NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

Report for 1 January to 31 January 2014

National Institute for Communicable Diseases
-- Monthly Surveillance Report --

This Surveillance Report is published by the National Institute for Communicable Diseases (NICD), a division of the National Health Laboratory Service (NHLS), on a monthly basis to provide information on communicable diseases in South Africa. Much of the information is therefore preliminary and should not be cited or utilised for publication. Questions and comments may be addressed to the Division of Public Health Surveillance and Response and will be referred on to the responsible Centres: pennyc@nicd.ac.za; Private Bag X4, Sandringham, 2131, South Africa

Surveillance Summary

- *Salmonella* Typhi has been reported for 13 cases to date in 2014.
- No cases of Enterohaemorrhagic *Escherichia coli* (EHEC) have been reported to date in 2014. For the same period last year, 0 cases had been reported.
- No cases of *Vibrio cholerae* O1 have been reported to date in 2014. For the same period last year, 0 cases had been reported.
- Three specimens have tested positive for rotavirus to date.
- Laboratory-based screening for cryptococcal disease has been operational in the City of Johannesburg Metro for over a year and in the City of Ekurhuleni Metro for 6 months. Up to 31 December 2013, 10,601 patients have been screened at selected facilities; 473 (4.5%) tested positive for cryptococcal antigen (CrAg).
- To 31 December 2013, 515 *S. aureus* cases were reported over a 15 month period. The majority of cases were <10 years old (36%). The proportion of methicillin-resistant isolates were 35%.
- To 31 October 2013, a total of 2,665 patients over a 16 month period were tested *for Pneumocystis jirovecii.* Three-hundred- and seventy-five (14%) cases were positive for *P. jirovecii*. These cases positive for *P. jirovecii* could indicate colonisation or it could be true disease.
- Sporadic cases of meningococcal disease continue to be reported across the country. By week 5 in 2014, 7 meningococcal cases had been reported to the NICD. Serogrouping results are still pending for all cases. Three of the seven cases occurred in children aged <1 year.
- By week 5 in 2014, 12 cases of *H. influenzae* had been reported to date. Serotyping results are still pending for all cases. Most cases occur in individuals aged <10 years.
- The number of pneumococcal cases was lower than that reported last year (67 versus 143). Most cases to date were reported in adults aged 25-49 years.
- The influenza season started in week 17 (week starting 22 April) and ended in week 41 (week starting 7 October). Overall influenza A(H1N1)pdm09 virus circulation predominated the 2013 influenza season. To date in 2014, 2 influenza isolates have been detected. Two of the isolates were detected through Viral Watch, 0 through SARI and 0 through the influenza-like illness programme.
- No cases of measles have been reported to date.
- 5 AFP cases <15 years of age have been reported to date in 2014, with an annualized non-polio AFP detection rate of 0.3 per 100,000 population.

Laboratory-Based Enteric Disease Surveillance

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Programme Description:

The Centre for Enteric Diseases (CED) at the National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS) monitors disease caused by *Salmonella* spp, *Shigella* spp, *Escherichia coli*, and *Vibrio cholerae* through a national, active, laboratory-based surveillance system (as part of GERMS-SA [Group for Enteric, Respiratory and Meningeal Disease Surveillance in South Africa]). All microbiology diagnostic laboratories throughout South Africa are requested to report laboratory-confirmed disease (defined as the isolation of *Salmonella* spp, *Shigella* spp, *Escherichia coli*, and *Vibrio cholerae* from any specimen. Reporting laboratories should include all private- and public-sector health care laboratories, and other specialist laboratories e.g. laboratories serving mining or military hospitals. Available isolates are sent to CED for confirmation and further characterisation, including serotyping.

Some of the limitations of this surveillance system are that we include only individuals that arrive at hospitals and have specimens taken, and cases are only counted if laboratories report them to us. Quarterly audits to verify completeness of reporting are conducted for all public-sector laboratories. Frequent communications and visits are conducted to improve case reporting. Isolates for serotyping are not available for cases identified by audit.

Comments:

By week 5 in 2014, 21 cases of *Salmonella* had been reported to the NICD. Most cases occurred in children aged <10 years and adults aged 30-39 years. For the same period last year, 314 cases had been reported. *Salmonella* Typhi has been reported for 13 cases to date, in Gauteng, KwaZulu Natal, Mpumalanga and Western Cape provinces. For the same period last year, 11 cases of *Salmonella* Typhi had been reported.

To date, 0 cases of *Shigella* have been reported in 2014. For the same period last year, 156 cases of *Shigella* had been reported.

No cases of Enterohaemorrhagic *Escherichia coli* (EHEC) have been reported to date in 2014. For the same period last year, 0 cases had been reported.

No cases of *Vibrio cholerae* O1 have been reported to date in 2014. For the same period last year, 0 cases had been reported.

Reductions of cases reported in 2014 may reflect the inherent delays of laboratory-based reporting, but may also reflect ongoing operational changes.

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 1. Number of *Salmonella* cases by month in South Africa, 2013 and 2014

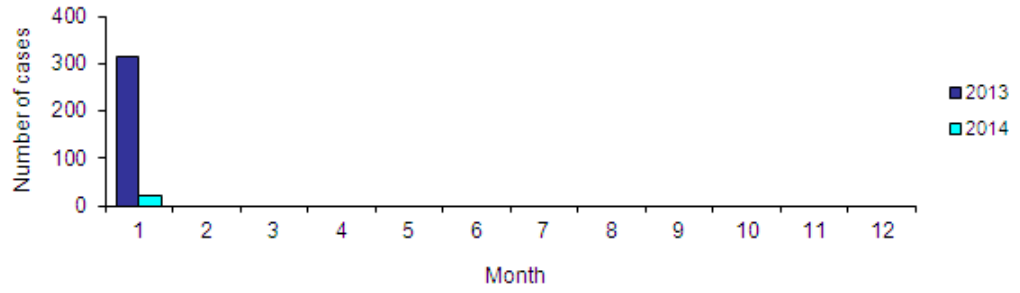


Figure 2. Number of *Salmonella* cases by age group in South Africa, 2013 and 2014

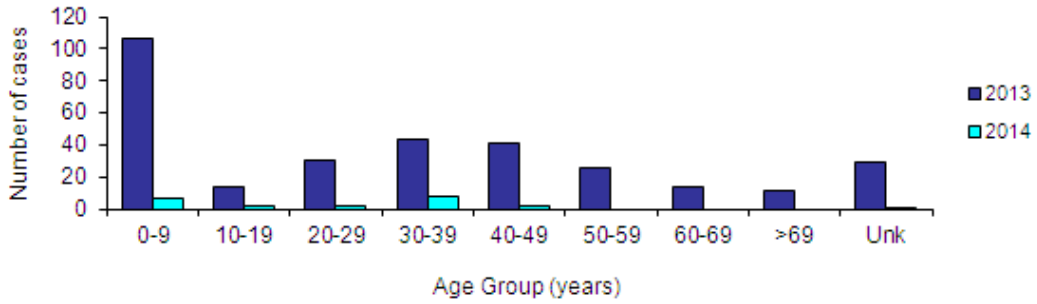


Figure 3. Number of *Salmonella* Typhi cases by month in South Africa, 2013 and 2014

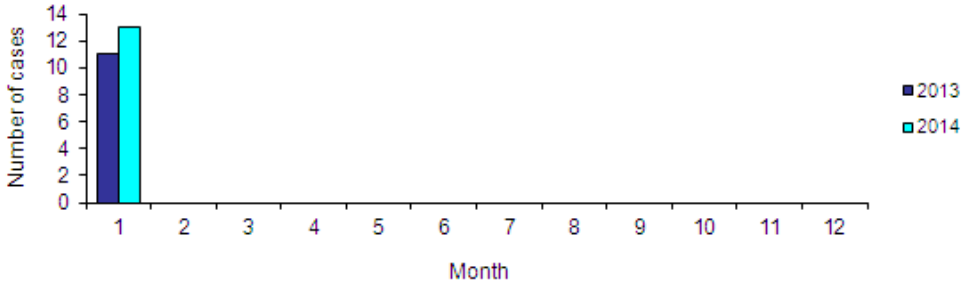
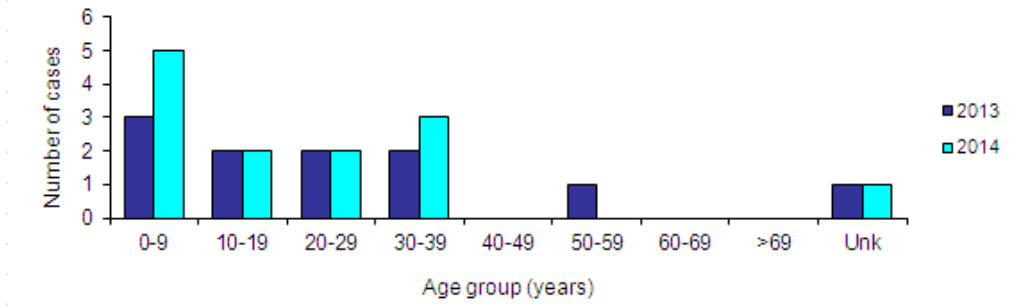


Figure 4. Number of *Salmonella* Typhi cases by age group in South Africa, 2013 and 2014



Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 5. Number of *Shigella* cases by month in South Africa, 2013 and 2014

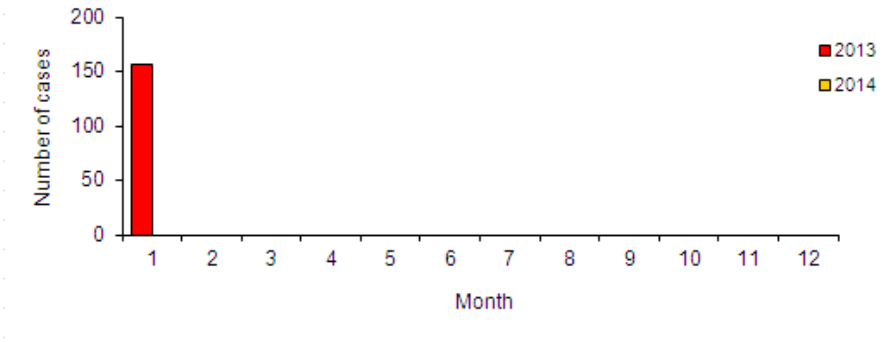


Figure 6. Number of *Shigella* cases by age group in South Africa, 2013 and 2014

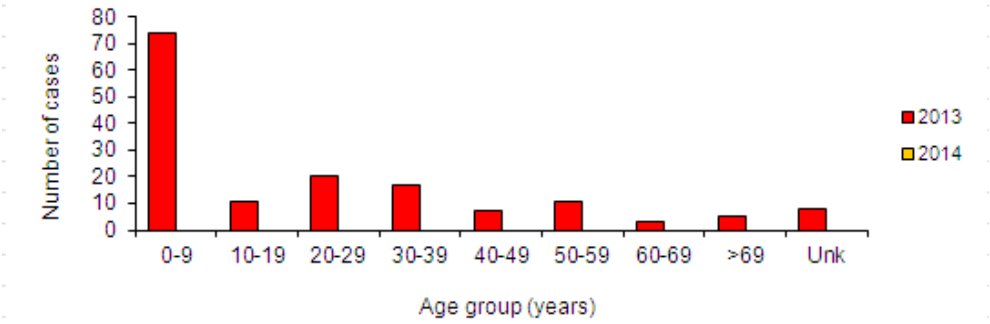
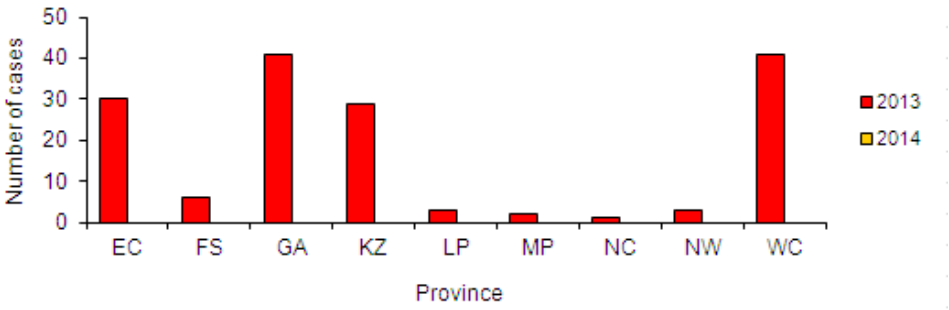


Figure 7. Number of *Shigella* cases by province in South Africa, 2013 and 2014



Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 8. Number of *Escherichia coli* EHEC cases by month in South Africa, 2013 and 2014

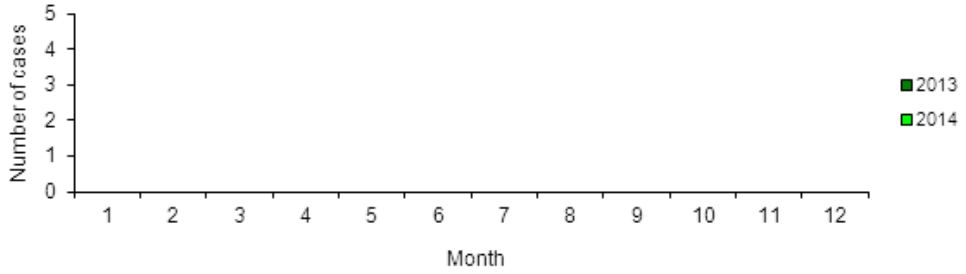


Figure 9. Number of *Escherichia coli* EHEC cases by age group in South Africa, 2013 and 2014

