

THE  
ROAD AHEAD  
FOR NICD IN

PUBLIC

HEALTH

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MESSAGE FROM  
**THE EXECUTIVE  
DIRECTOR**

*Prof Adريان Puren*

Welcome to the latest edition of Pulse, highlighting the commendable efforts of our colleagues at the National Institute for Communicable Diseases (NICD). This issue contains stories of dedication and progress, including insights from the recent TB Research Network Innovation Summit in Durban, South Africa.

The summit convened health scientists from various countries to reaffirm their commitment to addressing the TB epidemic. Discussions, led by the Head of the Centre of TB, focused on diagnostic strategies, emphasising the collaborative and innovative approach advocated by the 2023 UN High-Level Meeting on TB.

We acknowledge the valuable contributions of our transversal departments, the IT department led by Gloseije Bazolana, and the biosafety and security department led by Zibusiso Masuku, demonstrating NICD's commitment to public health.

Initiatives to strengthen cybersecurity in high-containment laboratories and support employee well-being reflect our comprehensive approach to institutional excellence.

Congratulations to Prof Cheryl Cohen, Prof Penny Moore, Dr Sibongile Walaza, Dr Jinal Bhiman, Nevashan Govender, Darren Muganhiri, and Wellington Maruma for their achievements, demonstrating NICD's commitment to excellence in public health.

As we look ahead, let us remain steadfast in our dedication and united in overcoming challenges as we strive for excellence in all our endeavours. I encourage you to explore the latest NICD Pulse, which is now available on our website. Enjoy the informative content and anticipate the promising advances ahead with optimism.



# MEET OUR *Editorial* TEAM



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## What are People Saying on Social Media?

**Joël Mossong** @joel\_mossong  
Good to see HIV prevalence falling by 2.5% in 3 years in antenatal surveys South Africa.

**NICD** @nicd\_sa · Jan 29  
The latest HIV Sentinel Survey reveals an encouraging 2.5% drop in HIV prevalence nationwide. KwaZulu-Natal & Eastern Cape were hit hardest, while the Western Cape saw the lowest rates! Get the full scoop on this game-changing shift in HIV trends here: [ow.ly/HMeP50Qulb9](https://ow.ly/HMeP50Qulb9)

**ANTENATAL HIV SURVEY**

National HIV prevalence drops to 27.5%, a 2.5% decline since 2019. KwaZulu-Natal leads at 37.2%, while the Western Cape records the lowest at 16.3%. All provinces show lower HIV rates.

Public Health Bulletin South Africa

**National Institute for Communicable Diseases**  
Published by Hootsuite · January 25 at 8:00 AM · 🌐

The secret to germ-free hands with our five-step handwashing routine – specially designed for our future leaders.

#Back2SchoolHeroes #FutureLeaders

Edit

Laura De Almeida and 11 others · 2 🗨️ 1 ➦

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Most relevant

**Nyana Mashiane**  
THANKS FOR NOTIFYING US, WE WILL PRACTISE HYGIENE EVERYDAY

1w Like Reply Hide 🙌👍 2

**Ryan Hisner** @LongDesertTrain

Phenomenal 📄 by @Tuliodna describing a wild new BA.2 lineage circulating at low levels in South Africa. Incredible find by one of the best & most valuable teams in the world. We're all in their debt. Thank you, @Dikeled61970012, @nicd\_sa, @DarrenM98230782, @houzhou, & team.

**Tulio de Oliveira** @Tuliodna · 20h  
Release of 8 new genomes of a new lineage of SARS-CoV-2 with > 100 mutations from South Africa. This is probably the most divergence lineage identified this year. In this thread, we highlight some of the characteristics of the new BA.2.X lineage and epidemiology in SA.

1:26 PM · Feb 1, 2024 · 34.8K Views

🗨️ 9 🔄 91 ❤️ 365 📌 36 ➦

mmabatho mashikinya commented on your company's update

Thank you for the update. Highly needed for most communities.

