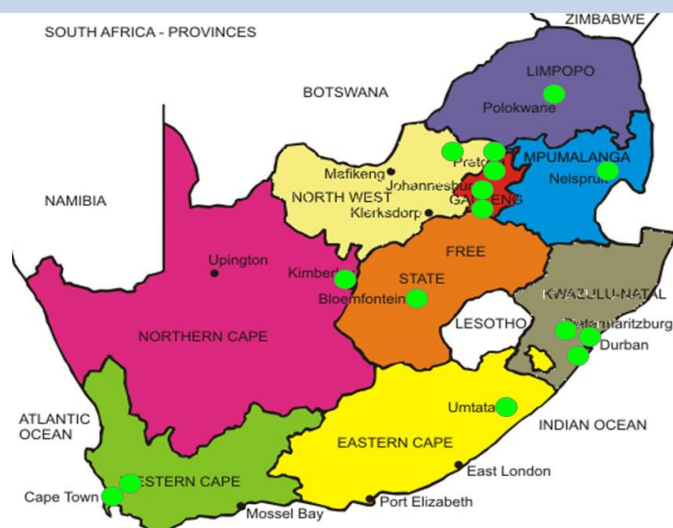




Volume 46, July 2015



Second Quarter Summary

The GERMS-SA team has been extremely busy over the first half of the year and it doesn't look like things will be settling down anytime soon. In this issue we report back on our most recent surveillance officer (SO) meeting, held in Johannesburg in May. Dr Meiring also shares some of her experiences attending the ABCs surveillance officer meeting in Baltimore, Maryland. ABCs is GERMS-SA's sister surveillance programme run by the CDC in the USA.

We also report back on a meeting with the North West DoH where the NICD provided feedback for the numerous projects underway in the Matlosana sub-district of Dr Kenneth Kaunda. We also share some pictures from a site visit to one of our more rural surveillance sites in Mpumalanga.

On page 6 and 7 we introduce you to three of our newest staff members and share their experiences of their first few months with GERMS-SA.

From 1 July 2015, GERMS-SA has started enhanced surveillance on carbapenem-resistant Enterobacteriaceae. In this issue of the Link we introduce you to the organisms that are responsible for these infections and why it is important to monitor the resistance patterns in our hospitals.

On page 10 we provide a summary of our enhanced surveillance site operational report from the end of quarter 1, to monitor the work load and performance at our different surveillance sites.



GERMS-SA SO Meeting, May 2015

And finally, for your convenience, we provide updated summary tables of the different organisms and case definitions for the surveillance programme. So grab your coffee, get comfortable and enjoy the read...

GERMS-SA Surveillance Officer (SO) meeting: 28 to 29 May 2015

Sr Khasiane Mawasha

Khasi (SO from Universitas and Pelonomi, Free State) shares some highlights from our most recent SO meeting held at the GENESIS conference centre, Sandringham, Johannesburg.

Centre for Opportunistic, Tropical and Hospital Infections - Cryptococcus (COTHI-CRYPTO)

There was a discussion about cryptococcal meningitis (CM) and the CryptoPath study. As CM remains a common cause of death with a high mortality rate in HIV/AIDS patients, a programme called Screen and Treat has been introduced to try and identify these patients as early as possible so that they can be treated on time with amphotericin B and fluconazole and hopefully reduce the mortality rate from CM.

Centre for Opportunistic, Tropical and Hospital Infections - Carbapenem Resistant Enterobacteriaceae surveillance (COTHI- CRE SURVEILLANCE)

A new surveillance programme has just started on 01/07/2015 in chosen enhanced sites, where all Enterobacteriaceae which are resistant to carbapenems, namely ertapenem, imipenem and meropenem, cultured from blood will be followed up. It will include all adult and paediatric patients. The CREs will be included in the list of Notifiable Medical Conditions.

Centre for Respiratory Diseases and Meningitis (CRDM) and Centre for TB (CTB)

A brief report from the pneumococcal conjugate vaccine - 13 valent serotypes (PCV13) invasive pneumococcal disease (IPD) study was given (manuscript in process). In general it can be concluded that the vaccine was seen to be effective as, according to the data collected, it was proven that the pneumonia cases in paediatric patients have reduced remarkably.

