NICD J PMLSE

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

NICD DESIGNATED AFRICA CDC CENTRE OF

EXCELLENCE

MEET OUR Editoria TEAM

Athenkosi Mjobo **Graphic Designer**

Koketso Matjane **Client Liaison &** Marketing Officer

Laura De Almeida Publications Officer

Vuyo Sabani Senior Communications Manager

Mandy Tsotetsi Communications Manager

MFDIA?

Nande Mbanga **Editorial Specialist**

WHAT ARE PEOPLE SAYING ON SOCIAL

Siyabonga Mbatha Web Content Specialist

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4 August 🐠 nicd_sa 🥹 Vindana Chibabhai - 1st for Healthcare Associated infections. Anti Head - C 1mo • S With the new school year just starting, it's the perfect time to remind kids...and adults, about handwashing. What a great poster to put up in classrooms and school bathrooms Roses are red, violets are blue. National Institute for Communicable Diseas 36,229 follo 1mo • 🕲 STIs are real, Did you know washing your hands at specific times can prevent the spread of germs? This includes before and a prevent the a eating food. so take care of you! INAL INSTITUTE FOR The NAT

Key times to wash your hand

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Comments

Before, during, and after handling

Before and after treating a cut or wound

After using the toilet

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The only thing you should catch this SAFEGUARDIN Valentine's Day is feelings. OUR FUTURE LEADERS

♥ 16 Q 2 ♥ 7 Siked by _itsme.lola_ and others

nicd_sa Falling in love? That's contagious. But so are some infections. This Valentine's Day, protect your heart and your health-get tested, get vaccinated, and practice safe love!

#HappyValentinesDay #HealthyInLove #SpreadLoveNotGerms



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MESSAGE FROM THE EXECUTIVE DIRECTOR

Dear Colleagues,

In this issue of Pulse, NICD's quarterly newsletter, we bring you the latest updates from across the organisation. Our cover story highlights an exciting milestone – the NICD has been designated as a Center of Excellence (CoE) under the Africa CDC Regional NPHI Capacity Strengthening Initiative. The establishment of National Public Health Institutes (NPHIs) across the continent marks a significant step forward for public healthcare in Africa, and we are proud to play a role in this initiative.

We also celebrate another significant achievement – the installation of a state-of-the-art sequencing machine at the NICD's Sequencing Core Facility. The arrival of the Illumina NovaSeq X Plus sequencer late last year represents a leap forward in our surveillance and research capabilities. With this cutting-edge technology, we can accelerate genomic surveillance and advance public health initiatives more effectively.

Research is at the heart of what we do. In this issue, we feature two important research initiatives. The first, a collaboration with multiple partners, reveals that cash and counselling interventions can improve TB outcomes by 50%. This finding is particularly significant, as economic and behavioural factors often contribute to poor treatment outcomes. The second initiative, led by the Centre for Vaccines and Immunology in partnership with the Gauteng City-Region Observatory, examines how laboratory results from wastewater monitoring can help us understand population dynamics in different Gauteng communities. These findings underscore the significance of wastewaterbased epidemiology in shaping public health strategies.

Capacity building remains central to our mission. This issue highlights the GenE8 (Genomics for Malaria in the Elimination 8 Region) project, a collaboration involving the Centre for Emerging Zoonotic and Parasitic Diseases. This initiative aims to generate malaria parasite genomic data and strengthen genomic translational capacity within E8 National Malaria Programs. Additionally, we profile the Division of Biosafety and Biosecurity, showcasing their crucial role in ensuring laboratory safety.

On a lighter note, we take a moment to chat with Sister Ida Jordaan, our Occupational Health Nurse, who shares insights into her role in keeping our team healthy.

We hope you find these stories insightful and inspiring. Happy reading!



Executive Director Prof. Adrian Puren (holding a certificate) and Deputy Director Dr Natalie Mayet (holding a trophy) with staff members displaying a certificate and a trophy awarded to the NICD by the Gauteng Department of Health in recognition of its efforts in combating the COVID-19 pandemic.

