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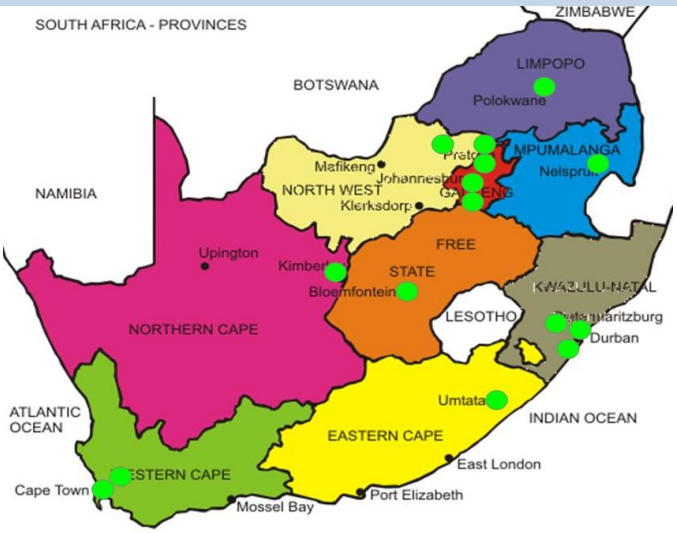
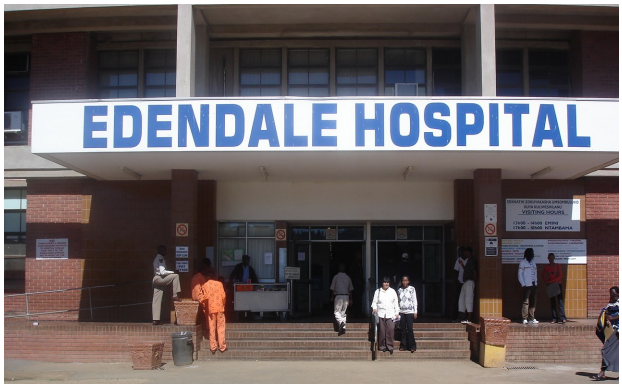


Volume 49 March 2016

First Quarter Summary

Welcome to our 1st edition of the LINK for 2016

This edition of our newsletter highlights some of the activities of the DPHSR team and all the other GERMS-SA partners, as we bring you feedback and updates. 2015 was a very busy year, ended on a high note and this year is no different. The year has started with a bang and schedules have been hectic from the beginning with lots of training and site visits!



Above: Old Edendale Hospital Renovation
Below: New

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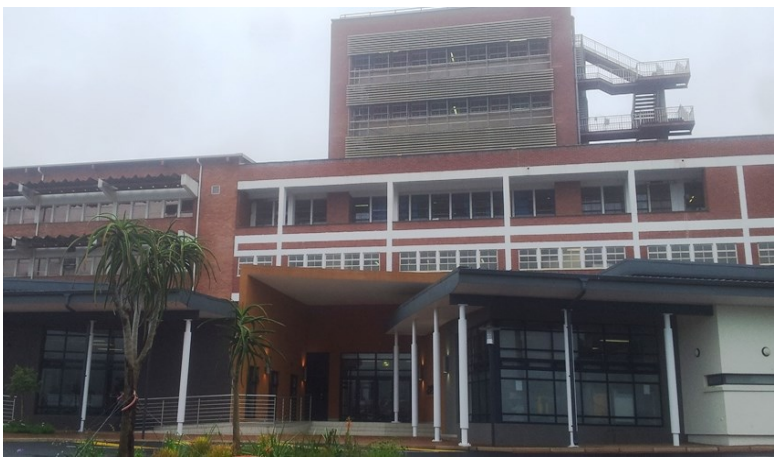


Cryptococcal disease screen-and-treat activities

Charlotte Sriruttan

Background

Cryptococcal meningitis (CM) is a common opportunistic infection and a leading cause of death among individuals with HIV/AIDS. In 2014, 5722 new cases of laboratory-confirmed CM were detected through GERMS-SA surveillance. Despite increased availability of antiretroviral treatment (ART) and anti-fungal therapy, CM continues to result in deaths in more than half the cases in routine care in South Africa.

Cryptococcal antigen (CrAg) is detectable in blood weeks to months before the development of meningitis and is a strong predictor for the development of CM and death. Hence screening for CrAg in patients at highest risk (CD4<100cells/ul) enables identification of these patients and provides an opportunity to prevent death and disease by treating patients early.

