LINK

Volume 52, May 2017

January to April happenings

Welcome to our first edition of the LINK for 2017.

This edition of our newsletter highlights some of the activities of the GERMS-SA team and partners. These four months have been very busy with training all categories of GERMS staff. We have almost reached half of the year and GERMS-SA is still continuing to embrace the changes happening within our bustling surveillance programme: site visits and the expansion of surveillance programmes. We are looking forward to our upcoming Surveillance Review Meeting (PI Meeting) 8-9 June 2017 and updates will be in our next edition.

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GERMS SOUTH AFRICA

The NICD Provincial Epidemiology Team (PET): providing locally relevant high quality epidemiology support

Portia Mutuvedzi

Epidemiology is a rare skill not only in South Africa but throughout the African continent. Epidemiologists use empirical data to describe and explain disease distribution by person, place and time dimensions. During outbreaks, epidemiologists analyse data to better understand why the outbreak occurred and to inform on the public health actions required to stop the spread of the disease and contain the outbreak. Additionally epidemiologists assist in identifying individuals who are at risk of developing/acquiring certain diseases; information that is useful in directing disease prevention interventions.

To address the scarcity of epidemiology skills across the country, in 2014, the NICD implemented a new service aimed at providing epidemiology support to provincial departments of health through provision of an epidemiologist in each of the nine provinces. A service that started with only two epidemiologists in May 2015 has now grown to having an epidemiologist in all provinces of South Africa except for KwaZulu-Natal, Northern Cape and Mpumalanga provinces.

The goal of this epidemiology service is to enable access to NICD's human and technical resources in delivering a high quality epidemiology service to the provincial departments of health in a timely and locally relevant manner.

The day-to-day activities of the provincial epidemiologists include surveillance of infectious diseases, responding to outbreaks as and when they occur and assisting provincial departments of health in strengthening health systems by supporting strategies aimed at improving linkage into care for patients diagnosed with TB and/or HIV.

Limpopo provincial epidemiologist Ntsieni Ramalwa (centre) supporting the provincial outbreak investigation team in conducting leprosy case investigation in January 2017.

Right Centre: North West provincial epidemiologist Thejane Motladiile and NW-Provincial CDC Directorate ensuring that public health interventions (fumigation) are being implemented, post the Odyssean malaria outbreak near Swartruggens.

To ensure epidemiology capacity development, the provincial epidemiologists are involved in formal and informal epidemiology training in collaboration with the South Africa Field Epidemiology Training programme (SA-FETP)

Epidemiology front-line training in the Eastern Cape conducted by SA-FETP with support from the provincial epidemiologist Riyadh Manesen (centre in checked shirt)

Below (Second from left): Free State provincial epidemiologist Motshabi Modise, supporting the provincial TB programme to monitor progress towards the 90-90-90 strategy. Motshabi was integral in data analysis to evaluate achievement of set targets and inform on new strategies to accelerate achievement of the 90-90-90 goals.

The PET continues to thrive for epidemiology excellence as it supports the provinces in meeting their responsibilities of reducing morbidity and mortality as well as preventing and controlling the spread of infections

L to R: Riyadh Manesen (EC), Portia Mutevedzi (Senior Provincial Epidemiologist) and Thejane Motladiile (NW) at NICD, 2014.

Salmonella Typhi cases in South Africa

Arvinda Sooka

Typhoid fever case definitions:

A typhoid 'case under investigation'

- Fever (originally intermittent, but then becomes sustained)
- Gastrointestinal symptoms (abdominal pain, nausea and vomiting or constipation)
- Relative bradycardia
- 'Rose spots' (erythematous macula-papular lesions) or
- Hepatosplenomegally or leucopaenia
- A travel history within the last month to an area with a confirmed outbreak of typhoid fever

A probable case of typhoid:

A clinically compatible case that is epidemiologically linked to a confirmed case, in an outbreak situation.

Typhoid fever cases are mainly notified through the Corporate Data Warehouse (CDW) system to the Centre for Enteric Diseases (CED), NICD *Salmonella enterica* serotype Typhi (*Salmonella* Typhi) and *Salmonella* Paratyphi identified isolates are submitted to CED from clinical microbiology laboratories in South Africa, for further phenotypic and genotypic characterisation.

