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 8 cases to date in 2015.
- No cases of *Vibrio cholerae* O1 have been reported to date in 2015. For the same period last year, no cases had been reported.
- One specimen (1/120) has tested positive for rotavirus to date.
- Laboratory-based screening for cryptococcal disease has been operational in the City of Johannesburg Metro for more than 2 years and in the City of Ekurhuleni Metro for more than 18 months. Between 3 September 2012 and 17 November 2014, 21,202 patients had been screened at selected facilities in 2 Gauteng districts; 930 (4.4%) tested positive for cryptococcal antigenaemia (CrAg).
- To 28 February 2015, 1363 *S. aureus* cases were reported. The majority of cases were <10 years old (35%). The proportion of methicillin-resistant isolates was 32%.
- A total of 4535 patients over a 33 month period were tested *for Pneumocystis jirovecii.* Six hundred and seventy-one (15%) cases were positive for *P. jirovecii*. These cases positive for *P. jirovecii* could indicate colonisation or it could be true disease.
- By week 9 in 2015, 11 meningococcal cases had been reported to the NICD. Serogrouping results to date include 2 W. Most of the cases occurred in children aged <10 years.
- By week 9 in 2015, 25 cases of *H. influenzae* had been reported. Serotypes have not yet been identified. Most cases occur in individuals aged <10 years.
- The number of pneumococcal cases was lower than that reported last year (189 versus 318). Most cases occur in children aged <5 years and adults aged 35-39 years.
- To date in 2015, 5 influenza isolates have been detected. Three of the isolates were detected through Viral Watch, 2 through SARI and 0 through the influenza-like illness programme.
- At the end of epidemiological week 9, three measles cases were detected with date of onset of rash in 2015 from ZF Mgcawu District in the Northern Cape Province, and one case from North West Province. All Northern Cape cases are part of the measles outbreak in ZF Mgcawu which was detected through measles surveillance from epidemiological week 39 (end of September 2014). The specimen of the last measles IgM positive case from ZF Mgcawu district was collected on 13 January 2015.
- Between 1 January—28 February 2015, 65 AFP cases <15 years of age have been reported with an annualized non-polio AFP detection rate of 4.4 per 100,000 population.

Laboratory-Based Enteric Disease Surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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 9 in 2015, *Salmonella* Typhi had been reported for 8 cases (all invasive), in Gauteng, KwaZulu Natal and Western Cape provinces. For the same period last year, 25 cases of Salmonella Typhi had been reported.

No cases of *Vibrio cholerae* O1 have been reported to date in 2015. For the same period last year, no cases had been reported.

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 1. Number of *Salmonella* Typhi cases by month in South Africa, 2014 and 2015

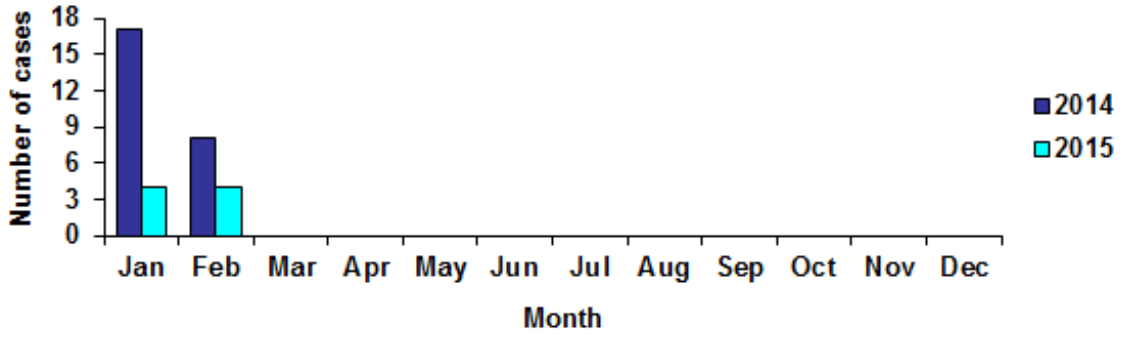


Figure 2. Number of *Salmonella* Typhi cases by province in South Africa, 2014 and 2015

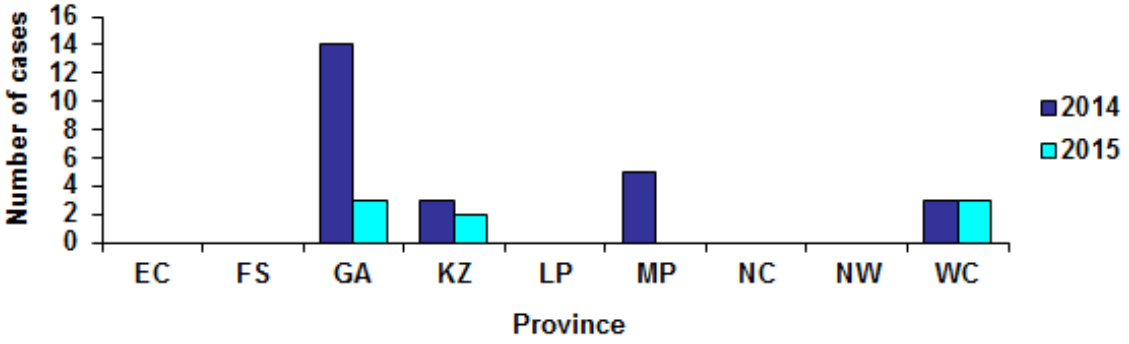
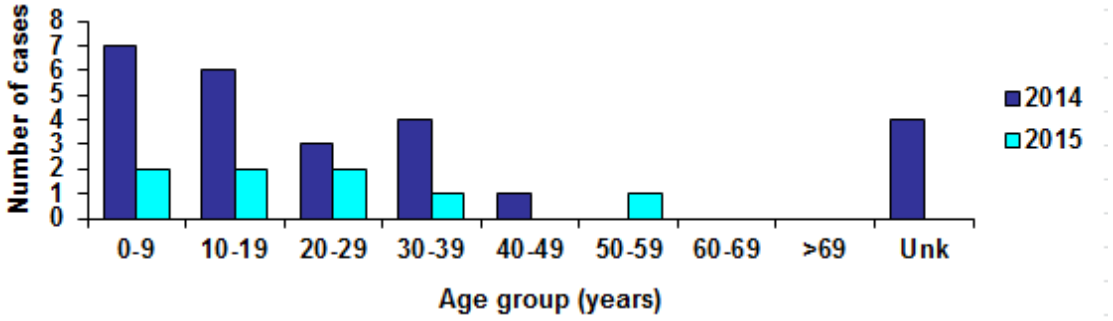


Figure 3. Number of *Salmonella* Typhi cases by age group in South Africa, 2014 and 2015



Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 4. Number of *Vibrio cholerae* O1 cases by month in South Africa, 2014 and 2015

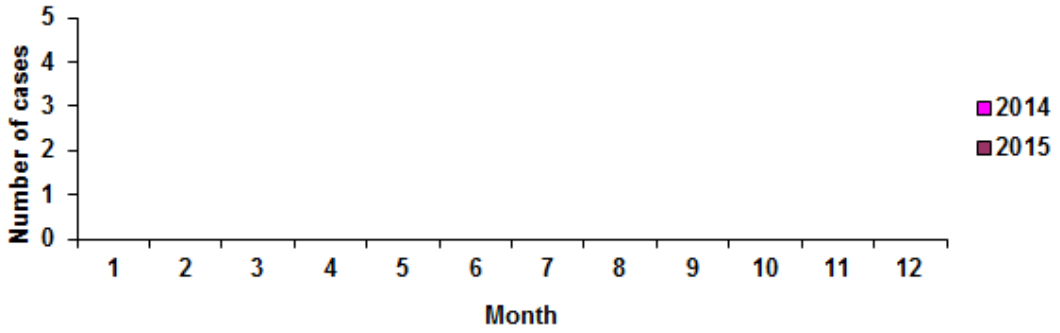


Figure 5. Number of *Vibrio cholerae* O1 cases by province in South Africa, 2014 and 2015

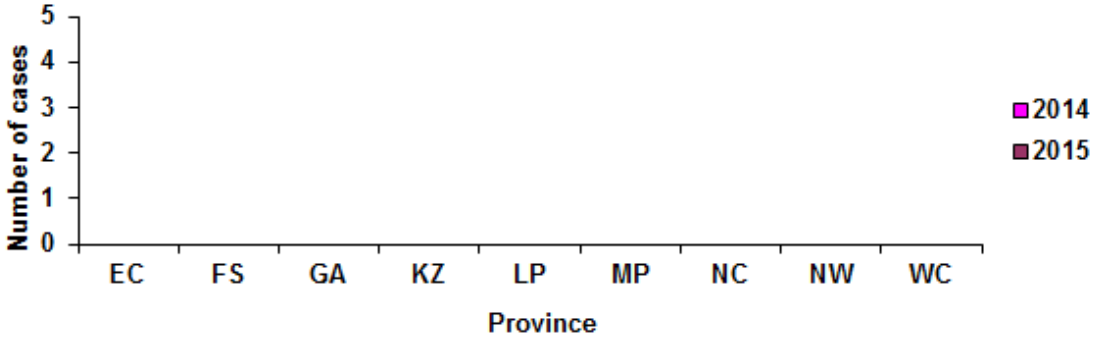
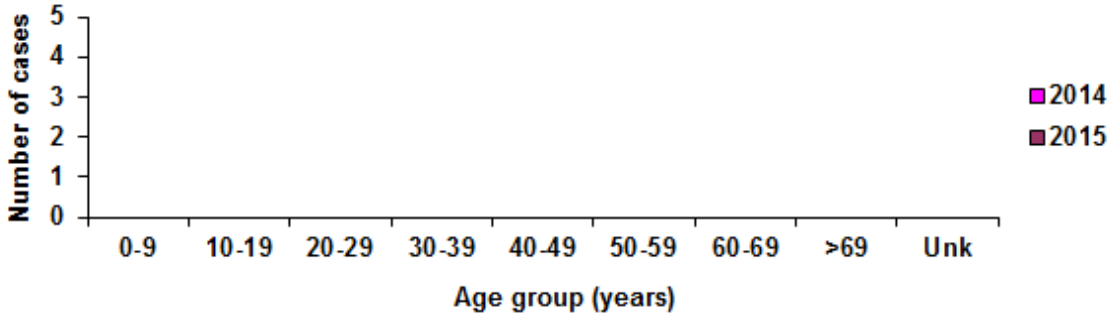


Figure 6. Number of *Vibrio cholerae* O1 cases by age group in South Africa, 2014 and 2015



Syndromic Diarrhoeal Disease Surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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 and the end as rotavirus detection rate <20% for two consecutive weeks.