Safety issues around TB were discussed and Infection Prevention and Control remains the main issue to tackle.

GENERAL

The new style that was used at the meeting for SOs to present the lessons learnt from each session kept us all awake because we did not know who was next on the list to present. I personally think we learnt a lot. This was also proven during the last session of the meeting when

Susan asked questions and SOs had to give answers.

A highlight of the meeting for all was a surprise visit from Mmakgomo Rakhudu, previous GERMS field project coordinator, who encouraged us all to keep striving for excellence no matter what life deals us.

Sr Khasi (second from right) enjoying a break during the meeting with some of her fellow Gauteng surveillance officers.



Active Bacterial Core Surveillance (ABCs) Surveillance Officer Meeting, Baltimore, Maryland, USA

Susan Meiring



I was fortunate to be invited to represent GERMS-SA and join our US surveillance partners for their annual surveillance officer meeting held in Baltimore, Maryland from 29 -30 June 2015.

ABCs is the US equivalent of the GERMS-SA enhanced surveillance programme on bacterial and fungal infections. Many of the surveillance organisms between the two programmes overlap and it was very interesting to participate in some

of the discussions regarding the technical difficulties that we all share in collecting data, cleaning data and responding to data queries.

One big difference between our two programmes is that ABCs uses epidemiologists and public health officers to collect the data, most of which is available electronically on computer systems at the relevant hospitals; whereas GERMS employs nursing sisters to do face-to-face patient interviews and medical record reviews, at the time of the patient's illness, to gather our data.

The ABCs team were very interested to hear how we capture our data directly onto a database using smart phone technology. Currently they are piloting the use of tablets to replace their paper-based CRF model.

Sadly, my time with the team was very short lived but hopefully our engagement will continue via electronic correspondence. The ABCs team were sad to bid farewell to Emily Weston, the programme coordinator who has been with ABCs for over 7 years. She will be succeeded by Olivia Almendares, who is known to the team for her work in pneumococcal disease at the CDC. GERMS-SA wishes Olivia an easy transition into her new role and looks forward to continuing our relationship with the ABCs team under her guidance.



From the left Olivia Almendares (new coordinator), Gayle Langley (programme director) and Emily Weston (outgoing coordinator) from the ABCs team in the United States

NICD Surveillance and Research Projects in the North West Province: feedback from a meeting with NICD and NW DoH

Thejane Motladiile

A short feedback meeting was arranged by NICD and Matlosana Health Sub-district Management Team to share some of the research findings from the different surveillance programmes and studies conducted in this sub-district of the North West Province.

The Health Management Team were introduced to the GERMS-SA active, national, laboratory-based, population surveillance with its enhanced sentinel sites (in Klerksdorp/Tshepong hospital complex in NW). They were also informed of the expanded surveillance platform which includes clinic/syndromic surveillance. Ms Nuraan Paulse has recently been appointed as the new Project Field Coordinator for NC and NW TB surveillance.

Below is a table of past, current and future work that GERMS-SA and Centre for Respiratory Diseases and Meningitis has been and will be doing in the sub-district:

Past	Present	Future
Health utilization survey Influenza costing study Household transmission study Influenza shedding study	Pneumonia surveillance Influenza like Illness surveillance GERMS-SA invasive bacterial and fungal surveillance	Community burden study on influenza and RSV transmission

There are currently two ongoing HIV, TB and STI projects underway in the Dr Kenneth Kaunda district:

1. Prospective Sentinel Surveillance of Tuberculosis and Human Immunodeficiency Virus in South Africa and Related Drug Resistance
2. Sentinel Surveillance of Sexually Transmitted Infection Syndrome Aetiologies, Gonococcal Antimicrobial Resistance and HPV Genotypes among Patients attending Public Healthcare Facilities in South Africa

Some preliminary results from the clinic surveillance system were highlighted:

- I. Detection of HIV first-line drug resistance level of 22%, and the contribution of the surveillance system in guiding the Expert Committee to advise on a regimen switch for one of the patients was much-admired
- II. The discovery of an almost similar transmission of Rifampicin Mono-resistance (58%) and MDR-TB (55%), and the different types of TB strains and their distribution (22% Beijing strain)
- III. 45 Rifampicin Resistant cases were diagnosed by GXP in quarter 1 (January - March 2015) for the entire district.