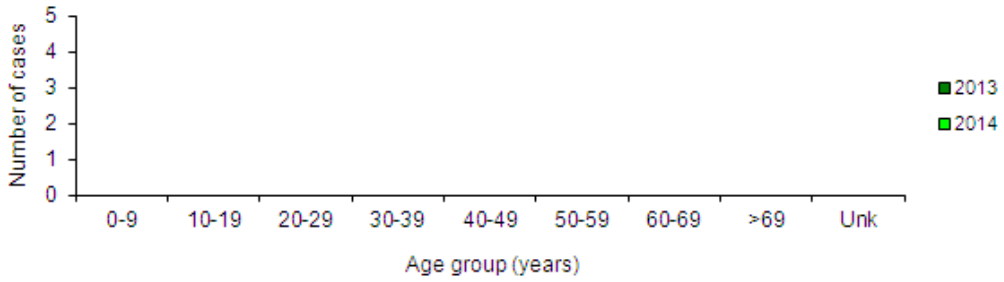
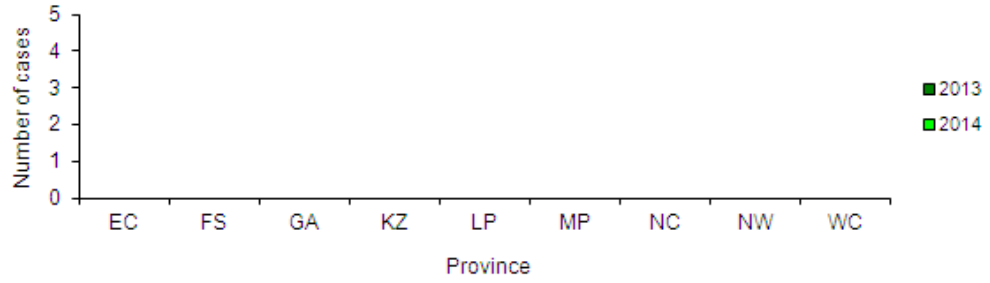


Figure 10. Number of *Escherichia coli* EHEC cases by province in South Africa, 2013 and 2014



Vibrio cholerae O1 surveillance

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 11. Number of *Vibrio cholerae* O1 cases by month in South Africa, 2013 and 2014

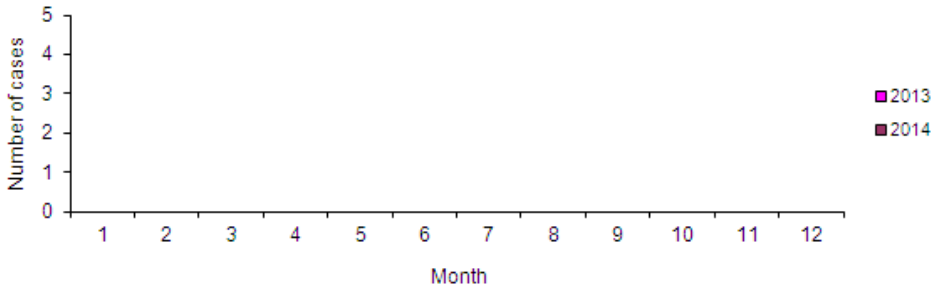
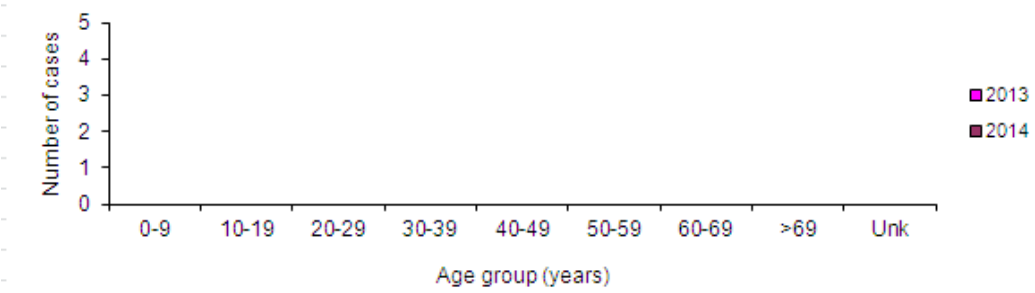


Figure 12. Number of *Vibrio cholerae* O1 cases by age group in South Africa, 2013 and 2014



Syndromic Diarrhoeal Disease Surveillance

Reporting period 06/01/2014 to 22/01/2014 *Results until end of epidemiologic week 4 (2014)*

Programme Description:

In April 2009, the National Institute for Communicable Diseases of the National Health Laboratory Service (NICD/NHLS) in Johannesburg implemented a diarrhoea sentinel surveillance programme at five hospitals in four provinces of South Africa (Gauteng, North West, KwaZulu-Natal and Mpumalanga). The aim of the programme is to evaluate the prevalence of rotavirus in diarrhoea cases and to monitor the effect of the introduction of the monovalent Rotarix® vaccine into the expanded programme on immunisation. The rotavirus vaccine was introduced in August 2009.

Children < 5 years admitted (slept overnight in hospital) to one of the sentinel hospitals for acute diarrhoea (≥ 3 loose stools in 24 hour period and onset within 7 days) are eligible for enrolment in the surveillance. Stool specimens are collected and tested for rotavirus at the NICD/NHLS and at the Diarrhoeal Pathogens Research Unit (DPRU), University of Limpopo, Medunsa Campus using the ProSpecT Rotavirus ELISA kit (Oxoid, UK).

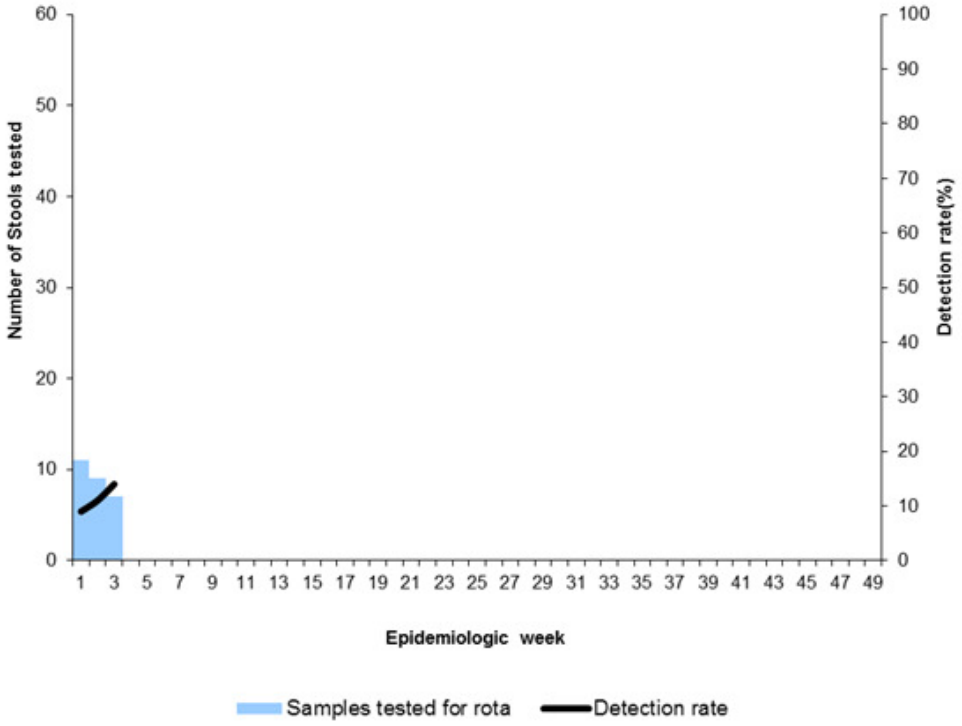
Comments:

The 2014 rotavirus season has not yet started. The start of the season in South Africa, defined as a rotavirus detection rate of >20% for two consecutive weeks, usually starts in April. For the period 6 January to 22 January 2014, 28 patients were tested for rotavirus. Of these, 3 patients (11%), tested positive for rotavirus.

Rotavirus (ROTA) surveillance

Reporting period 06/01/2014 to 22/01/2014 *Results until end of epidemiologic week 4 (2014)*

Figure 13. Number of stools tested for rotavirus and detection by week, 2014



The rotavirus detection (in percentage) is the number of rotavirus-positive stool tests divided by the number of rotavirus stool tests in acute diarrhoea hospitalisations.

Table 1. Cumulative number of stools tested rotavirus positive and total number of stools collected by hospital, 2014

Hospital	Rotavirus positive	Total stool tested
Chris Hani Baragwanath	0	12
Edendale	1	3
George Mukhari	1	6
Mapulaneng	1	5
Matikwane	0	2
Total:	*3*	*28*

Sexually Transmitted Disease Surveillance

Reporting period 01/01/2013 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Programme Description:

The Gauteng clinical STI sentinel surveillance programme was introduced in 1997 by the Sexually Transmitted Infections Reference Centre (Centre for HIV and STI, National Institute for Communicable Diseases) in partnership with the Gauteng Department of Health. The aim of the surveillance program is to monitor STI trends and set up priorities for STI management and provincial control programmes. The data presented below are a summary for the period 1 January - 31 December 2013.

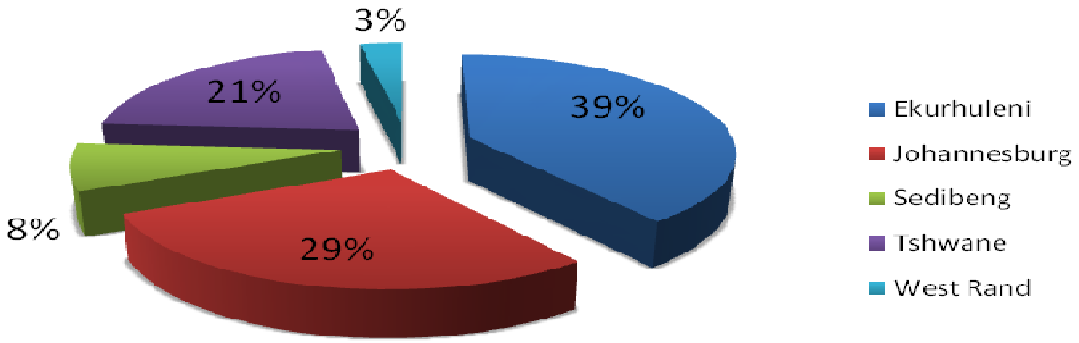
Comments:

For the period up to 31 December 2013, out of a total of 21,028 patients seen (including follow-ups), 20,185 new STI syndrome episodes were reported by sentinel sites.

Females represented 57.1% (n=11,253) and males 42.9% (n=8,439) of the surveyed population. Amongst males, 65.8% (5,552/ 8,439) of STI syndromes were MUS (Male Urethritis Syndrome) and amongst females, 60.2% (6,771/ 11,253) of STI syndromes were VDS (Vaginal Discharge Syndrome). A total of 17,071 partner notification slips were issued to 19,692 patients with new STI episodes, resulting in an overall partner slip issue rate of 86.7%.

MUS and VDS continued to be the most common syndromes in this patient population group.

Figure 14. Percentage distribution of new STI syndrome episodes per surveillance region, 1 January - 31 December 2013



Laboratory-Based Screening for Cryptococcal Disease (Phase 1: Gauteng)

Reporting period 03/09/2013 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Programme Description:

The NICD's Centre for Opportunistic, Tropical and Hospital Infections (COTHI), in collaboration with several partner organizations including the Department of Health, has implemented the first phase of laboratory-based screening for cryptococcal disease. Screening began at the NHLS CD4 laboratory at Charlotte Maxeke Johannesburg Academic Hospital in September 2012; twenty-six health care facilities in Johannesburg participate in the programme. In April 2013, the NHLS CD4 laboratory at Tambo Memorial Hospital also began testing patient samples from 76 facilities in Ekurhuleni. Blood samples submitted for a CD4+ T-lymphocyte (CD4) count from these facilities are tested for cryptococcal antigen (CrAg) using a cryptococcal lateral flow assay (LFA) if the CD4 count is less than 100 cells/µl. CrAg test results are included on the CD4 count laboratory report. Patients with cryptococcal antigenaemia, who provide informed consent, are followed up prospectively for up to 12 months. The following data are collected: lumbar puncture results; antifungal treatment; antiretroviral treatment; time from CrAg testing to treatment initiation; adverse events and outcome (i.e. development of cryptococcal meningitis (CM); death or loss to follow-up). Other key programme indicators such as number of cases of CM detected at the regional hospitals in the screening area, the number of healthcare workers trained and availability of fluconazole at facilities are collected. The objective of this report is to provide monthly updates of selected programme indicators to all stakeholders. Data reported in this report are incomplete due to retrospective collection of clinical data.

Comments:

Up to 31 December 2013, 10601 patients with a CD4 count <100 cells/µl have been screened; 473 (4.5%) tested positive for CrAg. In Johannesburg, 55% (155/282) of patients were detected at Helen Joseph Hospital and in Ekurhuleni, 25% (47/191) of patients were detected at Tambo Memorial Hospital. Sixty-one per cent (287/469) of CrAg-positive patients were between 30 and 44 years old. During the reporting period, 199 cases of laboratory-confirmed CM were diagnosed at three regional hospitals (Helen Joseph, Rahima Moosa Mother and Child and South Rand) that serve the Johannesburg clinics participating in the screening programme and 154 cases of CM were diagnosed at four regional hospitals that serve Ekurhuleni (Bertha Gxowa, Natalspruit, Pholosong and Tambo Memorial); this number may include hospitalised patients who were not screened through this programme.