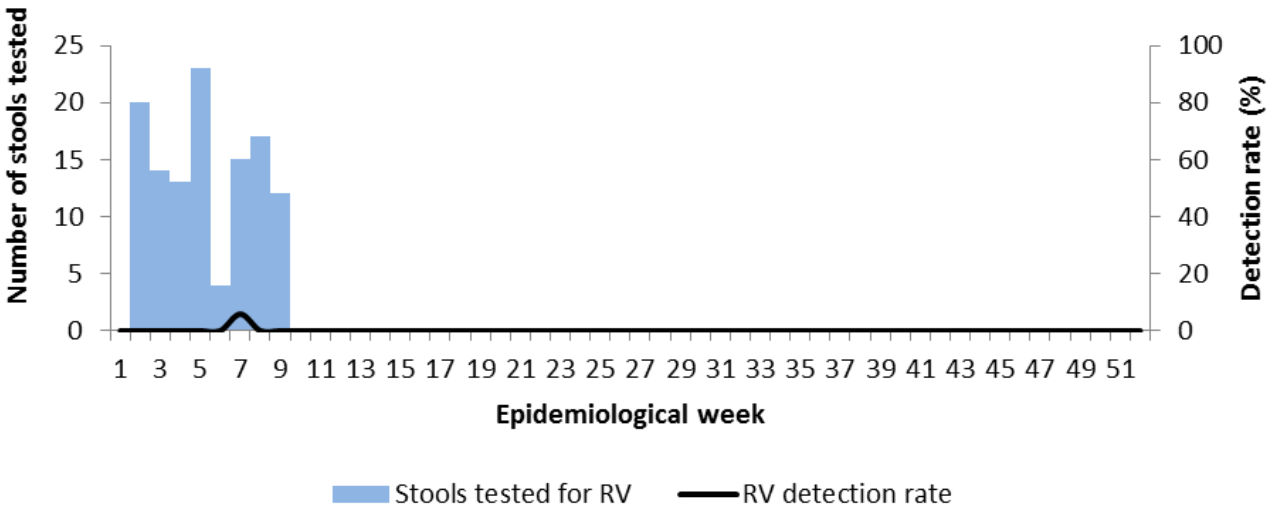
In 2014, the rotavirus season started in week 16 (14 April) and ended in week 34 (week ending 24 August). The maximum detection rate (65%; 30/44) for the 2014 rotavirus season was in week 27 (30 June).

For the period 5 January to 1 March 2015, 120 patients were tested for rotavirus. One was positive for rotavirus (1/120; <1%). The case originated in the Western Cape.

Rotavirus (ROTA) surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 7. Number of stools tested for rotavirus and detection rate by week, 2015



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, 2015

Site	Rotavirus Positive	Total stools tested
Chris Hani Baragwanath	0	54
Mapulaneng	0	5
Matikwane	0	0
Dr George Mukhari	0	26
Edendale	0	4
Red Cross Children's	1	26
Kimberley	0	5
	1	**120**

Sexually Transmitted Disease Surveillance

Reporting period 01/01/2014 to 31/12/2014 *Results until end of epidemiologic week 52 (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 January - 31 December 2014.

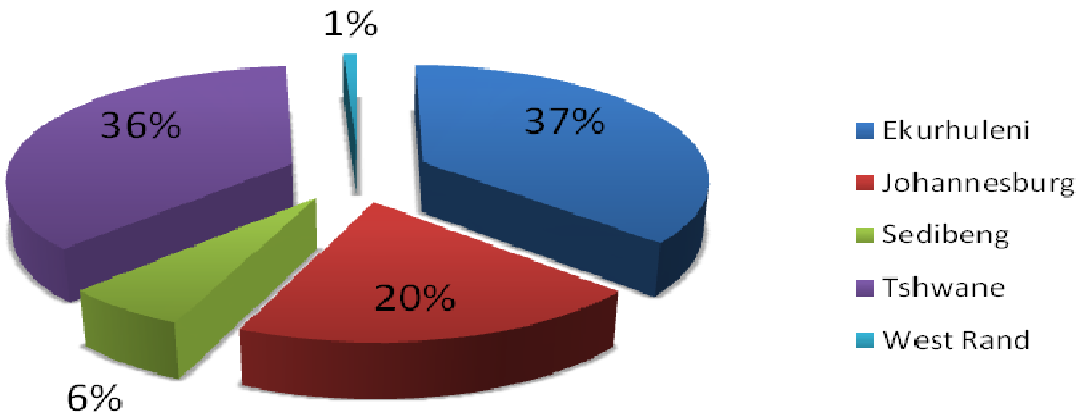
Comments:

For the period 1 January - 31 December 2014, 17,938 new STI syndrome episodes were reported by sentinel sites.

Females represented 50% (n=8,994) and males 50% (n=8,994) of the surveyed population. Amongst males, 65% (5,832/ 8,994) of STI syndromes were MUS (Male Urethritis Syndrome) and amongst females, 71% (6,385/ 8,994) of STI syndromes were VDS (Vaginal Discharge Syndrome). A total of 13,417 partner notification slips were issued to 17,938 patients with new STI episodes, resulting in an overall partner slip issue rate of 75%.

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 January - 31 December 2014



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

Reporting period 03/09/2012 to 17/11/2014 *Results until end of epidemiologic week 46 (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 17 November 2014, 21,202 patients with a CD4 count <100 cells/µl have been screened; 930 (4.4%) tested positive for CrAg. In Johannesburg, 50% (188/373) of cases were detected at Helen Joseph Hospital and in Ekurhuleni, 13% (70/560) of cases were detected at Tambo Memorial Hospital. Twenty three per cent (203/873) of CrAg-positive patients with available age data were between the ages of 30 and 44 years. During the reporting period, 373 cases of laboratory-confirmed CM were diagnosed at three hospitals (Helen Joseph, Rahima Moosa Mother and Child and South Rand) in Johannesburg and 488 cases of CM were diagnosed at four 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 (August 2014) due to data source changes aimed at improving statistical accuracy

Reporting period 03/09/2012 to 17/11/2014 *Results until end of epidemiologic week 46 (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	23562
Number of CrAg-positive tests/ number of specimens tested (%)	1092/23562 (4.6%)

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

Table 3. Case statistics for Phase 1 of the cryptococcal screen & treat programme*

Case Statistics	Sep-Dec 2012	Jan-Jun 2013	Jul-Dec 2013	Jan-Jun 2014	Jul-Nov 2014	Total n/n (%)
Number of patients tested for CrAg*	1843	4366	4740	6441	3812	**21202**
Number of CrAg-positive patients/ number of patients tested for CrAg (%)*	87/1843 (4.7)	211/4366 (4.8)	288/4740 (6.1)	194/6441 (3.0)	150/3812 (3.9%)	**930#/ 21202 (4.4)**
Number of CrAg-positive patients at enhanced M&E sites (%)	87 (100)	196 (93)	207 (72)	127 (65)	108 (72)	**725 (78)**
Number of CrAg-positive patients known to have had a lumbar puncture**(%)	13/87 (15)	20/196 (10)	40/207 (19)	33/127 (26)	10/108 (9)	**116/725 (16)**
Number of CrAg-positive patients known to have had a lumbar puncture with CM† (%)	9/13 (69)	13/20 (65)	24/40 (60)	20/33 (61)	7/10 (70)	**73/116 (63)**
Number of CrAg-positive patients known to be treated with fluconazole†(%)	58/87 (67)	119/196 (61)	137/207 (66)	83/127 (65)	29/108 (27)	**426/725 (59)**

*Data source: NHLS Corporate Data Warehouse, NHLS laboratory information system and NICD; where specimen date was unknown, tested date/reviewed date was used as the reference date. Numbers 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 (930) differs from number of CrAg-positive patients in Table 4 and Table 5 (933) as some cases do not have specimen or tested/reviewed dates. Only data from the six most recent quarters are included in Table 3 due to space constraints.

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=373*

Facility Name*	Number of Cases
Helen Joseph Hospital	188
South Rand Hospital	60
Witkoppen Clinic	32
OR Tambo Clinic	16
Discoverers Centre	13
Randburg Clinic	13
Rahima Moosa Mother and Child Hospital	11
Crosby Clinic	10
Diepsloot South Clinic	10
Noordgesig Clinic	6
Berario Clinic	4
Petervale Clinic	3
Windsor Clinic	3
Riverlea Major	2
Claremont Clinic	1
Mayfair	1
Total:	**373**

*Only facilities with CrAg-positive patients are included

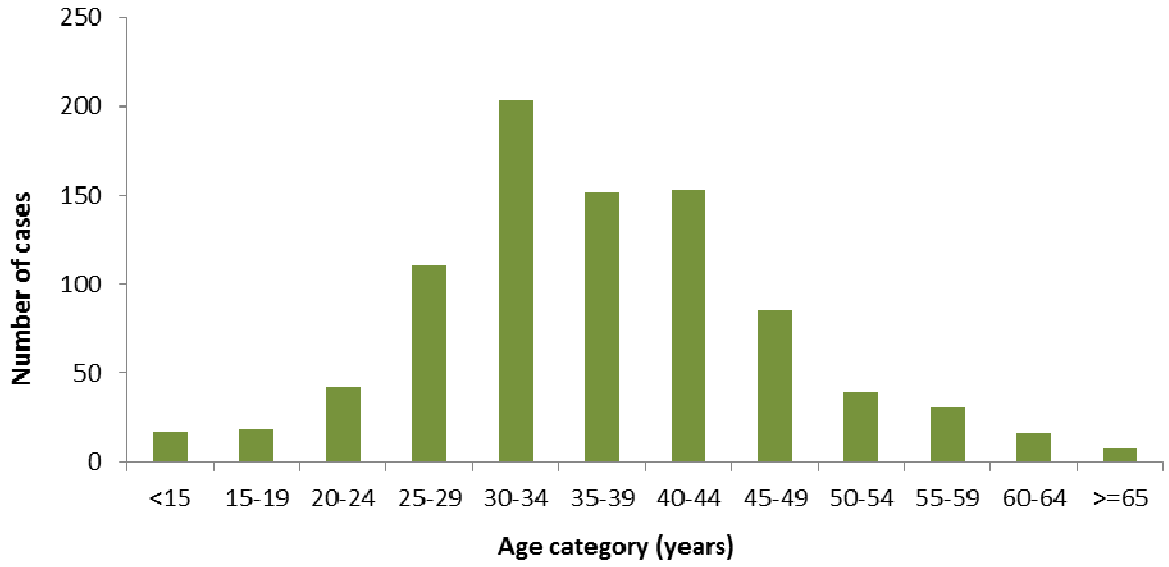
Reporting period 03/09/2012 to 17/11/2014 *Results until end of epidemiologic week 46 (2014)*

