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 62 cases to date in 2014.
- Two cases of *Vibrio cholerae* O1 have been reported to date in 2014 in Gauteng province - serotype Ogawa, biotype El Tor. For the same period last year, 1 case had been reported in Limpopo province - serotype Inaba.
- One hundred and ninety four specimens have tested positive for rotavirus to date.
- Laboratory-based screening for cryptococcal disease has been operational in the City of Johannesburg Metro for almost 2 years and in the City of Ekurhuleni Metro for over a year. To date, 18544 patients have been screened at selected facilities; 839 (4.5%) tested positive for cryptococcal antigenaemia (CrAg).
- To 31 August 2014, 924 *S. aureus* cases were reported over a 24 month period. The majority of cases were <10 years old (34%). The proportion of methicillin-resistant isolates were 30%.
- A total of 3788 patients over a 26 month period were tested *for Pneumocystis jirovecii.* Five hundred and thirty (14%) cases were positive for *P. jirovecii*. These cases positive for *P. jirovecii* could indicate colonization or it could be true disease.
- The meningococcal season is underway, with an increase noted in the number of meningococcal cases reported across the country in the last few months. By week 35 in 2014, 114 meningococcal cases had been reported to the NICD. Serogrouping results to date include 19 B, 9 C, 18 W, 1 X and 14 Y. Most of the cases occurred in children aged <10 years, with a second peak in adults aged 20-29 years.
- By week 35 in 2014, 208 cases of *H. influenzae* had been reported. Serotypes identified to date include 9 a, 32 b, 1 c, 1 d, 1 e, 1 f and 60 non-typeable. Most cases occur in individuals aged <10 years.
- The number of pneumococcal cases was lower than that reported last year (1569 versus 1866). Most cases occur in children aged <5 years and adults aged 30-34 years.
- To date in 2014, 764 influenza isolates have been detected. Four hundred and seventy five of the isolates were detected through Viral Watch, 50 through SARI and 239 through the influenza-like illness programme.
- Eleven measles cases were detected; 4 measles cases (2 adults, 2 children < 5 years) in Gauteng province (Johannesburg Metropolitan district), 3 cases in KwaZulu-Natal province (2 Umgungundlovu district, 1 Amajuba district), and 1 measles case each from Eastern Cape province, Free State province, Mpumalanga province and Western Cape province (City Of Cape Town). Six of the children were <5 years and had received a single dose of measles vaccine, 1 child was not vaccinated and 1 child was between 5-14 years.
- 265 AFP cases <15 years of age have been reported to date with an annualized non-polio AFP detection rate of 2.6 per 100,000 population.

Laboratory-Based Enteric Disease Surveillance

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (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* Typhi and *Vibrio cholerae* through a national, active, laboratory-based surveillance system (as part of GERMS-SA). All microbiology diagnostic laboratories throughout South Africa are requested to report laboratory-confirmed disease (defined as the isolation of *Salmonella* Typhi 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 35 in 2014, *Salmonella* Typhi had been reported for 62 cases (51 invasive), in Eastern Cape, Free State, Gauteng, KwaZulu Natal, Mpumalanga and Western Cape provinces. For the same period last year, 51 cases of *Salmonella* Typhi had been reported.

Two cases of *Vibrio cholerae* O1 have been reported to date in 2014 in Gauteng province - serotype Ogawa, biotype El Tor. For the same period last year, 1 case had been reported in Limpopo province - serotype Inaba.

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

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

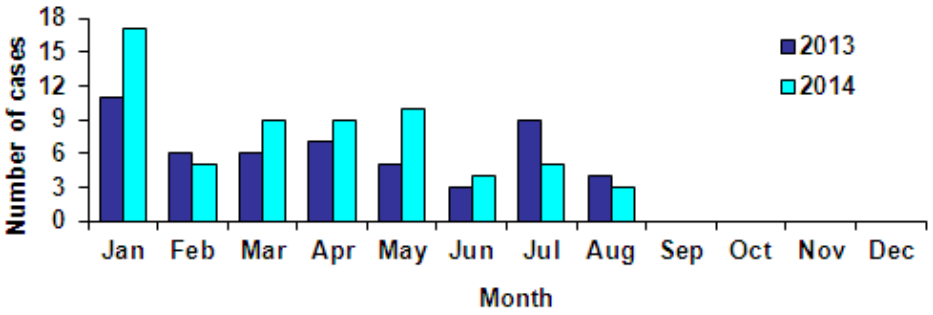


Figure 2. Number of *Salmonella* Typhi cases by province in South Africa, 2013 and 2014

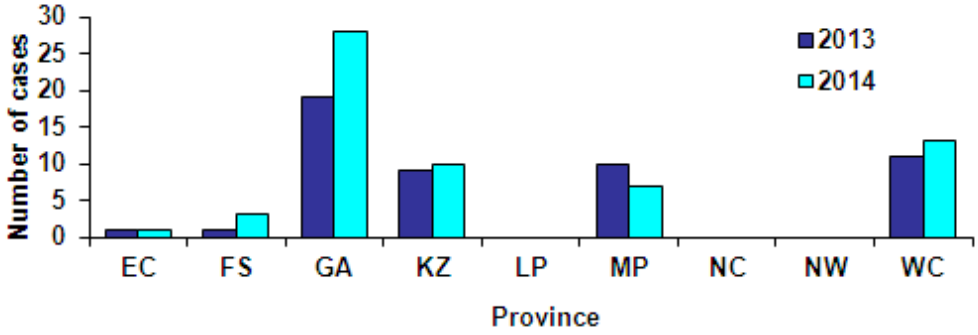
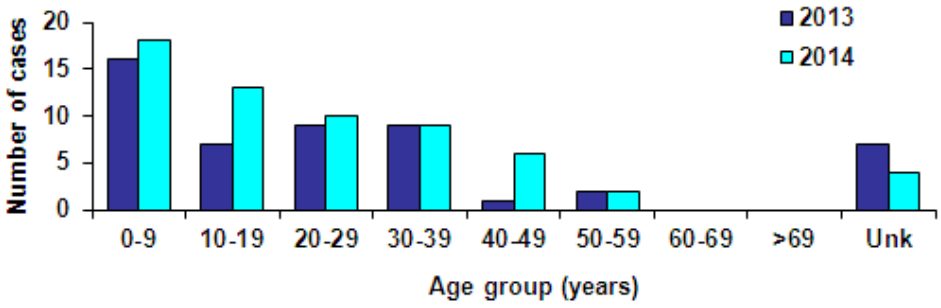


Figure 3. Number of *Salmonella* Typhi cases by age group in South Africa, 2013 and 2014



Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 4. Number of *Vibrio cholerae* O1 cases by month in South Africa, 2013 and 2014

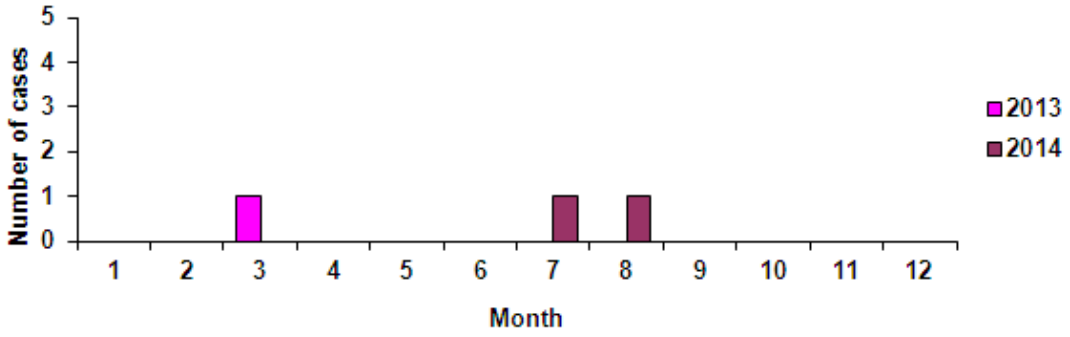


Figure 5. Number of *Vibrio cholerae* O1 cases by province in South Africa, 2013 and 2014

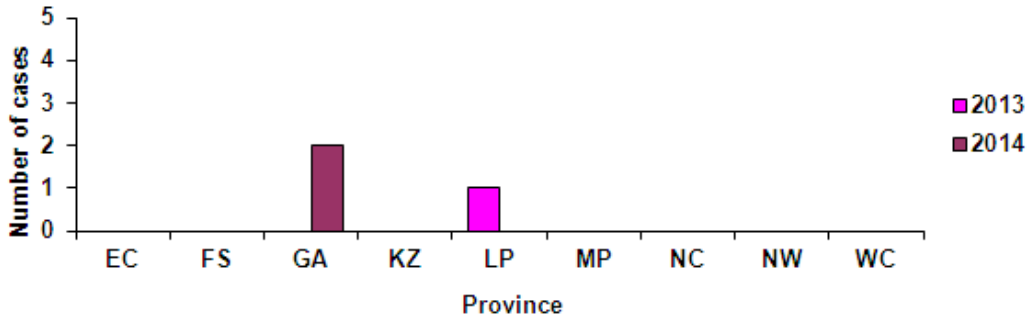
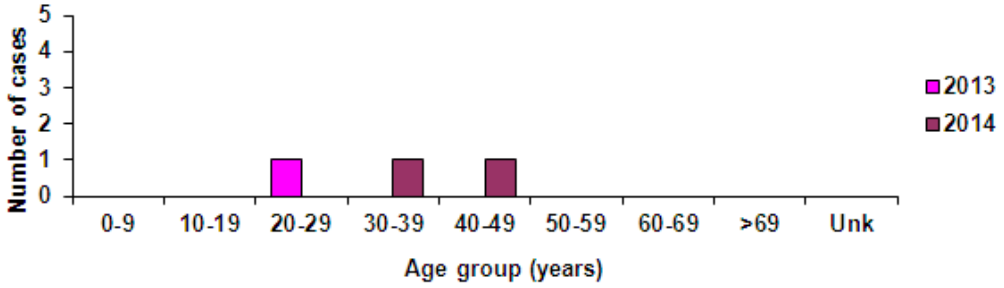


Figure 6. Number of *Vibrio cholerae* O1 cases by age group in South Africa, 2013 and 2014



Syndromic Diarrhoeal Disease Surveillance

Reporting period 01/01/2014 to 07/09/2014 *Results until end of epidemiologic week 36 (2014)*

Programme Description:

In April 2009, the National Institute for Communicable Diseases of the National Health Laboratory Services (NICD/ NHLS) implemented a diarrhoeal sentinel surveillance programme in six hospitals in five provinces (Gauteng, Gauteng/ North West border, Kwa-Zulu Natal, Mpumalanga and Western Cape). 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:

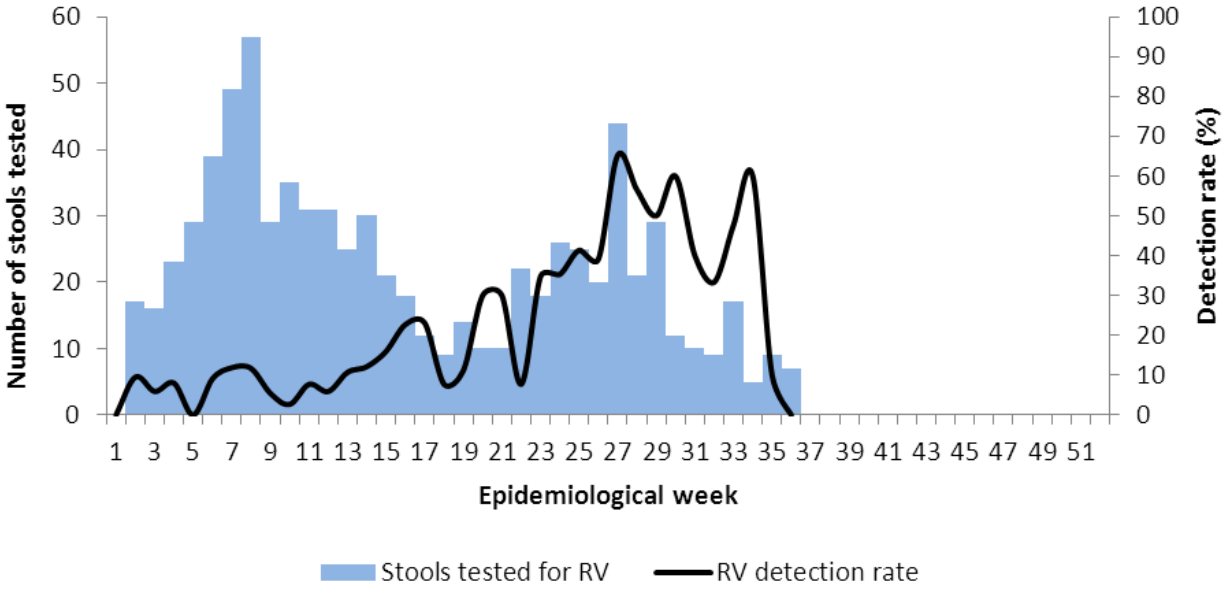
The start of the rotavirus season is defined as rotavirus detection rate of > 20% for two consecutive weeks. The rotavirus season began in week 16 and for the last two weeks (week 35 and 36) has been below the detection rate of 20%, tentatively signalling the end of the 2014 rotavirus season. The maximum detection rate for the 2014 rotavirus season was in week 27 (65%), correlating with an increased submission of stool samples (44 samples submitted).