A total of 78 *Salmonella* Typhi isolates were received in 2015 (fig 1), of which 92.3% (72/78) isolates were viable and 7.7% (6/78) were "audit isolates" (not received in CED). Ciprofloxacin sensitivity was seen in 87.5% (63/72) of isolates.

In 2016, we received a total of 127 isolates (Figure 1), viability was seen in 90.5% (115/127) isolates and 9.5% (12/127) of the isolates were contaminated or missing. 79.1% (91/115) were sensitive to ciprofloxacin.

Molecular subtyping using PFGE analysis is routinely performed on all *Salmonella* Typhi. PFGE analysis has assisted to show importation of typhoid cases from neighbouring countries and overseas countries, as well as assist in local outbreak investigations.

As there have been reports of typhoid fever outbreaks in neighbouring countries, all provinces in South Africa are on high alert for identification, notification and reporting of cases of typhoid fever.

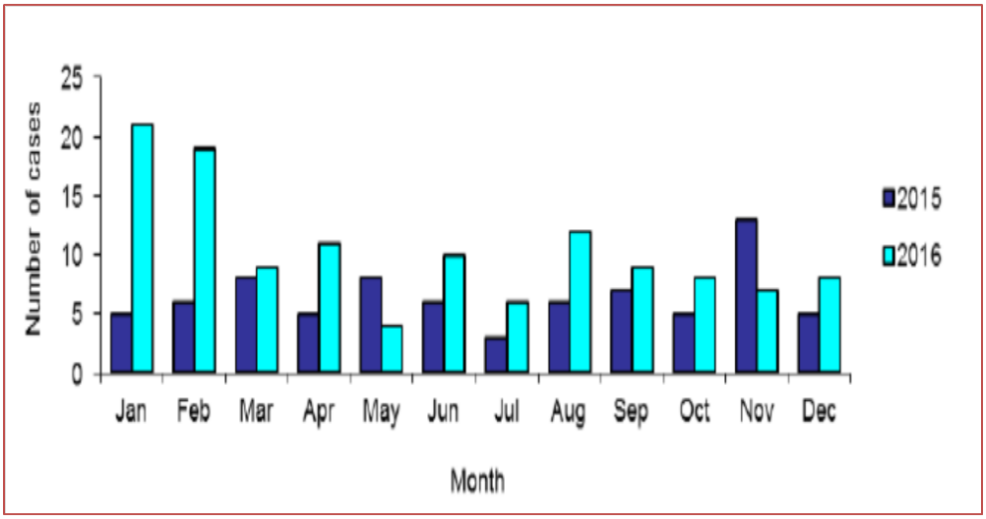


Figure 1: Number of *Salmonella* Typhi cases by month in South Africa, January to December 2015 & 2016

MENINGOCOCCAL CARRIAGE STUDY AMONGST UNIVERSITY STUDENTS IN SOUTH AFRICA

Susan Meiring

24 April not only marked the end of our data collection for our meningococcal carriage study but also World MENINGITIS day where we can remember all our GERMS-SA participants who have been afflicted with an often devastating episode of bacterial or fungal meningitis.

Neisseria meningitidis (meningococcus) is one of the bacteria that can cause a sudden onset of meningitis or septicaemia which can often lead to death even after receiving appropriate antibiotics. It is known to be carried asymptomatically in the backs of peoples' throats. Unlike *Streptococcus pneumoniae*, which is most commonly found in young children, *Neisseria meningitidis* is most often carried by young adults.

The Centre for Respiratory Diseases and Meningitis (CRDM) undertook a carriage study looking at the prevalence of and risk factors for carriage of *Neisseria meningitidis* amongst first year students at two South Africa universities. It was designed as a cohort study so we could look at the acquisition of carriage amongst first year students from their first encounter at the university to 8 weeks after mixing with the different students on campus.

Interacting with healthy, energetic and enthusiastic young adults was a welcome change for all our staff who helped with the data collection and a great time was had by all. We started the study at the University of the Witwatersrand during Orientation Week from 30 January until 3 February and managed to enrol and swab 1229 students. Our follow up at Wits was done from 14-17 March where we managed to swab 995 students (896 students who returned for their second swab and 99 new recruits). The 2017 academic year only started later at the University of Cape Town so our first week of recruitment and swabbing was only done from 27 February until 8 March, during the later weeks of orientation. Enrolment was a bit quieter in laid-back Cape Town and we managed to swab 909 students. During April, 18-21, we returned to UCT and reswabbed 85% of the initial group and recruited a further 10 new students, bringing our total up to 784 swabs for the follow up at UCT.