Reporting period 03/09/2013 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Table 2. NHLS CD4 laboratory statistics for Phase 1 of the cryptococcal screening programme*

Laboratory Statistics	Number
Number of NHLS CD4 laboratories enrolled in screening programme	2
Number of NHLS CD4 laboratories reporting data	2
Number of CrAg screening tests performed	12294
Number of CrAg-positive tests/ number of specimens tested (%)	555/12294 (4.5%)

*Data source: NHLS Corporate Data Warehouse and NHLS laboratory information system

Table 3. Case statistics for Phase 1 of the cryptococcal screening programme*

Case Statistics	Sep-Dec 2012	Jan-Mar 2013	Apr-Jun 2013	Jul - Sep 2013	Oct-Dec 2013	Total
Number of patients tested for CrAg	1807	1103	2674	2559	2458	11074
Number of CrAg-positive patients/ number of patients tested for CrAg (%)	83/1807 (4.6%)	51/1103 (4.6%)	127/2674 (4.7%)	133/2559 (5.2%)	79/2458 (3.2%)	473/10601 (4.5%)
Number of CrAg-positive patients known to have had a lumbar puncture† **	11	10	6	2	4	42
Number of CrAg-positive patients known to have had a lumbar puncture with CM†	6	8	3	1	3	25
Number of CrAg-positive patients known to be treated with fluconazole†	66	32	68	57	8	231

*Data source: NHLS Corporate Data Warehouse, NHLS laboratory information system and NICD; †data may be incomplete at the time of reporting due to retrospective collection of clinical data: **lumbar puncture is indicated based on clinical findings; CrAg: cryptococcal antigenaemia; CM: cryptococcal meningitis

Table 4. Number of CrAg-positive patients, by facility, at 26 facilities that refer specimens to the NHLS CD4 laboratory at Charlotte Maxeke Johannesburg Academic Hospital, n=282

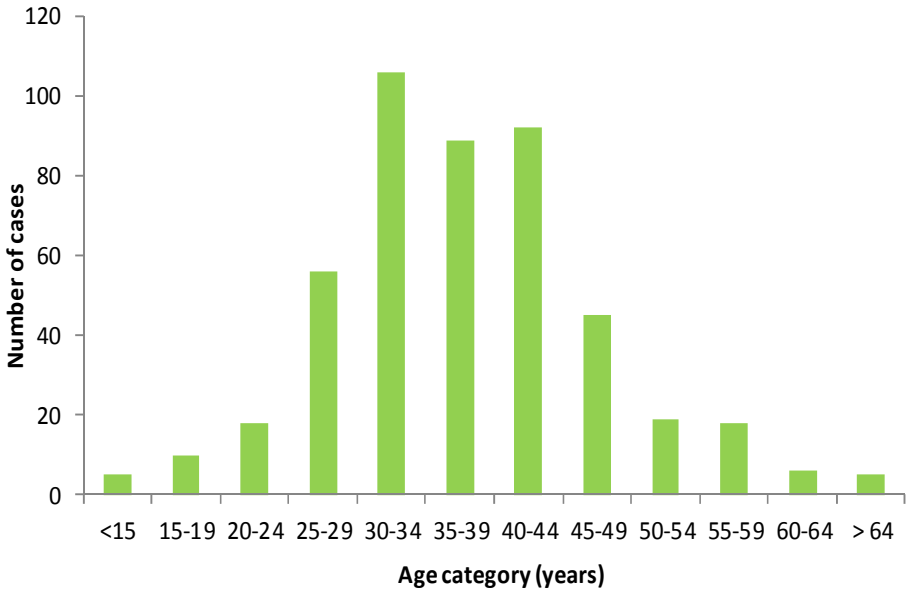
Facility Name*	Number of Cases
Helen Joseph Hospital	155
South Rand Hospital	39
Witkoppen Clinic	22
Discoverers Centre	12
OR Tambo Clinic	10
Crosby Clinic	8
Randburg Clinic	9
Diepsloot South Clinic	8
Rahima Moosa Mother and Child Hospital	6
Noordgesig Clinic	3
Berario Clinic	3
Claremont Clinic	2
Sophiatown Clinic	2
Windsor Clinic	2
Riverlea Major	1
Total:	282

Table 5. Number of CrAg-positive patients, by facility, at 74 facilities* that refer specimens to the NHLS CD4 laboratory at Tambo Memorial Hospital, n= 191

Facility Name*	Number of Cases
Tambo Memorial Hospital	47
Bertha Gxowa Hospital	22
Natalspruit Hospital	28
Pholosong Hospital	21
Goba Clinic	11
Springs Clinic	6
Jabulane Dumane Clinic	6
Dawnpark Clinic	6
Dan Kubheka Clinic	4
Mary Moodley Memorial Clinic	4
Dresser Clinic	3
Kwa-Thema Clinic	3
Dukatole Clinic	3
Payneville Clinic	3
Tsakane Clinic	3
Sunriseview Clinic	2
Ramokonopi Clinic	2
Duduza PHC	1
Edenpark Clinic	1
Evaton Municipal Clinic	1
Geluksdal Clinic	1
Kingsway Clinic	1
Slovo Park Clinic	1
Non-enhanced surveillance sites##	11
Total:	**191**

*Only facilities with CrAg-positive patients are included ##Clinical information is not collected from patients at these sites

Figure 15. Number of CrAg-positive cases, by age category, at 102 facilities that refer specimens to the NHLS CD4 laboratories at Charlotte Maxeke Johannesburg Academic Hospital and Tambo Memorial Hospital, n=469



Reporting period 03/09/2013 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Figure 16. Number of laboratory-confirmed cases of cryptococcal meningitis† diagnosed at three regional hospitals (Helen Joseph, Rahima Moosa Mother and Child, and South Rand) that serve clinics participating in the screening programme, n=187

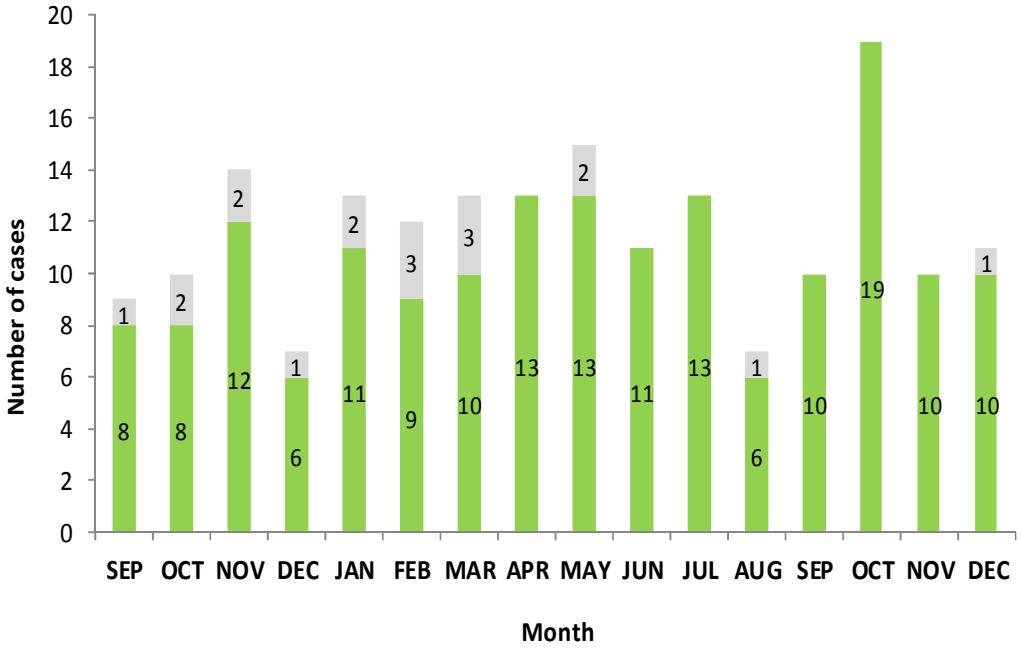
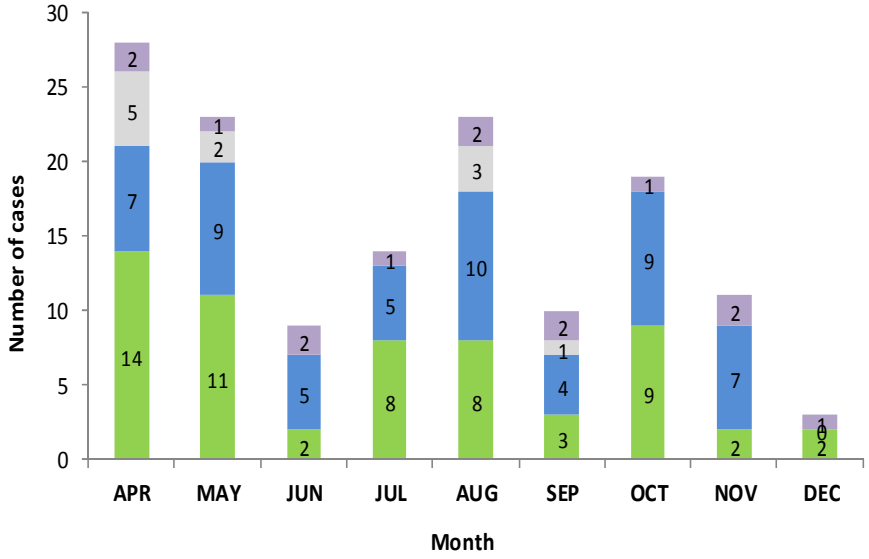


Figure 17. Number of laboratory-confirmed cases of cryptococcal meningitis† diagnosed at four regional hospitals (Bertha Gwoxa, Natalspruit, Pholosong and Tambo Memorial) that serve Ekurhuleni clinics participating in the screening programme, n=140*



*Data source: GERMS-SA surveillance programme (data may be incomplete because surveillance audits have not been performed); †may include hospitalised patients who were not screened through this programme.

Laboratory-Based Nosocomial Disease Surveillance

Reporting period 01/09/2012 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Programme Description:

Staphylococcus aureus (SA) is seen as a common pathogen associated with a wide range of clinical infections (blood stream, lower respiratory tract, skin and soft tissue infections, ventilator-associated pneumonia and central venous catheter associated with blood stream infections and foreign body infections).

The epidemiology of SA is changing. It is one of the most significant pathogens responsible for causing both nosocomial- and community-associated infections, particularly MRSA, which has a high prevalence worldwide as well as a high morbidity and mortality rate. Previously, MRSA was considered a nosocomial pathogen; now it is recovered from patients at admission to hospitals. This community-associated MRSA (CA-MRSA) occurs either from patients that have never been exposed to healthcare settings or patients that have been exposed to recent hospital admissions or any interventions in health care settings.

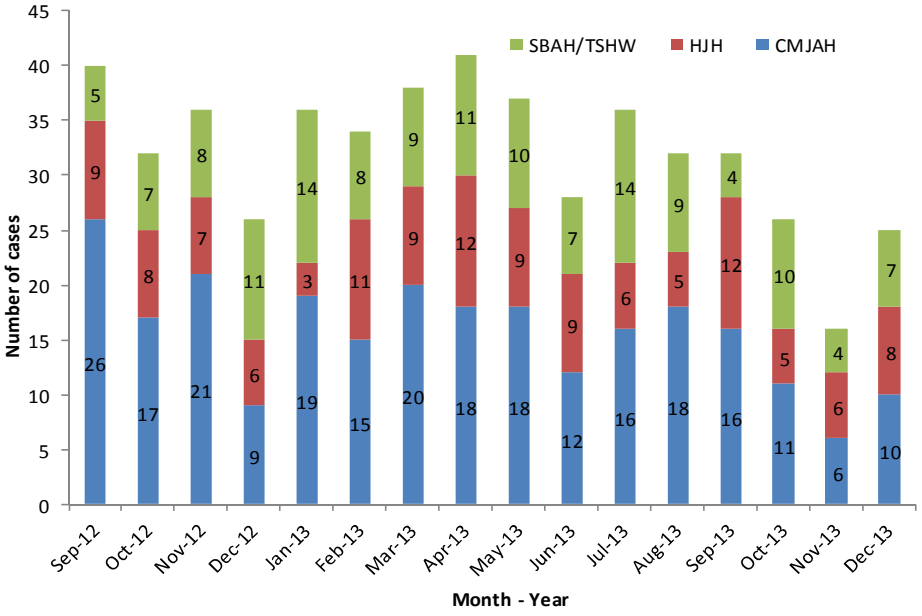
SA enhanced surveillance from patients with bacteraemia was introduced in September 2012 at three sentinel sites in Gauteng Province: Charlotte Maxeke Johannesburg Academic Hospital, Helen Joseph/Rahima Moosa Mother and Child Hospital, and Steve Biko Pretoria Academic Hospital. We report basic demographic findings from September 2012 to December 2013.

Comments:

- For the period 1 September 2012 to 31 December 2013, 515 *S. aureus* cases were reported.
- The majority of *S. aureus* cases were 0-9 years of age (36%) and 30-39 years of age (15%).
- The highest case-fatality rate occurred in the ≥60 year age group, with more than half of patients dying (55%).
- Antibiotic susceptibility varied by site.
- Thirty-five per cent of *S. aureus* isolates were methicillin-resistant.