ART alone is insufficient when asymptomatic patients are CrAg+ with CD4<100 cells/μL; both anti-fungal therapy and ART are needed. There is recent good quality evidence which shows that the cryptococcal disease screen-and-treat intervention saves lives: in 2 multi-site, randomised control trials CrAg screening of persons with CD4 count <100 cells/μL at time of their initial CD4 count and pre-emptive oral fluconazole resulted in approximately a third less deaths at 6-12 months on ART compared to the patients in the standard care group.

Update on National Implementation in SA

Following inclusion of a cryptococcal disease screen-and-treat intervention in South Africa's National Strategic Plan for HIV/AIDS, STIs and TB in 2012, the intervention was phased in across the country. The first phase (led by the NICD cryptococcal screen-and –treat team, Department of Health and PEPFAR partners) began in September 2012 in Gauteng and Western Cape; Free State was included in late 2014.

Two approaches have been tested to date. Reflex laboratory CrAg testing was implemented at 3 National Health Laboratory Service (NHLS) laboratories serving 199 healthcare facilities in 4 districts of Gauteng and Free State; this was paired with healthcare worker training and intensive monitoring and evaluation (M&E). The final NICD surveillance report can be accessed at http://www.nicd.ac.za/?page=surveillance_report&id=15. In parallel, provider-initiated screening was implemented at all ART facilities in 5 Western Cape districts with minimal clinical training. The results of this evaluation were recently published and can be accessed at JAIDS (Journal of Acquired Immune Deficiency Syndromes): doi: 10.1097/QAI.0000000000000976

Cryptococal disease screen and treat activities: Continue

Charlotte Sriruttan

Detailed clinical guidance for the screen-and-treat intervention has been included in the 2015 South African consolidated guidelines for HIV and will spur on implementation across the country. The guideline can be accessed at http://www.health.gov.za/index.php/2014-03-17-09-09-38/policies-and-guidelines/category/230-2015p. If properly implemented, screening and treatment has the potential to directly reduce deaths associated with CM.

Current crypto screen-and-treat team activities

Since October 2015, the team has been focused on wrapping up Phase 1 M+E activities, data cleaning and analysis, laboratory quality assurance and clinical training.

NICD continues to work closely with all stakeholders in optimising the implementation of screen-and-treat as it is scaled up nationally. In 2016, NICD will start planning an evaluation of the impact of the screen-and-treat intervention at a national level.

Cryptococcal disease screen-and-treat intervention saves lives.

The current NICD cryptococcal screen-and-treat team (pictured above from left to right) comprises of Dr Charlotte Sriruttan (Project Team Lead), Ms Ivy Rukasha (Medical Scientist), Sr. Deborah du Plessis (Field project co-ordinator), Mr Phelly Matlapeng (Data Manager) and Dr Nelesh Govender (Principal Investigator).

Why are we concern about Superbugs?

Olga Perovic

Infections we thought we had held behind us are coming back because of a new "strain" of organisms that are called "superbugs", bacteria that are resistant to almost all antibiotics.

Well known and often quoted is "MRSA", a *Staphylococcus aureus* (SA) bacterium that is resistant to all B-lactam antibiotics and subsequently difficult to treat. However in some patients virulent strain of *Staphylococcus aureus* which is fully susceptible may cause deadly infection within days.

At Antimicrobial Resistance Laboratory – NICD, we determined the antimicrobial resistance trends and molecular epidemiology of *S. aureus* bacteraemia (SAB), in hospitalised South African patients through national laboratory-based sentinel site surveillance over a three year period (2010-12).

This surveillance highlights the changing pattern of *S. aureus* resistance to oxacillin (MRSA) and other agents using laboratory based sentinel site surveillance data that impacts on patient management. The high percentage of bacteraemic SA isolates that were resistant to oxacillin (46%) is of serious public health concern. Furthermore as MRSA rate is high in South Africa; no resistance to glycopeptides, fluoroquinolones, linezolid, daptomycin, synercid and fosfomycin was recorded. Majority of the isolates were classified as SCC*mec* type III (41%) and type IV (31%), which are typically associated with hospital and community- acquired infections, respectively. Overall, this study reveals the presence of a variety of hospital-acquired MRSA clones in South Africa dominance of few clones, *spa* 037 and 1257. Monitoring trends in resistance and molecular typing is recommended to detect changing epidemiological trends in AMR patterns of SA

Additional virulent bacterium that media reports using term "flesh-eating bacteria" is *Streptococcus pyogenes* because causes rare but serious bacterial infection known as necrotizing fasciitis. Necrotizing fasciitis is infection of soft tissue that begins in subcutaneous tissue and spreads along all layers of fascia and fibrous tissue killing the cells as it progresses. Almost 40 % of patients with this condition die.