NICD designated as a Regional Centre of Excellence – A move bringing us closer to the "New Public Health Order"

By Laura De Almeida

The National Institute for Communicable Diseases (NICD) has achieved a significant milestone, being recognised as a regional Centre of Excellence (CoE) by the Africa Centres for Disease Control and Prevention (Africa CDC). This recognition is not just a title, but a testament to NICD's dedication to strengthening public health systems and protecting communities across the continent. It's a moment of pride for all of us and a reason for confidence in NICD's capabilities, as stated by the NICD Executive Director, Prof. Adrian Puren.

Public health is a team effort, and National Public Health Institutes (NPHIs) are at the heart of it. NPHIs are government agencies or academic institutions that are responsible for disease surveillance, outbreak response, and health promotion. They also play a crucial role in training future health leaders and conducting research. From tracking disease outbreaks to training future health leaders, NPHIs play a vital role in strengthening health security across the continent. To support and amplify these efforts, Africa CDC has created regional Centres of Excellence – spaces for collaboration, innovation, and knowledge-sharing among member states.

In recognising the NICD's leadership and technical expertise, Africa CDC stated: "Following a rigorous

continent-wide capacity assessment of NPHIs, your institute has been selected as a CoE in recognition of its advanced capacities and commitment to leadership." The NICD's past achievements, such as its role in the Ebola outbreak response and its development of innovative disease surveillance systems, were key factors in this recognition.

With this designation, the NICD will become a hub for technical support, training, and mentorship. It will also work closely with other public health institutes to strengthen disease surveillance, outbreak response, research, and workforce development.

Prof. Puren added that collaboration and knowledge sharing across the continent will move us closer to the 'New Public Health Order.' The NICD is not just committed but determined to stay the course and work hand-in-hand with Africa CDC and fellow NPHIs to create lasting change. This commitment is a reason for hope and optimism about the future of public health.

"A heartfelt thank you to our incredible NICD team – your passion and dedication to public health inspire us all. As we take on this new chapter, we do so with a renewed sense of purpose, collaboration, and an unwavering commitment to the health of Africa," concluded Prof. Puren.

Installation of the latest sequencing machine will enhance the detection of infectious diseases

By Vuyo Sabani

The National Institute for Communicable Diseases (NICD) has taken another major step forward in its mission to enhance the detection and study of infectious diseases with the installation of South Africa's first Illumina NovaSeq X Plus sequencing instrument.

This cutting-edge technology marks a significant milestone for the Institute and reinforces the importance of investing in robust genomic surveillance systems. "As we navigate the evolving landscape of infectious diseases, it is critical to strengthen our genomic surveillance efforts," said Prof. Arshad Ismail, head of the Sequencing Core Facility. NovaSeq X Plus is a next-generation, high-throughput sequencing platform that will significantly enhance the NICD's research capabilities, accelerating genomic surveillance and public health initiatives.

"Emerging pathogens, antimicrobial resistance, and endemic diseases pose major challenges to global health. NovaSeq X Plus is a powerful tool that will strengthen our ability to respond to these threats and improve public health outcomes. We are eager to explore its potential for groundbreaking research and to collaborate with the broader scientific community," added Prof. Ismail.

Key features of the NovaSeq X Plus:

- Unprecedented through put Offers unparalleled sequencing speed and capacity, allowing for larger sample processing in less time.
- **High accuracy** Advanced error correction algorithms and high-resolution optics ensure precise sequencing data.
- **Scalability** Supports both small and large-scale studies with flexible sequencing options.
- **Cost efficiency** Optimised operations reduce costs, making high-throughput sequencing more affordable.
- Advanced software Integrated with cuttingedge data analysis tools and cloud-based platforms for streamlined data management and faster insights.