If access to clean and safe drinking water is limited, it is crucial to boil water before...

30 Reactions · 1 Comment

Respond

**Jesca Birungi** · 3rd+  
BIOSTASTICIAN: MBO | BST-B | Virtual assistant | Data analysis Enthusiast

That sounds like an incredible experience! It's important to take necessary precautions to enjoy the safari to the fullest. Thanks for sharing these helpful tips!

Like · 🗨️ 2 | Reply

**Jesca Birungi** · 3rd+  
BIOSTASTICIAN: MBO | BST-B | Virtual assistant | Data analysis Enthusiast

Thank you for sharing this important information. It's crucial to be aware of the symptoms and seek proper testing if necessary. Safety should always be a priority.

Like · 🗨️ 1 | Reply



The Head of TB Centre, Dr Shaheed Omar (far left) with colleagues at the Brick TB Research Network Innovation Summit.

## BRICS TB Research Network Innovation Summit, Durban, South Africa 11<sup>th</sup> to 14<sup>th</sup> December 2023

By Dr Shaheed V Omar

Health scientists from BRICS countries convened in Durban from the 11<sup>th</sup> to the 14<sup>th</sup> of December 2023 and pledged their commitment to the TB Research Network partnership, emphasising the urgent need to eradicate the TB epidemic. They aim to collaborate towards the shared goal of eliminating TB, which remains the second leading infectious killer disease and presents a challenge for the five countries in achieving several Sustainable Development Goals (SDGs). Collectively, BRICS countries shoulder a significant portion of the global TB burden. The NICD was represented by the Head of the Centre of TB, forming part of the South African delegation, to participate in the thematic area of TB diagnostics.

TB researchers, programme managers, and public health specialists from the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China, the Republic of South Africa, and the World Health Organization convened at the summit. They acknowledged the importance of robust collaboration and innovation in addressing TB's substantial impact within their nations.

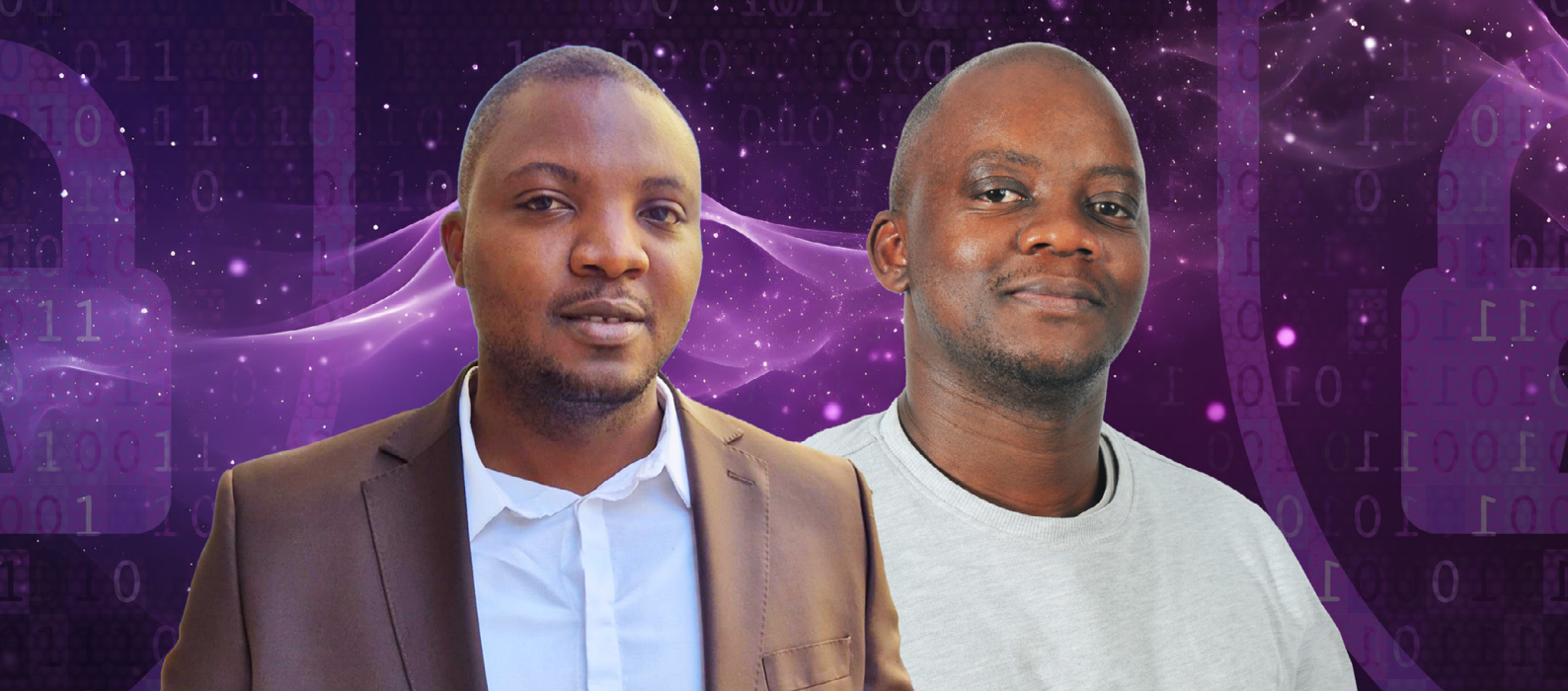
Delegates unanimously endorsed the targets and commitments of the 2023 United Nations High-Level Meeting (UN HLM) on TB. Key priorities include strengthening