Why are we concern about Superbugs? continue

Olga Perovic

Another organism that causes lots of attention is *Klebsiella pneumonia* that is resistant to carbapenems, B-lactam antibiotics which leaves very limited treatment options.

The spread of carbapenem resistant Enterobacteriaceae is a threat to healthcare and patient safety globally and in South Africa. Since the first case of carbapenemases producing Enterobacteriaceae (CPE) in private healthcare facility in Gauteng (2011), AMRL is receiving isolates from public and private sector for confirmation. The report on confirmation of CPE genes is published monthly in NICD Communiqué and indicates changing pattern in CPEs rate in South Africa and it is essential for all clinicians to be aware of this major public threat and be prepared to act on their occurrence in patients if necessary. A priority should be made by all healthcare facilities to enforce infection prevention and control measures to prevent the spread of CPEs in their institution.

In South Africa, the Department of Health has developed an Antimicrobial Resistance National Strategy Framework document to manage antimicrobial resistance. One of strategic objectives is to optimise surveillance and early detection of antimicrobial resistance (AMR). At the National Institute for Communicable Diseases (NICD), GERMS-SA, runs and manages surveillance for community acquired diseases from public and private sectors and AMR for hospital pathogens for the public sector only. In addition, AMRL at NICD collates and releases electronic AMR data from the NHLS laboratory information system and recently private sectors, annually. The development of a national resistance map for South Africa is expected to address trends in resistance and to help create appropriate guidelines and policies.

Picture right: Hospital germs spreading and superbug bacteria and bacterium cells floating in microscopic space

Update on Healthcare Utilization Survey

Claire von Mollendorf

The Centre for Respiratory Diseases and Meningitis (CRDM) conducts prospective hospital-based sentinel surveillance for pneumonia and influenza-like illness outpatient surveillance in a number of hospitals and clinics around South Africa. To determine what proportion of people in the areas surrounding these sentinel sites actually seek medical care at these facilities for different diseases, the CRDM has undertaken a number of healthcare utilisation surveys (HUS) to characterise healthcare-seeking behaviour. In 2012, surveys were conducted in Klerksdorp (Klerksdorp-Tshepong Hospital Complex) and Soweto (Chris Hani Baragwanath Hospital) and in 2013 in Pietermaritzburg (Edendale Hospital) and CRDM worked with external partners in each of these communities. In 2015 a survey was conducted from August to November in the areas served by clinics referring to the Helen Joseph and Rahima Moosa Mother and Child Hospital complex. This survey focussed on characterising healthcare-seeking behaviour related to respiratory diseases, meningitis and diarrhoea.

The 2015 HUS was conducted solely by CRDM, and a team of 30 fieldworkers with a fieldworker coordinator was tasked to survey over 3500 households in three regions of Johannesburg. Although the coordinator was extremely experienced in terms of community work, all the fieldworkers were new to this type of work. Fieldworkers were required to navigate to randomly chosen households using GPS coordinates with the help of google earth and google maps. Once they had located the household they had to obtain consent to complete a structured interview with household members. The suburbs covered by the survey were extremely diverse and the teams were faced with a number of challenges on a daily basis in terms of safety, accessing households, keeping motivated and meeting targets. Even though staff wore branded T-shirts and name badges they were often viewed as potential criminals or political campaigners and were not allowed access to certain buildings or households. This was more common in affluent suburbs. I joined different teams in the field and it was interesting to observe how responses and attitudes differed in different suburbs.

Despite the challenges the fieldworkers managed to complete the survey within the pre-specified timelines, and although some suburbs had a number of refusals, the overall response rate was good. A number of positive things arose from the survey. During data collection fieldworkers identified a number of households that required medical or social worker assistance; through the fieldworker coordinator, these household were enabled to access care. The fieldworker coordinator also partnered with Wits University and other NGOs in Diepsloot and some of the fieldworkers participated in a Wits Wellness Day which allowed them to give back to the community and raise awareness regarding the project. The fieldworker coordinator also ensured that feedback was given to relevant community organisations at the end of the project.