This feedback session was well received by the Health Management Team and, after getting a taste of the preliminary results of the surveillance work in the district, everyone is looking forward to the outcomes of the surveillance system final reports.

GERMS-SA site visit to Hluvukani Clinic, Bushbuckridge, Mpumalanga

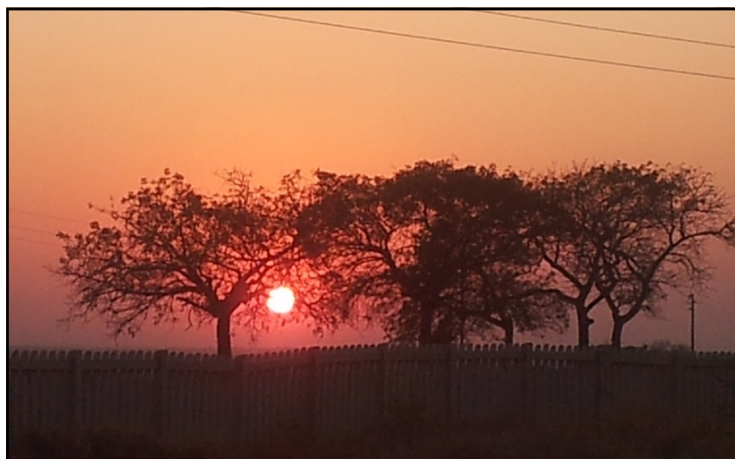
Hluvukani community health clinic is our only rural clinic surveillance site. We started this site in September 2014 and in addition to our clinic surveillance for HIV/TB drug resistance and STI aetiology, we do zoonosis surveillance in adults with acute febrile illness.



Above: Mr Frans Radebe, Prof Blumberg and Dr Vanessa Quan (NICD) with the staff from Hluvukani Clinic.



Left and Below: Inspecting the vegetable garden at Hluvukani Clinic and Sunrise from the clinic parking lot — the joys of rural clinic visits.



Introducing our newest GERMS-SA staff members — welcome to you all and we hope you enjoy a long and fruitful journey with us

Emily Sikanyika—Division of Public Health Surveillance and Response (DPHSR) Project Administrator

I started working on the GERMS-SA programme on the 1 April 2015, and am happy to be working at NICD-DPHSR department as a Project Administrator.

My duties entail generating and circulating monthly communiqués, timely circulation of updated and relevant communications to the various GERMS-SA stakeholders, keeping a record of all previous and current subsistence and travel reimbursement, organising travel and accommodation for DPHSR staff and generating well-written, easy to understand meeting minutes.



I enjoy the challenges and the responsibility of my job, especially the precise approach that is necessary for me to deliver the information that management requires. My primary motivation is to do an excellent job and achieve the desired end results. I am particularly motivated by working as a team: I like to take on a challenge and I like to rise to that challenge as part of a concerted team effort.

Kate Bishop—Surveillance Officer at Red Cross Hospital, WC

Hi there! My name is Kate Bishop and I have been a GERMS-SA Surveillance Officer for just over three months. I am smiling as I write this, because this means that I have been free from night duty for three whole months!

Before working as a surveillance officer based at Red Cross Hospital, I was employed as a Registered nurse in the Cardio-Thoracic ICU at Groote Schuur Hospital. I am really enjoying the change.

Highlights of being an SO so far have included the following:

An awesome team, the cutest babies, regular working hours, a "business" trip to Joburg, and of course, zero night duty. My greatest challenge has been getting used to drawing blood from the tiniest patients, but I am starting to gain confidence in this area. I am currently working on the pneumonia surveillance and maternal influenza vaccine surveillance study (MATFLU) study but will expand in time to include GERMS-SA organisms.



Yekiwe Hlombe—Surveillance Officer at Red Cross Hospital, WC

I started working as a surveillance officer on the pneumonia surveillance and the maternal influenza vaccine study at Red Cross Hospital (RXH) on 1st of April 2015.