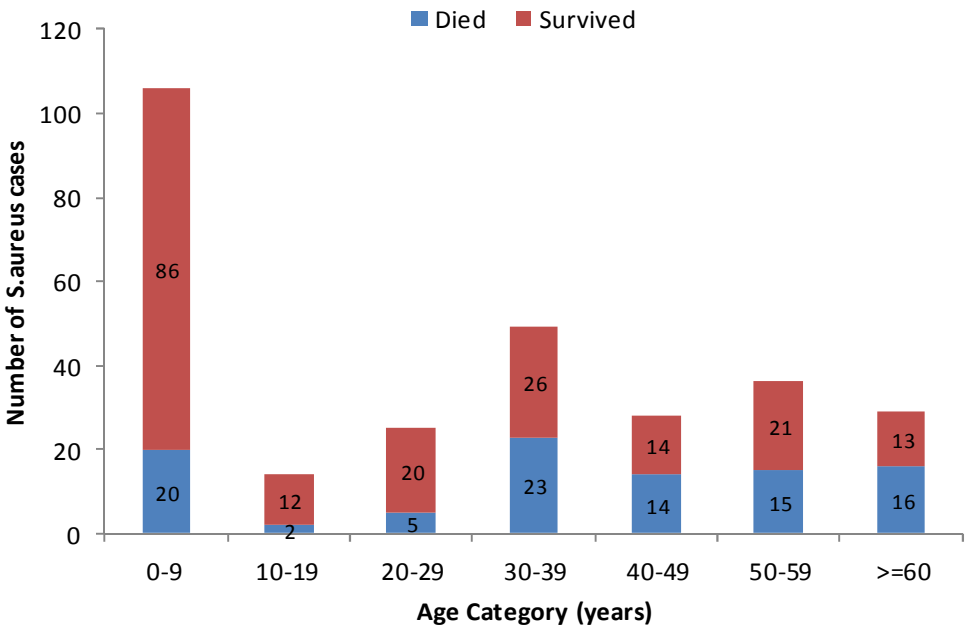
Reporting period 01/09/2012 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Figure 18. Number of *S. aureus* cases* reported by month and site from September 2012 to December 2013 (N=515)



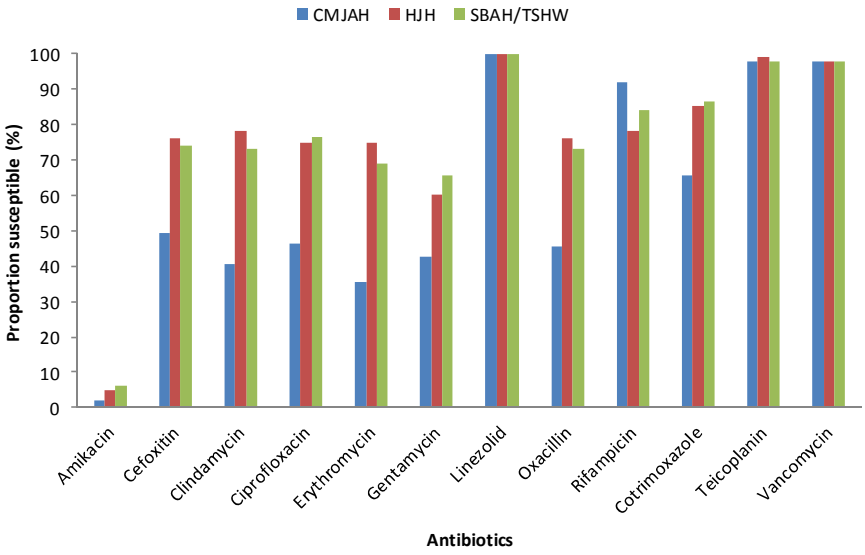
*Data may be incomplete because surveillance audits have not been performed

Figure 19. *S. aureus* cases by age category and outcome from September 2012 to December 2013 (N=287)



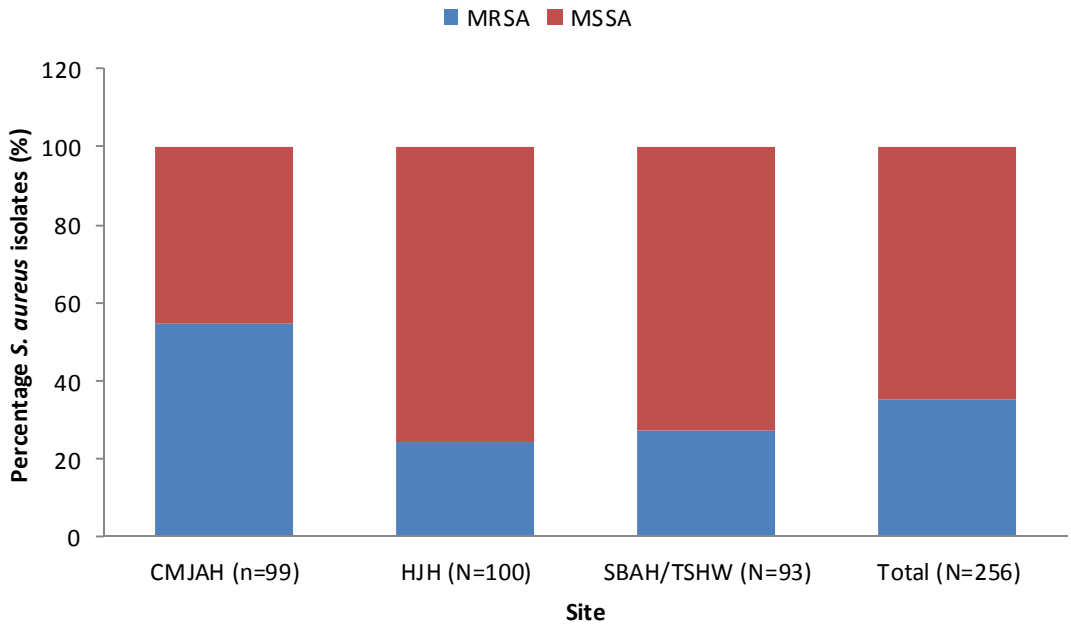
Reporting period 01/09/2012 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

Figure 20. Susceptibility profile of *S. aureus* isolates by site from September 2012 to December 2013



CMJAH: Charlotte Maxeke Johannesburg Academic Hospital, HJH: Helen Joseph Hospital, SBAH/TSHW: Steve Biko Academic Hospital/ Tshwane Hospital

Figure 21. *S. aureus* bacteremia isolates by oxacillin susceptibility and site from September 2012 to December 2013



MSSA: Methicillin-susceptible *S. aureus*, MRSA: Methicillin-resistant *S. aureus*

Laboratory-Based Nosocomial Disease Surveillance - ESKAPE

Reporting period 01/06/2013 to 31/10/2013 *Results until end of epidemiologic week 44 (2013)*

Programme Description:

The Centre for Opportunistic, Tropical and Hospital Infections is involved in hospital-associated infection surveillance utilising various sources. The source of data for this report is from the NHLS corporate data warehouse (CDW). Blood culture results from *Enterococcus, Staphylococcus, Klebsiella, Acinetobacter, Pseudomonas* and ESBL *(Enterobacter* and *E. coli*) (ESKAPE) organisms were cleaned and analysed. These are common, nosocomial, bacterial pathogens that are highly antibiotic-resistant. The data used were from the following hospitals: Charlotte Maxeke Johannesburg Academic Hospital, Chris Hani Baragwanath Hospital, Dr George Mukhari Hospital, Grey's Hospital, Groote Schuur Hospital, Helen Joseph Hospital, Inkosi Albert Luthuli Central Hospital, King Edward VIII Hospital, Mahatma Gandhi Hospital, Nelson Mandela Academic Hospital, RK Khan Hospital, Steve Biko Academic Hospital and Tygerberg Hospital. Cleaning of the data involved creating unique patient identifiers, which enabled us to deduplicate and produce patient-level data. There was a lack of standardisation across NHLS laboratories on how data was captured. Extensive recoding of antibiotic names, organism names, and susceptibility results were required to clean the data and to minimise errors. Quarterly reports will be generated to reflect overall antimicrobial susceptibility patterns per organism. Due to limited space, hospital-level antibiotic susceptibility data are not included in this report but are available if required.

Comments:

For the 5-month reporting period, *S. aureus* was the most common organism reported with 941 cases, 38% of which were MRSA isolates.

100% of *E. faecalis* and 87% of *E. faecium* cases were susceptible to vancomycin.

P. aeruginosa showed decreased susceptibility to piperacillin-tazobactam (61%) and high susceptibility to colistin.

K. pneumoniae cases showed a high rate of ESBL (76%) and retained susceptibility to carbapenems, except 5% had no susceptible rate for ertapenem.

Acinetobacter baumannii isolates were highly resistant to most of the antimicrobial agents tested .

We would like to acknowledge the CDW team for cleaning the data and preparing the tables and figures.

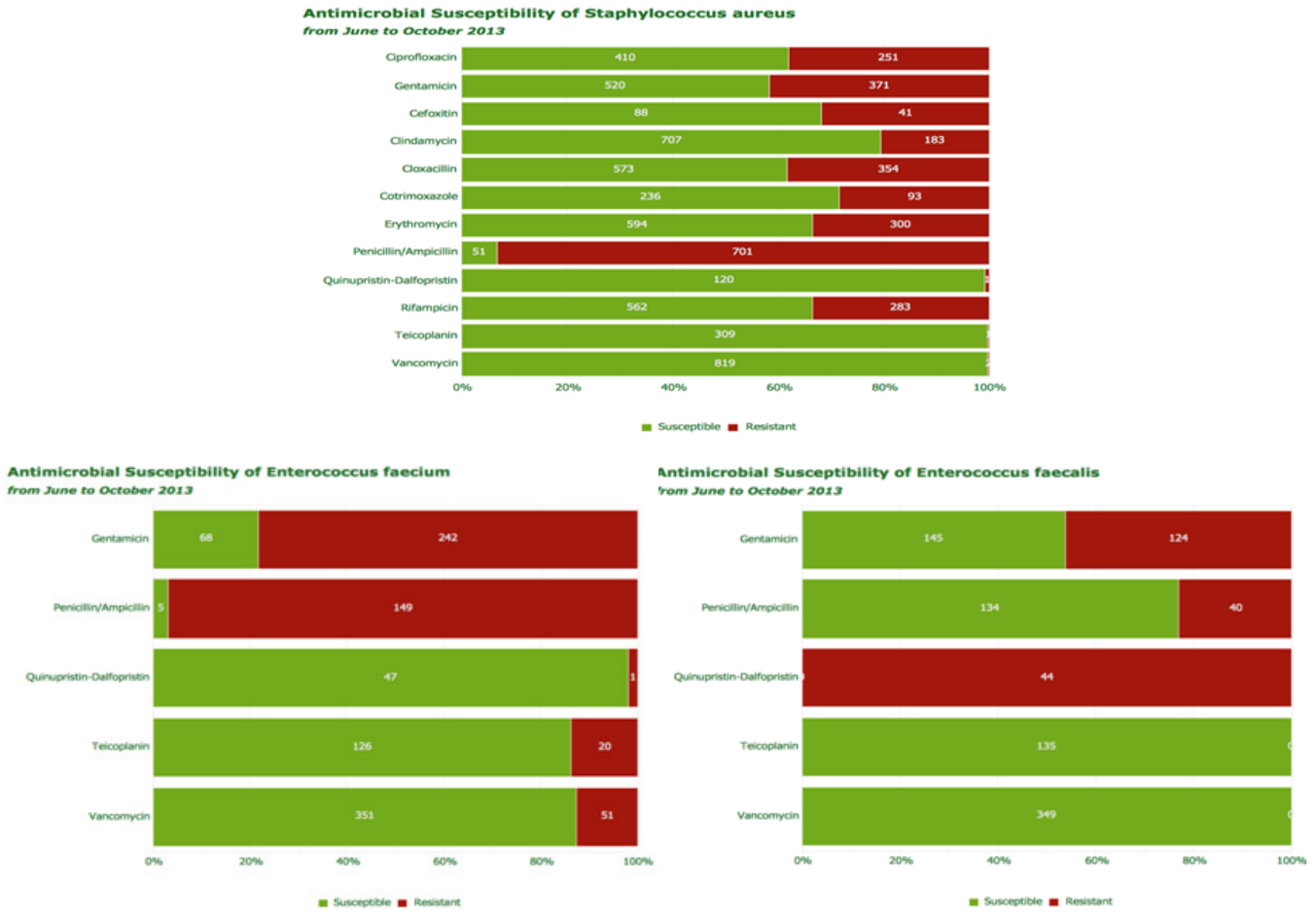
ESKAPE surveillance

Reporting period 01/06/2013 to 31/10/2013 *Results until end of epidemiologic week 44 (2013)*

Table 6. Number of ESKAPE cases per month from June to October 2013

	A. baumannii complex		*E. cloacae* complex		*E. coli*		*P. aeruginosa*		*S. aureus*		*K. pneumonia*		*E. faecalis*		*E. faecium*	
Month	Cases	No of Hospitals	Cases	No of Hospitals	Cases	No of Hospitals	Cases	No of Hospitals	Cases	No of Hospitals	Cases	No of Hospitals	Cases	No of Hospitals	Cases	No of Hospitals
Jun	118	13	49	13	123	13	51	10	145	13	146	12	61	13	73	11
Jul	139	12	42	12	147	13	54	10	192	13	186	12	77	13	98	13
Aug	119	13	33	13	135	13	68	10	216	13	156	11	65	13	103	13
Sep	118	13	50	13	156	13	65	11	206	13	111	12	77	13	55	12
Oct	130	13	56	12	152	13	56	10	182	13	158	10	80	12	74	10
Total	624	NA	230	NA	713	NA	294	NA	941	NA	757	NA	360	NA	403	NA