A big thank you must be extended to the Pneumonia and GERMS surveillance officers and counsellors; Jackie Lubbe from FETP programme; NICD staff in Cape Town; and the CRDM laboratory technologists, technicians and scientists for working together to make this study such a success.

Susan and Ziyaad enrolling first year students at the University of Cape Town onto the Meningococcal Carriage Study

Chulumanco Nkosi says the following of the Meningococcal Carriage Study at Wits University:
From the moment I was called to assist in the study I got so unsettled because, how do you take your mind back to being first year student. I mean in order to recruit them onto the study. We needed to have a vibrant, exciting, sensitive and young approach yet professional. I started to put myself in the mixed emotions of excitement and anxiety that first years normally go through and associate it to the importance of conducting the study. As soon as we got there, we needed to put into practice the knowledge we acquired and approach from the training we had.

I must say as much as we were not sure about the approach on the first day, we just went with our warm chocolate smiles. The students were curious to know what we were up to and were making and taking time in their exhausting schedules to participate. As days went by, they were bringing their friends and friends of friends. Although when it came to swabbing their throat they were a bit sceptical, thinking they will vomit. Thanks to the team of great "swabbers" that didn't happen.

It was a very educational, informative, interesting and unique experience in the sense of working with young people and doing something about the outbreaks of meningococcal menigitis in university students in order for it to be controlled and prevented. What also stood out for me was the dedication of my colleagues (NICD & Right to Care). Rain or sunshine, the teamwork was energizing and that made the success of the study.

There were challenges: I feel we could have done better on advertising the study. Making use of social media or network with the help of SRC and posting on the Wits intranet or making a bulletin.

Chulumanco Nkosi (second from left) with the Wits university team and the 1000th participant onto the study

A new world full of learning opportunities
(South African Field Epidemiology Training Programme (SAFETP) Resident 2016 co-hort)

Jackie Kleynhans

I started my residency in CRDM in June 2016 and I've been exposed to several interesting and exciting aspects of the epidemiology world so far. I'm really surprised at how much I've grown in the past months, and it is all thanks to the willingness of everyone in CRDM and GERMS to teach me. These two departments are a rich source of experts and people with ample experience. All of them are so helpful and eager to guide me to become an epidemiologist. Coming from a medical scientist background, it has been a process of adaption since I started the Field Epidemiology Training Programme (FETP). I had to learn how to look at the bigger picture instead of paying attention to the small details on the bench; work in teams instead of living in my own little bubble; and that there is always more than one perspective instead of a 'my way/the highway' approach. I've been involved in several projects so far; all of which are broadening my field of knowledge tremendously. Susan's meningococcal carriage study in first year university students has been quite a challenge; I never expected to hear myself speak that much! But it was a fun experience and taught me a lot about setting up a field study. I also had the opportunity to do two outbreak investigations so far – each coming with its own lessons: how to work in a team, different options for gathering data, treading the political lines, working on my own in the field, dealing with worried parents… I am still learning every day and I'm looking forward to the rest of the year. I would just like to say thank you to everyone in CRDM and GERMS for all your guidance and sharing your knowledge, it's really been a wonderful experience for me so far.

Jackie out in the field recruiting students for the Meningococcal Carriage Study at Wits

Surveillance Officers (SOs) experiences at the Emergency Operation Centre (EOC) at the Life Esidimeni Facility

Zodwa Kgaphola

The 10 day long Emergency Operational Intervention at the Life Esidimeni facility, was an eye-opening and a highly educational experience. The interaction with the multidisciplinary team (Doctors, Social Workers, Occupational Therapist, Nurses, Paramedics, data capturers, Department of Health Officials, Legal and family representatives) fostered a holistic understanding of the scale of the difficulties faced as well as the teamwork required to efficiently address them.