In 2016/2017 HUS is planned for the Cape Town surveillance sites. Hopefully they will benefit from all the lessons learnt in the previous surveys.

GERMS–SA: Site visits around the country:

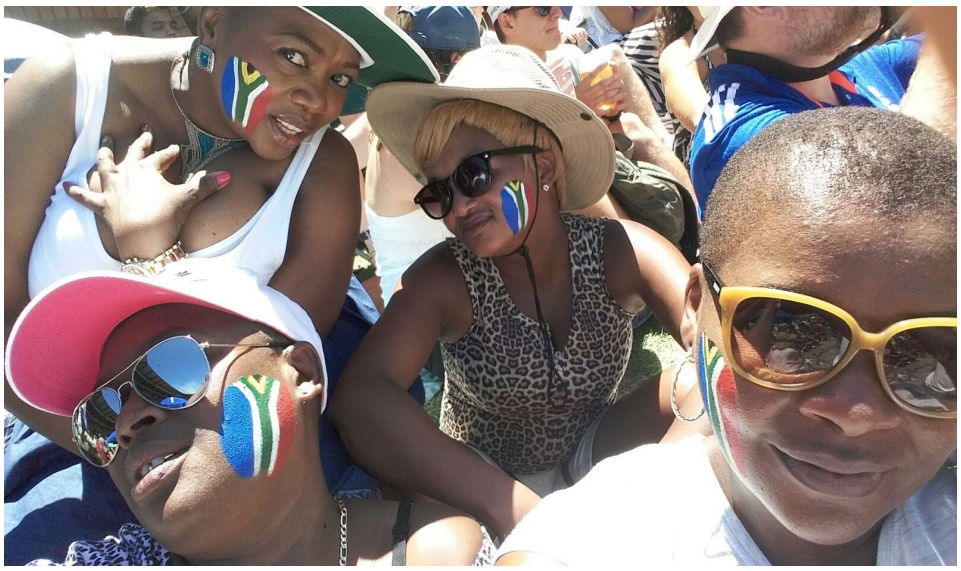
New Clinic Surveillance sites:

Vanessa Quan

Its the start of the new year and Vanessa, Linda and Frans are already geared up to do site visits and training of CSAs and SOs for the Clinic surveillance programme. The GERMS-SA team has been extremely busy over the first quarter of the year and it doesn't look like things will be settling down anytime soon. The objectives were not just training new staff but also to orientate and support staff at the new surveillance sites -STI/TB and HIV surveillance programme. Some staff moved from GERMS laboratory –based surveillance /SARI to Clinic surveillance. Clinic surveillance is in full swing in at least 5 of our provinces (KZN, NW, EC, MP, GP).

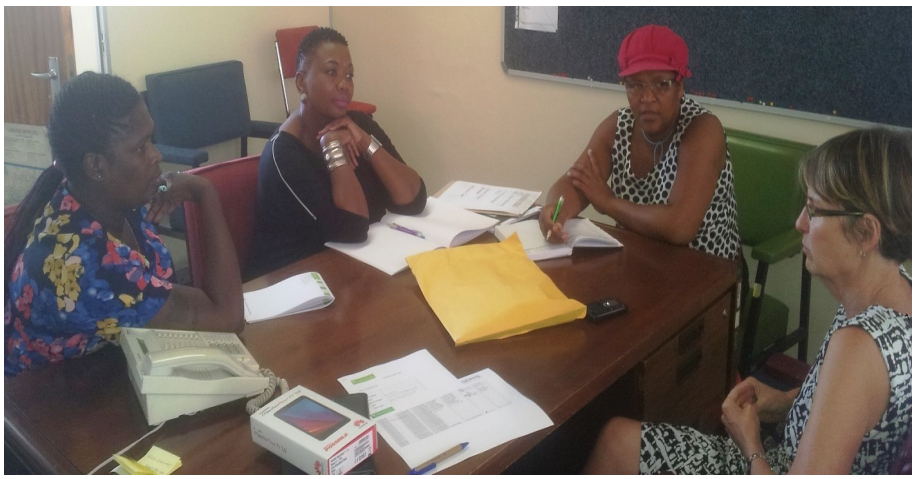
Port Elizabeth: 27-28 January

PE is a new site and requires some nurturing but it is also one of the few provinces where all our surveillance work is now established (GERMS lab surveillance, clinic surveillance for STI, TB/HIV drug resistance) and expanded (district-wide) Rifampicin resistant TB Surveillance.