For the period 1 January to 7 September 2014, 779 patients were tested for rotavirus. A total of 25% (194/779) were positive for rotavirus.

Rotavirus (ROTA) surveillance

Reporting period 01/01/2014 to 07/09/2014 *Results until end of epidemiologic week 36 (2014)*

Figure 7. 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 stools tested
Chris Hani Baragwanath	87	295
Mapulaneng	16	51
Matikwane	1	46
Dr George Mukhari	21	89
Edendale	22	50
Red Cross Children's	47	248
Total:	**194**	**779**

Sexually Transmitted Disease Surveillance

Reporting period 01/06/2014 to 30/06/2014 *Results until end of epidemiologic week 26 (2014)*

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 - 30 June 2014.

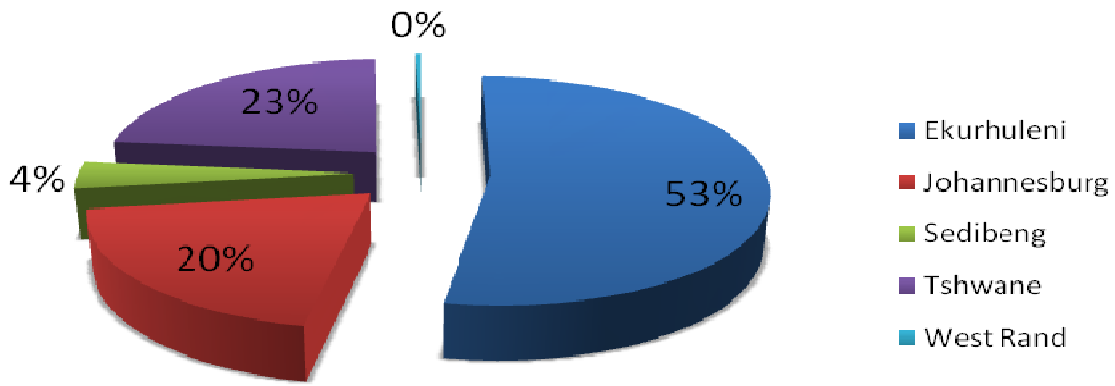
Comments:

For the period up to 30 June 2014, 1,399 new STI syndrome episodes were reported by sentinel sites.

Females represented 54% (n=678) and males 46% (n=572) of the surveyed population. Amongst males, 79% (450/ 572) of STI syndromes were MUS (Male Urethritis Syndrome) and amongst females, 65% (439/ 678) of STI syndromes were VDS (Vaginal Discharge Syndrome). A total of 1,091 partner notification slips were issued to 1,250 patients with new STI episodes, resulting in an overall partner slip issue rate of 87%.

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

Figure 8. Percentage distribution of new STI syndrome episodes per surveillance region, 1 - 30 June 2014



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

Reporting period 03/09/2012 to 25/08/2014 *Results until end of epidemiologic week 34 (2014)*

Programme Description:

The NICD's Centre for Opportunistic, Tropical and Hospital Infections (COTHI), in collaboration with the Department of Health and several partner organizations, implemented the first phase of laboratory-based screening for cryptococcal disease. The screen-and-treat programme began at 21 health care facilities in the City of Johannesburg in September 2012. In April 2013, 85 facilities in Ekurhuleni were also included. Routine blood samples submitted for a CD4+ T-lymphocyte (CD4) count from patients seen at these 106 facilities are reflexively 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. As part of intensive monitoring and evaluation of the programme, patients with cryptococcal antigenaemia, who provide informed consent, are followed up prospectively for up to 6 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 districts, 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 in this report are incomplete due to retrospective collection of clinical data.

Comments:

Up to 25 August 2014, 18,544 patients with a CD4 count <100 cells/µl have been screened; 839 (4.5%) tested positive for CrAg. In Johannesburg, 55% (208/377) of cases were detected at Helen Joseph Hospital and in Ekurhuleni, 14% (68/476) of cases were detected at Tambo Memorial Hospital. Twenty two per cent (177/812) of CrAg-positive patients with available age data were between the age of 30 and 44 years. During the reporting period, 337 cases of laboratory-confirmed CM were diagnosed at three regional hospitals (Helen Joseph, Rahima Moosa Mother and Child and South Rand) in Johannesburg and 412 cases of CM were diagnosed at four regional hospitals in Ekurhuleni (Bertha Gxowa, Natalspruit, Pholosong and Tambo Memorial); this number may include hospitalised patients who were not screened through this programme.

NB. Numbers in reporting may have changed relative to the previous quarterly report (May 2014) due to data source changes aimed at improving statistical accuracy

Reporting period 03/09/2012 to 25/08/2014 *Results until end of epidemiologic week 34 (2014)*

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	22941
Number of CrAg-positive tests/ number of specimens tested (%)	962/22941 (4.2%)

*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-Apr 2013	May-Aug 2013	Sep-Dec 2013	Jan-Apr 2014	May-Aug 2014	Total
Number of patients tested for CrAg*	1889	2210	3612	3412	5244	2177	18544
Number of CrAg-positive patients/ number of patients tested for CrAg (%)*	91/1889 (4.8%)	118/2210 (5.3%)	209/3612 (5.8%)	208/3412 (6.1%)	165/5244 (3.1%)	48/ 2177 (2.2%)	839#/18544 (4.5%)
Number of CrAg-positive patients at enhanced M&E sites	91	117	166	156	108	33	671
Number of CrAg-positive patients known to have had a lumbar puncture**	15	10	22	16	12	8	83
Number of CrAg-positive patients known to have had a lumbar puncture with CM†	9	8	15	14	11	1	58
Number of CrAg-positive patients known to be treated with fluconazole†	60	65	82	75	55	22	359

*Data source: NHLS Corporate Data Warehouse, NHLS laboratory information system and NICD; where specimen date was unknown, tested date was used as the reference date. Data may be lower than previously reported as patients' previous CrAg negative results are excluded from reporting if they test CrAg positive when screened at a later stage; †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; # Number of CrAg positive patients (839) differs from CrAg positive patients in Table 4 and Table 5 (853) as some cases do not have specimen or tested dates.

Table 4. Number of CrAg-positive patients, by facility, at 21 facilities that refer specimens to the NHLS CD4 laboratory at Charlotte Maxeke Johannesburg Academic Hospital, n=377*

Facility Name*	Number of Cases
Helen Joseph Hospital	208
South Rand Hospital	51
Witkoppen Clinic	30
Discoverers Centre	16
OR Tambo Clinic	15
Randburg Clinic	11
Crosby Clinic	10
Rahima Moosa Mother and Child Hospital	9
Diepsloot South Clinic	7
Noordgesig Clinic	5
Windsor Clinic	4
Berario Clinic	3
Petervale Clinic	3
Sophiatown Clinic	2
Claremont Clinic	1
Riverlea Major	1
Mayfair Clinic	1
Westbury Clinic	0
Total:	**377**

*Only facilities with CrAg-positive patients are included

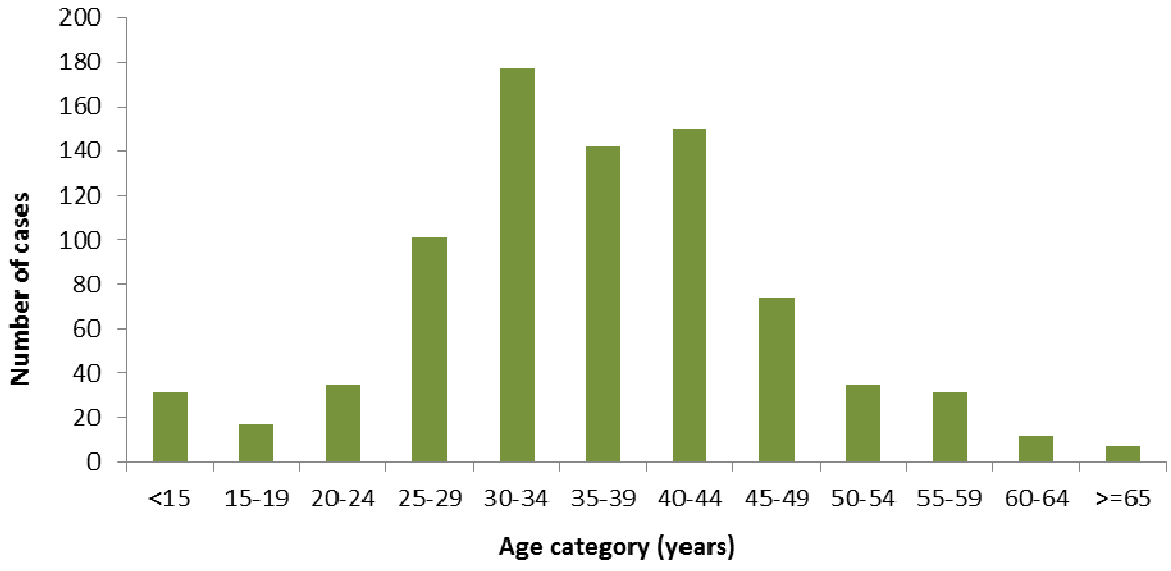
Reporting period 03/09/2012 to 25/08/2014 *Results until end of epidemiologic week 34 (2014)*

Table 5. Number of CrAg-positive patients, by facility, at 85 facilities* that refer specimens to the NHLS CD4 laboratory at Tambo Memorial Hospital, n= 476

Facility Name*	Number of Cases
Tambo Memorial Hospital	68
Natalspruit Hospital	66
Bertha Gxowa Hospital	40
Pholosong Hospital	30
Goba Clinic	15
Ramokonopi Clinic	10
Springs Clinic	8
Jabulane Dumane Clinic	8
Dresser Clinic	7
Dawnpark Clinic	7
Kwa-Thema Clinic	7
Mary Moodley Memorial Clinic	6
Reiger Park Clinic	6
Tsakane Clinic	5
Dan Kubheka Clinic	5
Payneville Clinic	4
Dukatole Clinic	3
Kingsway Clinic	2
Sunriseview Clinic	2
Edenpark Clinic	2
Duduza PHC	1
Geluksdal Clinic	1
Slovo Park Clinic	1
Non-enhanced surveillance sites##	172
Total:	**476**

