehensive discussions on the Gilead HIV Clinical Development Program and HIV Treatment and Prevention Program.
A SELECTION OF PUBLISHED SCIENTIFIC PAPERS

2023 Continued


2024


* continuation from previous newsletter

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