Prof. Ismail emphasised that the NovaSeq X Plus will be instrumental in various applications, including genomic surveillance for pandemic preparedness, tracking foodborne and waterborne illnesses, monitoring respiratory disease spread, and investigating zoonotic outbreaks.

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A new study shows cash and counselling can improve TB outcomes by 50%

A groundbreaking study conducted by the National Institute for Communicable Diseases (NICD) in partnership with Wits University has revealed that tuberculosis patients who receive cash incentives and counselling have a 52% lower relative risk of having an unsuccessful treatment outcome.

This study's findings are critical as economic and behavioural factors lead to poor outcomes in patients with tuberculosis. The study, which was published in February in the Lancet Infectious Diseases Journal, was led by Professor Nazir Ismail from Wits University (former NICD TB Centre Head).

"Combining tuberculosis pre-test and posttest counselling with conditional cash transfers significantly reduced the risk of unsuccessful patient outcomes and improved the overall treatment success rate from 66.9% to 82.0%, bringing one of the 90–90–90 targets within reach," stated the authors in the Lancet Infectious Diseases Journal.

The reduction of pretreatment loss to follow-up is expected to reduce community transmission of tuberculosis, leading to lower incidence over time, a key goal of the End TB strategy. Loss to follow-up refers to persons diagnosed with TB who either do not start treatment or who stop treatment during care. Cash transfers were conditional upon participants attending their appointments within the prespecified window period, which included returning for their results and starting treatment and the monthly followup visits until the end of treatment.

The Head of the TB Centre at the NICD, Dr Shaheed Vally Omar, also the study's senior author, commended the researchers, adding that the findings showed counselling and incentives were critical in the fight against TB. "This study's findings reinforce the urgent need for patient-centred approaches that address both medical and socioeconomic barriers to care." These sentiments were echoed by Prof. Adrian Puren, the NICD Executive Director, who said: "Efforts have been intensified to manage the TB epidemic in South Africa. The incorporation of the study findings to ensure the success of these efforts is an important consideration."

The study, a randomised controlled trial conducted across nine clinics in Johannesburg, evaluated the effects of a patient-centred intervention combining pre-test and post-test TB counselling with financial incentives on treatment adherence and outcomes. For more about the click here: https://www.thelancet.com/action/showPdf?pii=\$1473-3099%2824%2900816-8

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By Mandy Tsotetsi

The Public Health Bulletin South Africa (PHBSA) proudly marks the publication of its 20th issue, a significant milestone! The latest report, Influenza Surveillance in South Africa, Weeks 1 to 52, 2024, showcases the publication's continued dedication to providing

the ongoing strength of our surveillance systems

our surveillance systems and underscores the importance of evidencebased public health decisions. As we continue to grow, this milestone signals our readiness to

dedication of our team and

stakeholders. It highlights

PUBLISHED ISSUE

crucial data and insights into public health surveillance. The PHBSA is an open-access platform for publishing and disseminating accurate public health surveillance information to inform public health practice, policy, and programme development in South Africa. The scientific journal, which is published regularly, has been led by teams made of the NICD and the National Institute for Occupational (NIOH) staff since its formation in 2023.

The publication of the 20th issue reflects the unwavering commitment of the contributing authors and the PHBSA team to bringing current, actionable and accurate surveillance information to the forefront of South Africa's public health efforts, said the Managing Editor, Prof. Basil Brooks. Prof. Brooks shared his thoughts on this exciting moment: "Reaching the 20th issue is a testament to the elevate the PHBSA to an official journal. It marks a new era in disseminating critical public health data and a strengthened partnership."

From its very first publication, the vision for PHBSA has been clear, to be the key publication for disseminating disease surveillance and epidemiological information for diseases of public health importance. This goal aligns with the PHBSA's commitment to being a leading voice in advancing public health surveillance.