Top left to right: Sandi and Noluthando
Front left to right: Phumeza and Badikazi at St Georges Park watching a cricket match of SA

Picture of Linda and team. Left to right: Phumeza, Sandi, Zukiswa (new SO in PE) and Linda



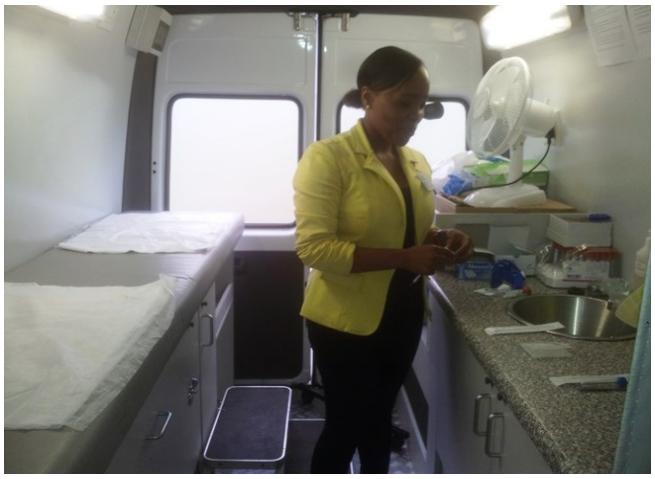
GERMS–SA: Site visits around the country: continue

New Clinic Surveillance sites:

Vanessa Quan

The clinic surveillance has moved to Zwide clinic but we will still continue additional TB surveillance at Gqebera clinic in PE.
Picture right: Left to right: Badikazi and Linda

Pietermaritzberg and Durban: 16-17 February: Setting up clinic surveillance has been challenging requiring many meetings with provinces, districts and clinics but Eastboom clinic in Pietermaritzburg City Centre promises to be a productive choice. Linda, Vanessa and Frans visited the PMB and Durban sites primarily for clinic surveillance.



Below: We visited Edendale SARI site. The SARI staff manage with very little space. PMB is doing a fortune of GERMS work and is a great place to visit.
Picture: Linda and Frans with PMB SARI Team

Top: Thobeka in her mobile clinic. (Phoenix clinic, Durban). She moved from GERMS laboratory –based surveillance to clinic surveillance

New Beginnings: My Story—Lucia Madolo

Washiefa Isaacs

Lucia Nondyebo Madolo is employed as a research administrator who is a contract worker transferred from University of Cape Town, School of Child and Adolescent Health Research unit to Wits Health Consortium . She is currently working on Severe Acute Respiratory Illness/ Maternal Flu studies based at Red Cross Children's Hospital in Western Cape.

She relocated from the Eastern Cape with a Senior Matric Certificate in 2000. Her transformation was quite phenomenal, although difficult and in many ways a long struggle. She started working as a domestic worker in 2000 until February 2009. A family member referred her to the childhood tuberculosis (TB) diagnostic study that at the time was in search of a counselor with a Senior Matric Certificate. Someone with a 'peoples person' personality-luckily she had both!

She had undergone extensive training both formal and informal within the School of Child and Adolescent Health Research unit-REACH, B11. This included HIV-TB training and counseling courses through ATICC (Western Cape Aids Training, Information and Counseling Centre); South African Good Clinical Practice accredited courses were also included during her training, which sometimes required her to write non open book exams and she mastered these with flying colors.

Working in an environment with many aspiring academics, she soon became motivated to further her studies by registering for BA Social Science degree at the University of Western Cape. Her hardship, pain and struggles were deep and ongoing throughout her life as a mother, student and full time worker.

It is with great proudness that we present to you Lucia Nondyebo Madolo who will be graduating on 11 April 2016, with her BA Social Science degree from the University of the Western Cape. She is the first person in her family to graduate with a degree. Well done, Lucia!

GERMS-SA: What makes being an SO worthwhile
Cecilia Miller interviews the SOs...