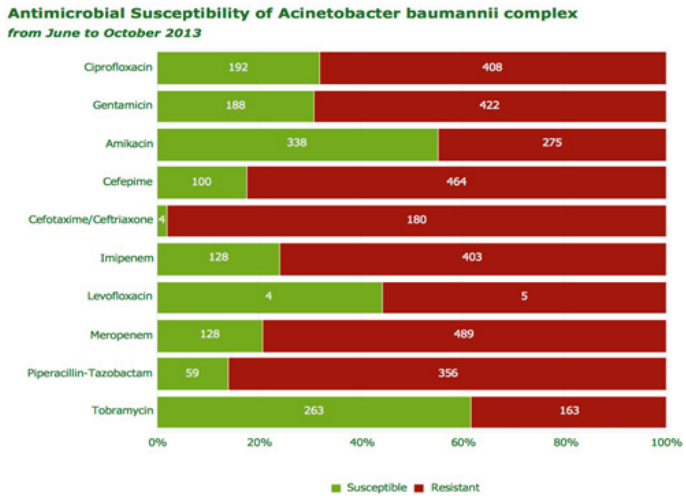
Figure 22. Antimicrobial susceptibility of Gram-positive ESKAPE organisms

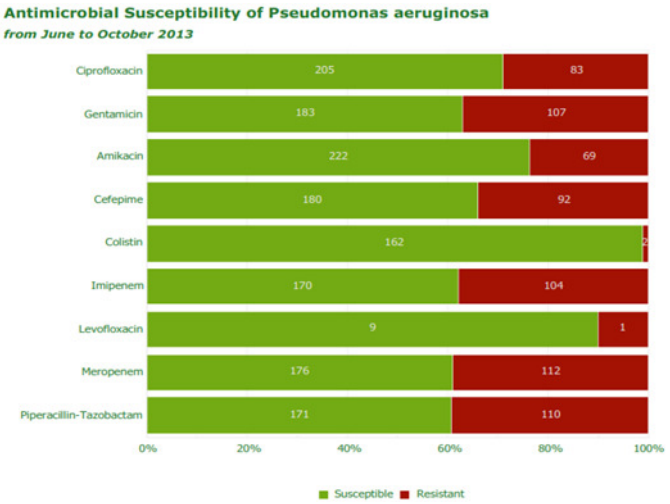


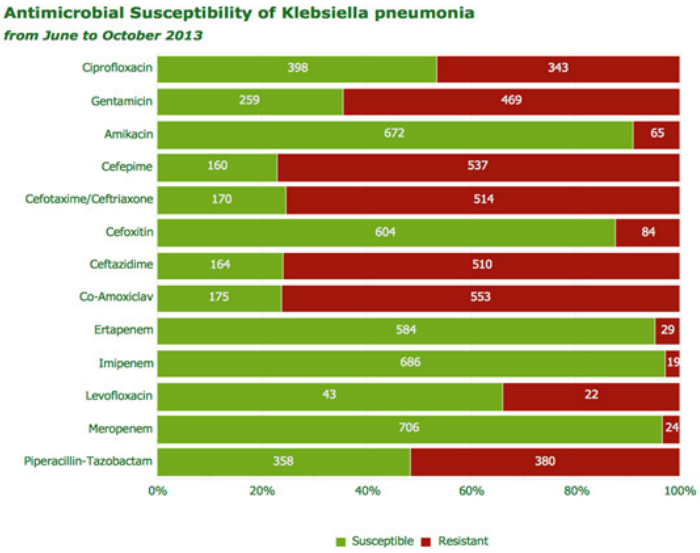
ESKAPE surveillance

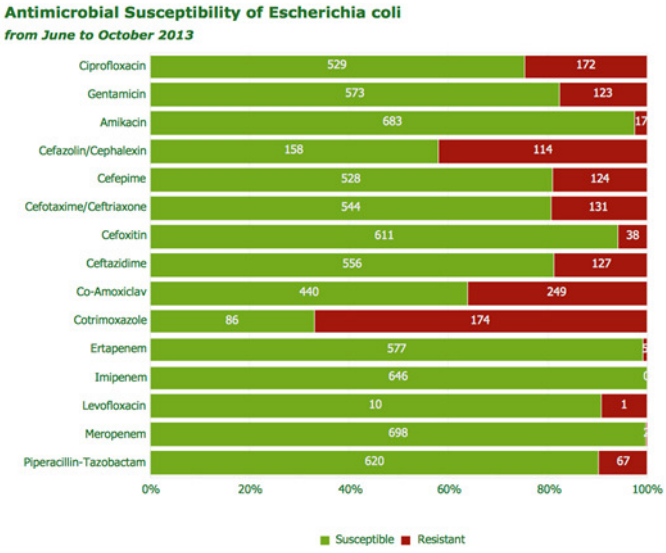
Reporting period 01/06/2013 to 31/10/2013 *Results until end of epidemiologic week 44 (2013)*

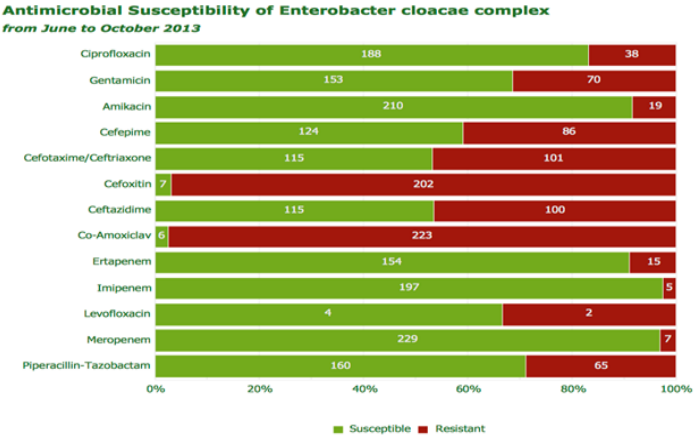
Figure 23. Antimicrobial susceptibility of Gram-negative ESKAPE organisms











Due to the lack of standardisation of capturing data at NHLS laboratories across the country, errors might have occurred. However, we have cleaned the data to miminise these errors.

Reporting period 01/06/2012 to 31/10/2013 *Results until end of epidemiologic week 44 (2013)*

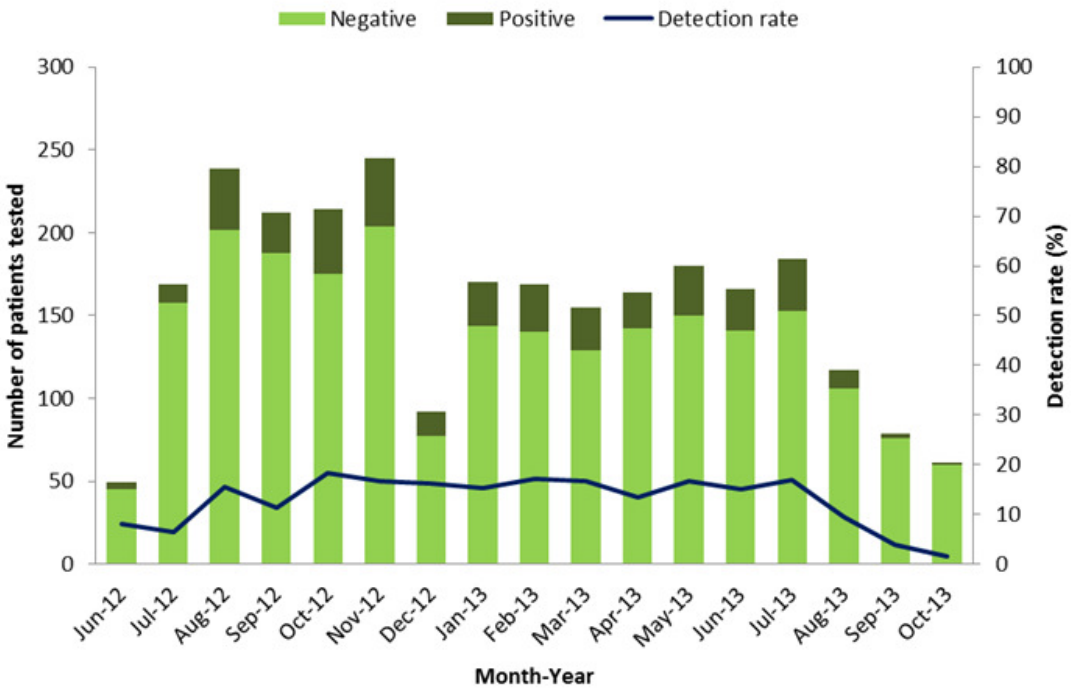
Programme Description:

The data source for this report is the Severe Acute Respiratory Illness (SARI) surveillance programme. SARI is a prospective sentinel hospital-based surveillance system. *Pneumocystis jirovecii* surveillance was conducted at 3 sites: Edendale, Klerksdorp and Tshepong Hospitals. Respiratory tract samples of 3 types (induced sputum (<5 and ≥5 year olds), oral rinses, and nasopharyngeal swabs (only in ≥5 year olds)) were obtained from cases that met the severe respiratory infection case definition. A quantitative real-time PCR was used to test for *P. jirovecii.*

Comments:

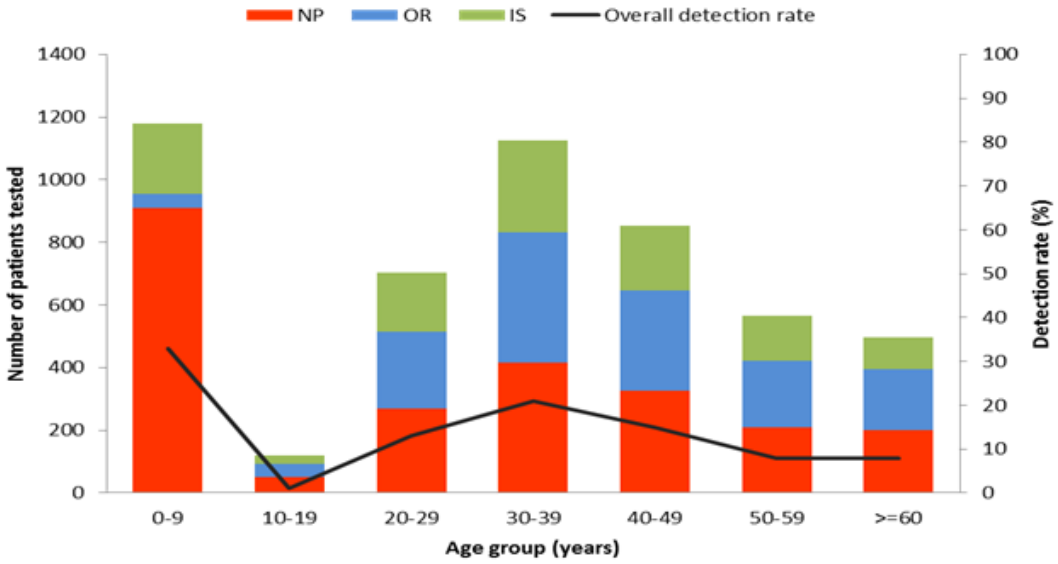
During the reporting period, 5,041 specimens from 2,665 patients were tested for *P. jirovecii*. The overall detection rate was 14% (375/2,665). The detection rate has fallen below 10% for the last 3 months with a low of 2% in October 2013. Nasopharyngeal specimens accounted for almost half of all specimens taken (2,386/5,041; 47%). More than one-third of *P. jirovecii* cases were 0-9 years old (944/2,665; 35%). HIV-uninfected individuals with *P. jirovecii* were more common at the extremes of age, whereas HIV-infected individuals with *P. jirovecii* were mostly between the ages of 20-49 years.

Figure 24. Number of specimens tested for *Pneumocystis jirovecii* and detection rate by month from June 2012 to October 2013 (n=2,665)



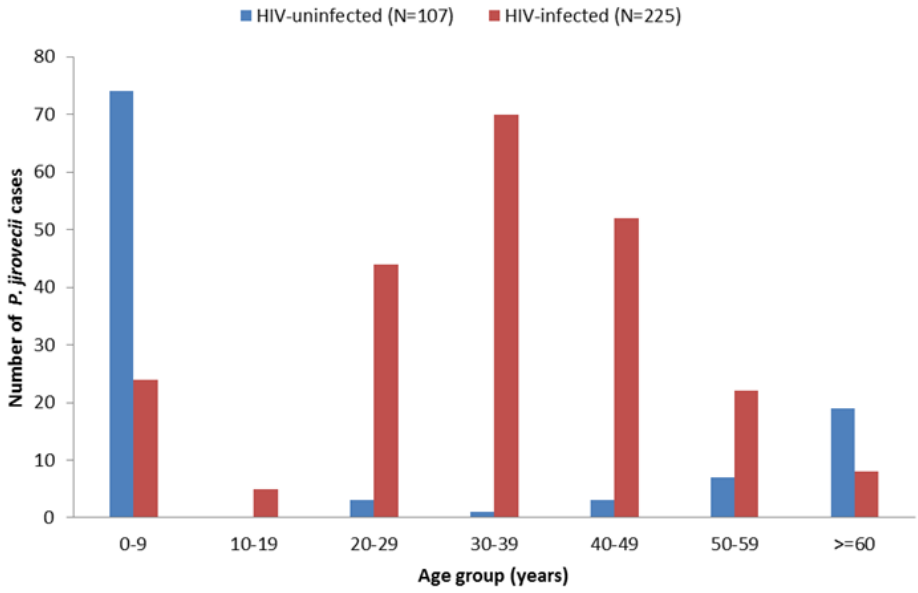
Reporting period 01/06/2012 to 31/10/2013 *Results until end of epidemiologic week 44 (2013)*

Figure 25. Number of patients tested for *P. jirovecii* by age category and specimen type and the overall detection rate* from June 2012 to October 2013



*Overall detection rate refers to the number of positive cases for *P. jirovecii* derived from all specimen types by age category

Figure 26. Number of *P. jirovecii* cases by age and HIV status from June 2012 to October 2013 (N=332)



Laboratory-Based Respiratory and Meningeal Disease Surveillance

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Programme Description:

The Centre for Respiratory Diseases and Meningitis (CRDM) at the National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS) monitors invasive disease caused by *Neisseria meningitidis*, *Haemophilus influenzae*, and *Streptococcus pneumoniae* through a national, active, laboratory-based surveillance system (as part of GERMS-SA [Group for Enteric, Respiratory and Meningeal Disease Surveillance in South Africa]). All microbiology diagnostic laboratories throughout South Africa are requested to report laboratory-confirmed disease (defined as the isolation of *Neisseria meningitidis*, *Haemophilus influenzae*, or *Streptococcus pneumoniae* from normally sterile site specimens e.g. CSF or blood, or for culture-negative cases, any two of the following: a positive antigen latex agglutination test, a consistent Gram stain, and/or positive polymerase chain reaction [PCR]). Reporting laboratories should include all private- and public-sector health care laboratories, and other specialist laboratories e.g. laboratories serving mining or military hospitals. Available isolates are sent to CRDM for confirmation and further characterisation, including serogrouping. Increasingly more culture-negative specimens are being sent for PCR testing.