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= 560

Facility Name*	Number of Cases
Natalspruit Hospital	82
Tambo Memorial Hospital	70
Bertha Gxowa Hospital	43
Pholosong Hospital	39
Goba Clinic	17
Dawnpark Clinic	10
Jabulane Dumane Clinic	10
Ramokonopi Clinic	10
Springs Clinic	10
Dresser Clinic	9
Kwa-Thema Clinic	8
Reiger Park Clinic	8
Mary Moodley Memorial Clinic	7
Tsakane Clinic	7
Dan Kubheka Clinic	6
Payneville Clinic	6
Dukatole Clinic	3
Kingsway Clinic	3
Edenpark Clinic	2
Sunriseview Clinic	2
Duduza PHC	1
Geluksdal Clinic	1
Slovo Park Clinic	1
Non-enhanced M&E sites##	205
Total:	**560**

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

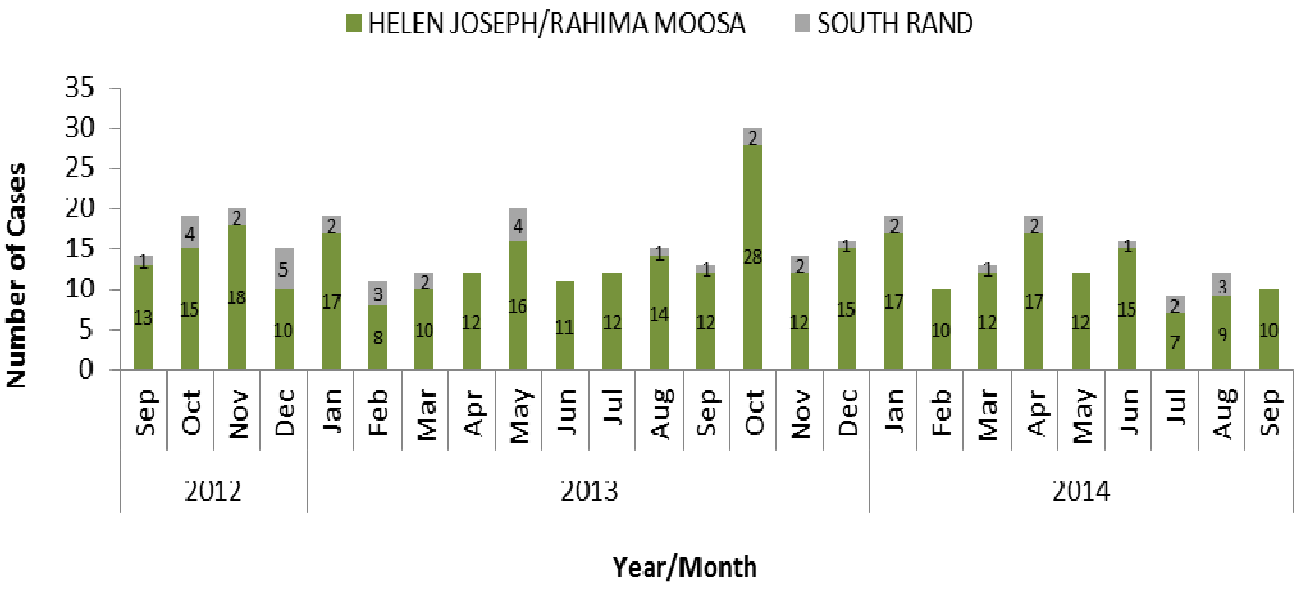
Figure 9. Number of CrAg-positive cases, by age category, at 106 facilities that refer specimens to the NHLS CD4 laboratories at Charlotte Maxeke Johannesburg Academic Hospital and Tambo Memorial Hospital*, n=873**



*Data source: NHLS Corporate Data Warehouse and NHLS laboratory information system ** Only included patients with known age (total n=933; age missing for 60 patients)

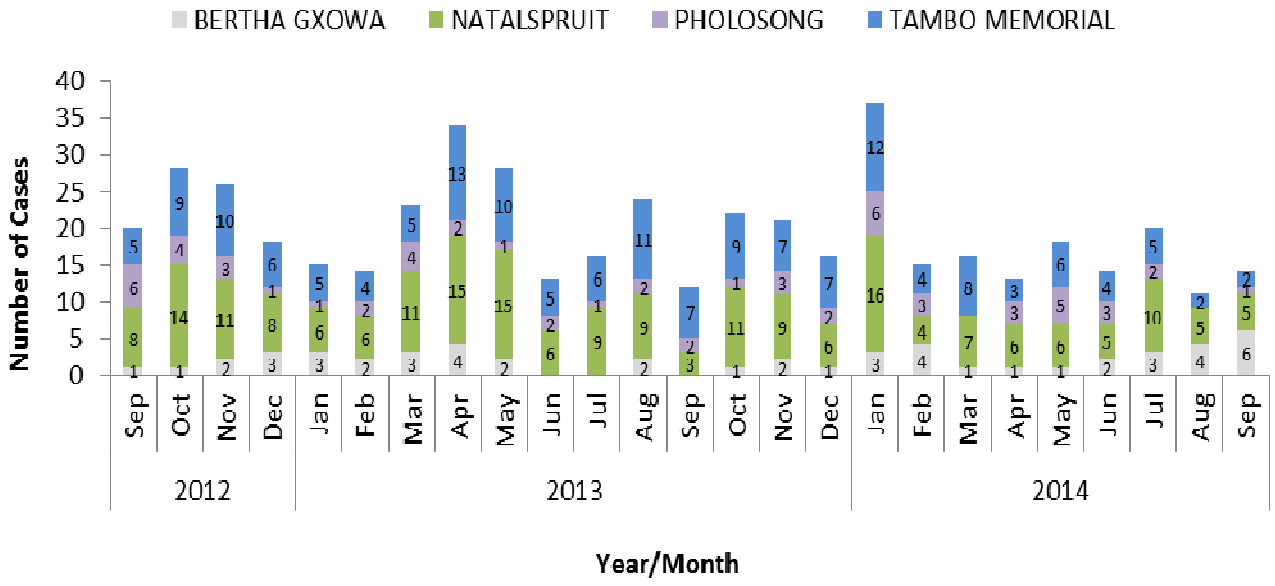
Reporting period 03/09/2012 to 17/11/2014 *Results until end of epidemiologic week 46 (2014)*

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=373



†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=488*



†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 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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.

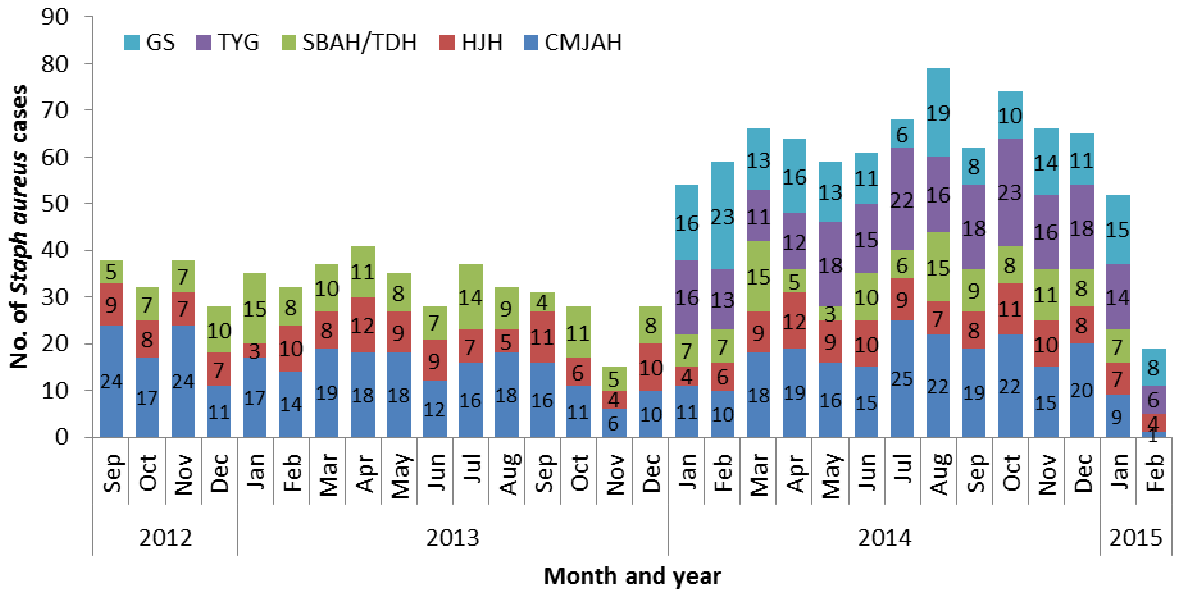
SA enhanced surveillance from patients with bacteraemia was introduced in September 2012 at three sentinel sites in Gauteng Province: Charlotte Maxeke Johannesburg Academic Hospital, Helen Joseph/Rahima Moosa Mother and Child Hospital, and Steve Biko Pretoria Academic Hospital. From January 2014, surveillance 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 February 2015.

Comments:

- For the period 1 September 2012 to 28 February 2015, 1363 *S. aureus* cases were reported.
- The majority of *S. aureus* cases were 0-9 years of age (35%) 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 (56%).
- Antibiotic susceptibility varied by site.
- Thirty-two percent of *S. aureus* isolates were methicillin-resistant.