The healthcare and wellbeing of South African citizens is of paramount importance to me. Thus, having the opportunity to be a part of the GERMS family who provide essential, quality and vital assistance through the Department of Health to the general public, from all walks of life, is remarkable.
A surveillance officer is primarily tasked with epidemiology, outbreak response and reporting. These functions are pivotal to strategic planning and proactive healthcare management by the Department of Health. Surveillance Officers through GEDI capture and process data efficiently. Time management is essential to meet deadlines.
The life of a GERMS team member is dynamic and challenging as there is always new organisms and patterns for surveillance. This environment allows for career long learning and growth; the engagement with patients, relatives and healthcare personnel is a platform for ongoing informal education. From the fundamentals of hygiene, such as hand washing, to knowing your HIV status, breastfeeding and the importance of vaccination valuable lessons are constantly learned.
The sensitive nature of this work requires ethics, diligence and integrity in order to produce quality data which ensures accurate reporting to the Department of Health. This can only be accomplished through selfless teamwork and dedication.

Zodwa Kgaphola

Charlotte Maxeke Johannesburg Academic Hospital

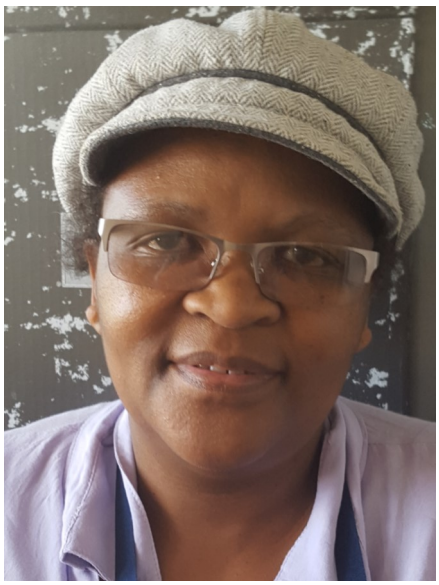
I love my S.O job, because I meet patients of all ages, race, cultures and languages.
The Khoisan people taking the trophy. Most of them understand Afrikaans, but I find a few that makes me laugh out loud. They make me feel like a foreign national.
They will speak amongst themselves, with facial expressions that say to me "I am not interested" but finally give me a different answer from what I see on the faces.
I also just like to assist with the social challenges, I get contacts at various government department offices to help out.
I have a wider network of people who know me now because I met them through being a next of kin to someone or patients self.

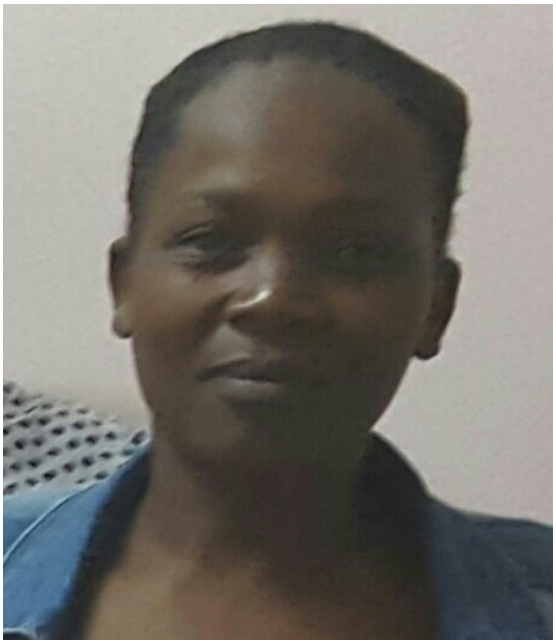
Matsheko Siyaka
Kimberley hospital

New Beginnings: New Staff

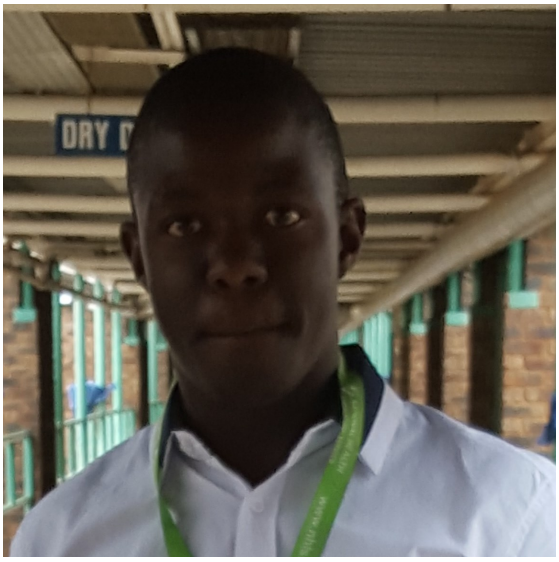
Cecilia Miller

Below: Zukiswa Langeni
Started in January as an Surveillance officer in PE to assist Sandi and has intimate knowledge of PE and TB – she is a true asset to our team.