Some of the limitations of this surveillance system are that we include only individuals that arrive at hospitals and have specimens taken, and cases are only counted if laboratories report them to us. Quarterly audits to verify completeness of reporting are conducted for all public-sector laboratories. Frequent communications and visits are conducted to improve case reporting. Isolates for serogrouping are not available for cases identified by audit.

Comments:

Sporadic cases of meningococcal disease continue to be reported across the country. By week 5 in 2014, 7 meningococcal cases had been reported to the NICD. Serogrouping results are still pending for all cases. For the same period last year, a total of 12 cases had already been reported. Three of the seven cases occurred in children aged <1 year. An increase in the number of meningococcal cases is usually identified in the winter and spring seasons, with numbers expected to peak during the months of August to October and to decrease in the summer.

12 cases of *H. influenzae* have been reported to date in 2014. Serotyping results are still pending for all cases. Most cases occur in individuals aged <10 years. For the same period last year, a total of 25 cases had been reported.

To date this year, 67 pneumococcal cases have been reported, compared to 143 cases reported for the same period last year. Most cases occur in adults aged 25-49 years.

Reductions of cases reported in 2014 may reflect the inherent delays of laboratory-based reporting, but may also reflect ongoing operational changes.

* Previously known as serogroup W135. For a comprehensive description of all current *N. meningitidis* serogroups and nomenclature, please refer to the following article: Harrison OB, Claus H, Jiang Y *et al*. Description and nomenclature of *Neisseria meningitidis* capsule locus. Emerg Infect Dis (Internet). 2013 April. Free online access at: http://wwwnc.cdc.gov/eid/article/19/4/11-1799_article.htm

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 27. Number of *Neisseria meningitidis* cases by age group in South Africa, 2013 and 2014

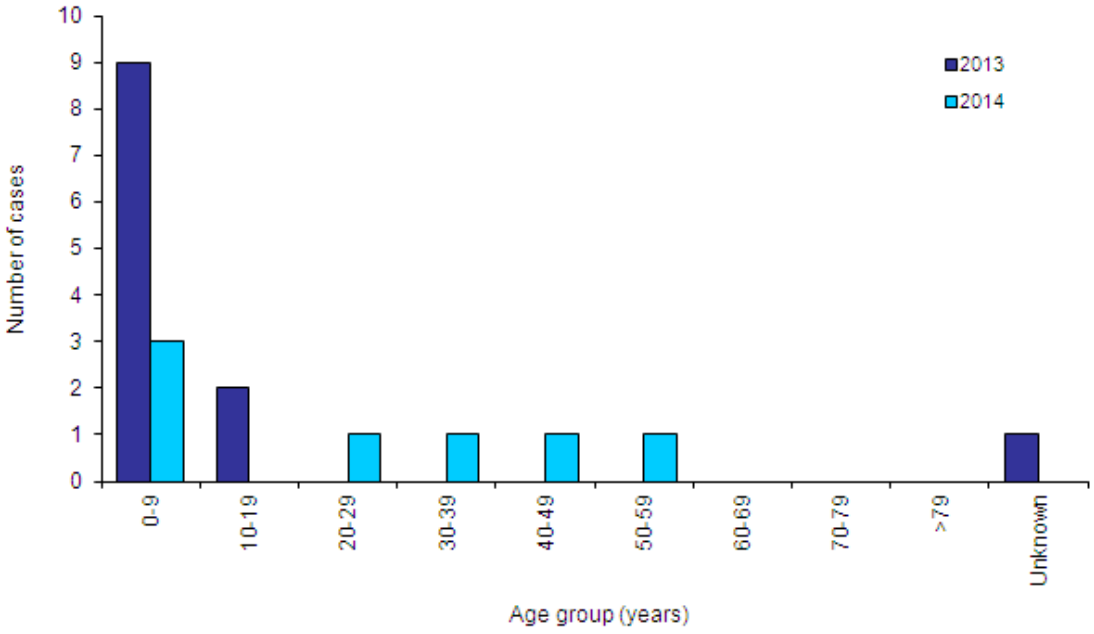
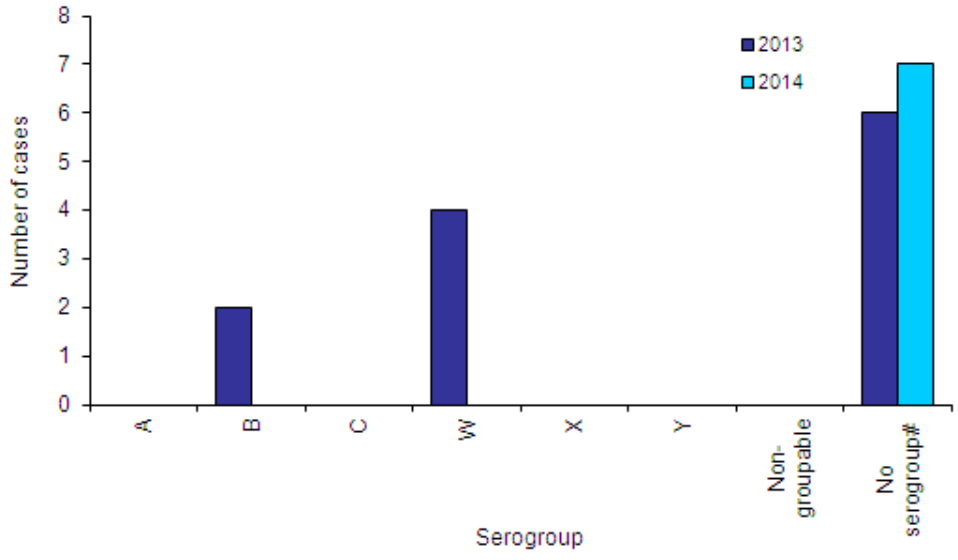


Figure 28. Number of *Neisseria meningitidis* cases by serogroup in South Africa, 2013 and 2014



No serogroup: Cases with serogrouping results not yet available, no isolate, or identified on audit

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 29. Number of *Haemophilus influenzae* cases by age group in South Africa, 2013 and 2014

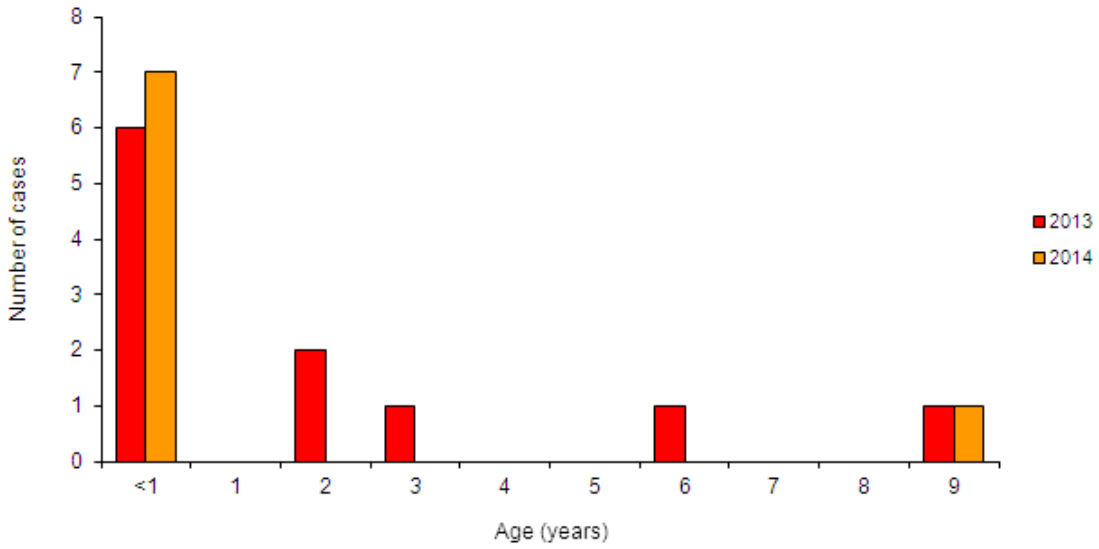
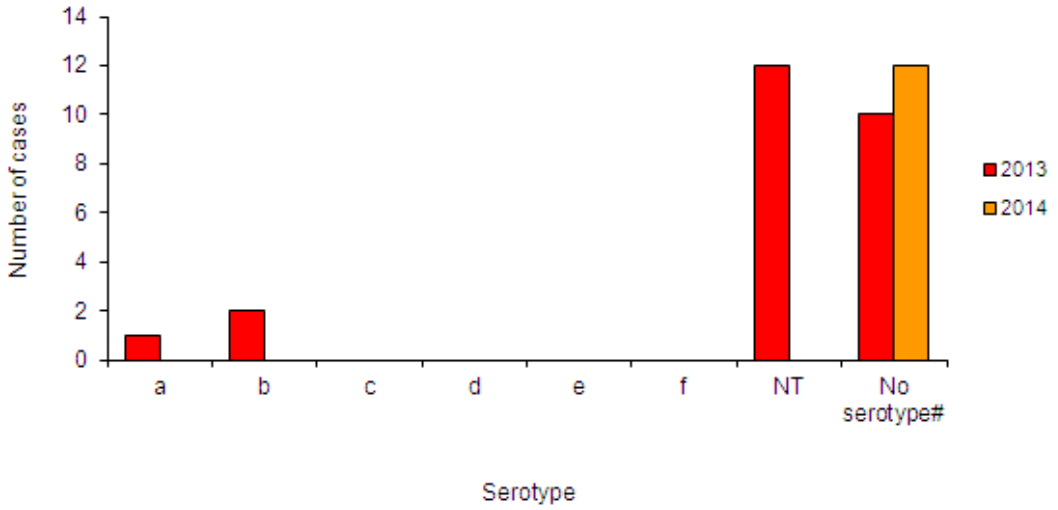


Figure 30. Number of *Haemophilus influenzae* cases by serotype in South Africa, 2013 and 2014



No serotype: Cases with serotyping results not yet available, no isolate, or identified on audit

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 31. Number of *Streptococcus pneumoniae* cases by age group in South Africa, 2013 and 2014

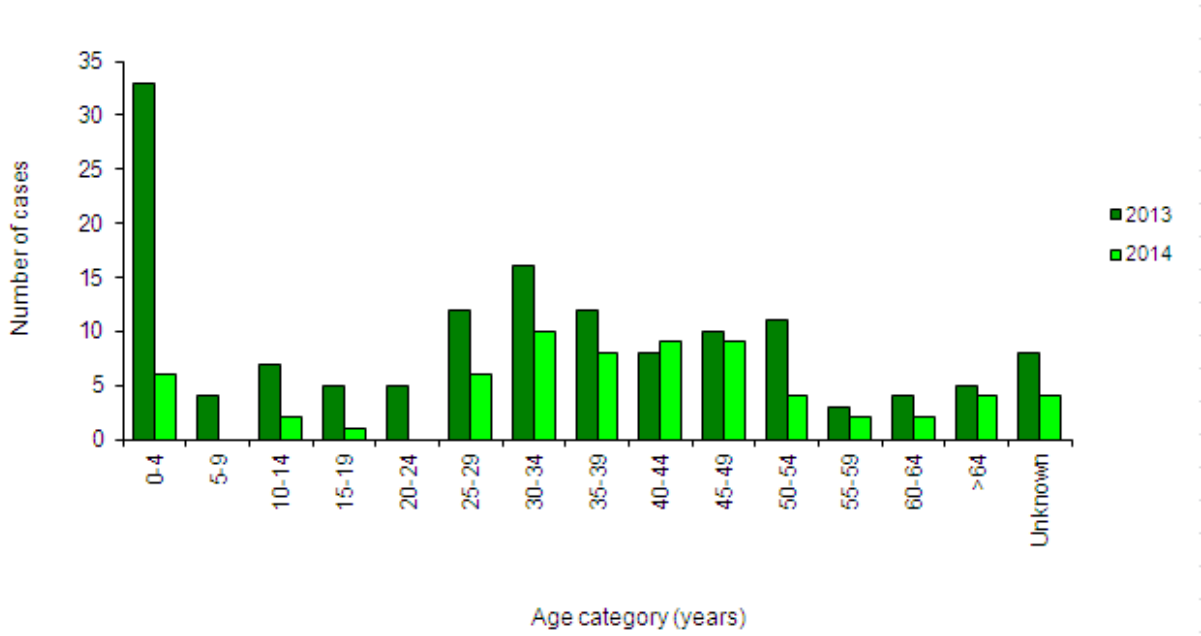
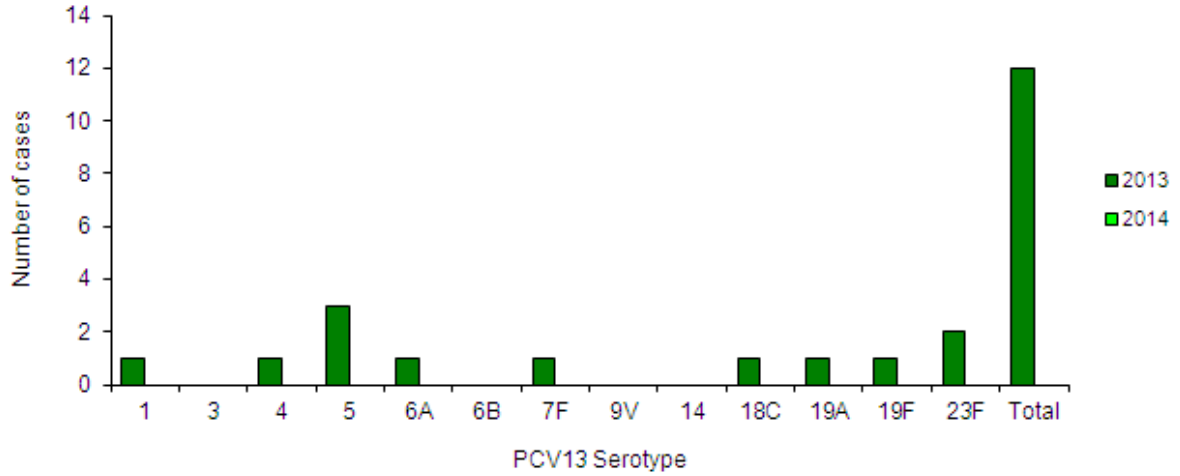