research capacity and collaboration through TB research platforms and networks, supporting the WHO TB Vaccine Accelerator Council, integrating the TB Vaccine within the existing BRICS vaccination group, and increasing investments for TB Research & Development within BRICS countries and beyond.

The summit underscored concerns regarding the lack of new diagnostics, medicines, and vaccines necessary to combat TB. However, delegates agreed on the importance of collaboration among member states in technology transfer, information sharing, and knowledge exchange to enhance surveillance, clinical care, and patient-centred innovations across the entire TB management cascade, including social protection mechanisms.

Experts also emphasised the need for transnational cooperation to finance, enable, and conduct research essential for transitioning BRICS countries from consumers to suppliers of affordable and accessible innovative tools to combat the disease. As part of the summit's resolutions to accelerate TB response, delegates recommended that the WHO Global Tuberculosis Program consider convening a face-to-face meeting of the BRICS TB Research Network, with the inclusion of additional member states joining BRICS in 2024.





Gloseije Bazolana, Acting Head of IT Section and Head of Software Development department and Themba Ngubeni, Head of ICT Infrastructure and Support department.

# Technological Symphony: A Glimpse into NICD's IT Operations

By **Laura De Almeida**

In the intricate web of the National Institute for Communicable Diseases (NICD), the Information Technology (IT) Department serves as a crucial anchor, coordinating essential services that drive the organisation's mission.

The Acting Head of IT, Gloseije Bazolana, leads this collective effort, providing vision and leadership to the team. Bazolana says he is proud of the IT team's commitment and innovation in harnessing technology to support and advance the organisation's goals. The IT section comprises two key departments: Software Development and ICT Infrastructure and Support.

"Our Software development department's dedication has been particularly evident in developing and enhancing the Notifiable Medical Condition (NMC) system and maintaining critical internal software systems. This platform stands out as a testament to our ability to contribute meaningfully to public health and surveillance," said Bazolana.

Beyond the NMC system, the IT department supports and developed the Outbreak Response System (a blueprint to manage outbreaks), which has been pivotal in enhancing NICD's organisational efficiency and response to public health emergencies, including the COVID-19 outbreak.