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

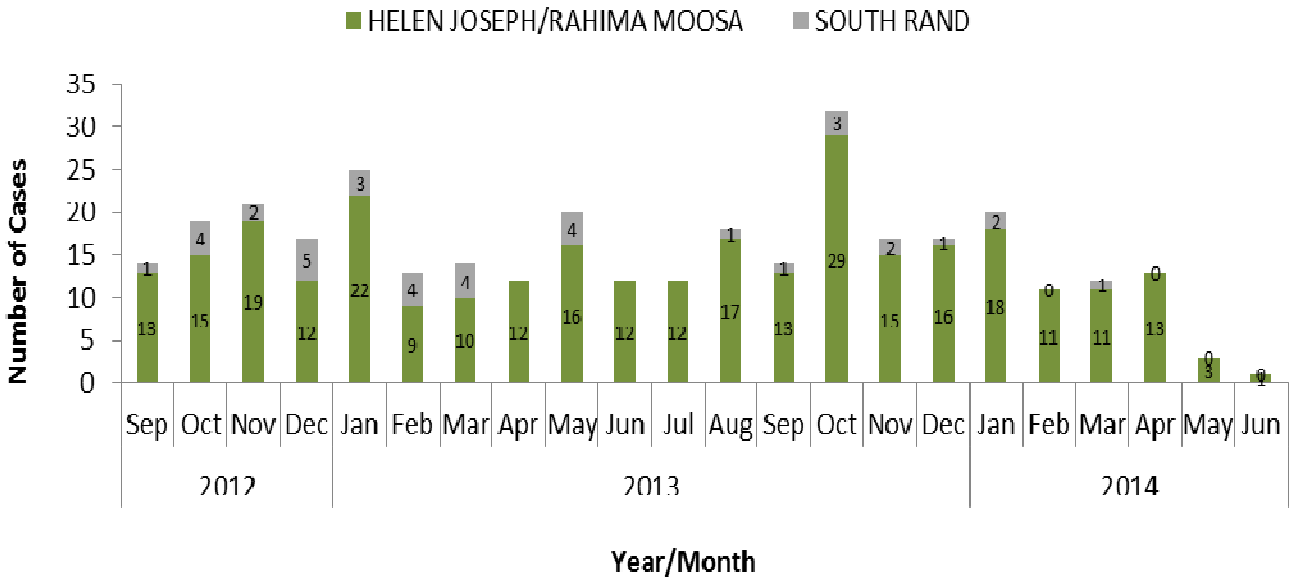
Figure 9. Number of CrAg-positive cases, by age category, at 106 facilities that refer specimens to the NHLS CD4 laboratories at Charlotte Maxeke Johannesburg Academic Hospital and Tambo Memorial Hospital*, n=812**



*Data source: NHLS Corporate Data Warehouse and NHLS laboratory information system ** Only included patients with known age

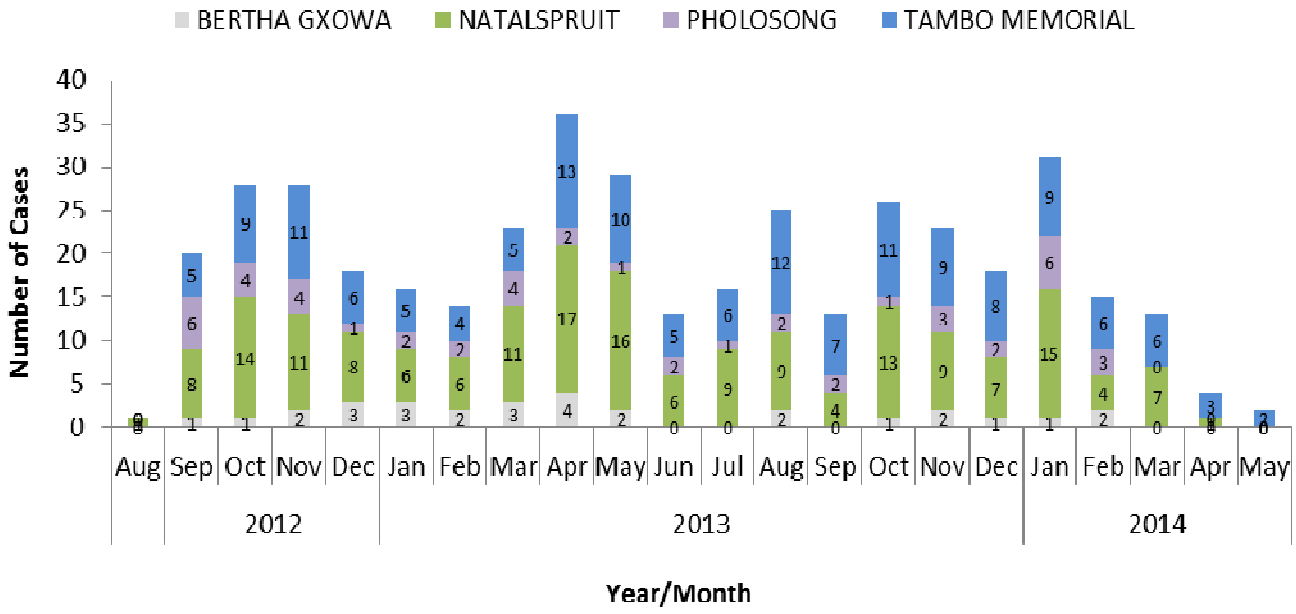
Reporting period 03/09/2012 to 25/08/2014 *Results until end of epidemiologic week 34 (2014)*

Figure 10. 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=337



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

Figure 11. 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=412*



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

Laboratory-Based Nosocomial Disease Surveillance

Reporting period 01/09/2012 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

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.

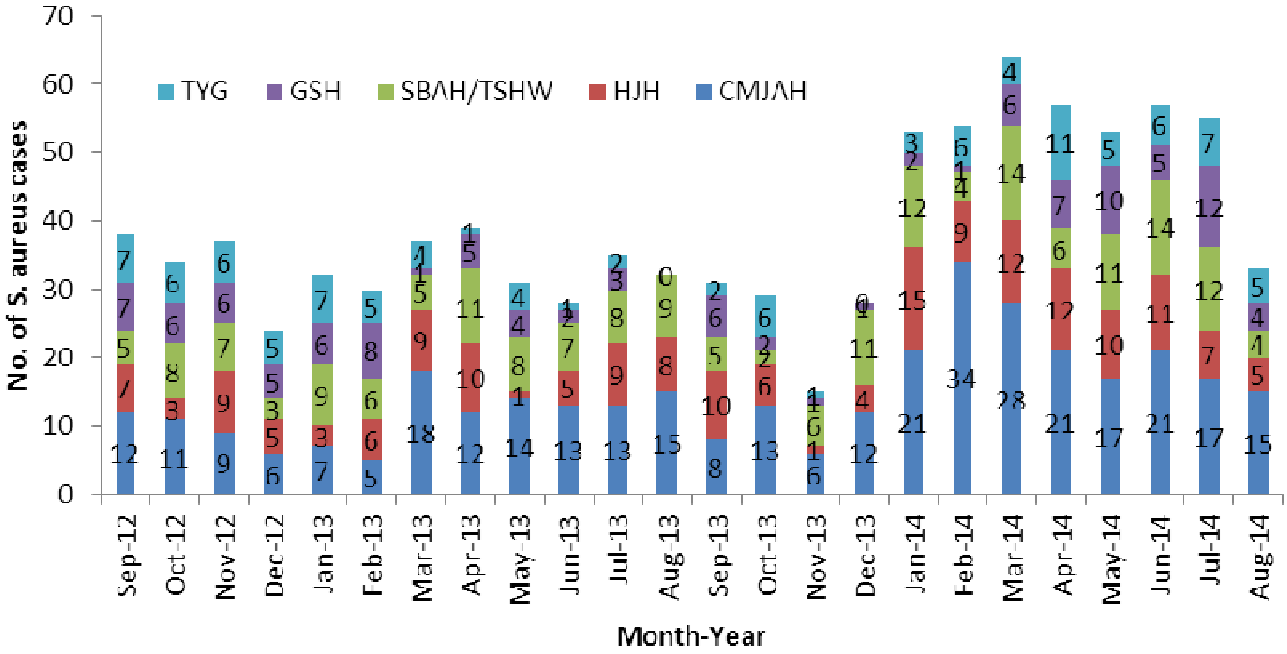
SA enhanced surveillance from patients with bacteraemia was introduced in September 2012 at three sentinel sites in Gauteng Province: Charlotte Maxeke Johannesburg Academic Hospital, Helen Joseph/Rahima Moosa Mother and Child Hospital, and Steve Biko Pretoria Academic Hospital. From January 2014, surveillance was introduced at two sentinel sites in Western Cape Province: Groote Schuur Hospital and Tygerberg Hospital. We report basic demographic findings from September 2012 to August 2014.

Comments:

- For the period 1 September 2012 to 31 August 2014, 924 *S. aureus* cases were reported.
- The majority of *S. aureus* cases were 0-9 years of age (34%) 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.
- The proportion of methicillin-resitant isolates appears to be on the rise. They currently represent 30% of all cases but were previously reported to represent 17% of cases.

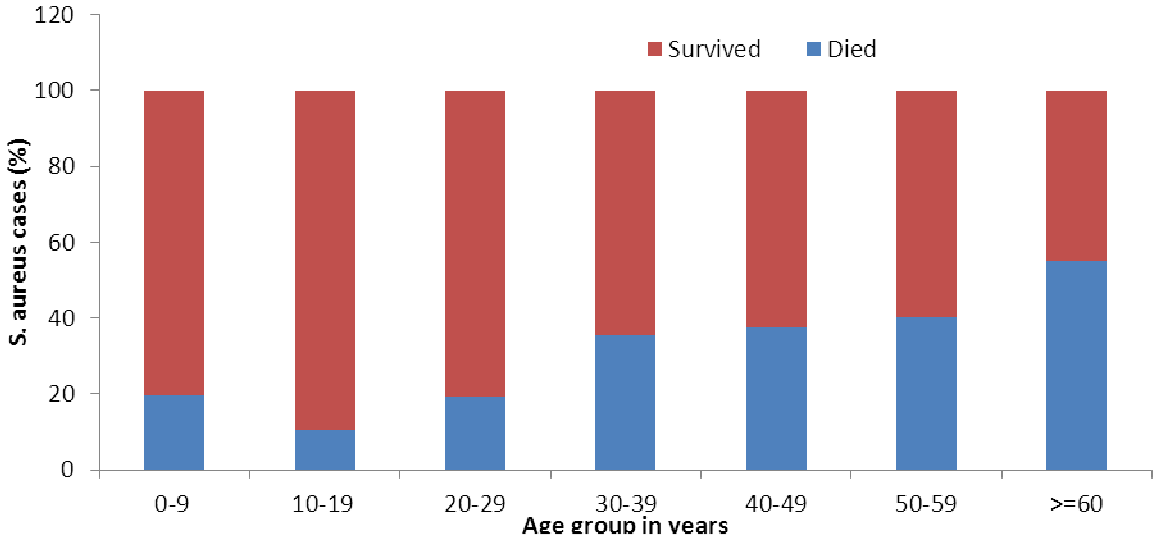
Reporting period 01/09/2012 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 12. Number of *S. aureus* cases* reported by month and site from September 2012 to August 2014 (n=924)



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

Figure 13. *S. aureus* cases by age category and outcome from September 2012 to August 2014 (N=552)



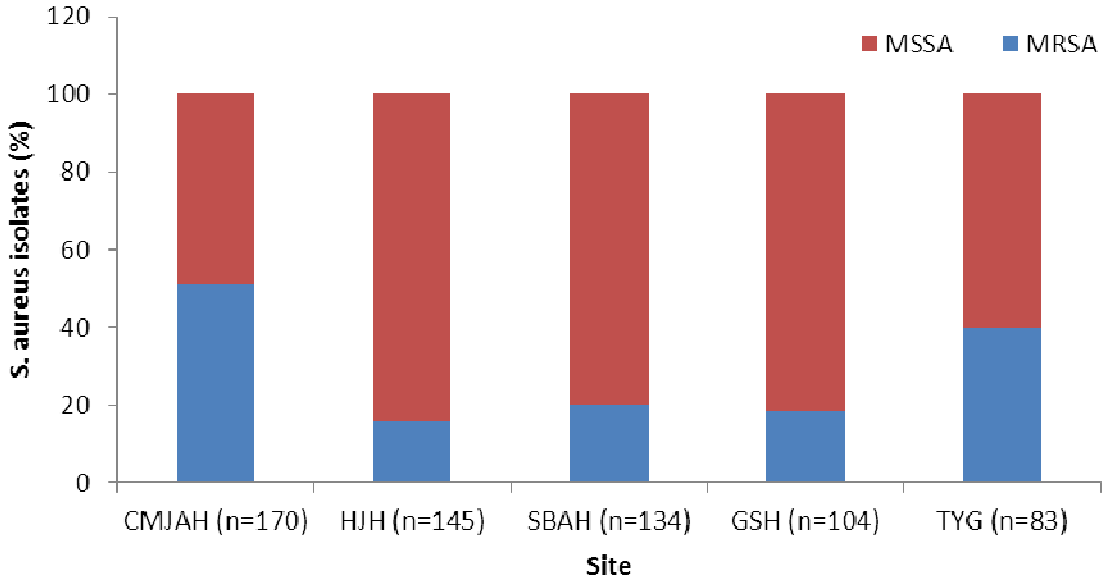
Reporting period 01/09/2012 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 14. Antibiotic susceptibility profile of *S. aureus* isolates by percentage and site from September 2012 to August 2014