We wish the PHBSA well as it moves forward and continues to provide a foundation for public health policy, research, and decision-making. For more about PHBSA, click here: https://www.phbsa.ac.za/ about/



Centre for Vaccines and Immunology partners with GCRO in a study that combined wastewater surveillance and population dynamics

In a bid to broaden its wastewater surveillance programme, the NICD's Centre for Vaccines and Immunology (CVI) has collaborated with the Gauteng City-Region Observatory (GCRO) to understand the relationship between the laboratory results from wastewater monitoring and population dynamics in different communities in Gauteng. The overarching aim of this collaboration was to correlate socioeconomic data, the spatial form of the city and the burden of disease to better inform public policy. The two organisations complement each other. The CVI provides valuable epidemiological and clinical resources, whereas GCRO offers expertise in geographic information systems mapping, socioeconomic data and modelling.

It was noted that during the COVID-19 pandemic, detecting the spread of infection was difficult due to costly and selective testing, asymptomatic cases, and delayed data. Wastewater surveillance (monitoring) has gained popularity as an affordable method to monitor whole populations in realtime without needing to collect clinical data from individuals. Wastewater epidemiology is a valuable tool for disease trend analysis, early warning, and the study of pathogen diversity.

In the first joint publication between the CVI and GCRO, they highlight how socio-economic factors significantly influence access to SARS-CoV-2 testing and cumulative incidence rates, indicating that these rates often reflect testing availability and socio-economic conditions rather than true disease prevalence. "Our findings underscore the value of wastewater-based epidemiology in contextualising laboratory data. Implementing wastewater environmental surveillance can enhance surveillance systems, particularly in areas where economic disparities affect the interpretation of conventional data," states the authors in the paper. For more about this study, click the link: https:// journals.plos.org/plosone/article?id=10.1371/journal. pone.0311332



Leading with compassion Sister Ida Jordaan's Occupational Health Journey

By Koketso Matjane

For the past six years, Sister Ida Jordaan, Occupational Health Nurse Manager, has been at the forefront of occupational health for the National Institute for Communicable Diseases (NICD). Sister Jordaan provides occupational health services in line with legislation, and the National Health Laboratory Service occupational health policies. She ensures employee fitness, conducts medical assessments and manages workplace hazards to protect health and comply with regulations.

In the early years of her career, Sister Jordaan worked in the maternity ward of a hospital but longed for a career with regular working hours. She soon discovered a passion for promoting the health and well-being of employees. She recognised the significant impact of occupational health, which allowed her to connect with employees at all levels of the organisation.

Sister Jordaan finds fulfilment in her daily interactions with employees, and the sense of purpose she derives from her role is rooted in the importance of teamwork. "Coming to work, building relationships, and helping each other breathe a little easier, especially at work, brings me joy," she says. Whether helping staff members navigate personal health challenges or ensuring they have the necessary training in health and safety, Sister Jordaan approaches these tasks with compassion. Her motivation comes from seeing her colleagues – especially those in non-managerial roles – take on responsibilities such as first aiders, health and safety representatives, and fire wardens. She highlights the rewarding aspect of witnessing positive changes in the workplace. "Seeing improvement, no matter how small – be it from an inspection, audit, or corrective action post-incident – makes all the hard work worthwhile."

When asked about her professional and personal aspirations to grow in the field of occupational health, she said: "I would like to write guidelines on managing hazardous biological agents in the workplace for occupational health nurses. I am privileged to have access to so much expertise at the NICD and the National Institute for Occupational Health. I need to collate the information in a way that will assist occupational health nurses in the wider industry."

Sister Jordaan's journey reflects her unwavering dedication to her colleagues' well-being and her commitment to making the workplace a safer, healthier, and more supportive environment for everyone. Her vision for the future of occupational health brings together compassion, innovation, and a collective effort to ensure that health and safety are always a top priority.

Training & Development

Strengthening malaria genomic surveillance capacity within South Africa's Malaria Control Programme



Attendees from ARMMOR, NICD, NMPs, WHO, E8, and UCSF at the South African Dissemination meeting last year.