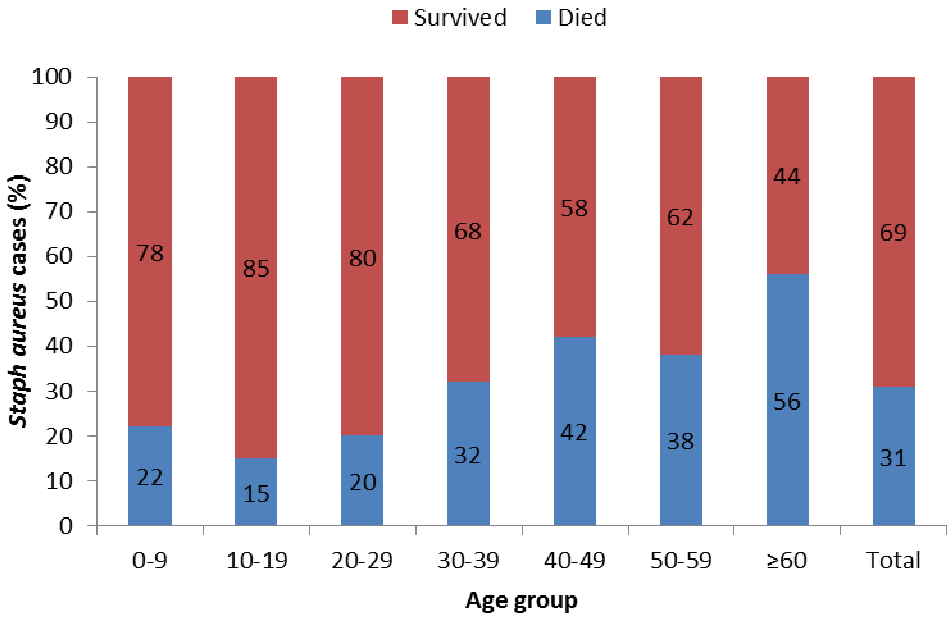
Reporting period 01/09/2012 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 12. Number of *S. aureus* cases* reported by month and site from September 2012 to February 2015 (n=1363)



*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 February 2015 (N=808)



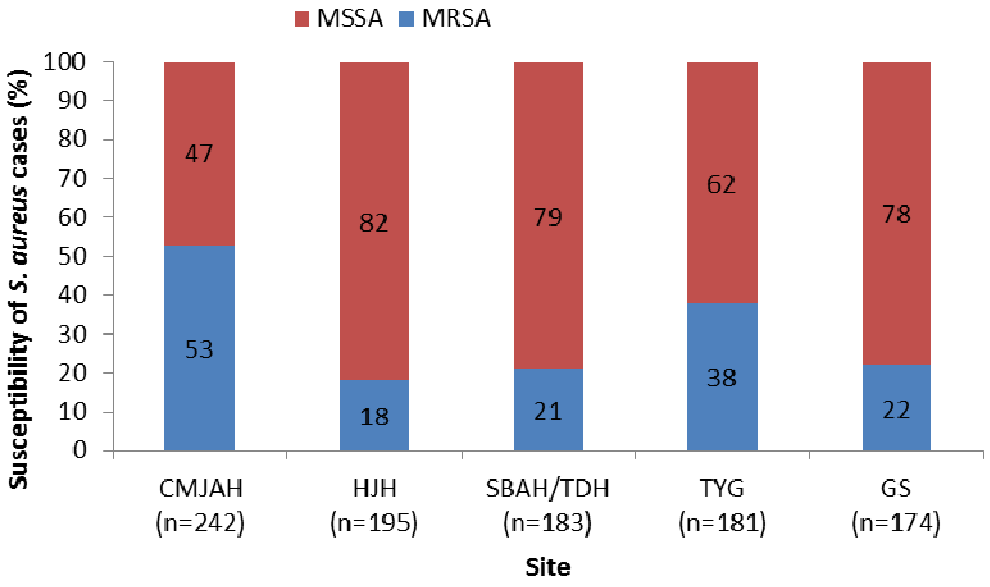
Reporting period 01/09/2012 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 14. Antibiotic susceptibility profile of *S. aureus* isolates by percentage and site from September 2012 to February 2015

Antibiotic	CMJAH (%)	HJH (%)	SBAH (%)	GSH (%)	TYG (%)	Total (%)
Amikacin	43	56	58	99	88	67
Cefoxitin	80	89	89	100	100	91
Clindamycin	47	83	78	83	64	70
Ciprofloxacin	48	80	79	83	64	69
Erythromycin	43	81	73	83	65	68
Gentamycin	48	81	80	83	76	72
Linezolid	100	100	100	100	99	100
Oxacillin	47	82	79	78	62	68
Rifampicin	93	85	90	87	94	90
Cotrimoxazole	51	77	83	89	81	74
Teicoplanin	99	99	99	100	99	99
Vancomycin	99	99	99	99	99	99

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

Figure 15. *S. aureus* bacteremia isolates by oxacillin susceptibility and site from September 2012 to February 2015



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 District Hospital, GSH: Groote Schuur Hospital, TYG: Tygerberg Hospital

Laboratory-Based Nosocomial Disease Surveillance - ESKAPE

Reporting period 01/01/2014 to 30/11/2014 *Results until end of epidemiologic week 48 (2014)*

Programme Description:

The Centre for Opportunistic, Tropical and Hospital Infections is involved in antimicrobial resistance surveillance amongst hospital-associated infections 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 de-duplicate 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. Six monthly reports will be generated to reflect overall antimicrobial susceptibility patterns per organism and trend of resistance. Due to limited space, hospital-level antibiotic susceptibility data are not included in this report but are available if required.

Comments:

For the 11-month reporting period we reported the most common organisms and their antimicrobial susceptibility; amongst them *K. pneumoniae* was the commonest organism (total of 2369 cases) followed by *S. aureus* (total of 2154 cases).

S. aureus was resistant to oxacillin in 722 (33%) of 2178 isolates. Amongst all isolates, 0.4% was recorded as non-susceptible to vancomycin (no confirmation) and to linezolid, respectively.

Susceptibility testing showed 98% of *E. faecalis* and 96% of *E. faecium* cases were susceptible to vancomycin.

P. aeruginosa showed susceptibility to piperacillin-tazobactam (65%) and high susceptibility to colistin (98%).

K. pneumoniae cases revealed a high rate of ESBL (69%) and retained susceptibility to carbapenems, except 5% consumed non-susceptibility for ertapenem.

Acinetobacter baumannii isolates were highly resistant to most of the antimicrobial agents tested and indicated 5% resistance to colistin.

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

ESKAPE surveillance

Reporting period 01/01/2014 to 30/11/2014 *Results until end of epidemiologic week 48 (2014)*

Table 6. Number of ESKAPE cases per month from January to November 2014

Month	*A. baumannii* complex	*E. Cloacae* complex	*E. coli*	*E. faecalis*	*E. faecium*	*K. pneumoniae*	*P. aeruginosa*	*S. aureus*
	No of cases							
Jan	130	73	189	67	59	317	48	203
Feb	120	54	148	71	44	251	48	158
Mar	137	70	189	71	58	270	61	225
Apr	147	69	154	74	59	257	52	198
May	96	51	154	69	63	188	45	221
Jun	86	55	127	68	81	182	59	167
Jul	128	42	151	71	65	169	51	196
Aug	138	24	118	62	74	180	39	219
Sep	112	34	127	56	74	190	45	221
Oct	114	55	140	45	79	199	41	196
Nov	73	52	106	57	64	166	38	150
Total	**1281**	**579**	**1603**	**711**	**720**	**2369**	**527**	**2154**