Zodwa (in grey top) with fellow colleagues at the EOC

The magnitude of the problem was immense and required us to work long hours and cover vast distances in order to assess, examine, and interview the mental healthcare users individually. We began our day by stocking the necessary medical equipment for the day from NICD. On a daily basis, we were required to erect and deconstruct tents and work stations. This was time consuming, particularly when we were returning to the same facility the next day. Standard operating schedules cannot be applied to mental healthcare users and must be dealt with according to their respective merits. After the completion of the assessment by the various disciplines, an informed written consent is required before relocating the mental healthcare users. The assessment phase and the subsequent relocation would require 3 working days. Accurate record keeping is imperative to this process. I would like to thank GERM-SA for the experience of forming part of such a dynamic team.

Right front: Yoliswa and fellow colleagues from the EOC in a happy spirit

Surveillance Officers (SOs) experiences at the Emergency Operation Centre (EOC) at the Life Esidimeni Facility

Thami Ntuli

Once again, I would like to thank NICD for the chance I was given to be one of the people assisting in the relocation project for Life Esidimeni Mental Healthcare Users. The experience was great. The journey though was an emotional rollercoaster, filled with highs and lows. Having to work with a great team of amazing individuals – from nurses, doctors, social workers, OTs, data capturers, family representatives of the patients and members of parliament. We even had a chance to meet with the advisor of the Premier of Gauteng who was very supportive throughout the journey.

Meeting the real "celebrities", our patients, was the cherry on the top. It was so humbling to witness the challenges they faced.

Some Mental Healthcare Users became attached to us as we showed them that we really care about them and are trying to do what is best for them. Most of the Mental Care Users had bonded with the employees.

I was once more reminded that I am still a nurse and was given the authority to advocate for my patients and the community.

Thami Ntuli (standing against the wall), Hazel Mzolo (seated—the lady in white) and Zodwa Kgaphola (in front right) with colleagues

Field Project Coordinators (FPC) Training: 14-17 March

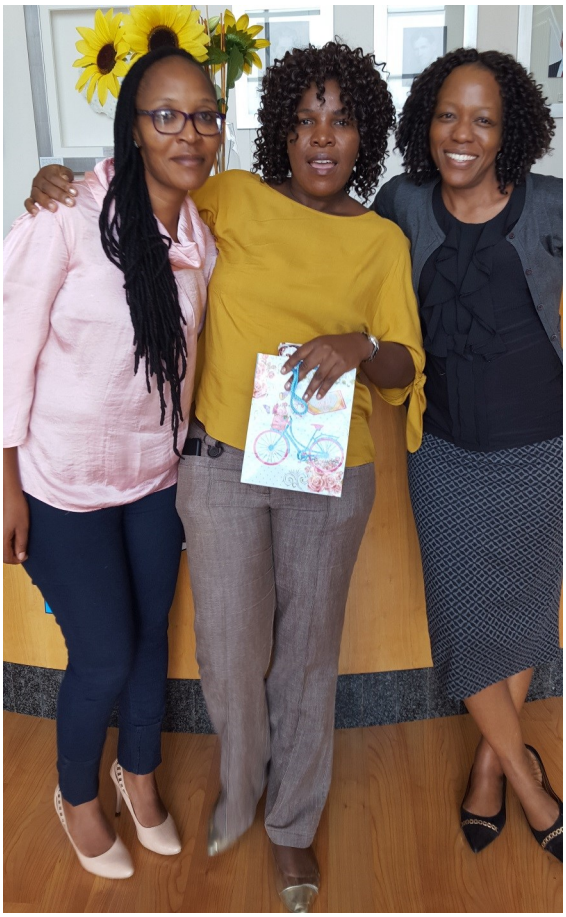
Cecilia Miller

The meeting took place at NICD. The objective was

- To understand our roles
- What it takes to be an effective manager and leader
- Improve skills e.g. computer, time management, and presentation skills

The emphasis was on commitment to excellence in everything we do and strive to deliver value to GERMS-SA and to adhere to ethical standards.