I am familiar with the RXH set up as I started in the same hospital in S11 and the Rehydration Unit immediately after I qualified as a Registered Nurse in 2002.

I left RXH in 2004 to pursue research for the first time working for the University of Cape Town for 6 years doing different studies including: microbicide study, Latent TB and Active TB studies on HIV positive and HIV negative cases. Following that I have been doing bedside nursing at Cape Town Medi-Clinic and also worked at Rondebosch Medical Centre Paediatric ward.



Definite highlights of my time with GERMS-SA were to successfully draw bloods from a 10 day old baby and also to do nasopharyngeal aspirates from small babies. These have been first time ever experiences for me as a nurse.

I had the experience of talking to one of the mothers who had been enrolled into our study. Her baby died in hospital on the 16th of June and she met me whilst I went to visit other participants in the ward and she was very emotional and I had to be a counsellor for her. I was able to make her feel better about her loss and the situation she was in.

I love children a lot, so to me the job I am doing really makes me feel like doing the best not only for South Africa but for Africa as a continent. RXH is THE BEST children's hospital on the continent!

GERMS-SA enhanced laboratory surveillance for Carbapenem-Resistant Enterobacteriaceae (CRE)

Samantha Iyaloo

Enterobacteriaceae are a large group of Gram-negative organisms, the most common of which are *Klebsiella* spp., *Enterobacter* spp., *Citrobacter* spp., *Serratia* spp., *E. coli*, *Providentia* spp., *Proteus* spp. and *Salmonella* spp. These 8 organisms comprise >95% of all Enterobacteriaceae infections. Infection with these organisms is usually treated with penicillin or cephalosporin antibiotics, but due to increasing resistance to these groups of drugs, the carbapenem group of β -lactams is used. The carbapenems have often been described as the "last line of antibiotic defence" for Gram-negative organisms. Due to overuse of carbapenems, resistance has developed with increased morbidity and mortality associated with these infections and become a threat to healthcare and patient safety. Colistin and tigecycline are used for CRE treatment, but they are expensive, not freely available and cause toxicity.

The establishment of enhanced surveillance for CRE will allow us to determine the extent of the emergence and spread of CRE and to identify high-risk patients in order to institute targeted interventions and policies to curb the spread of CRE. Epidemiological surveillance will also allow us to identify "hot spots" and CRE outbreaks which can result in outbreak investigations and interventions for control and prevention. The intended use of the surveillance programme will be to provide policy makers, clinicians and the general medical community with regular updates on the epidemiology and microbiological trends of CRE.

The GERMS-SA CRE surveillance was implemented on the 1st of July 2015. We would like to thank the participating sites, GERMS-SA team and the Surveillance Officers for their support and input into making this CRE surveillance a success.

Table 1: List of organisms for which CRE surveillance will be conducted

Organisms for CRE surveillance		
<i>Klebsiella</i> spp.	<i>Serratia</i> spp.	<i>Proteus</i> spp.
<i>Enterobacter</i> spp.	<i>Escherichia. coli</i>	<i>Salmonella</i> spp.
<i>Citrobacter</i> spp.	<i>Providentia</i> spp.	

Contact details at COTHI/NICD:

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Samantha Iyaloo (Medical Epidemiologist)

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email samanthai@nicd.ac.za

CRE surveillance continued...

Table 2: Sentinel hospital sites partaking in GERMS-SA CRE surveillance

Province	CRE Surveillance Site
WC	Groote Schuur Hospital
	Tygerberg Hospital
FS	Universitas Hospital
GA	Chris Hani Baragwanath Academic Hospital
	Charlotte Maxeke Johannesburg Academic Hospital
	Steve Biko Pretoria Academic Hospital
	Dr George Mukhari Hospital
	Helen Joseph/Rahima Moosa Hospital
KZN	Grey's Hospital
	Addington Hospital
	Inkhosi Albert Luthuli/King Edward Hospital
	RK Khan Hospital
	Edendale/ Northdale Hospital



Top: Antimicrobial Resistance Reference Laboratory (AMRL) core team.