Figure 32. Number of *Streptococcus pneumoniae* cases by 13-valent pneumococcal conjugate vaccine (PCV13) serotype in children <5 years in South Africa, 2013 and 2014



Syndromic Respiratory Disease Surveillance

Reporting period 01/01/2014 to 02/02/2014 *Results until end of epidemiologic week 5 (2014)*

Programme Description:

The data presented in this report are generated from influenza surveillance programmes: the Influenza-like illness (ILI) at primary health clinics and Viral Watch (VW) sites, Severe Acute Respiratory Illness (SARI) and the respiratory consultations and hospitalisations surveillance system.

ILI surveillance at primary health care clinics was started in 2012 at 2 clinics in two provinces, 4 additional clinics were added in 2013.

The Viral Watch (VW) is a sentinel influenza surveillance programme started in 1984 in Gauteng and expanded from 2005 onward to include all 9 provinces in South Africa. The majority (90%) of the sentinel sites are general practitioners. Respiratory specimens (throat, nasal swabs or nasopharyngeal aspirates) are collected from patients of all ages meeting the ILI case definition, which is an acute respiratory illness with a measured temperature of ≥ 38 ˚C and cough, with onset within the past 7 days prior to consultation.

The Severe Acute Respiratory Illness (SARI) surveillance program is a prospective sentinel hospital-based surveillance program. It was established in 2009 and is currently conducted at 5 sentinel sites (public hospitals) in 4 provinces of South Africa. Hospitalised patients meeting the surveillance case definition of acute respiratory illness are prospectively enrolled. Clinical and epidemiologic data are collected using standardised questionnaires. Information on in-hospital management and outcome is collected. Upper respiratory tract samples (oropharyngeal and nasopharyngeal swabs in cases ≥5 years old or nasopharyngeal aspirate in cases <5 years of age) are tested for the presence of influenza and other respiratory viruses using RT-PCR.

The respiratory consultations and hospitalisations surveillance system collects anonymous influenza- and pneumonia-associated outpatient consultations and hospitalisations data from one private hospital group in 7 provinces (Gauteng, North West, Free State, Mpumalanga, Eastern and Western Cape and KwaZulu-Natal). These data on the number of consultations and hospitalisations are compared to the influenza season as described by the viral watch and SARI programmes.

Comments:

Data from these programmes showed that during the 2013 influenza season the predominant circulating influenza subtype was influenza A(H1N1)pdm09. The season started in week 17 (ending 28 April), peaked in week 24 (ending 16 June) and ended in week 41 (ending 6 October).

ILI programme: In the first five weeks of 2014, 13 specimens were received from 2 ILI sites. Influenza has not been detected in any of these specimens.
VW programme: During the same period, 10 specimens were received from VW sites. Influenza A (to be subtyped) was detected in one patient from the Western Cape, and influenza B in a patient from KwaZulu-Natal. No travel history was recorded for either patient.
SARI programme: In this time period, 77 patients with SARI were tested at the 4 sentinel sites. Influenza has not been detected in any of these specimens. However, 42 other respiratory viruses were detected in the specimens of 37 patients; rhinovirus (20) accounted for the majority followed by RSV (9) and adenovirus (7).

There are a number of specimens collected during week 5 awaiting results.

Please note that these data are from sentinel sites and reflect trends in the areas with participating sites. Numbers reported reflect numbers of patients enrolled into the surveillance programmes and do not reflect total numbers of patients in the community.

Number of consultations/specimens are reported /analysed by date of consultation. Patients known to have acquired influenza abroad are not included in the tables or epidemiological curves. Source: SARI surveillance, Viral Watch surveillance and Hospital Consultations Netcare

Reporting period 01/01/2014 to 02/02/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 33. Number of positive samples* by influenza types and subtypes and detection rate by week

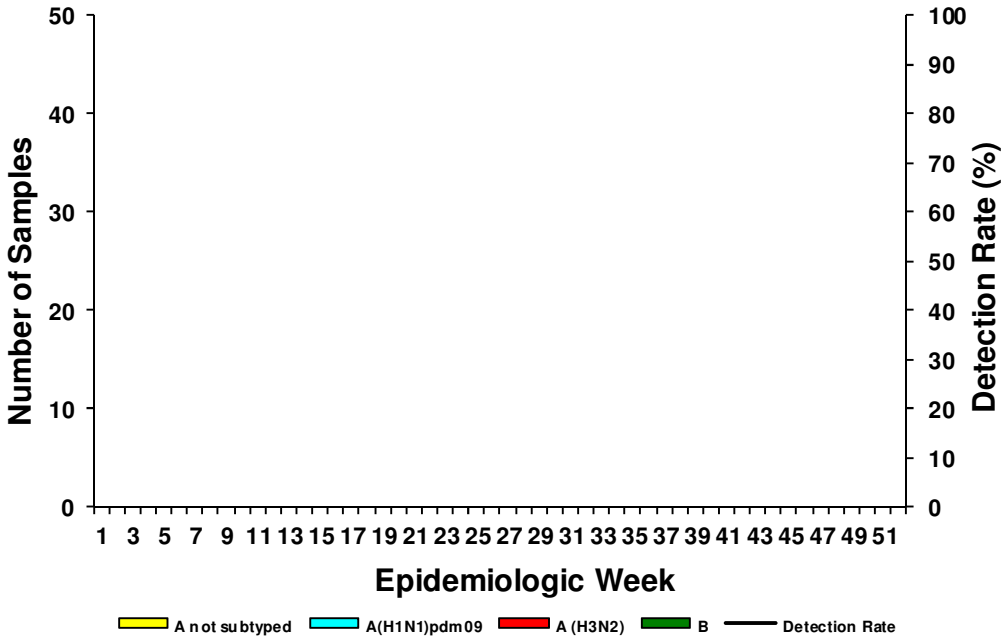


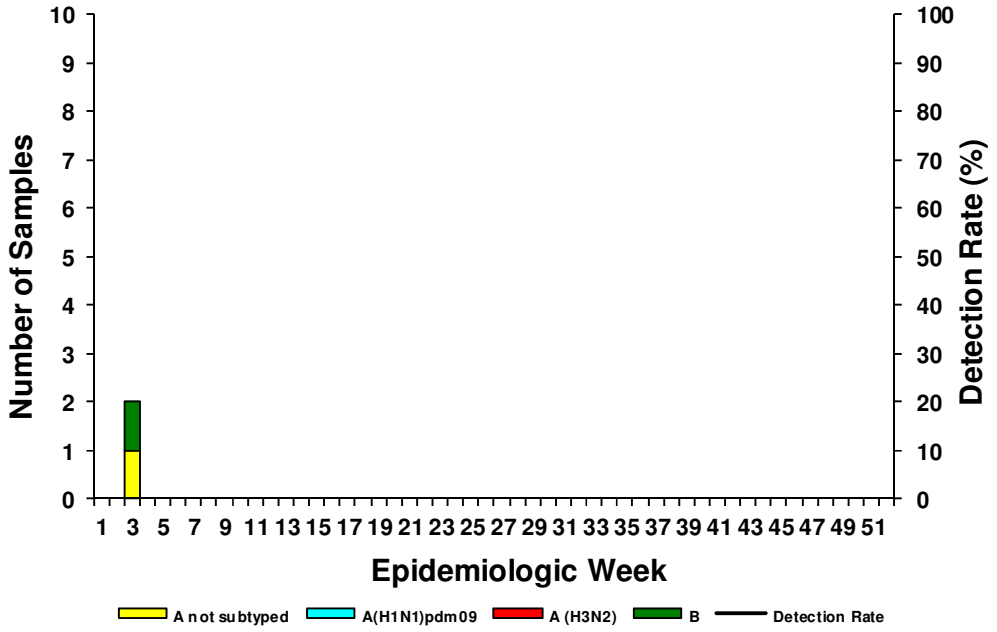
Table 7. Cumulative number of influenza type and subtype and total number of samples collected by province

Clinic	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Edendale Gateway Clinics (KZ)					12
Jouberton Clinics (NW)					0
Tshepong Gateway Clinics (NW)					1
Total:					13

KZ: KwaZulu-Natal; NW: North West Province

Reporting period 01/01/2014 to 02/02/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 34. Number of positive samples* by influenza types and subtypes and detection rate by week**



*Specimens from patients with Influenza-like illnesses at 167 sentinel sites in 9 provinces
**Detection rate calculated on specimens tested at NICD only.

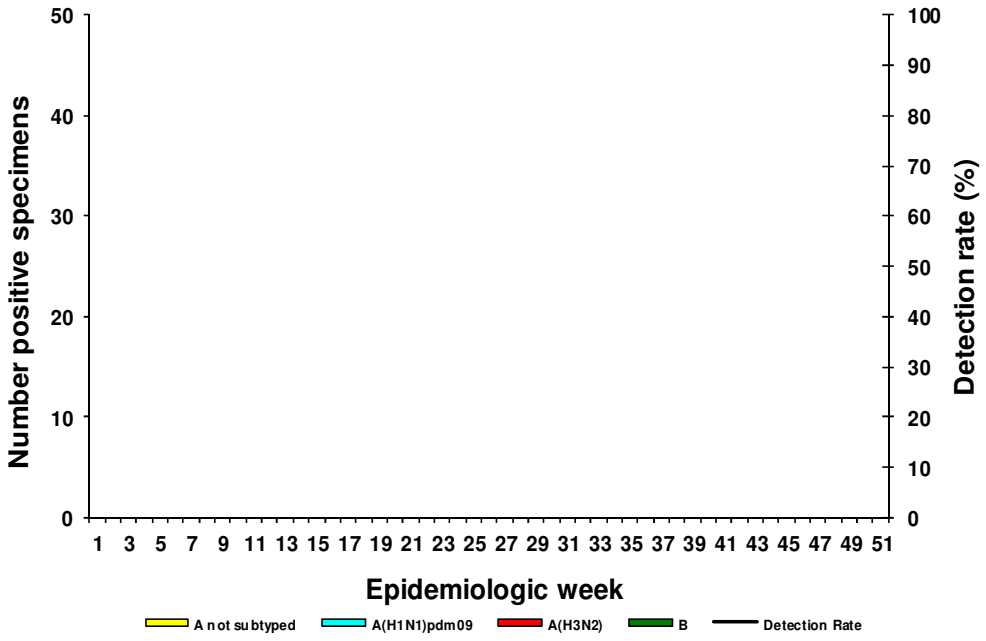
Table 8. Cumulative number of influenza type and subtype and total number of samples collected by province

Province	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Eastern Cape					2
Free State					1
Gauteng					3
KwaZulu-Natal				1	1
Limpopo					0
Mpumalanga					2
Northern Cape					0
North West					0
Western Cape	1				1
Total:	1	0	0	1	10

To date in 2014, 8 patients have been tested for influenza at the time of entry into South Africa following travel abroad and 3 have tested influenza positive.