The Genomics for Malaria in the Elimination 8 Region (GenE8) project held its final dissemination meeting for South Africa in October last year. This meeting brought together provincial malaria programmes, representatives from the World Health Organization and technical experts from the E8, National Institute for Communicable Diseases (NICD) and University of California-San Francisco (UCSF). GenE8 is a three-year project spearheaded by the NICD's Laboratory for Antimalarial Resistance Monitoring and Malaria Operational Research (ARMMOR) in collaboration with the UCSF and the Elimination 8 (E8) initiative. This project aims to generate malaria parasite genomic data and build genomic translational capacity within E8 National Malaria Programs (NMPs). During the three-year Gates-funded project, antimalarial drug resistance data for over 4,000 parasite samples from five southern African countries including South Africa were generated.

At the meeting last year, finalised resistance data, both at the national and regional level, were shared, and their implications for South Africa and the broader regional context were discussed in detail. More importantly, the capacity within NMPs to analyse and use genomic data to guide evidence-based decision-making was built. A member of the KwaZulu-Natal provincial malaria programme was selected to participate in the Translational-Genomic Fellow programme. He received training on generating, analysing, and translating genomic data for impactful use by the NMPs. To ensure capacity building expanded beyond the fellow, regular meetings with the wider NMP staff were held to disseminate and discuss national and regional findings. The capacity built through this initiative and the insights gained from genomic surveillance are expected to assist the participating countries to collaboratively accelerate malaria elimination efforts.

Training & Development

Africa CDC Biorisk Management Level 1 Training



The first Africa Centres for Disease Control and Prevention (Africa CDC) Biorisk Management Level 1 Training for 2025, which was hosted from 17 to 21 February, was attended by 18 participants. Participants were nominated by their respective countries, namely Zambia, Zimbabwe, Ghana, Malawi, Lesotho, Namibia, Botswana, Eswatini and South Africa. This training was part of the Africa CDC Biosafety and Biosecurity Initiative launched in 2019. The Africa CDC initiative is aimed at improving biosafety and biosecurity systems across African Union Member States by ensuring continent-wide compliance with national and international standards, including the International Health Regulations (2005), the Biological Weapons Convention, United Nations Security Council Resolution 1540, and the multi-country Global Health Security Agenda. The World Health Organization Joint External Evaluation assessment and the Global Health Security Index report have emphasised major biosafety and biosecurity capacity gaps and a clear need for comprehensive and targeted interventions.

The National Institute for Communicable Diseases' Regional Diagnostic Demonstration Centre, which is recognised as the Africa CDC Regional Centre of Excellence for training and certification of biosafety professionals in the Southern Region, oversees the training. Currently, four training domains are offered: 1) Biorisk Management, 2) Biological Waste Management, 3) Biocontainment Engineering and 4) Biological Safety Cabinetry Certification and Maintenance. The Examination and Certification Committee Africa CDC and the African Society for Laboratory Medicine Learning Academy observed the four-day training programme.

Enhancing TB diagnosis and treatment: A collaborative workshop in Africa



Delegates at the TB diagnostic.

Recognising Africa's high TB burden and the urgent need to improve case detection, a collaborative effort by Wits University, NICD's Centre for Tuberculosis (National TB Reference Laboratory), McGill University (Canada), the National Health Laboratory Service (NHLS) and the South African National TB Management and Control Program under the National Department of Health (NDoH), cohosted a five-day workshop in December last year.

Early diagnosis and timely treatment initiation are critical in the fight against tuberculosis (TB) and advancing efforts toward its elimination. In recent years, significant progress has been made in TB diagnostics, with several promising tools at various stages of development. Evaluating and implementing these innovations requires strong collaboration between TB programs, laboratory services, national institutions, academia, industry partners, and product manufacturers.