The department has distinguished itself in ICT Infrastructure and Support, consistently addressing critical issues to ensure stable and well-maintained availability of essential services such as internet access, email, and various other services.

"Our ability to maintain such a high level of service amidst budgetary constraints and technological challenges is evident in the ingenuity and resourcefulness of our team. It highlights the strategic importance of our IT department in ensuring that our organisation remains agile, responsive, and capable of fulfilling its vital role in public health and surveillance," said Bazolana proudly.

On a personal level, Bazolana has been selected, for a second year in a row, as one of the top 50 leaders to watch in 2024 by the Digital Transformation Summit held in March in Johannesburg. The 27th Edition of the Digital Transformation Summit South Africa creates a platform for strategic partnerships between sectors and industry players, answers real business challenges, and focuses on skill development to help accelerate South Africa's digital transformation.



## A PINNACLE OF COMMITMENT, CONTRIBUTION, AND COMMUNITY IMPACT



The images above showcase officials from the National Institute for Communicable Diseases (NICD) commemorating World Pneumonia Day across six facilities nation-wide.

### By Koketso Matjane & Rixongile Malomane

In 2009, the National Institute for Communicable Diseases (NICD) embarked on a pioneering journey with the launch of the Pneumonia Surveillance Programme, an innovative initiative dedicated to collecting respiratory samples from patients across various healthcare facilities. Fast-forwarding to 2023, the NICD's Centre for Respiratory Diseases and Meningitis (CRDM) orchestrated a poignant and impactful initiative on November 10th to commemorate World Pneumonia Day, leaving an enduring imprint on communities and fostering deeper connections among NICD personnel.

The driving force behind this heartfelt initiative emanates from the dedication of patients who willingly contributed respiratory samples to advance the NICD's research. In a bid to give back to these communities, the NICD, through its Centre for Respiratory Diseases and Meningitis, meticulously organised an event aimed at raising awareness about pneumonia.

The success of this initiative relied significantly on the pivotal role played by field project coordinators stationed in Gauteng, Mpumalanga, the North West, the Eastern Cape, Kwa-Zulu Natal, and the Western Cape provinces. This initiative brought a feeling of inclusion to surveillance

officers in these provinces, as World Pneumonia Day had not been observed in their facilities before, rendering it a distinctive and all-encompassing experience.

With an inclusive approach and no specific criteria for participation, NICD personnel empowered patients through informative health talks on pneumonia, covering symptoms, treatment, and prevention. Educational posters were distributed to the respective facilities, enhancing awareness. Additionally, despite the limited external collaborations, an official at Tshepong Hospital made notable contributions that increased the effectiveness of this initiative.

The NICD's World Pneumonia Day Initiative of 2023 not only showcased the Institute's unwavering commitment to public health but also highlighted the profound impact of community engagement. Through the celebration of contributions from patients and personnel alike, the NICD continues to construct bridges of understanding, awareness, and support in the ongoing battle against respiratory diseases. This marks a new precedent for commemorating World Pneumonia Day through meaningful community engagement.





*Regional Diagnostic Demonstration Centre (RDDC) Opening on 9 December 2022, From left to right: Dr Karmani Chetty, CEO of the NHLS; Dr Talkmore Maruta, Director of Programs – ASLM; Dr Mathume Joseph Phaahla, Minister of Health; Dr Reuben Brigety II, U.S Ambassador to RSA; Prof Eric Buch, Chairman of the NHLS Board; Mr Zibusiso Masuku, Biosafety Technical Manager - NICD.*

## By Nande Harmans

Zibusiso Masuku who prefers to be addressed as Zi -Biosafety Technical Manager, the youngest of four brothers hailing from Richmond, Bulawayo, Zimbabwe, was nurtured in a household of esteemed professionals. His father, a skilled artisan, passed down his passion for technology, while his mother, a dedicated teacher (and later an ordained minister), instilled values of self-sufficiency and diligence. Fondly reminiscing, Zi recalls his carefree late father and his meticulous mother, who fostered independence in their boys.