Left: Sonwabo Lindani: Former GERMS-SA Project Manager was guest at our FPC meeting and gave a talk on Masters in Public Health



Top from left to right: Mokupi Manaka (Project Manager), Tsakane Nkuna and Emily Sikanyaka (Project Administrators)

Below clockwise: Phumeza Vazi, Cecilia Miller, Sunnieboy Njikho, Tiisetso Lebaka, Mokupi Manaka, Neo Legare and Nuraan Paulse

GERMS-SA around the country - Site visits

Cecilia Miller

From January to April site visits were conducted to a few laboratories, hospitals and clinics.
The objectives of the visits mainly were to introduce our new Project Manager (Mokupi Manaka) to the laboratory, hospital and clinic staff

- To improve the quality of GERMS-SA projects and to make recommendations to the site field project coordinators (FPCs)
- To shadow surveillance officers (SOs) and community surveillance assistance (CSAs) in their daily job function
- To assess sites for HR, performance issues and to identify problems that needs intervention

Mokupi's visits started in Mpumalanga - Nelspruit (January), Eastern Cape—Port Elizabeth (February), Gauteng—Johannesburg (March), Limpopo—Polokwane (March), North West—Klerksdorp (April) and is still to continue to the rest of the provinces.

Site visit to PE—Jose Pearson MDR Unit: 14 –17 February 2017

From left to right: Phumeza Vazi, Cecilia Miller, Ntombizanele Dyonase, Mokupi Manaka and Bongiwe Cetywayo

In February 2017, Gillian Hunt and Sunnieboy Njikho visited Eastboom CHC in Pietermaritzburg to introduce the HIV drug resistant surveillance in patients initiating ART. The Eastboom CHC clinic manager Dr Sheldon Chetty and Mrs L Naidoo the hospital (CEO) was present. The facility is extremely busy and our surveillance officer Nelisiwe Buthelezi has already enrolled >120 patients. Once the target for HIV drug resistance is reached, she will begin Rifampicin sensitive TB surveillance at the facility. HIV drug resistant and rifampicin susceptible TB was also initiated at Kabokweni CHC near Nelspruit where a good working relationship has developed between the surveillance officer Tumelo Tlhomelang and the facility staff. Clinic staff welcomed the visit and presentation from the NICD team.

Vanessa Quan did a site visit to Lancet Richmond on 27 March. Ruth Mpembe and Linda de Gouveia also visited Lancet on 3 April.

New beginnings - Staff

Cecilia Miller

GERMS-SA welcomed several new staff to their family circle. We introduce an FPC for CRDM based at NICD, a Research Assistant for SARI at Red Cross Hospital and a Community Surveillance Assistant for TB surveillance at Pelonomi hospital

Profile of Nomsa Masizane:

About myself: I'm a professional nurse. I went to Letjhabile Nursing college and finished my diploma in 2008. I got interested in research while working at Lancet laboratory and started doing my research. I worked at Phidisa Research as a Research Nurse from 2012 until 2015 and then as a Registered Nurse, shift leader at night for Eugene Marais hospital cardio intensive care. I then worked at Wits Research for a while as a Research Nurse.

What made me take up this position? With all the years of research experience I have gained, I decided it was time to have a professional upgrade and applied for the post at NICD for the GERMS-SA/CRDM Field Project Coordinator position.

What has it been like thus far? I've been here since January and feel I am capable of doing the job because I'm a very passionate person about my work .

I must say so far its been overwhelming. It gives me great satisfaction to do my job and master what I was hired to do.

Profile of Noluthando Gamka.

About myself I am married with two daughters. My hobbies are music and cooking. I was born and bred in Cape Town. I was trained as an enrolled nurse at Groote Schuur Hospital. Thereafter I worked as an enrolled nurse for 12 years at the Department of Health. I then worked at the University of Stellenbosch as an HIV nurse counsellor from 2008 - January 2017. From 1 February 2017 I joined NICD as a Surveillance officer-research nurse at the University of Witwatersrand.

What made me take up this position? The reason I joined the NICD was to broaden my knowledge about research (SARI and Mat Flu). I have gained insight and knowledge about the diagnosis of pneumonia in children.

What has it been like thus far? It's a good experience and new learning phase and I am finding it very interesting. I am working with a wonderful team from NICD and engaging very well.

Profile of Aobakwe Molosi (CSA—Rifampicin-resistant TB project in the Free State):

About myself: A young lady of 25 years of age, enthusiastic about life. I love to read- most of my time is spent between looking for things to read, or buying books. In summary, learning and analyzing is what I do. Most of the things I value most include time spent with family and friends for it is the relationships with those I surround myself with that make me who I am. I pride myself on the values that my parents have instilled in me, *work hard and be humble always*. I believe in making the best of the opportunities I have been granted, which is why anything less than good is not an option. I like to explore the outdoors- walking, jogging or travelling to new places. If I am not in doors, I am probably learning something new and building towards growth of mind and spirit.