Antibiotic	CMJAH (%)	HJH (%)	SBAH (%)	GSH (%)	TYG (%)	Total (%)
Amikacin	37	42	46	99	89	57
Cefoxitin	72	86	84	100	100	86
Clindamycin	48	84	78	87	64	71
Ciprofloxacin	51	81	79	88	67	72
Erythromycin	48	84	78	87	64	71
Gentamycin	51	81	79	88	67	72
Linezolid	45	81	73	86	64	68
Oxacillin	47	69	70	83	76	67
Rifampicin	45	81	73	86	64	68
Cotrimoxazole	47	69	70	83	76	67
Teicoplanin	99	100	79	87	99	93
Vancomycin	49	84	80	82	60	70

CMJAH: Charlotte Maxeke Johannesburg Academic Hospital, HJH: Helen Joseph Hospital, SBAH/TSHW: Steve Biko Academic Hospital/ Tshwane Hospital, GSH: Groote Schuur Hospital, TYG: Tygerberg Hospital

Figure 15. *S. aureus* bacteremia isolates by oxacillin susceptibility and site from September 2012 to August 2014



MSSA: Methicillin-susceptible *S. aureus*, MRSA: Methicillin-resistant *S. aureus*
CMJAH: Charlotte Maxeke Johannesburg General Academic; HJH: Helen Joeseph Hospital; SBAH/TSHW: Steve Biko Academic Hospital/ Tshwane Academic, GSH: Groote Schuur Hospital, TYG: Tygerberg Hospital

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 .

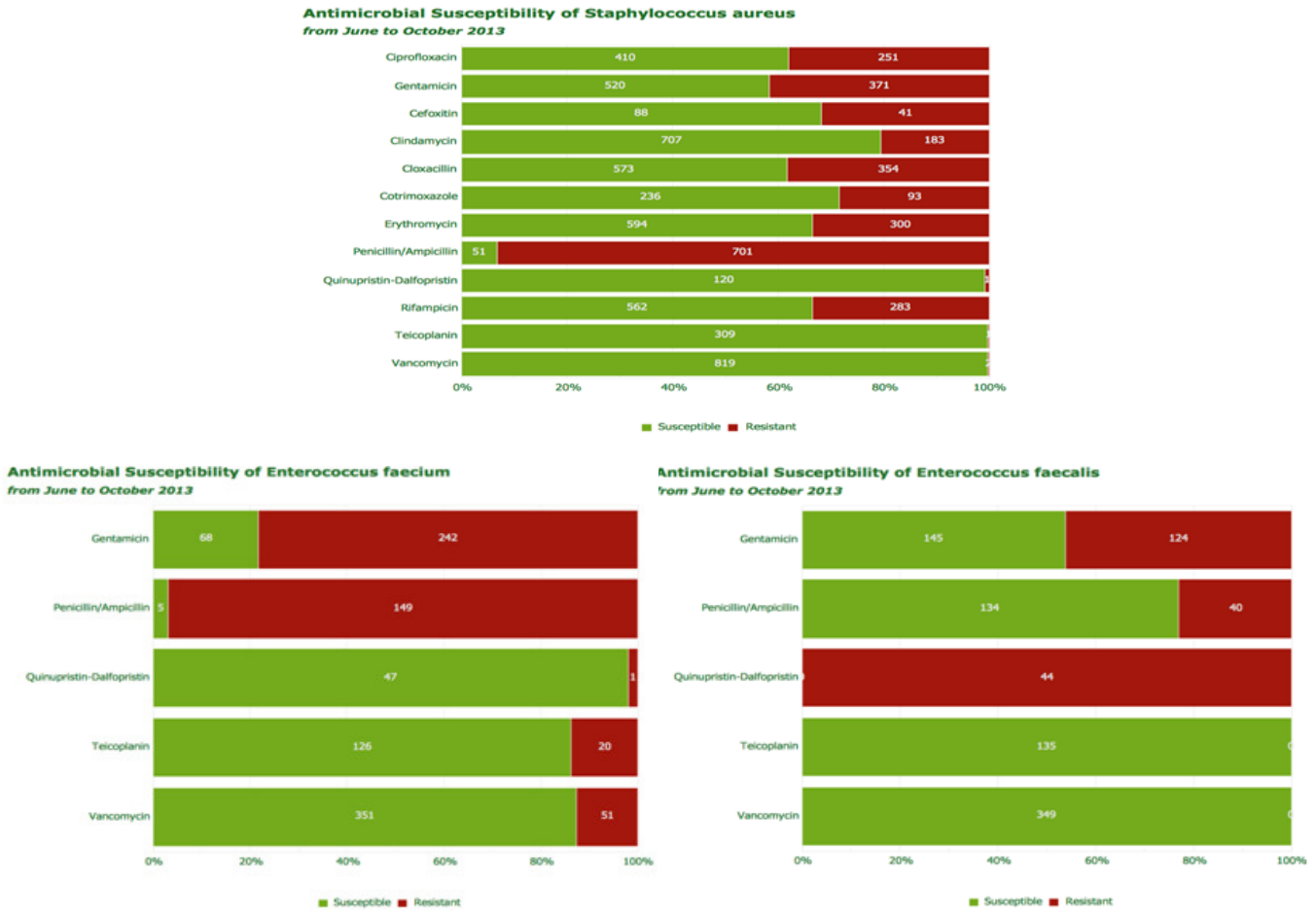
We would like to acknowledge the CDW team for cleaning the data and preparing the tables and figures.

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

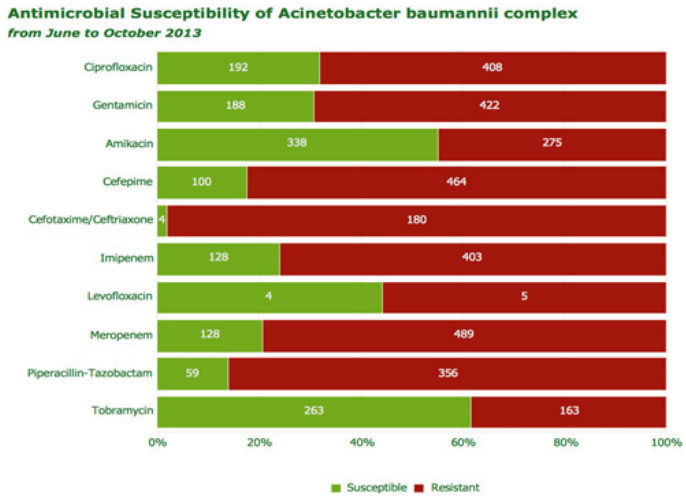
Figure 16. Antimicrobial susceptibility of Gram-positive ESKAPE organisms

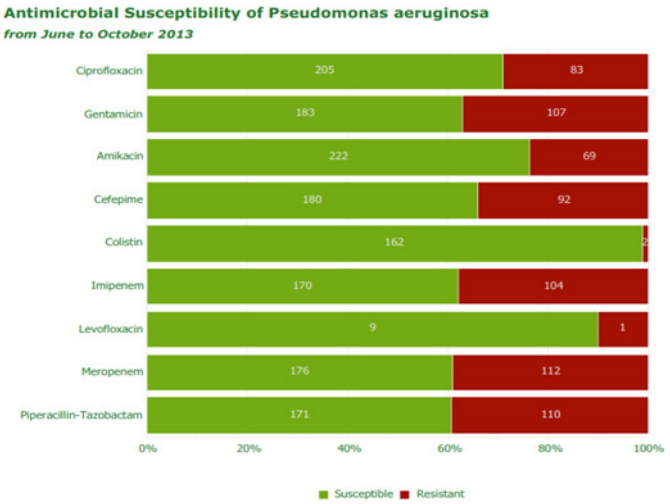


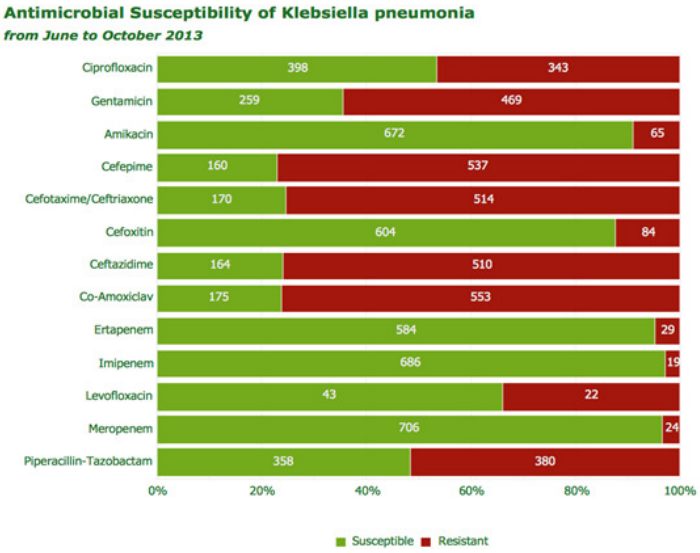
ESKAPE surveillance

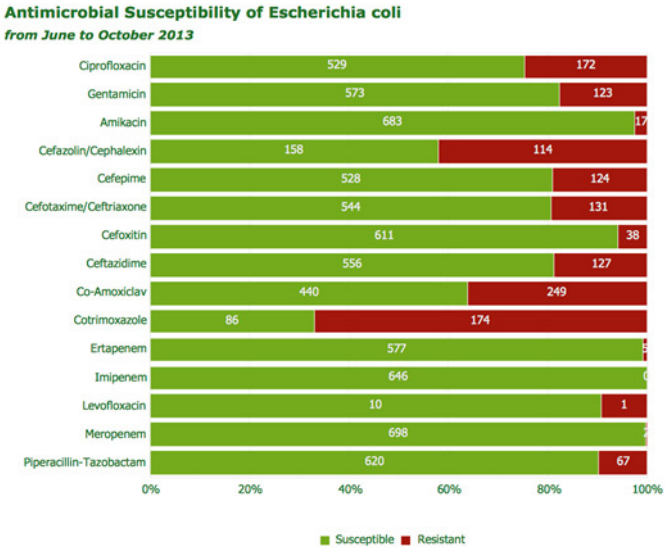
Reporting period 01/06/2013 to 31/10/2013 *Results until end of epidemiologic week 44 (2013)*

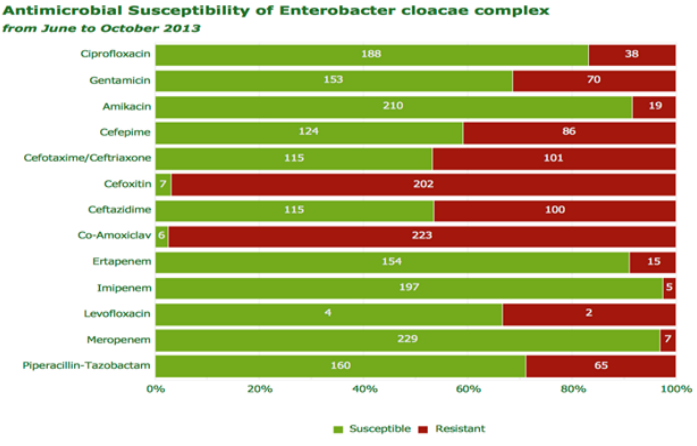
Figure 17. Antimicrobial susceptibility of Gram-negative ESKAPE organisms











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.