Reporting period 01/01/2014 to 02/02/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 35. Number of positive samples* by influenza types and subtypes and detection rate by week



*Specimens from patients hospitalised with severe acute respiratory infections at 5 sentinel sites in 4 provinces

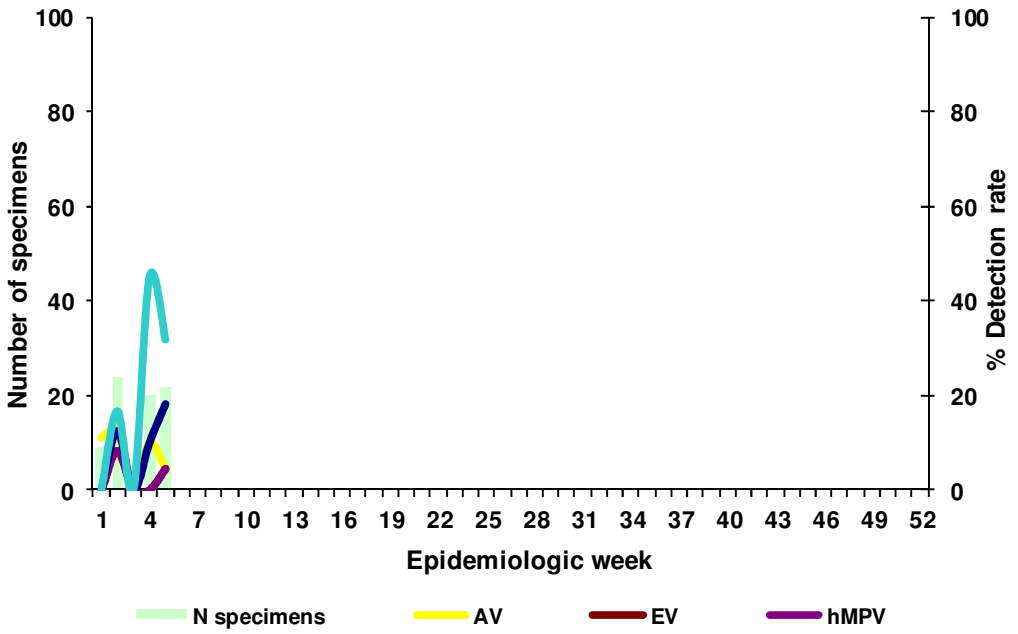
Table 9. Cumulative number of identified influenza types and subtypes and total number of samples collected by hospital

Hospital	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Edendale (KZ)	0	0	0	0	38
Klerksdorp-Tshepong (NW)	0	0	0	0	27
Mapulaneng (MP)	0	0	0	0	7
Matikwane (MP)	0	0	0	0	5
Total:	0	0	0	0	77

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West Province; MP: Mpumalanga

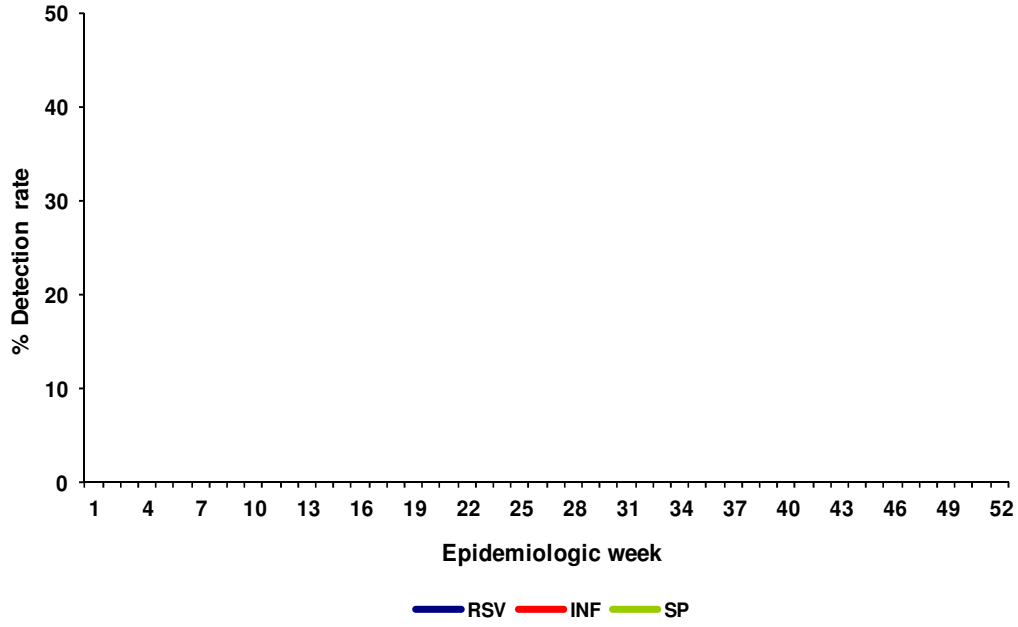
Reporting period 01/01/2014 to 02/02/2014 *Results until end of epidemiologic week 5 (2014)*

Figure 36. Number of specimens and detection rate for respiratory viruses* by week



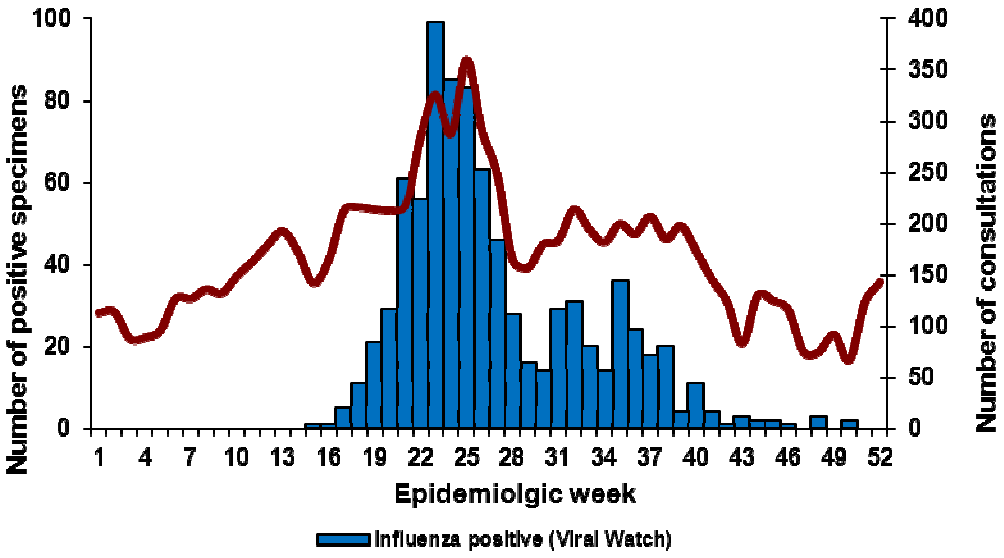
*Specimens from patients hospitalised with severe acute respiratory infections at 5 sentinel sites in 4 provinces

Figure 37. Detection rate for influenza (INF), respiratory syncytial virus (RSV) and pneumococcus (SP) by week



Reporting period 01/01/2013 to 31/12/2013 *Results until end of epidemiologic week 52 (2013)*

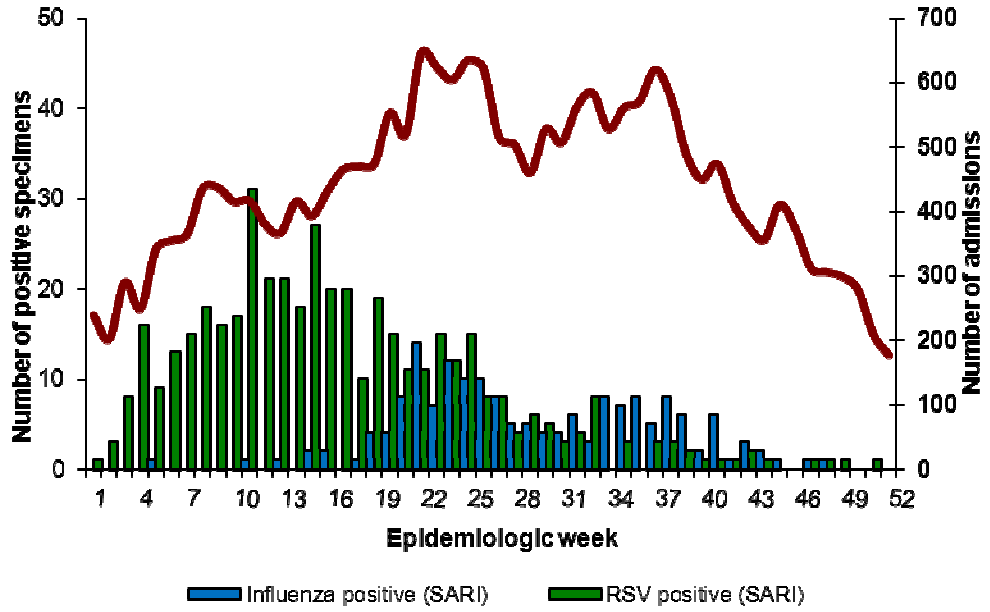
Figure 38. Number of private hospital outpatient consultations* with a discharge diagnosis of pneumonia and influenza (P&I) and viral isolates**



* Hospital outpatient data from weekly reports of consultations to the Netcare hospital group. Discharge diagnosis is according to International Statistical Classification of Diseases and Related Health Problems coding by clinicians and does not represent laboratory confirmation of aetiology

** Influenza positive specimens from the Viral Watch surveillance programme

Figure 39. Number of private hospital admissions* with a discharge diagnosis of pneumonia and influenza (P&I) and viral isolates**



*Hospitalisation admission data from weekly reports of consultations to the Netcare hospital group. Discharge diagnosis is according to International Statistical Classification of diseases and Related Health Problems/ ICD by clinicians and does not represent laboratory confirmation of aetiology

** Influenza positive specimens from the SARI surveillance programme.

Suspected Measles Case-Based Surveillance

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Programme Description:

The case-based measles surveillance programme with laboratory support started in 1998 as part of the National Department of Health's measles elimination strategy. Blood and urine or throat/nasopharyngeal swab specimens from suspected measles cases (patients with fever ≥38°C and rash, and at least one of: cough, coryza or conjunctivitis) nationally are submitted to the NICD for laboratory confirmation. The numbers presented here represent specimens received by the National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS) and may differ from those presented by the National Department of Health as they may receive information on cases where no specimens were taken.

Comments:

For the period 01 January to 31 January 2014, week 5, no suspected wild-type measles cases were detected from 121 patients tested during measles surveillance with date of onset in 2014.

Table 12. Number of laboratory-confirmed cases per province, South Africa, 2014

Province	Measles IgM positive
Eastern Cape	
Free State	
Gauteng	
KwaZulu-Natal	
Limpopo	
Mpumalanga	
Northern Cape	
North West	
Western Cape	
Total:	0

Figure 40. Number of laboratory-confirmed measles cases by month of specimen collection, South Africa, 2013 and 2014

Polio/ Acute Flaccid Paralysis (AFP) Surveillance

Reporting period 01/01/2014 to 31/01/2014 *Results until end of epidemiologic week 5 (2014)*

Programme Description:

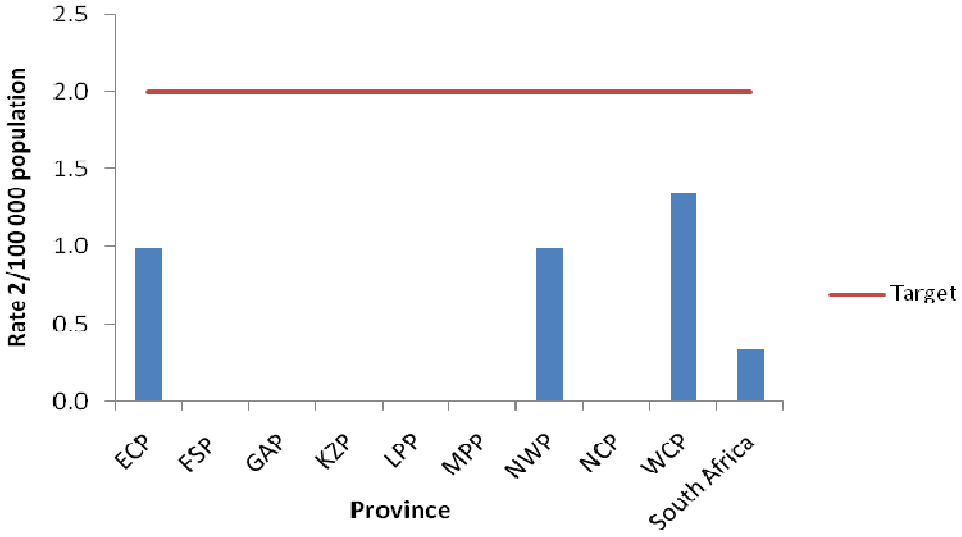
Data presented in this report are generated from the AFP surveillance database and represent specimens received by the National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS) and may differ from those presented by the National Department of Health, as they may receive information on cases where no specimens were taken. Every patient with AFP, including Guillain-Barre syndrome, in children younger than 15 years of age, or a patient of any age with a clinical diagnosis of polio made by a medical doctor, must be regarded as a possible polio case until proven otherwise. To meet sample adequacy requirements, all cases require two stool specimens of good condition and sufficient quantity collected at least 24-48 hours apart within 14 days of onset of paralysis.

Comments:

For the reporting period from 1 January 2014 until week 5, 74 specimens were received from AFP surveillance in South Africa and 51 AFP cases were detected (46 with date of onset in 2013 and 5 in 2014). Of the 51 AFP cases, 50 were <15 years with an annualised Non-Polio AFP detection rate of 0.3 per 100,000: range 0.0 to 1.3 (Fig 41).

Ninety-six percent of the specimens were received in good condition, while 46% (target: 90%) arrived at the NICD within 3 days of collection. Where results were available, 50% (target: 80%) were resulted within 14 days of receipt with a Non-Polio enterovirus isolation of 4% (target: 10%) (table 13).

Figure 41. Annualised Non-Polio AFP detection rate by province, South Africa, 2014



*Target for detection rate is 2/100,000 population

Table 13. Acute Flaccid Paralysis (AFP) surveillance, laboratory performance indicators, South Africa, 2014*

Laboratory indicators	2014	Target
Specimens received in good condition	96%	90%
Specimens received within 3 days of collection	46%	80%
Specimens resulted within 14 days of receipt	50%	80%
Non-Polio enterovirus isolation rate	4%	10%

* Samples received in 2014 (1-31 January), including those with onset in 2013.