What made me decide to take up this position? I took this job because the sense of doing something for others appealed to me. I knew it would require a lot of empathy for others and the values that I spoke about in telling more about myself, would fit in perfectly with the job. Every opportunity adds value to a human being's character, and in this job I will grow to learn more about the strengths and weaknesses of myself and others. I have dreams and ambitions, and it is a hope of mine that I will reach them one day with the experiences from this job.

What is it like thus far? The job is good so far. I am learning new things everyday. I thrive on learning from my mistakes and while I am still new to the job, there will be a few. However, they will one day count as successes. I am keeping optimistic!

General Information for Surveillance Laboratories

ALL laboratories to send ALL isolates below

Enhanced laboratories have additional isolates to submit— see over the page.

GERMS-SA: ALL laboratories please submit the following bacterial or fungal pathogens to the National Institute for Communicable Diseases (NICD) on Dorset transport media with a TrakCareLab/private laboratory report or send specimen tube/blood culture bottle if uncertain of identification and/or no isolate available (contact lab).

Pathogen	Specimen	Lab tests	NICD Centre/ Lab
• *Streptococcus pneumoniae* • *Haemophilus* spp. • *Neisseria meningitidis*	All normally-sterile site specimens, e.g. CSF, blood, pleural fluid, peritoneal fluid, pericardial fluid, joint fluid, tissue, etc.	Culture positive **OR** Consistent Gram stain **OR** Latex positive	CRDM (011 555 0315)
• *Salmonella* Typhi • ††*Vibrio cholerae*	Any specimen	Culture positive	CED (011 555 0333/4)
• *Candida* spp. **(all laboratories)**	Blood culture only	Culture positive	COTHI - MRL (011 555 0384)

††*Vibrio cholerae* isolates from human and non-human (environmental) specimens must be reported to NDoH.

Should your laboratory suspect an OUTBREAK of *Shigella* spp, non-typhoidal *Salmonella,* diarrhoeagenic *E.coli,* non-cholera Vibrio, *Campylobacter* or *Listeria* spp please contact and submit isolates to the Centre for Enteric Diseases (011 555 0333). Please also call the NICD Outbreak Response Unit to alert them (011) 5550392/0542 or (011) 386 6354

To order a new batch of Dorset Transport Media, please call CHARM at telephone 011 555-0323/0381 For surveillance questions, please call GERMS-SA at telephone 011 386 6234.

In addition, certain sites are requested to send *Staphylococcus aureus* and Carbapenem-Resistant Enterobacteriaceae (CREs) to NICD.

All enhanced surveillance laboratories are requested to send *Cryptococccus* spp isolates for January to March (inclusive).

Pathogen	Specimen	Lab tests	NICD Centre/ Lab
Cryptococcus spp. (Please send **cultured** isolates January to March **2017** inclusive)	Any specimen Private labs: Please only send a Lab form to the laboratory for case counting ESS laboratories: Please inform the SO about cases (January -March inclusive)	Culture positive **OR** CrAg test positive **OR** CSF India ink positive	COTHI - MRL (011 555 0384)
**Staphylococcus aureus*	Blood culture only	Culture positive	COTHI - AMRL (011 555 0342)
^Carbapenem Resistant Enterobacteriaceae (CRE): • *Citrobacter* spp. • *Enterobacter* spp. • *Escherichia coli* • *Klebsiella* spp. • *Morganella* spp. • *Proteus* spp. • *Providentia* spp. • *Salmonella* spp. • *Serratia* spp.	Blood culture only	Culture positive **AND** Non-susceptible (intermediate or resistant) to any of the carbapenems: ertapenem, meropenem, imipenem and/or doripenem	COTHI - AMRL (011 555 0342)

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

^ FS: Universitas/Pelonomi
GP: Chris Hani Baragwanath Academic, Charlotte Maxeke Johannesburg Academic, Helen Joseph/Rahima Moosa, Dr George Mukhari and Steve Biko Pretoria Academic

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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**