Figure 16. Antimicrobial susceptibility of Gram-positive ESKAPE organisms

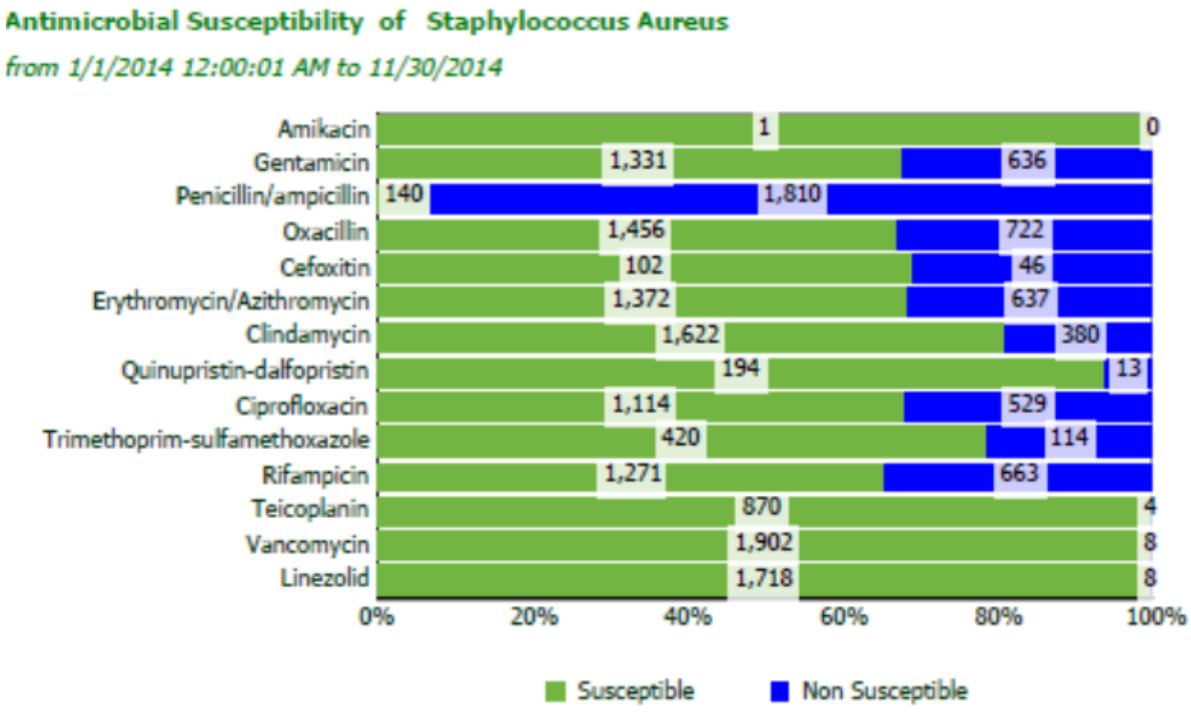


Figure 16 cont. Antimicrobial susceptibility of Gram-positive ESKAPE organisms

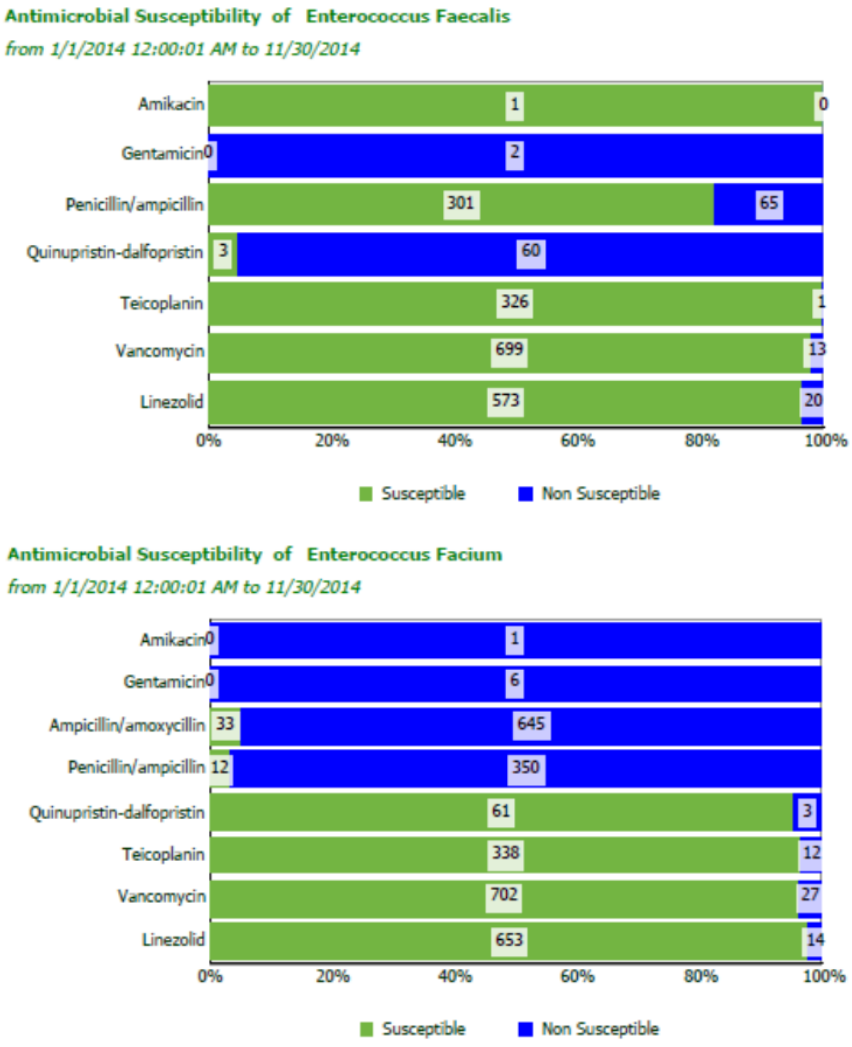
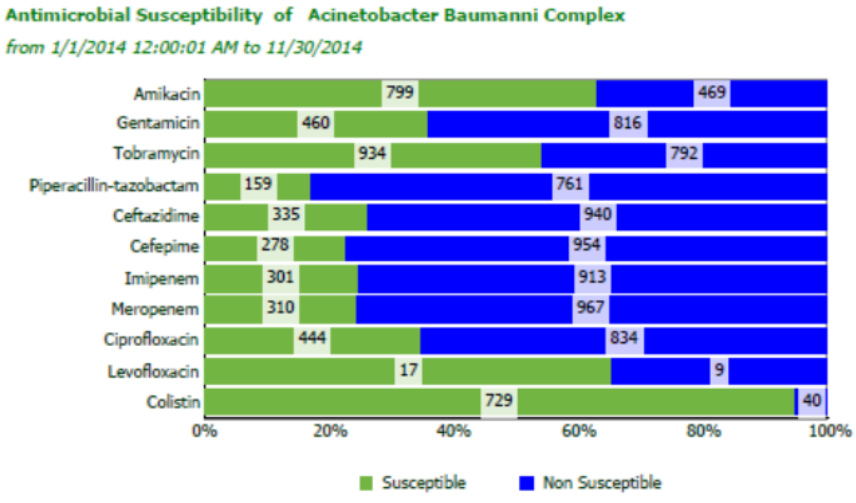


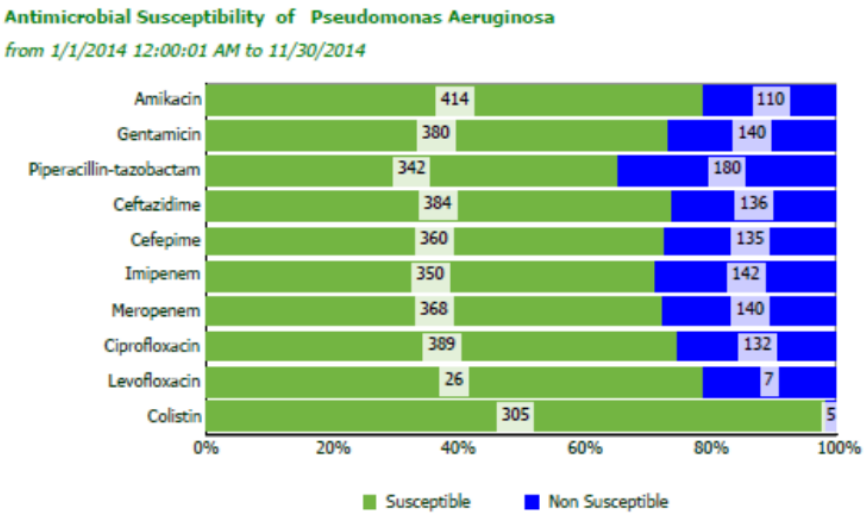
Figure 17. Antimicrobial susceptibility of Gram-negative ESKAPE organisms

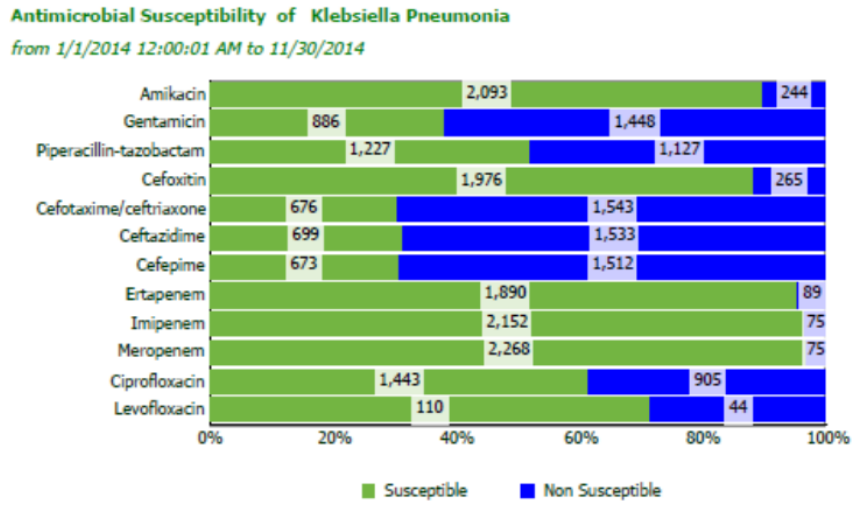


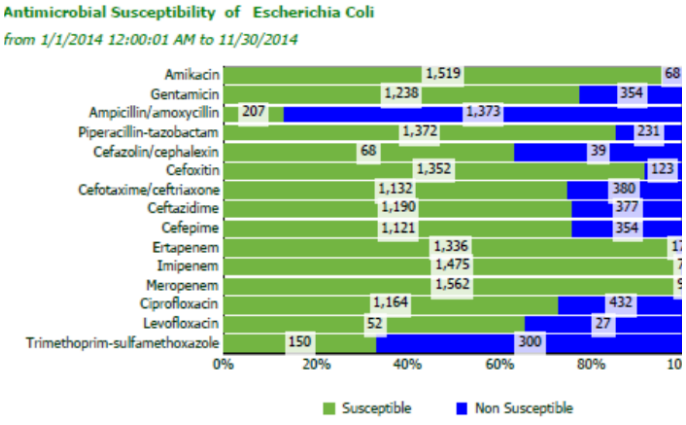
ESKAPE surveillance

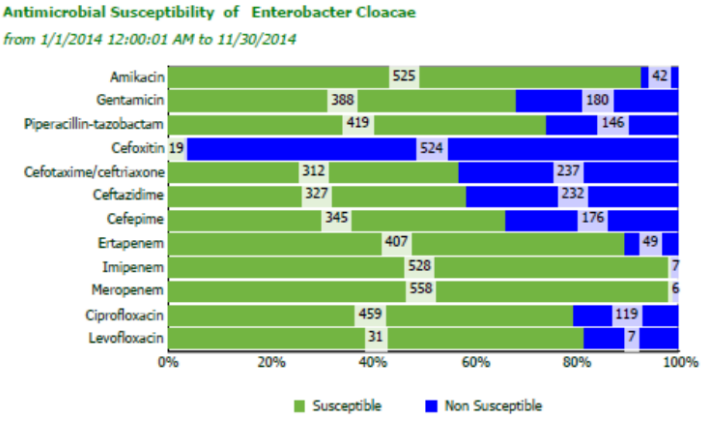
Reporting period 01/01/2014 to 30/11/2014 *Results until end of epidemiologic week 48 (2014)*

Figure 17 cont. 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 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

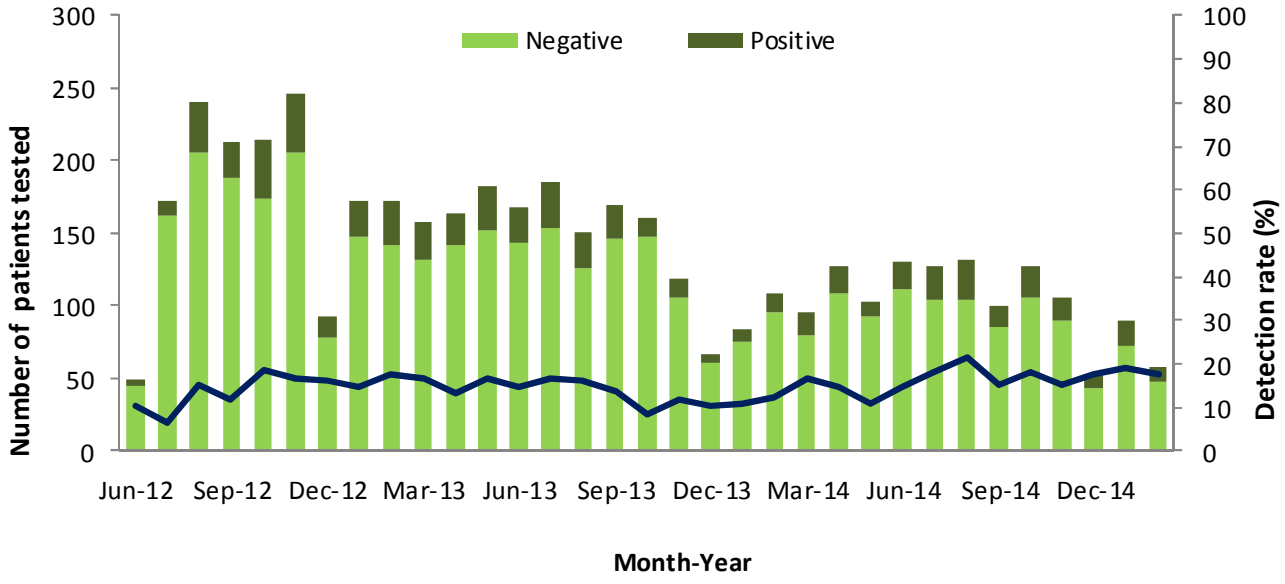
Programme Description:

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:

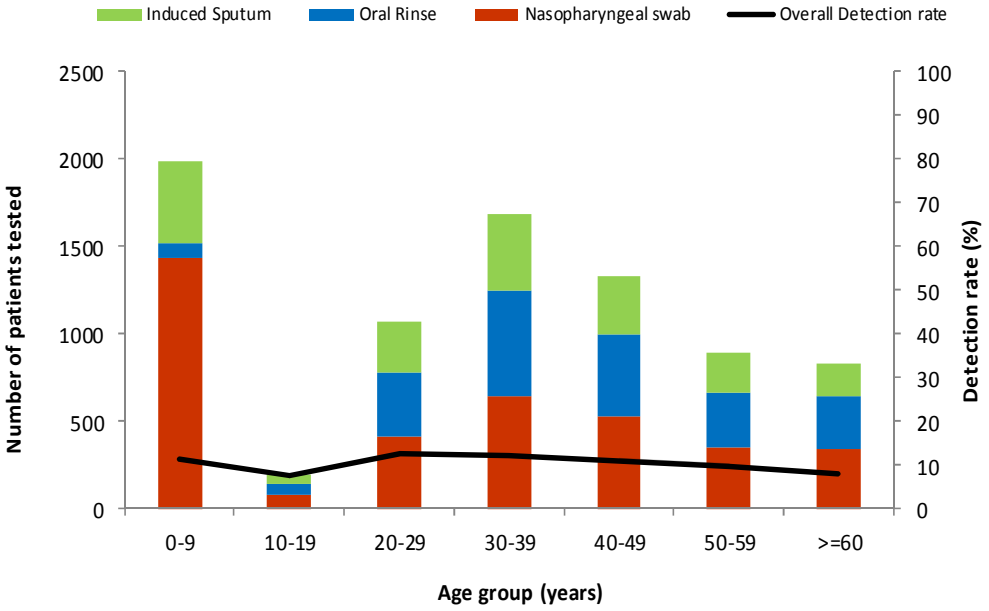
During the reporting period, 8891 specimens from 4535 patients were tested for *P. jirovecii*. The overall detection rate was 15% (671/4535). The detection rate is between 7-18%; the detection rate observed in February 2015 may be due to delayed data reporting. Nasopharyngeal specimens accounted for almost half of all specimens taken (4156/8891, 47%). More than one-third of *P. jirovecii* cases were 0-9 years old (1688/4527, 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 February 2015 (n=4535)



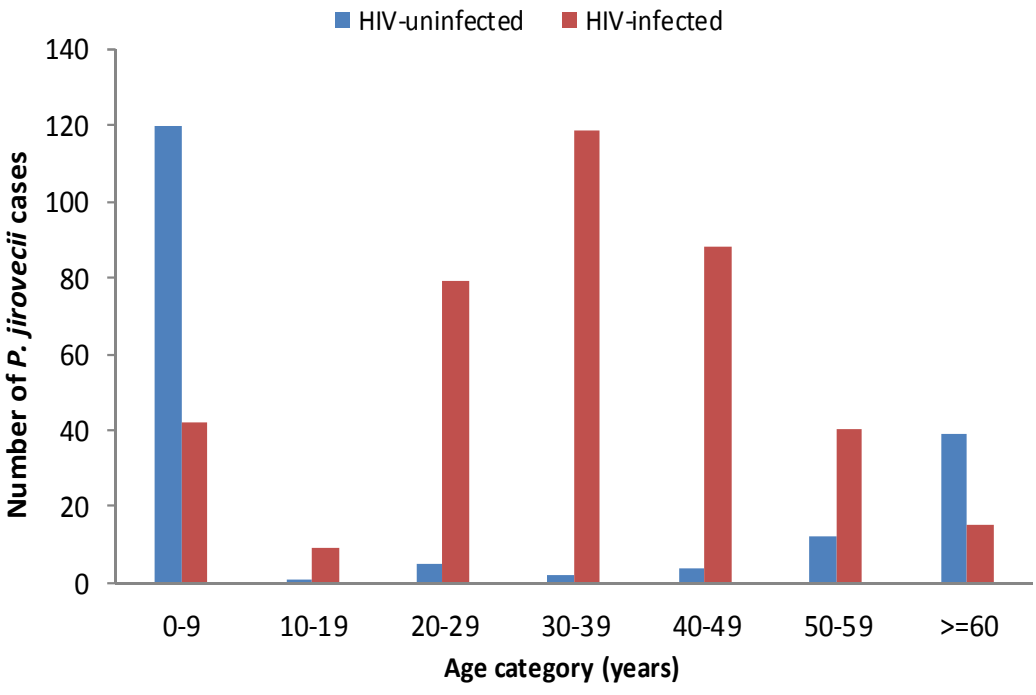
Reporting period 01/06/2012 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 19. Number of patients tested for *P. jirovecii* by age category and specimen type and the overall detection rate* from June 2012 to February 2015



*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 February 2015 (N=575)



Laboratory-Based Respiratory and Meningeal Disease Surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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:

By week 9 in 2015, 11 meningococcal cases had been reported to the NICD. Serogrouping results to date include 2 W. Most of the cases occurred in children aged <10 years. For the same period last year, a total of 26 cases had been reported.

Twenty-five cases of *H. influenzae* have been reported to date in 2015. No serotyping results are yet available. Most cases occur in individuals aged <10 years. For the same period last year, a total of 69 cases had been reported.

To date this year, 189 pneumococcal cases have been reported, compared to 318 cases reported for the same period last year. Most cases occur in children aged <5 years and adults aged 35-39 years.

Reductions of cases reported in 2015 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 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 21. Number of *Neisseria meningitidis* cases by month in South Africa, 2014 and 2015

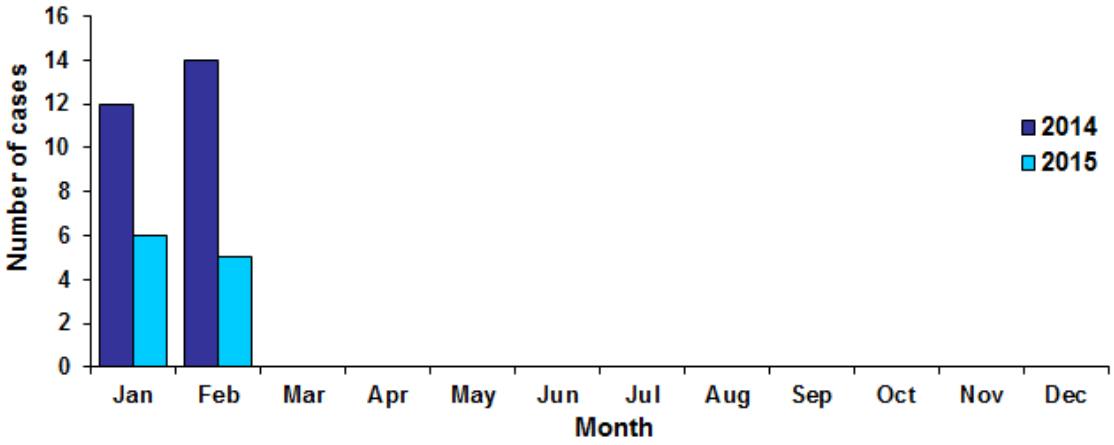


Figure 22. Number of *Neisseria meningitidis* cases by age group in South Africa, 2014 and 2015

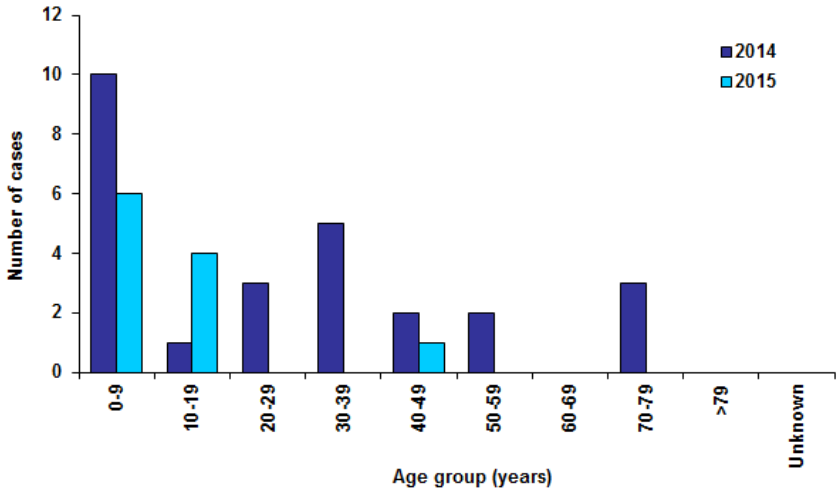
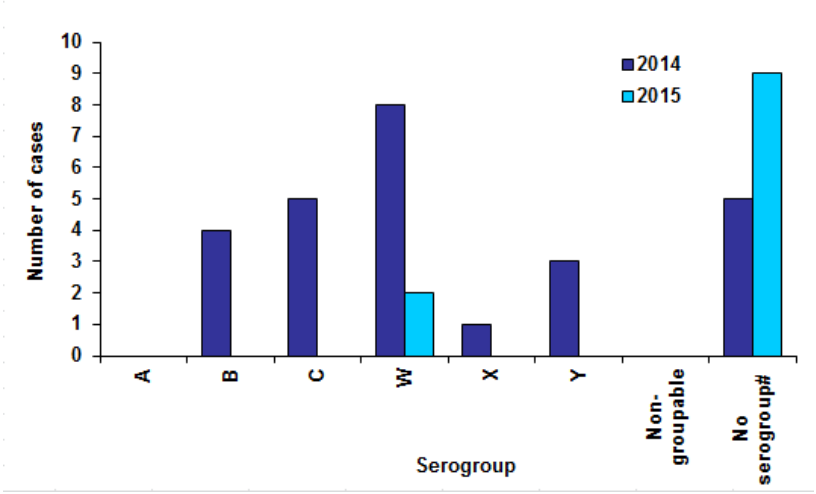


Figure 23. Number of *Neisseria meningitidis* cases by serogroup in South Africa, 2014 and 2015



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

Haemophilus influenzae surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 24. Number of *Haemophilus influenzae* cases by month in South Africa, 2014 and 2015