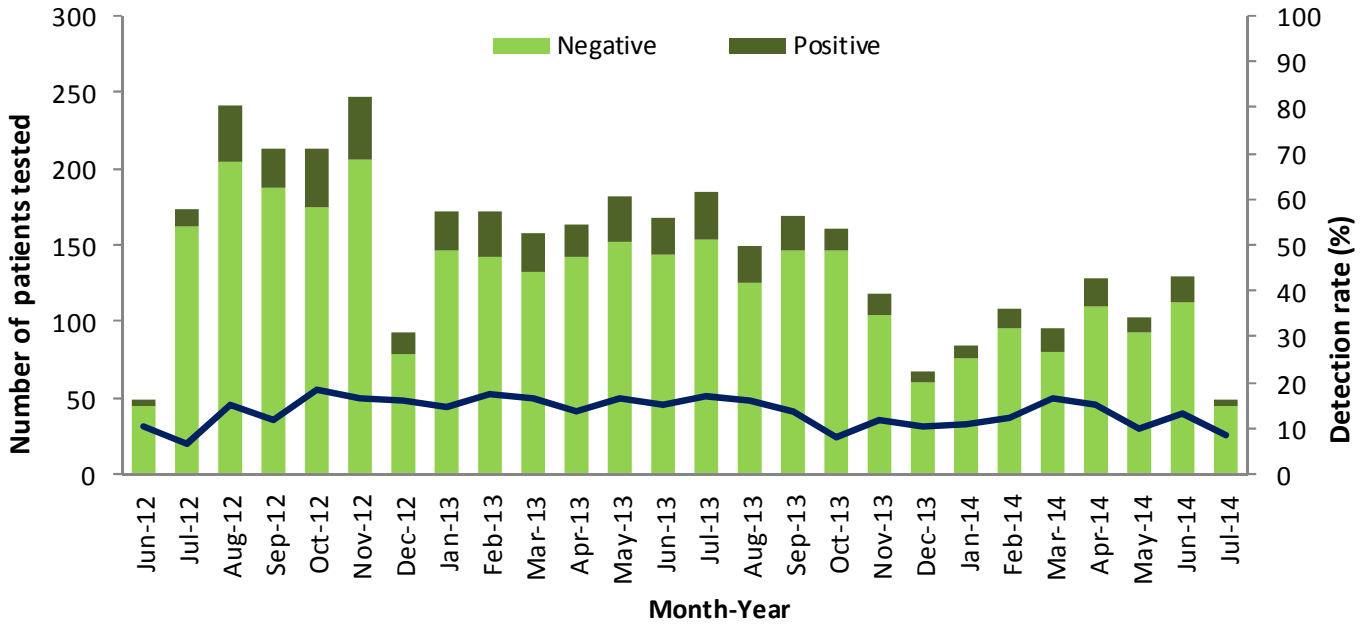
Programme Description:

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:

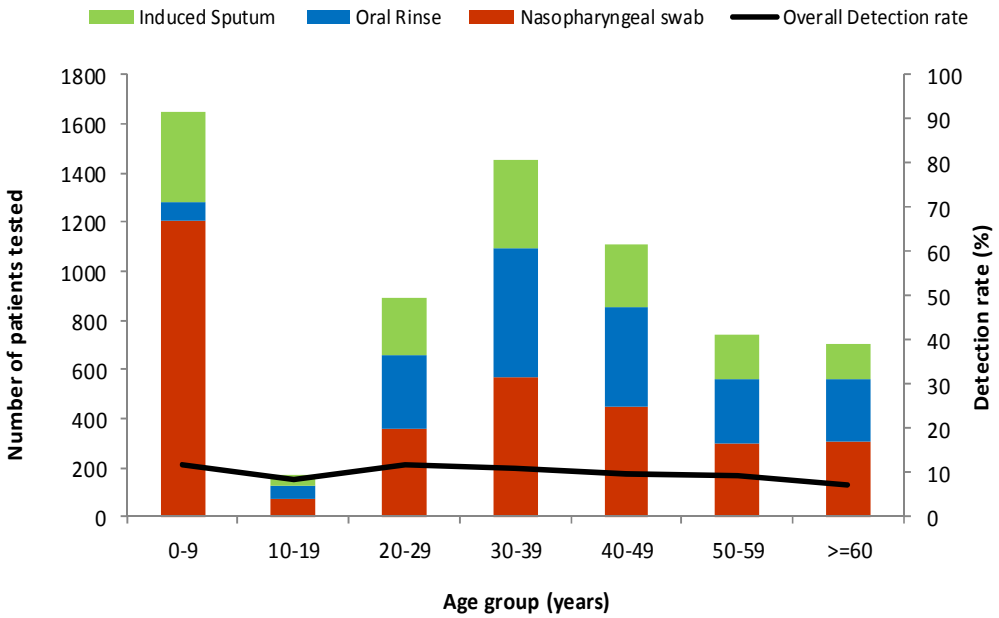
During the reporting period, 7427 specimens from 3788 patients were tested for *P. jirovecii*. The overall detection rate was 14% (530/3788). The detection rate is between 7-12%; the detection rate observed in July 2014 may be due to delayed data reporting. Nasopharyngeal specimens accounted for almost half of all specimens taken (3558/7427, 48%). More than one-third of *P. jirovecii* cases were 0-9 years old (1410/3788, 37%). 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 18. Number of specimens tested for *Pneumocystis jirovecii* and detection rate by month from June 2012 to July 2014 (n=3788)



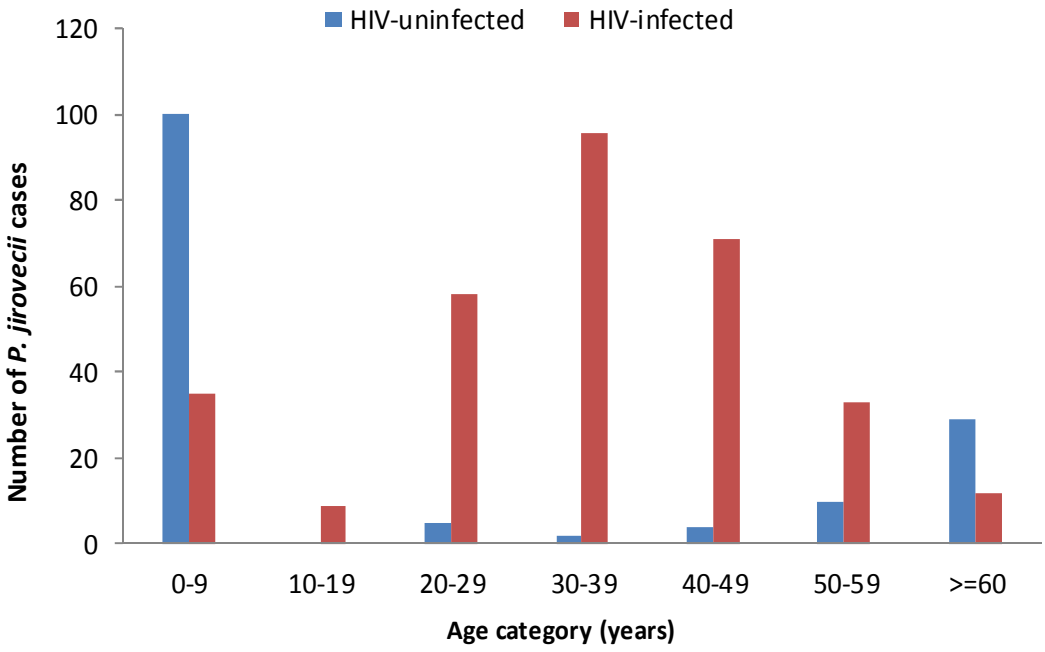
Reporting period 01/06/2012 to 31/07/2014 *Results until end of epidemiologic week 30 (2014)*

Figure 19. Number of patients tested for *P. jirovecii* by age category and specimen type and the overall detection rate* from June 2012 to July 2014



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

Figure 20. Number of *P. jirovecii* cases by age and HIV status from June 2012 to July 2014 (N=464)



Laboratory-Based Respiratory and Meningeal Disease Surveillance

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (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). 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:

The meningococcal season is underway, with an increase noted in the number of meningococcal cases reported across the country in the last few months. By week 35 in 2014, 114 meningococcal cases had been reported to the NICD. Serogrouping results to date include 19 B, 9 C, 18 W, 1 X and 14 Y. Most of the cases occurred in children aged <10 years. For the same period last year, a total of 143 cases had already been reported. 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. An overall decrease in reported case numbers has been noted in certain provinces in 2014 compared to the previous year.

Two hundred and eight cases of *H. influenzae* have been reported to date in 2014. Serotypes identified to date include 9 a, 32 b, 1 c, 1 d, 1 e, 1 f and 60 non-typeable. Most cases occur in individuals aged <10 years. For the same period last year, a total of 244 cases had been reported.

To date this year, 1569 pneumococcal cases have been reported, compared to 1866 cases reported for the same period last year. Most cases occur in children aged <5 years and adults aged 30-34 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

Neisseria meningitidis surveillance

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 21. Number of *Neisseria meningitidis* cases by month in South Africa, 2013 and 2014

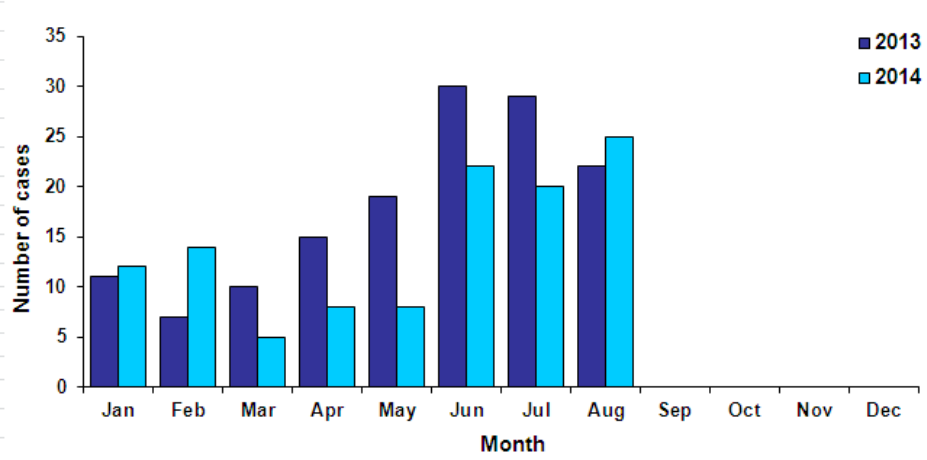


Figure 22. Number of *Neisseria meningitidis* cases by age group in South Africa, 2013 and 2014