Childhood memories paint a picture of a sprawling yard where they cultivated their food, with Zi and his brothers spending rainy seasons clearing leaves and indulging in the peculiar delight of frying spring rain termites. Guided by his mother's teachings, they learned self-sufficiency, mastering cooking and cleaning skills.

He pursued his studies in Industrial and Manufacturing Engineering through a scholarship from Unilever, dedicating five years to earn his honours degree. This educational journey resonated deeply with him as he thrives on making improvements and optimising systems, regardless of the field. His passion for efficiency led him to South Africa in 2008, where he joined a consulting company tasked with upgrading the BSL4 Lab, exposing him to the highest containment spaces.

Recognising a crucial need for engineering tech support in the labs, Professor Paweska identified Zi as the ideal candidate to fill this role. With a clear understanding of biosafety and biosecurity— Zi seamlessly transitioned into his role as a biocontainment engineer, ensuring the safe and secure operation of facilities storing highly infectious pathogens.

Zi fervently highlights the significance of biosafety and biosecurity in safeguarding against pathogens and ensuring community well-being. "Biosafety concerns itself with averting accidental exposure to harmful pathogens within laboratories and facilities, while biosecurity is dedicated to thwarting deliberate misuse or theft of pathogens,

exemplified by incidents such as the 2001 Anthrax attacks. Maintaining stringent protocols and vigilant monitoring is imperative to regulate access and prevent unauthorised handling or theft of pathogens." Any breaches in these measures could have dire repercussions for public health and a nation's global standing, underscoring the critical importance of adhering strictly to safety and security standards, particularly in light of the potential dangers posed by highly contagious diseases like Ebola.

Despite his demanding professional life, Zi finds solace and inspiration in the simplicity of his daily routines. Monday symbolises a fresh start, a day for renewed vigour and purpose, while shower time sparks creativity and clarity of thought. His mornings are filled with the joyful chaos of school drop-offs singing along to Gregory Salter-I'm Your Friend, with his children and wife.

His primary source of fulfilment stems from nurturing the growth of others, as demonstrated by his unwavering commitment to the Regional Disease Diagnostic Centre (RDDC). This platform serves as a testament to institutional capabilities and significantly influences global health initiatives. Since its establishment in April 2022, the RDDC has provided training to over 800 participants worldwide, symbolising a beacon of hope for bolstering public health infrastructure. Zi and his team the RDDC have successfully trained over 700 colleagues across 35 countries in Biosafety and Biosecurity. As he perseveres in this endeavour.

As he navigates his career path, Zi remains grounded in his vision for a safer and more prosperous Africa, aligning his efforts with national and international objectives in public health governance. His involvement with the World Health Organization's Technical Advisory Group – Biosafety (TAG-B) underscores his commitment to global health governance and knowledge-sharing. His aspiration is for future generations to benefit from the legacy of opportunity and progress he strives to cultivate. As he continues to sow seeds of change, Zi remains modest, guided by the belief that true wisdom lies in planting trees whose shade he may never personally enjoy.



# Improving Cybersecurity in High-Containment Laboratories



Cybersecurity training for high containment laboratories held at the NICD Regional Diagnostic Demonstration Centre (RDDC) on 19<sup>th</sup> February 2024. The training was facilitated by Ms Kovashnee Naidoo (Second from left) – Centre for Emerging, Zoonotic and Parasitic Diseases (CEZPD) and Mr Günther Meier – Division of Biosafety and Biosecurity DBB (far left).

## By Kovashnee Naidoo

Today, the leading industry targeted by cyber-criminals is the healthcare domain, where successful breaches result in a loss of scientific integrity, confidentiality, and availability of data. The modernisation (automation and digitalisation) of high containment laboratories (HCLs) has led to increasingly cyber-connected laboratory infrastructure needed for improved functionality. This, together with the critical and sensitive data generated in HCLs, places these environments in vulnerable threat landscapes posing extensive cybersecurity concerns specific to these facilities.