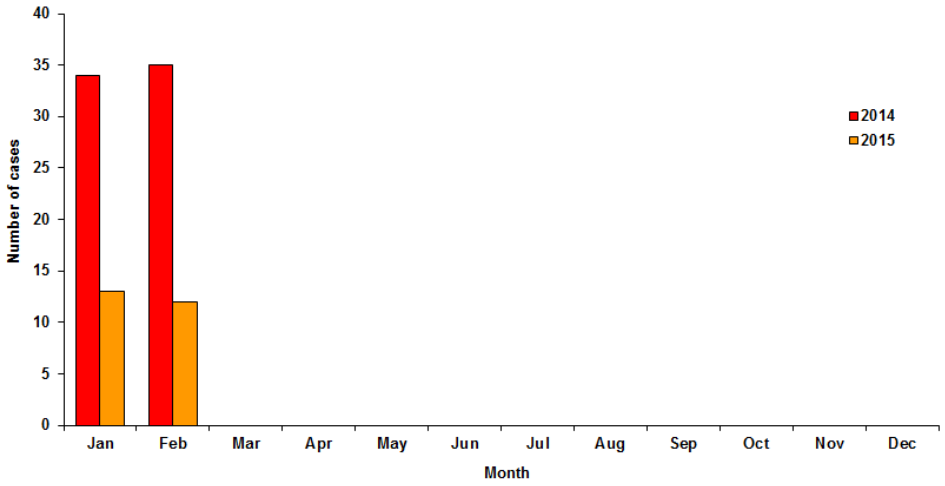


Figure 25. Number of *Haemophilus influenzae* cases by age group in South Africa, 2014 and 2015

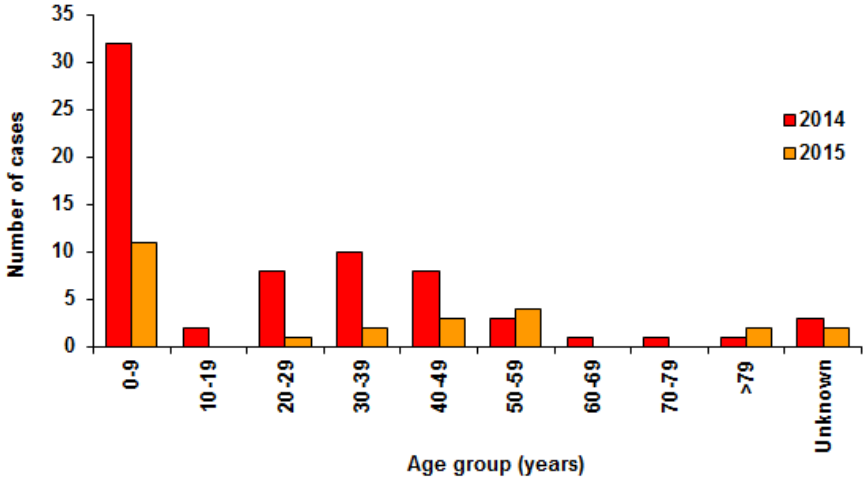
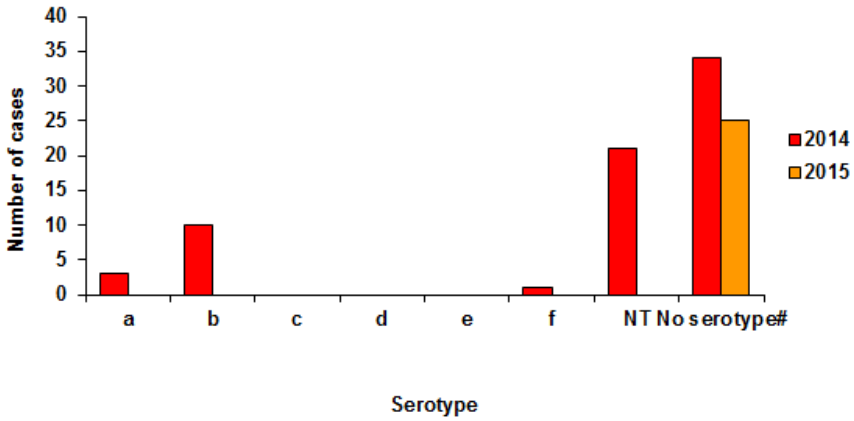


Figure 26. Number of *Haemophilus influenzae* cases by serotype in South Africa, 2014 and 2015



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

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 27. Number of *Streptococcus pneumoniae* cases by week in South Africa, 2014 and 2015

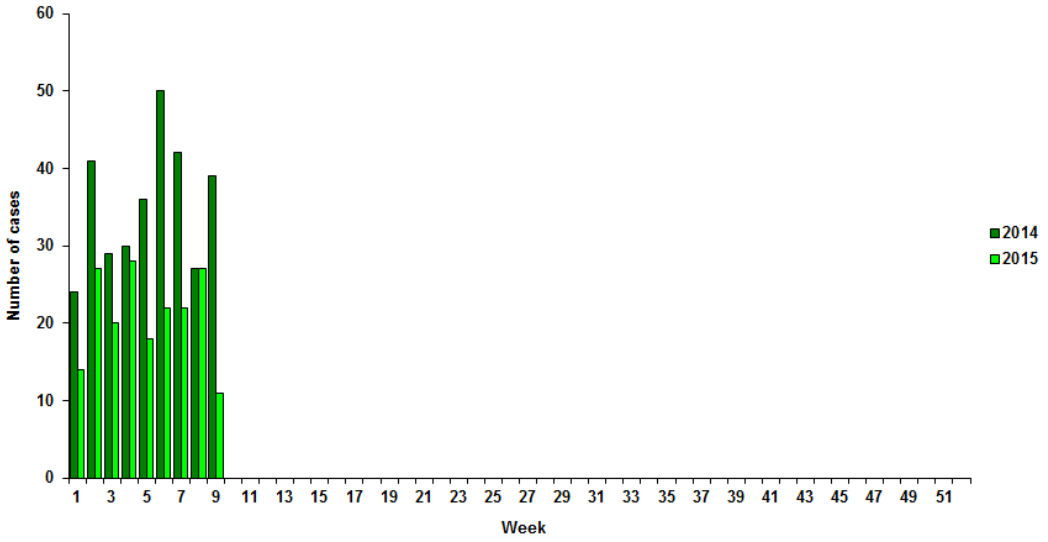


Figure 28. Number of *Streptococcus pneumoniae* cases by age group in South Africa, 2014 and 2015

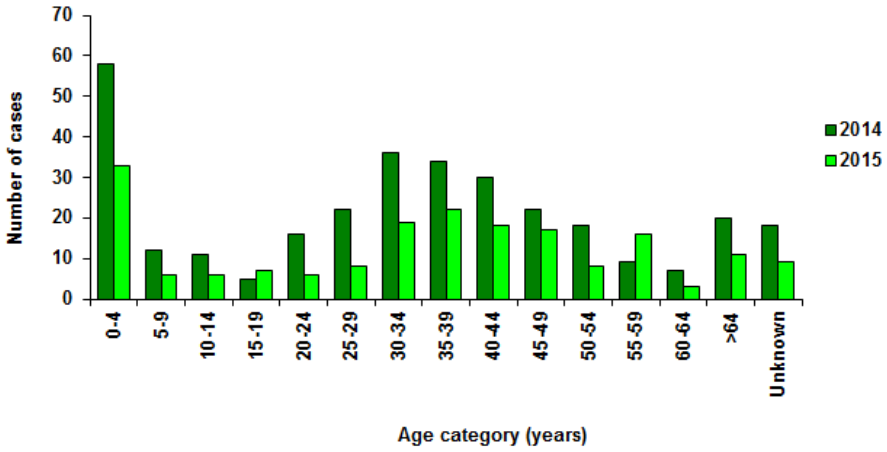
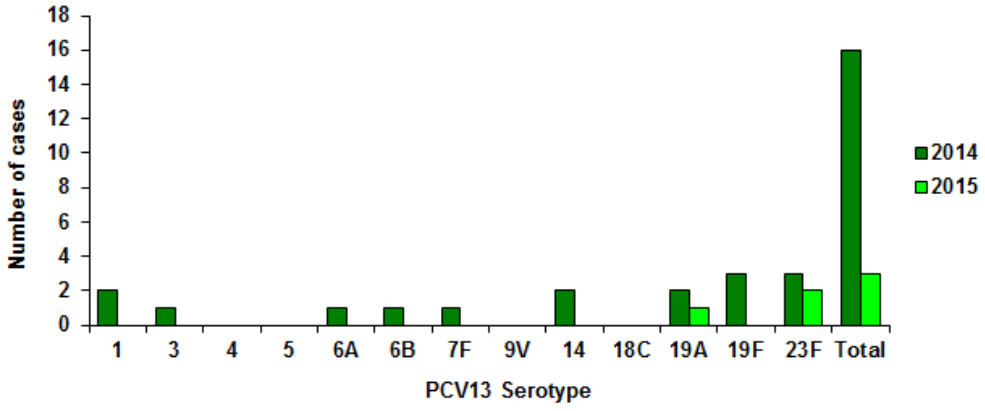


Figure 29. Number of *Streptococcus pneumoniae* cases by 13-valent pneumococcal conjugate vaccine (PCV13) serotype in children <5 years in South Africa, 2014 and 2015



Syndromic Respiratory Disease Surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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 2014 influenza season the predominant circulating influenza subtype was influenza A(H3N2). The season started in week 21 (ending 25 May), peaked in week 27 (ending 6 July) and ended in week 37 (ending 14 September).

ILI programme: In the first nine weeks of 2014, 126 specimens were received from 2 ILI sites. Influenza has not been detected in any of these specimens.
VW programme: During the same period, 28 specimens were received from VW sites. Influenza A untyped as yet was detected in one patient and influenza A(H3N2) in two patients, all of whom had travelled in Europe.
SARI programme: In this time period, 380 patients with SARI were tested at the 4 sentinel sites. Influenza B was detected in two of these specimens. In addition, 152 other respiratory viruses were detected in the specimens of 143 patients, rhinovirus (96) accounted for the majority followed by parainfluenza 1-3 (13), and RSV (10).