Inserts: Centre for Opportunistic, Tropical and Hospital-acquired Infections (COTHI) Epidemiology team

GERMS-SA Enhanced Surveillance Site Operational Report Summary, January to March 2015

JANUARY TO MARCH 2014						JANUARY TO MARCH 2015							
Lab confirmed cases*	# CRFs completed	% CRFs	# Interview	% Interview	Organisms**	Province	ES Site	Organisms**	Lab confirmed cases*	# CRFs completed	% CRFs	# Interview	% Interview
42	23	55	17	74	A, B, E	EC	NMAC/ UGH	A, B, C, E, F	56	30	54	26	87
49	25	51	20	80	A, B, E	FS	Universitas/ Pelonomi	A, B, C, E	30	15	50	13	87
118	103	87	80	78	A, B, C, E	GA	CHBH	A, B, E, F	152	122	80	107	88
100	85	85	79	93	A, B, C, D, E	GA	CMJAH	A, B, D, E	113	95	84	93	98
61	38	62	37	97	A, B, E	GA	DGM	A, B, C, E	58	14	24	14	100
59	52	88	48	92	A, B, C, D, E	GA	RMMCH/ HJH	A, B, D, E	50	13	26	9	69
39	18	46	17	94	A, B, C, D, E	GA	SBAH/ TDH	A, B, D, E	32	26	81	26	100
68	39	57	27	69	B	GA	BGH/ Nata/ Phol/ TMH	B	36	18	50	15	83
19	19	100	14	74	A, B, E	KZ	Addington	A, B, C, E	20	12	60	10	83
104	94	90	93	99	A, B, E	KZ	Edendale/ Northdale	A, B, C, E, F	146	132	90	128	97
29	24	83	17	71	A, B, E	KZ	KEH	A, B, C, E	38	25	66	22	88
38	35	92	28	80	A, B, E	KZ	RK Khan	A, B, C, E	31	28	90	25	89
13	2	15	2	100	A, B, E	LP	Polokwane/ Mankweng	A, B, C, E, F	16	4	25	4	100
45	39	87	33	85	A, B, E	MP	Rob/ Themba	A, B, C, E, F	75	56	75	53	95
19	14	74	10	71	A, B, E	NC	Kimberley	A, B, C, E, F	23	20	87	18	90
41	21	51	14	67	A, E	NW	Klerksdorp/ Tshepong	A, B, C, E, F	74	54	73	49	91
90	56	62	47	84	A, B, C, E	WC	GSH/ RXH	A, B, D, E	95	49	52	47	96
72	43	60	36	84	A, B, C, E	WC	Tygerberg	A, B, D, E	80	66	83	55	83
1006	730	73	619	85	A, B, C, D, E		TOTAL	A, B, C, D, E, F	1125	779	69	714	92

* Includes all IPD cases

** A: *S. pneumoniae*, *H. influenzae*, and *N. meningitidis*; B: *Cryptococcus*; C: *Candida*; D: *S. aureus*; E: IPD; F: Rifampicin-resistant Tuberculosis

Target met Target not met

Targets: ≥90% for CRFs completed; ≥70% for CRFs completed on interview

> The overall % of completed CRFs decreased and % of interviews conducted increased.

> Edendale/Northdale and RK Khan reached both targets for quantity of work (≥90% of CRFs completed, and ≥70% on interview), excellent!

> Kimberley, CMUJAH and Tygerberg almost reached the 90% target for CRFs completed, well done!

> 17/18 sites exceeded the target of 70% for completed CRFs on interview. This is excellent for our data quality, well done!

> SBAH/TDH, Polokwane, DGM, CMUJAH, Edendale/Northdale, GSH/RXH, Rob/Themba, Klerks/Tshepong and Kimberley achieved ≥90% on interview, well done!

NMSU: (011) 386 6012

NHLS Practice Number: 5200296

Data Extracted: 12 June 2015

General Information for Enhanced Surveillance Laboratories

GERMS-SA Enhanced Surveillance Sites: Please submit the following bacterial 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 of identification and/or no isolate available (contact lab to discuss).