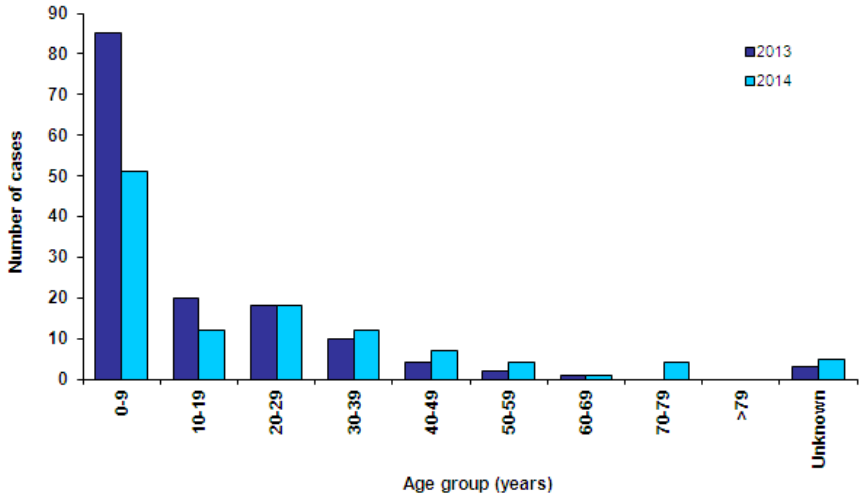
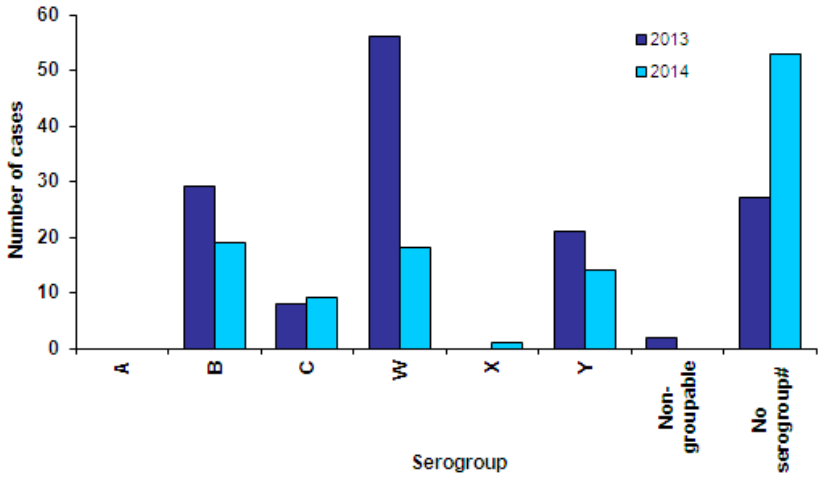


Figure 23. Number of *Neisseria meningitidis* cases by serogroup in South Africa, 2013 and 2014



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

Haemophilus influenzae surveillance

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 24. Number of *Haemophilus influenzae* cases by month in South Africa, 2013 and 2014

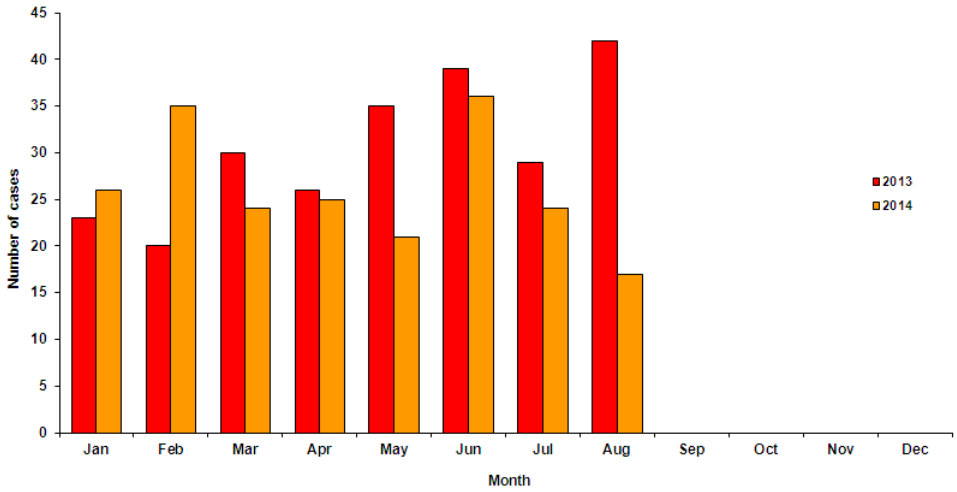


Figure 25. Number of *Haemophilus influenzae* cases by age group in South Africa, 2013 and 2014

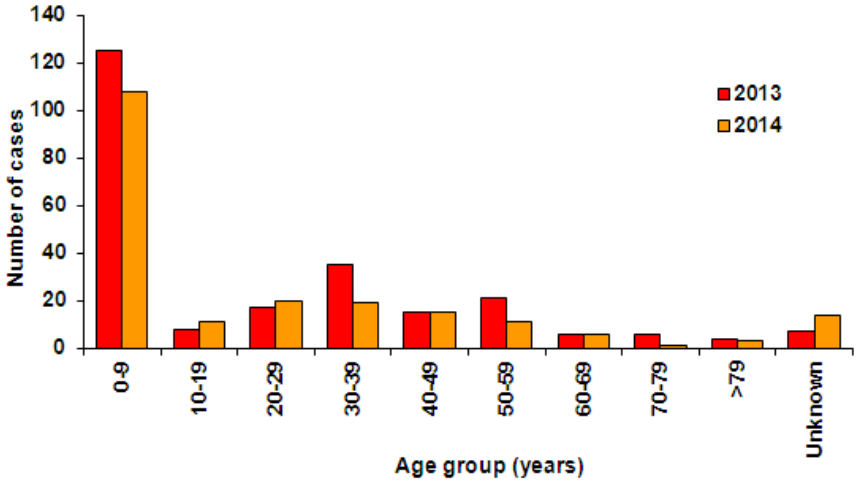
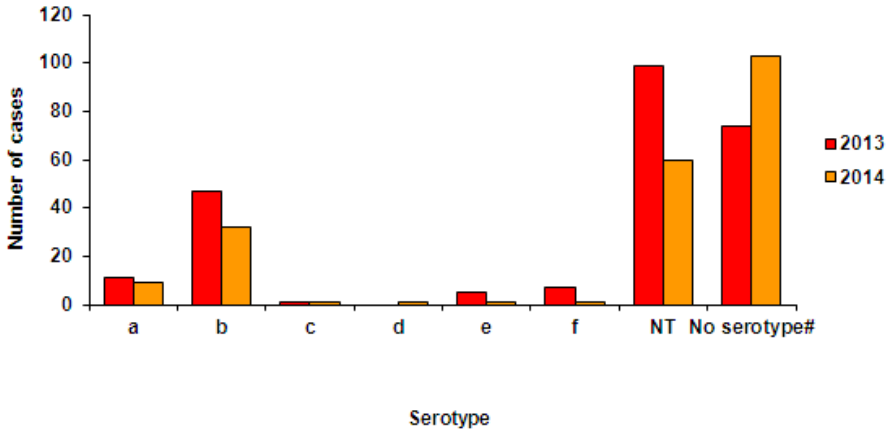


Figure 26. Number of *Haemophilus influenzae* cases by serotype in South Africa, 2013 and 2014



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

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 27. Number of *Streptococcus pneumoniae* cases by week in South Africa, 2013 and 2014

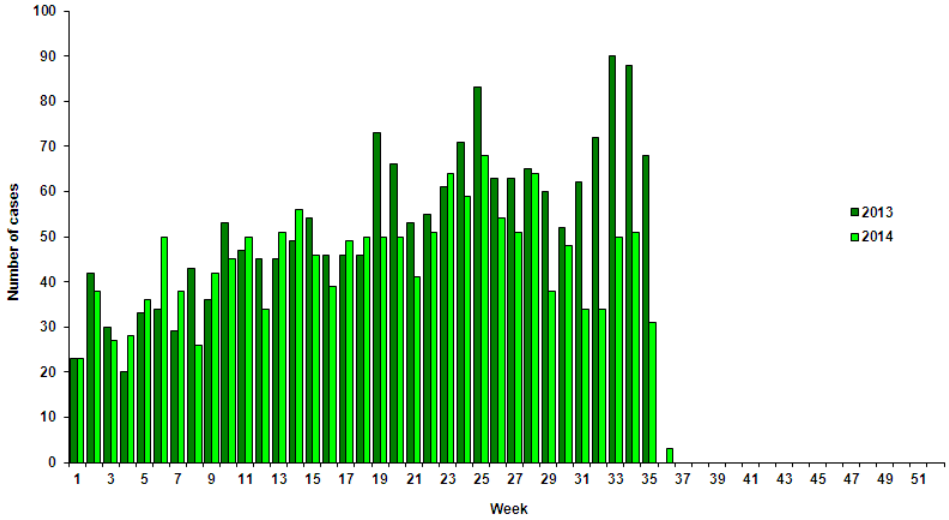


Figure 28. Number of *Streptococcus pneumoniae* cases by age group in South Africa, 2013 and 2014

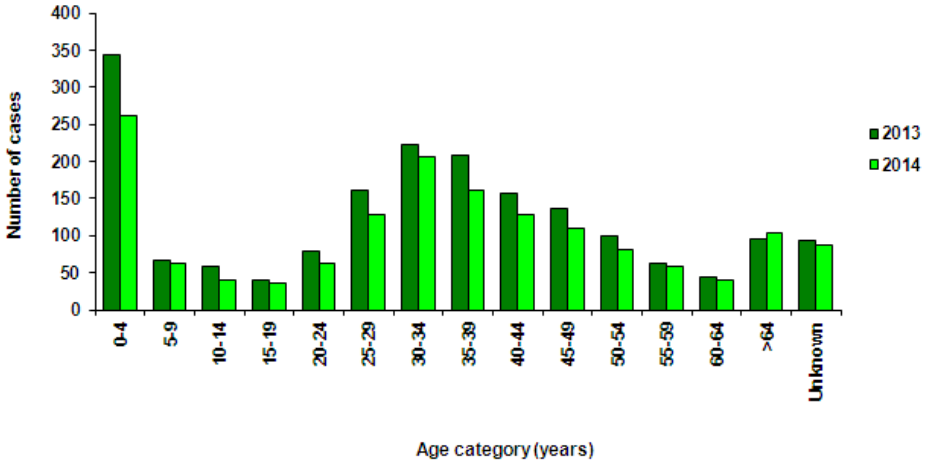
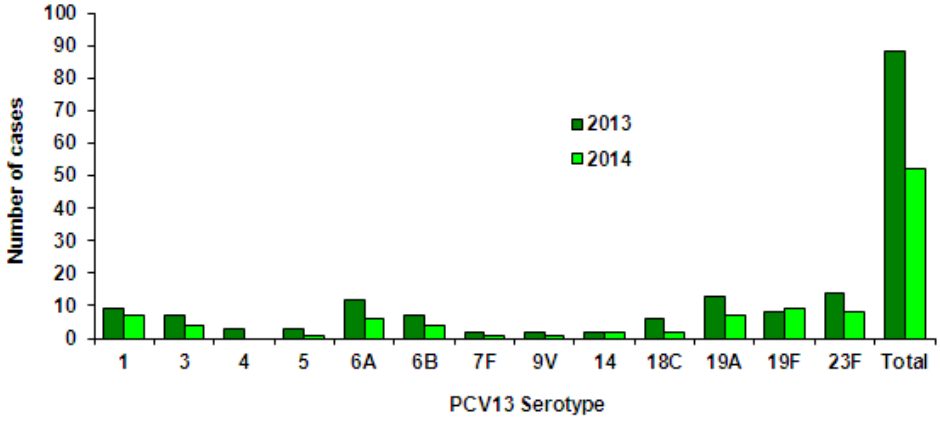


Figure 29. Number of *Streptococcus pneumoniae* cases by 13-valent pneumococcal conjugate vaccine (PCV13) serotype in children <5 years in South Africa, 2013 and 2014



Syndromic Respiratory Disease Surveillance

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (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:

The 2014 influenza season which started in week 21 (week ending 25 May) continues, though the number of specimens received and the number testing positive has declined in all programmes. The influenza season is considered to have started when the detection rate of VW specimens tested at the NICD has risen above 10% and remains there for ≥2 weeks.

ILI programme: In the first 35 weeks of 2014, 1730 specimens were received from ILI sites. Influenza A untyped as yet was detected in three patients, A(H1N1)pdm09 in 16, A(H3N2) in 194, and influenza B in 26 patients.
VW programme: During the same period, 932 specimens were received from VW sites. Influenza A(H1N1)pdm09 was detected in 62 patients, A(H3N2) in 348, and influenza B in 65 patients.
SARI programme: In this time period, 1173 patients with SARI were tested at the 5 sentinel sites. Influenza A(H1N1)pdm09 was detected in three patients, A(H3N2) in 34, and influenza B in 13 patients. In addition, 718 other respiratory viruses were detected in the specimens of 557 patients, rhinovirus (308) accounted for the majority followed by RSV (198) and adenovirus (103).