Although HCLs are designed with enhanced safety and security features, these do not extend to include emerging cyber-biosecurity considerations that occur at the biological and digital interface. These additional potential cyber-risks remain underappreciated within HCLs and can be poorly addressed due to the lack of knowledge and/or deficiency in achieving cyber-

resilience. The dual-use research of concern (DURC) capability of these laboratories due to the select agents handled here, further warrants the need to improve the cyber-hygiene of HCLs.

To raise much-needed awareness, a successful pilot locally-led training event for cybersecurity in containment laboratories was held on 19 February 2024 at the Regional Diagnostic Demonstration Centre (RDDC), from a perspective relevant to NICD HCLs. The training enabled participants to be able to understand basic cybersecurity concepts; fundamentals of cyber hygiene; how to assess cyber risks through asset identification; and map out a cyber workflow to conduct a risk assessment (RA) geared toward cybersecurity vulnerabilities. Using collaborative efforts, we aim to help improve the cyber-hygiene posture of HCLs at the NICD so operations can continue in the face of cybersecurity adversities.



# Training & Development

1. In December 2023, Ms Laura De Almeida and Ms Koketso Matjane from the National Institute for Communicable Diseases (NICD) Communications Unit participated in a specialised training programme on Social Listening for Infodemic Management, conducted collaboratively by the World Health Organization South Africa, Africa Infodemic Response Alliance, and the National Department of Health. The programme has equipped them with the skills and knowledge needed to use online conversations and public discussions to navigate and manage the spread of misleading information during critical events, particularly health crises.



2. In December 2023, we celebrated completing the Advanced South Africa Field Epidemiology Training Programme (SAFETP) with a farewell ceremony. This ceremony marks the culmination of the trainees' Advanced FETP journey, and we take immense pride in the positive impact our Advanced SAFETP graduates have on our nation's health. A trainee who completes the programme is awarded a Master of Science (MSc) degree in Field Epidemiology from either the University of Pretoria or the University of the Witwatersrand.



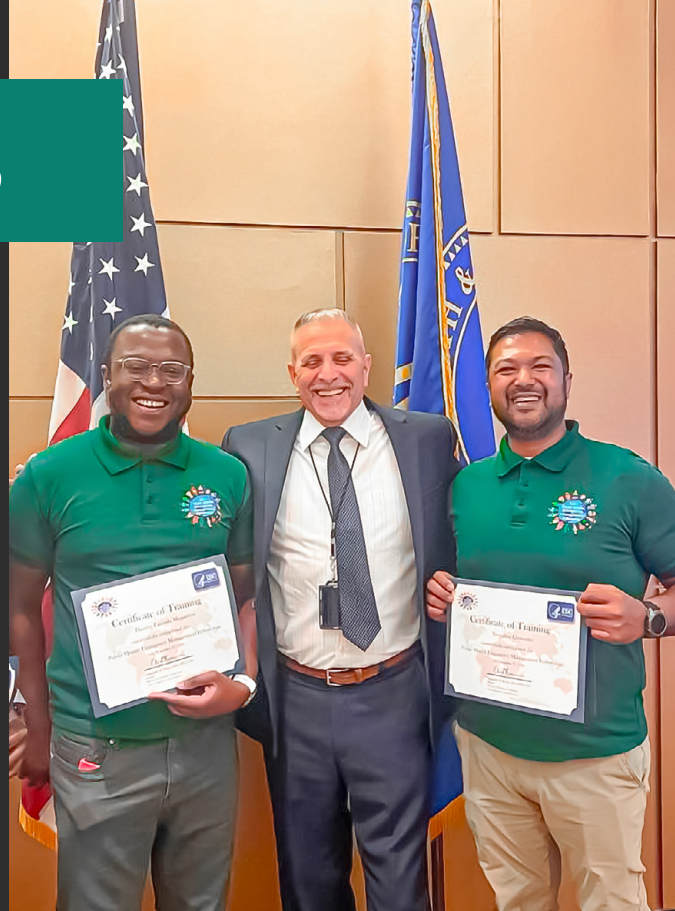
3. The NICD's biosafety team played a vital role in assisting the World Organisation for Animal Health (WOAH, founded as OIE) with its Fortifying Institutional Resilience Against Biological Threats (FIRABioT) project. This initiative focused on enhancing the preparedness of Member States in Africa to effectively respond to emergencies. The team's support extended to Malawi and Zimbabwe, where they took the lead in developing and facilitating biorisk management training programmes. The training courses were meticulously designed and delivered in alignment with the Regional Training and Certification Program for Biosafety and Biosecurity Professionals (RTCP-BBP), specifically the Biorisk Management (BRM) Level 1 course.