Pathogen	Specimen	Lab tests	NICD Unit
<i>Streptococcus pneumoniae</i> <i>Haemophilus</i> spp. <i>Neisseria meningitidis</i>	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
<i>Salmonella</i> spp. (incl. Typhi) <i>Shigella</i> spp. <i>Campylobacter</i> spp. † <i>Vibrio cholera</i>	Any specimen	Culture positive	CED 011 555 0333/4
Diarrhoeagenic <i>Escherichia coli</i>	Gastrointestinal specimens, e.g. stools, rectal swabs, etc.	Culture positive	CED 011 555 0333/4
<i>Cryptococcus</i> spp. (no need to send isolates)	Any specimen - enhanced surveillance laboratories need to inform the Surveillance Officers about cases (January to March inclusive)	Culture positive OR Latex positive OR India ink positive	COTHI (MRL) 011 555 0384
†† <i>Candida</i> spp.	Blood culture only	Culture positive	COTHI (MRL) 011 555 0384
* <i>Staphylococcus aureus</i> ** <i>Pseudomonas aeruginosa</i>	Blood cultures only	Culture positive	COTHI (AMRRL) 011 555 0342
**Carbapenam Resistant Enterobacteriaceae (CRE): <i>Klebsiella</i> spp. <i>Enterobacter</i> spp. <i>Citrobacter</i> spp. <i>Serratia</i> spp. <i>E. coli</i> <i>Providentia</i> spp. <i>Proteus</i> spp. <i>Salmonella</i> spp	Blood cultures only	Culture positive AND non- susceptible to any of the carbapenems: ertapenem, meropenem, imipenem and/or doripenem	COTHI (AMRRL) 011 555 0342

†*Vibrio cholerae* isolates from human and non-human (environmental) specimens must be reported to national Department of Health.

††Port Elizabeth, Pelonomi/Universitas, Dr George Mukhari, RK Khan, Addington, King Edward VIII, Edendale, Greys', Northdale, Polokwane/Mankweng, Rob Ferreira, Themba, Kimberley, Tshepong/Klerksdorp.

*Charlotte Maxeke Johannesburg Academic, Steve Biko Pretoria Academic, Helen Joseph/ Rahima Moosa Mother and Child, Groote Schuur, Tygerberg.

**Universitas, Chris Hani Baragwanath, Charlotte Maxeke Johannesburg Academic, Dr George Mukhari, Helen Joseph/ Rahima Moosa Mother and Child, Steve Biko Pretoria Academic, Tygerberg, Groote Schuur, Northdale/Edendale, Inkosi Albert Luthuli/ King Edward VIII, Addington, RK Khan, (Mahatma Gandhi Memorial—not CRE).

General Information for Non-Enhanced Surveillance Laboratories

GERMS-SA Non-Enhanced Surveillance Sites: Please submit the following bacterial 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 of identification and/or no isolate available (contact lab to discuss).

Pathogen	Specimen	Lab tests	NICD Unit
<i>Streptococcus pneumoniae</i> <i>Haemophilus</i> spp. <i>Neisseria meningitidis</i>	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
<i>Salmonella</i> spp. (incl. Typhi) <i>Shigella</i> spp. <i>Campylobacter</i> spp. † <i>Vibrio cholera</i>	Any specimen	Culture positive	CED 011 555 0333/4
Diarrhoeagenic <i>Escherichia coli</i>	Gastrointestinal specimens, e.g. stools, rectal swabs, etc.	Culture positive	CED 011 555 0333/4
<i>Cryptococcus</i> spp. (no need to send isolates)	Any specimen Private labs: Please just send a lab form to the laboratory for case counting	Culture positive OR CrAg test positive OR CSF India ink positive	COTHI (MRL) 011 555 0384

†*Vibrio cholerae* isolates from human and non-human (environmental) specimens must be reported to national Department of Health.

CRDM = Centre for Respiratory Diseases and Meningitis, CED = Centre for Enteric Diseases, COTHI = Centre for Opportunistic, Tropical and Hospital Infections, MRL = Mycology Reference Laboratory.

To order a new batch of Dorset Transport Media, please call CRDM at Telephone: 011 55 0315
For other surveillance questions, please call GERMS-SA at Telephone: 011 386 6234

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