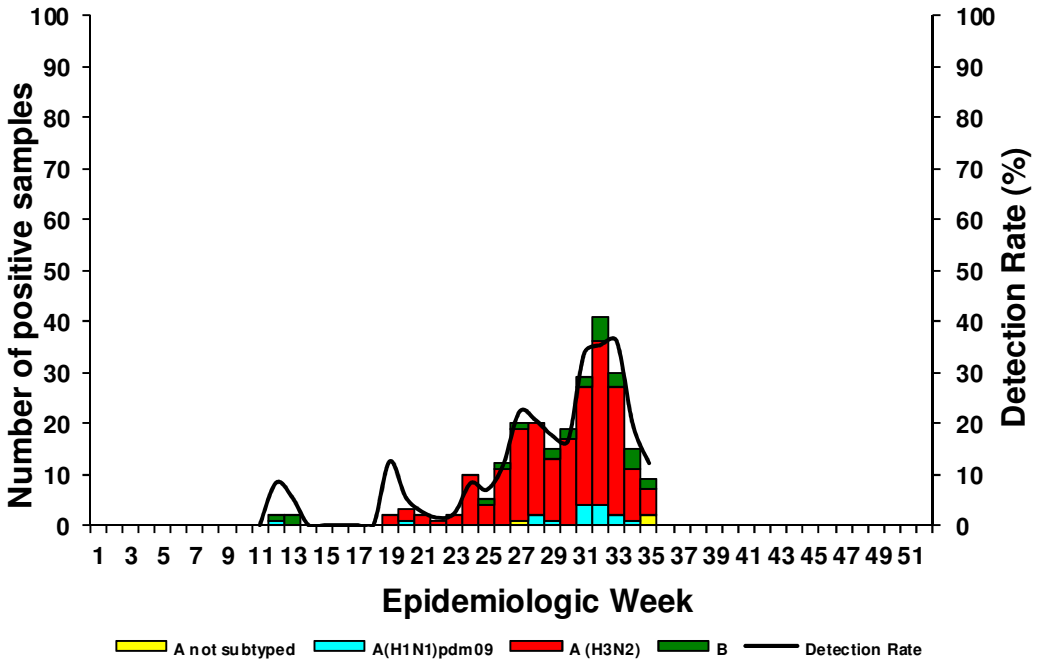
There are a number of specimens collected during week 35 awaiting results.

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 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 30. Number of positive samples* by influenza types and subtypes and detection rate by week



*Specimens from patients with Influenza-like illnesses at 4 sentinel sites in 2 provinces

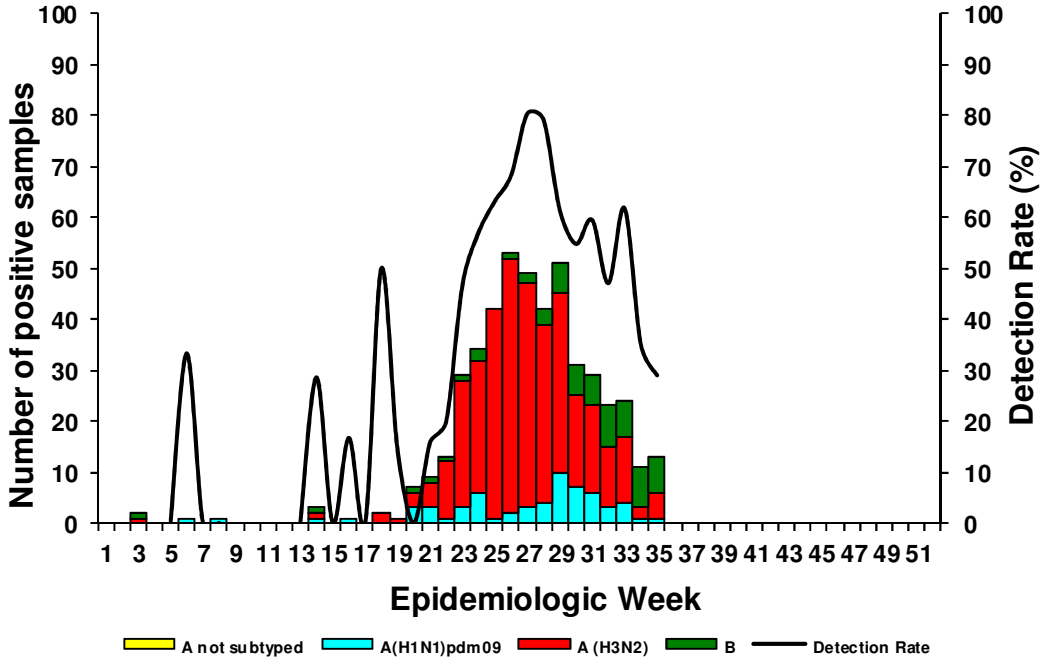
Table 7. Cumulative number of influenza type and subtype and total number of samples collected by province

Clinic	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Edendale Gateway Clinic (KZ)		7	111	5	687
Embalenhle Clinic (KZ)	1	6	41		310
Grace Mokhomo Clinic (NW)	1	1	14	8	271
Jouberton Clinic (NW)	1	2	28	13	462
Total:	3	16	194	26	1730

KZ: KwaZulu-Natal; NW: North West Province

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 31. 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.

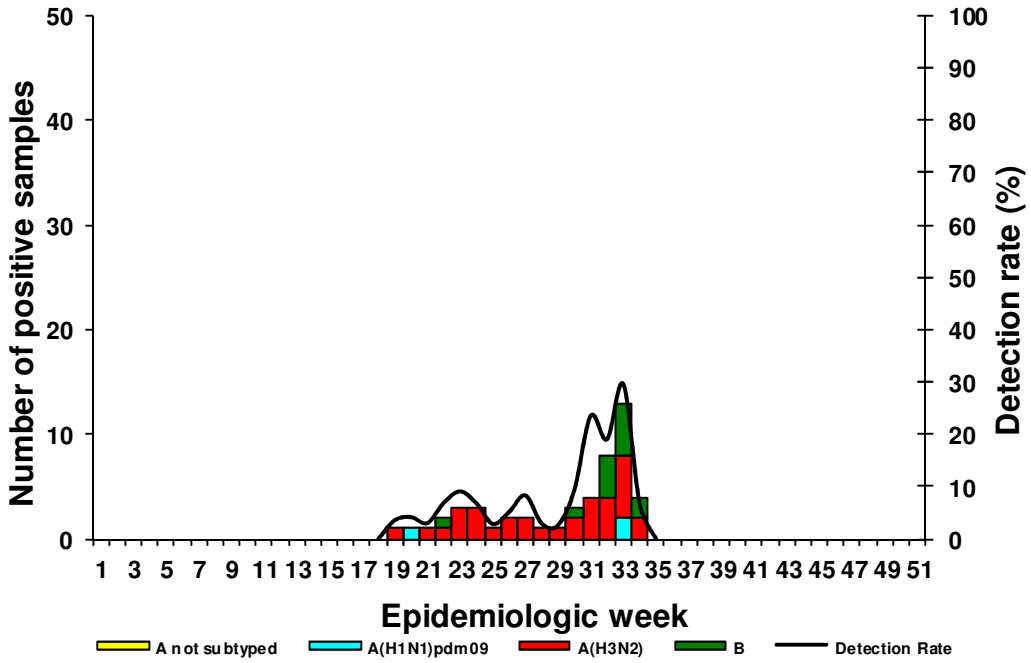
Table 8. Cumulative number of influenza type and subtype and total number of samples collected by province

Province	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Eastern Cape		11	24		80
Free State		1	17	4	43
Gauteng		18	182	37	431
KwaZulu-Natal				1	4
Limpopo			19	1	50
Mpumalanga			38	1	83
Northern Cape			5	1	23
North West					2
Western Cape		32	63	20	216
Total:	0	62	348	65	932

To date in 2014, 38 patients have been tested for influenza at the time of entry into South Africa following travel abroad and 18 have tested influenza positive.

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Figure 32. Number of positive samples* by influenza types and subtypes and detection rate by week



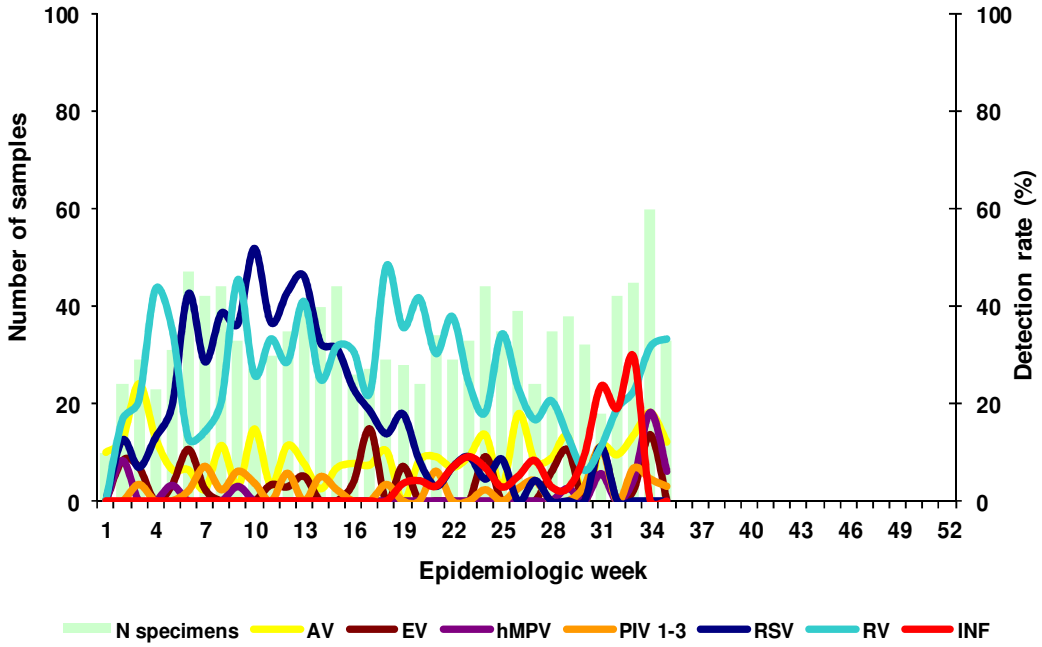
*Specimens from patients hospitalised with severe acute respiratory infections at 4 sentinel sites in 3 provinces

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	9	0	358
Helen Joseph-Rahima Moosa (GP)	0	2	1	3	71
Klerksdorp-Tshepong (NW)	0	0	14	9	560
Mapulaneng (MP)	0	0	9	1	120
Matikwane (MP)	0	1	1	0	64
Total:	**0**	**3**	**34**	**13**	**1173**

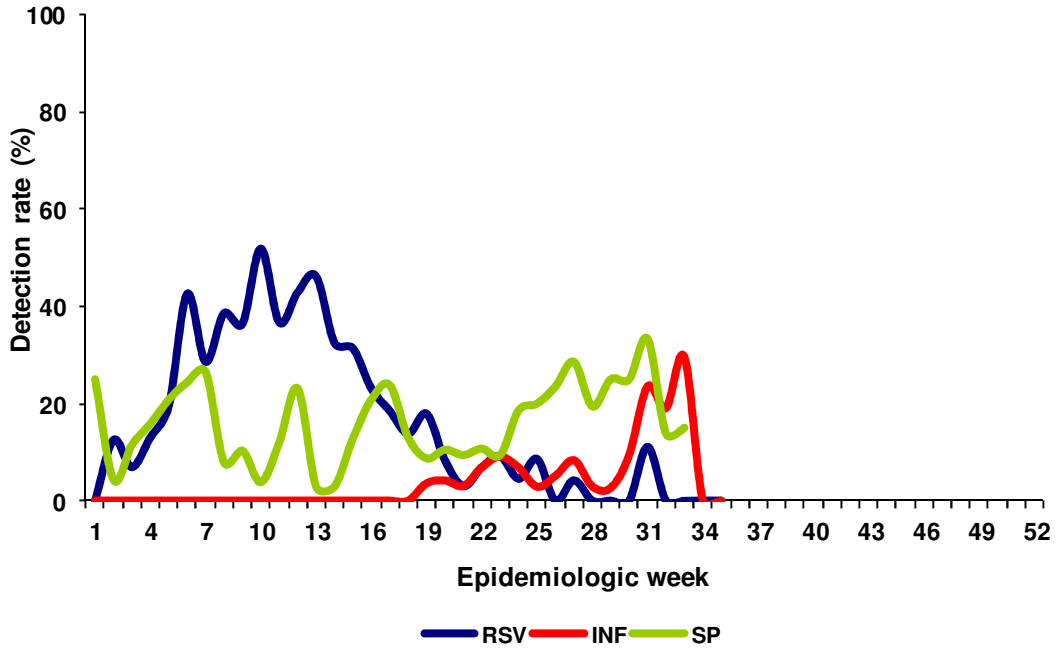
KZ: KwaZulu-Natal; GP: Gauteng; NW: North West Province; MP: Mpumalanga