# Achievements

## Pioneering Excellence: Two NICD Staff Graduate from the US CDC Public Health Emergency Management Fellowship

Mr Nevashan Govender and Mr Darren Mughaniri made history as the first two fellows from South Africa to graduate from the prestigious Public Health Emergency Management Fellowship offered by the US CDC in Atlanta. Among 25 fellows from 17 countries, their presence in this diverse programme enriched the learning experience, fostering a global community of emerging experts in public health emergency management. This achievement marks a significant step forward for South Africa in the global public health stage, inspiring future participants and creating lasting impacts on emergency management in the country and beyond.



(Left to right): Darren Mughaniri (Epidemiologist, NICD), Mark Pereschuk (Program Specialist PHEM Fellowship Coordinator, US CDC), Nevashan Govender (Emergency Operations Centre Manager, NICD)

## Epidemiologist Extraordinaire: Celebrating Mr Wellington Maruma's Award-Winning Achievements

Mr Wellington Maruma, a Field Epidemiologist with NICD's Provincial Epidemiology Team, received the Chief Directors Award at the annual 2023/24 Lekgotla for strategic health planning event, recognising his contributions towards the development of various systems to improve data quality for various programmatic data coordinated through the provincial nerve centre. This data management centre was strengthened during the COVID-19 response. Moreover, the award recognised his technical support

in the development of online dashboards for various surveillance outputs that facilitate real-time data-driven decision-making. He also re-engineered the development of the Provincial Phuthuma online system while also ensuring regular updates of disease surveillance outputs through automated reports to programme managers. His multifaceted contributions, from outbreak responses to technological advancements, mark a commendable journey in advancing public health initiatives.



# Pioneering Progress in Health Sciences: NICD scientists Acknowledged at 10<sup>th</sup> Scientific Merit Awards

The NICD congratulates Prof Cheryl Cohen, Prof Penny Moore, Dr Sibongile Walaza and Dr Jinal Nomathemba Bhiman who were honoured with gold and silver medals at the 10th South African Medical Research Council (SAMRC) Awards in Cape Town in March. The SAMRC Awards honour distinguished contributions to

health research and recognise individuals who have demonstrated extraordinary scientific acumen or made innovative strides in addressing public health challenges, potentially influencing policy and thereby enhancing the well-being of the South African population.



## GOLD AWARDS



**PROF CHERYL COHEN**

Head of Centre for Respiratory Diseases and Meningitis

[WATCH Cohen's SAMRC Gold Medal video](#)



**PROF PENELOPE MOORE**

Head of the HIV Virology Section, Centre for HIV and STIs (CHIVSTI)

[WATCH Moore's SAMRC Gold Medal video](#)

## SILVER AWARDS



**DR JINAL N. BHIMAN**

Co-principal investigator for Global Immunology and Immune Sequencing for Epidemic Response in South Africa (GIISER-SA)



**DR SIBONGILE WALAZA**

Section Lead: Epidemiology, Centre for Respiratory Diseases and Meningitis