Above: Busisiwe Zungu
Started in February at Klerksdorp hospital in North West. Although she's a GERMS SO for lab-based surveillance, she is also working on the SARI study as the research studies at the North West site are overlapping with result the ALL SOs knows ALL studies to cover the site not to miss cases.



Left: Sesing Tsabane
I am a TB Community Surveillance Assistant (CSA) at Tshepong hospital in North west. This is what I do on a daily basis. I enrol patients who are diagnosed with MDR TB, fill in a case report form (CRF) and collect sputum samples for molecular testing at NICD. Before enrolling the patient (s) onto the TB study, I first explain everything about the study, and give him/her a reason to participate. I am also now tracing patients in conjuction with PHRU research unit. I have a good working relationship with them. I am enjoying my job because I know what I am doing and my project co-ordinator [Nuraan Paulse] always assists me when I need help. I am also working well with Joyce Tsotsotso (GERMS SO)

General Information for Surveillance Laboratories

GERM-SA: Enhanced Surveillance Sites (ESS): Please submit the following bacterial and fungal pathogens to the National Institute for Communicable Diseases (NICD) on Dorset Transport Media with a DISA/TrakCare lab report or send specimen tube/blood culture bottle if uncertain and or no isolate available. (contact lab to discuss.) To order a new batch of Dorset Transport Media, please call CRDM at telephone 011-555 0315. For surveillance questions, please call GERMS-SA at telephone 011 386 6234. Enhanced Surveillance Sites doing CRE surveillance, don't forget to send these isolates to NICD.

Pathogen	**Specimen**	Lab tests	**NICD Unit**
Streptococcus pneumoniae *Haemophilus* spp. *Neisseria meningitidis*	All normally-sterile sites specimens, e.g. CSF, fluid, joint fluid, tissue, etc.	Culture positive OR Consistent Gram stain OR Latex positive	CRDM 011 555 0315
Salmonella spp.(including Typhi) *Shigella* spp *Campylobacter* spp †† *Vibrio cholerae*	Any specimen	Culture positive	CED 011 555 0333/4
Diarrhoeagenic *E.coli*	Gastrointestinal specimens, e.g. stools, rectal swabs, etc.	Culture positive	CED 011 555 0333/4
†*Candida* spp	Blood culture only	Culture positive	COTHI-MRL 011 555 0384
**Staphylococcus aureus*	Blood culture only	Culture positive	COTHI-AMMRL 011 555 0342
***Pseudomonas aeruginosa*	Blood culture only	Culture positive	COTHI-AMMRL 011 555 0342
Cryptococcus species (**no need to send isolate)**	Any specimen Private labs: Please just send a Lab form to the laboratory for case counting ESS laboratories needs to inform the SO about cases (January -March inclusive)	Culture positive **OR** CrAg test positive **OR** CSF India ink positive	COTHI-MRL 011 555 0384

† Mthatha, Pelonomi/Universitas, Dr George Mukhari, RK Khan, Addington, KEH, Edendale, Greys', Northdale, Polokwane/Mankweng, Rob Ferreira, Themba, Kimberley, Tshepong.

* Charlotte Maxeke Johannesburg Academic, Steve Biko Pretoria Academic, Helen Joseph , Groote Schuur, Tygerberg

**Universitas, Chris Hani Baragwanath, Charlotte Maxeke Johannesburg Academic, Dr George Mukhari, Helen Joseph, Steve Biko Pretoria Academic, Tygerberg, Groote Schuur, Northdale, Inkosi Albert Luthuli, KEH, Mahatma Ghandi Memorial.

This newsletter was compiled by Cecilia Miller and edited by Susan Meiring Division of Public Health Surveillance and Response. Please send any queries, recommendations or contributions to: Vanessa Quan vanessaq@nicd.ac.za; Tel: **011 386 6012**