Figure 33. 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

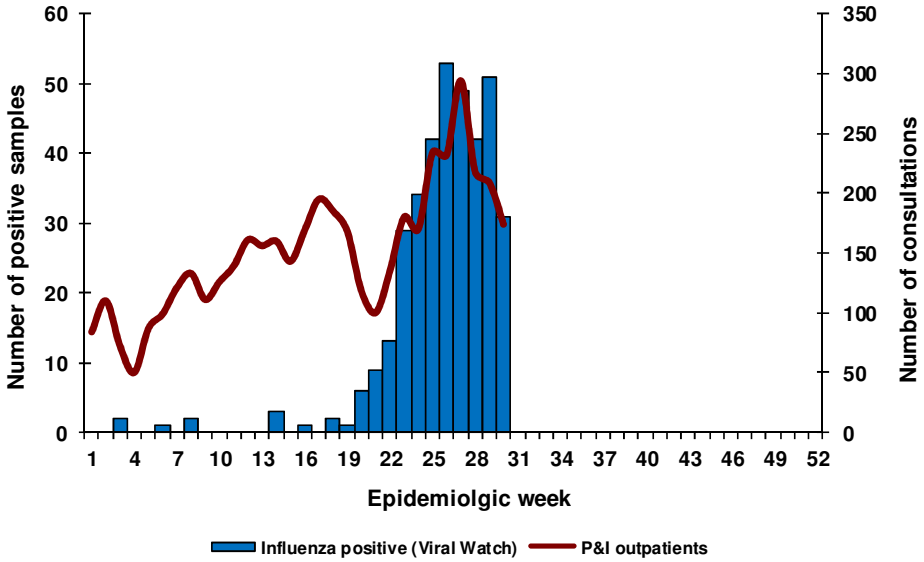
Figure 37. Detection rate for influenza (INF), respiratory syncytial virus (RSV) and pneumococcus (SP) by week



Private hospital consultations

Reporting period 01/01/2014 to 27/07/2013 *Results until end of epidemiologic week 30 (2014)*

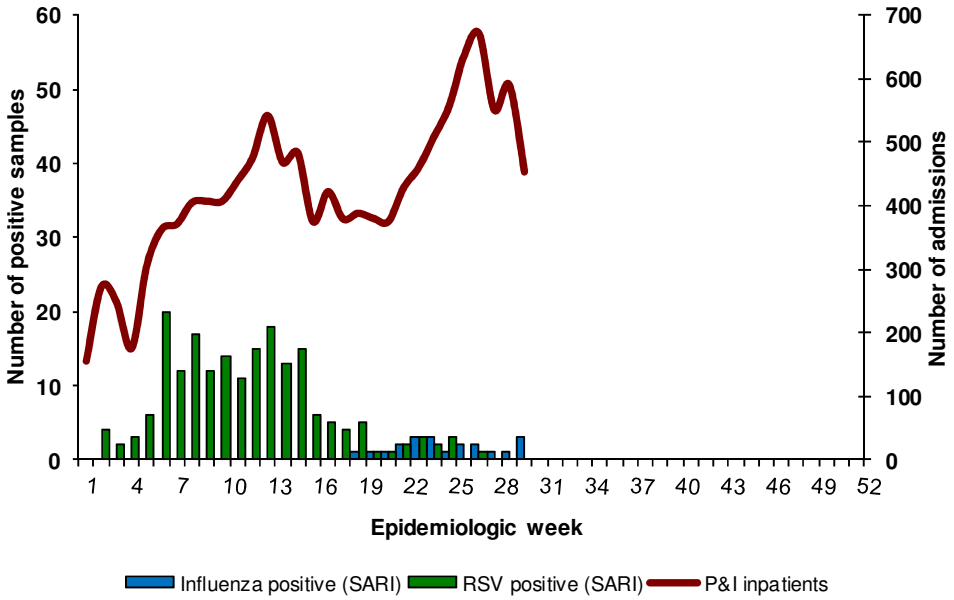
Figure 34. Number of private hospital outpatient consultations* with a discharge diagnosis of pneumonia and influenza (P&I) and viral isolates**



* 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 35. 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 31/08/2014 *Results until end of epidemiologic week 35 (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 August 2014 (week 35), 11 suspected wild-type measles cases were detected from 2,737 suspected measles cases tested from the measles surveillance with date of onset in 2014. The 8 measles cases detected were from Gauteng (4), KwaZulu Natal (3), Eastern Cape (1), Free State (1), Mpumalanga (1), and Western Cape provinces (1).

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

Province	Measles IgM positive
Eastern Cape	1
Free State	1
Gauteng	4
Kwazulu-Natal	3
Limpopo	0
Mpumalanga	1
North West	0
Northern Cape	0
Western Cape	1
Total	**11**

Figure 36. Number of laboratory-confirmed measles cases by month of specimen collection, South Africa, 2013 and 2014

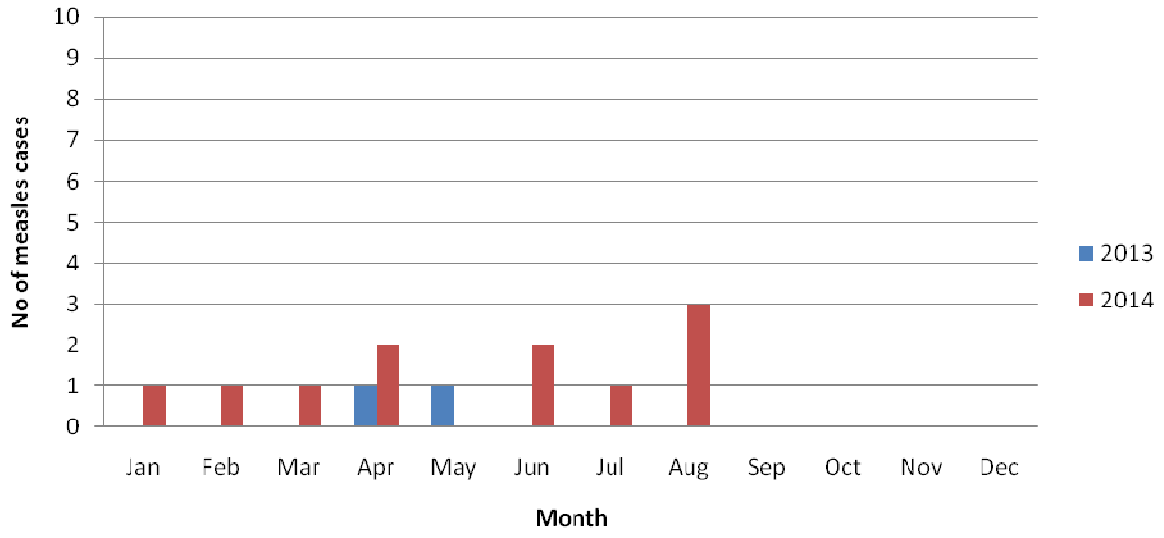


Table 13. Laboratory performance indicators measles surveillance, South Africa, 2014*

Laboratory indicators	2014*	Target
Specimens received within 3 days of collection	62	80%
Specimens resulted within 7 days of receipt	96%	80%

* Samples received in 2014 to date (1 January 2014 to 31 August 2014)

Polio/ Acute Flaccid Paralysis (AFP) Surveillance

Reporting period 01/01/2014 to 31/08/2014 *Results until end of epidemiologic week 35 (2014)*

Programme Description:

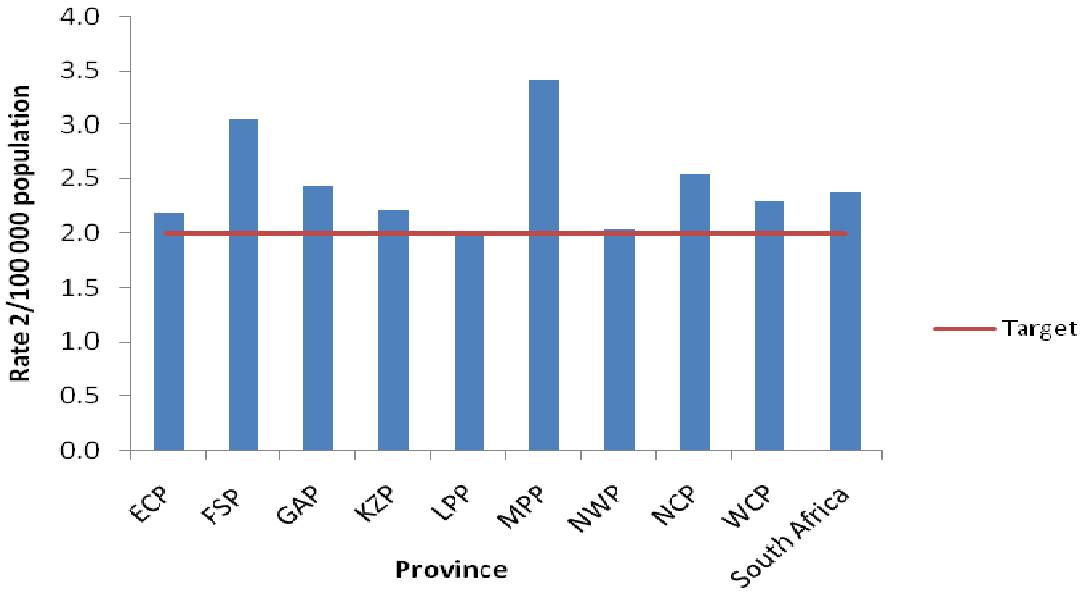
Data presented in this report are generated from the AFP surveillance database and represent specimens received by the National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS) and may differ from those presented by the National Department of Health, as they 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 January 2014 until 31 August 2014, week 35, 565 specimens were received from AFP surveillance in South Africa and 259 AFP cases were detected for 2014. Of the 259 AFP cases, 247 were <15 years with an annualised Non-Polio AFP detection rate of 2.4 per 100 000: range 2.0 to 3.4 (Fig 37). Sabin strains were detected in three cases: one AFP case was a mixture of Sabin type 1, 2 and 3, one case was a mixture of Sabin type 1 and 2, and the third case was Sabin type 2. The overall AFP surveillance detection rate was 2.4, which is above the target rate of 2 per 100 000 population of the children under the age of 15 years. Although the detection rate is above the required target rate in province, there are districts which still have low detection rates or are silent and they need to be supported to reduce the risk of polio infection being missed.

Ninety-seven percent of the specimens were received in good condition, while 69% arrived at the NICD within 3 days of collection. Where results were available, 100% were resulted within 14 days of receipt with a Non-Polio enterovirus isolation of 11% (Table 14).

Figure 37. Annualised Non-Polio AFP detection rate by province, South Africa, 2014



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

Table 14. Acute Flaccid Paralysis (AFP) surveillance, laboratory performance indicators, South Africa, 2014*

Laboratory indicators	2014*	Target
Specimens received in good condition	97%	90%
Specimens received within 3 days of collection	69%	80%
Specimens resulted within 14 days of receipt	100%	80%
Non-Polio enterovirus isolation rate	11%	10%

* Samples received in 2014 (1 January - 31 August)