The intensive workshop was designed for professionals from public sector institutions, medical universities, industry partners, and National TB Programs (NTPs), focusing on TB care and control. A total of 136 participants from 28 countries (including 21 African nations) attended, alongside 19 industry representatives. The workshop was officially inaugurated by Dr Yogan Pillay, Director of TB and HIV at the Gates Foundation, alongside the NHLS CEO, Prof. Koleka Mlisana, DWits University Faculty of Health Dean; Dr Shabir Madhi, and Mr Ramphelane Morewane, Deputy Director General for TB, HIV, Maternal, and Child Health Care at the National Department of Health. By bringing together experts, policymakers, and industry leaders, the workshop fostered valuable discussions and knowledge-sharing, further strengthening global efforts to enhance TB diagnostics and case detection in highburden regions.

Training & Development

Advancing the control and prevention of rabies in Southern and Eastern Africa



Dr Veerle Dermaux Msimang (far left) and participants collecting data in the field for a KAP survey.

Rabies remains neglected in Africa despite the existence of tried-and-tested approaches for the control and prevention of the disease. With the global goal for elimination of dog-transmitted human rabies only five years away, the University of Zimbabwe, in partnership with the Institut Pasteur in Paris, the University of Lausanne, the Health Sciences eTraining Foundation (HSeT), the PREDEMICS Consortium, the World Health Organization (WHO), the World Organization for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO), and the Global Alliance for Rabies Control (GARC), offered an eleven-day on-site course on rabies surveillance and control. This multidisciplinary support for the workshop was also echoed in the contents of the program which emphasised the importance of the One Health approach for control and prevention of rabies.

The course included a didactic component and practical experiences, which included laboratory testing for rabies, vaccination campaigns and data collection in the field, allowing for the exchange of knowledge on best practices linked with realistic field-based scenario training. The course participants were established professionals involved in rabies control and prevention and included veterinarians, doctors, public health specialists, epidemiologists, environmental health officers, and veterinary laboratory technologists. This diverse participation supported rich exchanges on real-life experiences and challenges in the control and prevention of rabies in Africa. The participants hailed from Southern and Eastern African countries, including Zimbabwe, Zambia, Malawi, Kenya, Somaliland, Mozambique, Botswana, Namibia, and South Africa.

The National Institute for Communicable Diseases (NICD) was represented by Dr Veerle Dermaux Msimang, an epidemiologist from the Centre for Emerging Zoonotic and Parasitic Diseases (CEZPD). The CEZPD is the national reference laboratory for rabies in humans in South Africa, and offers testing services to other countries on request. Laboratory investigation of human rabies in the African context is underdeveloped and contributes to the miss and under-diagnosis of the disease. The CEZPD offers an extensive repertoire of ISO15189 accredited assays for the testing of ante-mortem and post-mortem collected specimens. The NICD serves as a hub of expertise for rabies in South Africa and beyond, and supports the development of national guidelines, strategies and policies for the control and prevention of rabies. For more on rabies and how this disease can be prevented in humans visit the NICD website, www.nicd.ac.za.

ACHIEVEMENTS

Mr Gloseije Bazolana, Head of Information Technology

Recognising Excellence in Digital Transformation and Cybersecurity

Mr Gloseije Bazolana, Head of Information Technology, was recently recognised as one of **South Africa's Top 50 Leaders to Watch in Digital Transformation and Cybersecurity** at two prestigious industry events on 12-13 March, 2025.

At the Cyber Security Summit, over 200 C-level executives, directors, and security leaders gathered to address the ever-evolving cyber threat landscape. Discussions focused on advanced security strategies, Al-driven defence mechanisms, and automation to safeguard critical assets. The second event, the 35th Digital Transformation Summit, brought together more than 300 C-level executives, directors, and technology leaders to explore how digital transformation is reshaping industries in South Africa and beyond.

This achievement is a point of pride for the NICD, which remains dedicated to advancing innovation and excellence within the digital space.