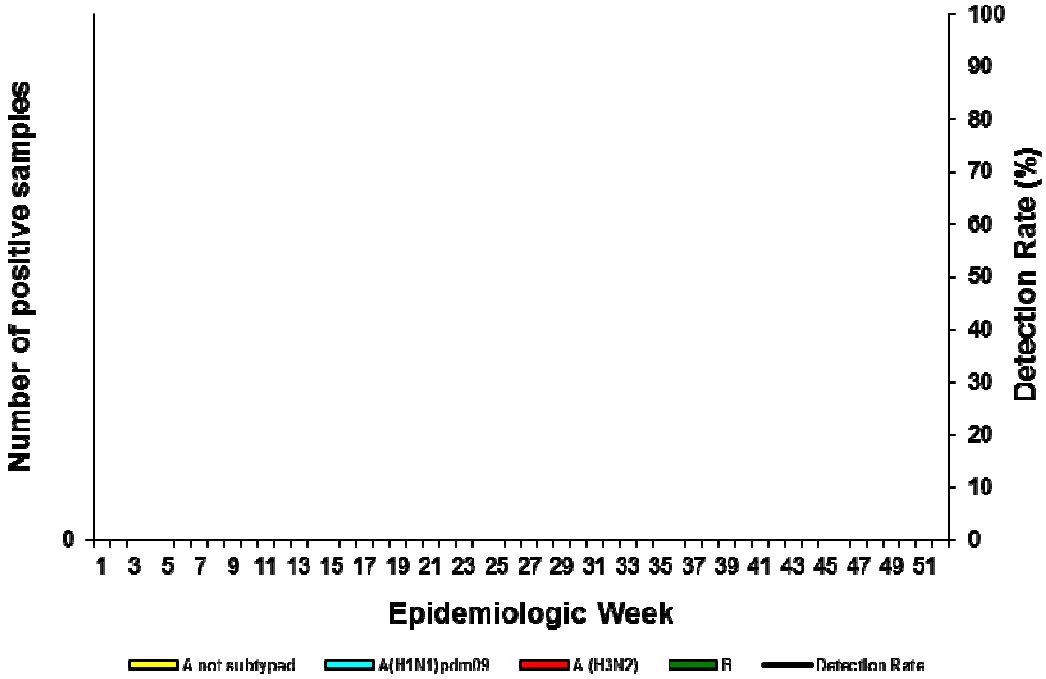
There are a number of specimens collected during week 9 awaiting results.

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 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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



*

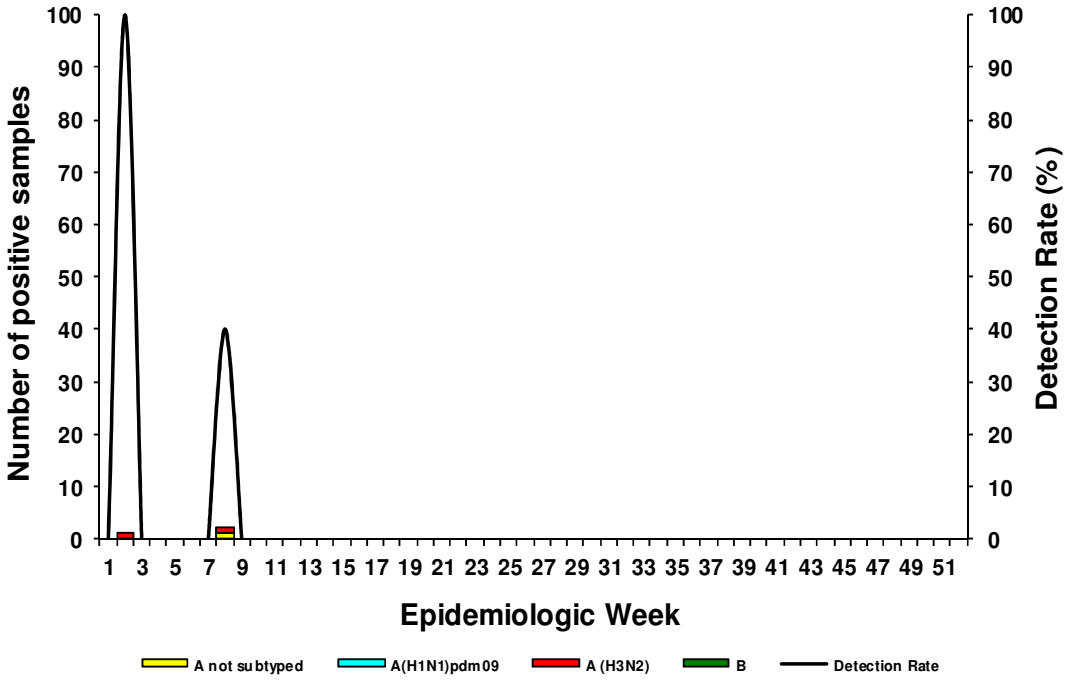
Table 7. Cumulative number of influenza type and subtype and total number of samples collected by province

Clinic	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Edendale Gateway Clinic (KZ)	0	0	0	0	92
Jouberton Clinic (NW)	0	0	0	0	34
Total:	**0**	**0**	**0**	**0**	**126**

KZ: KwaZulu-Natal; NW: North West Province

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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.

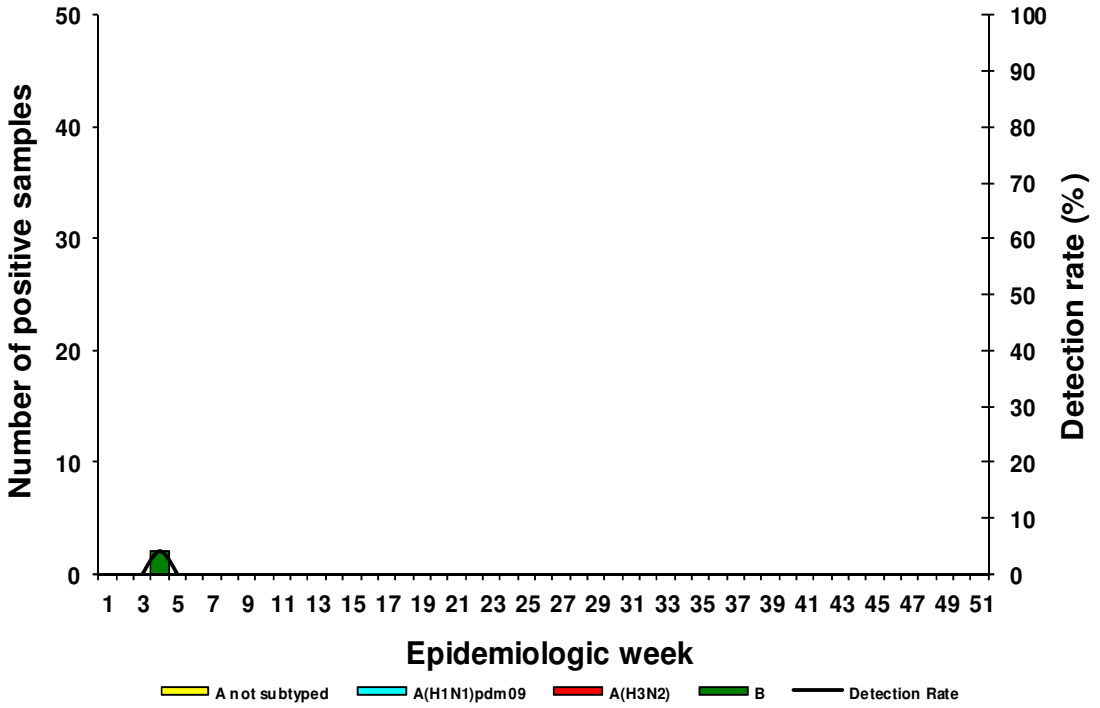
Table 8. Cumulative number of influenza type and subtype and total number of samples collected by province

Province	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Eastern Cape					1
Free State					
Gauteng	1		2		17
KwaZulu-Natal					
Limpopo					
Mpumalanga					2
Northern Cape					
North West					
Western Cape					8
Total:	1	0	2	0	28

To date in 2015, 12 patients have been tested for influenza at the time of entry into South Africa following travel abroad and 5 have tested influenza positive.

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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 5 sentinel sites in 4 provinces

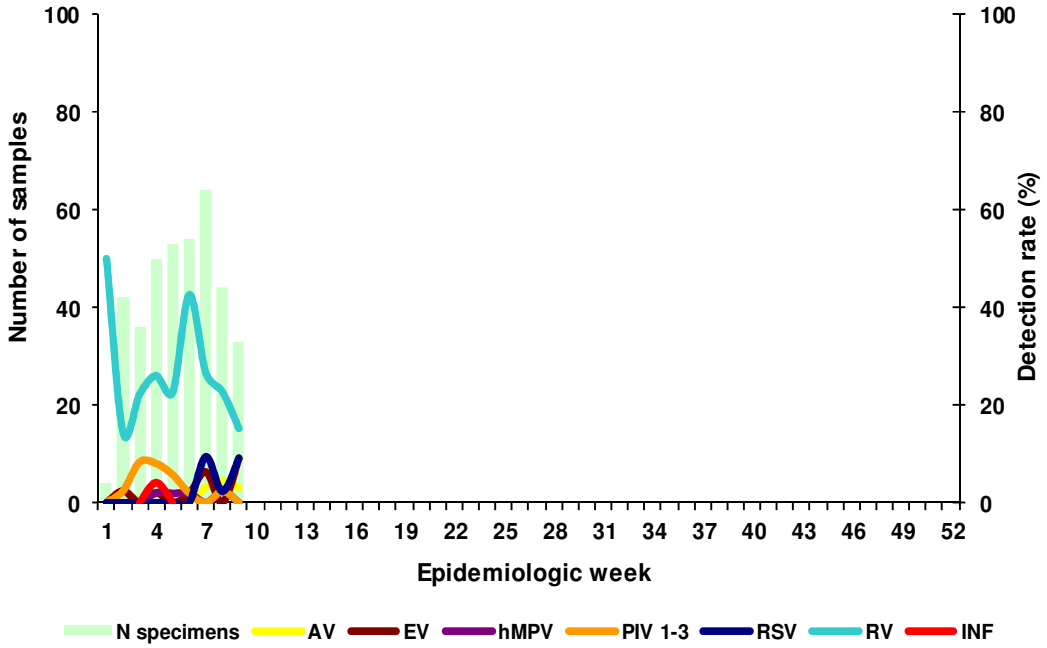
Table 9. Cumulative number of identified influenza types and subtypes and total number of samples collected by hospital

Hospital	A not subtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Edendale (KZ)	0	0	0	0	63
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	187
Klerksdorp-Tshepong (NW)	0	0	0	2	104
Mapulaneng (MP)	0	0	0	0	26
Matikwane (MP)	0	0	0	0	0
Total:	**0**	**0**	**0**	**2**	**380**

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

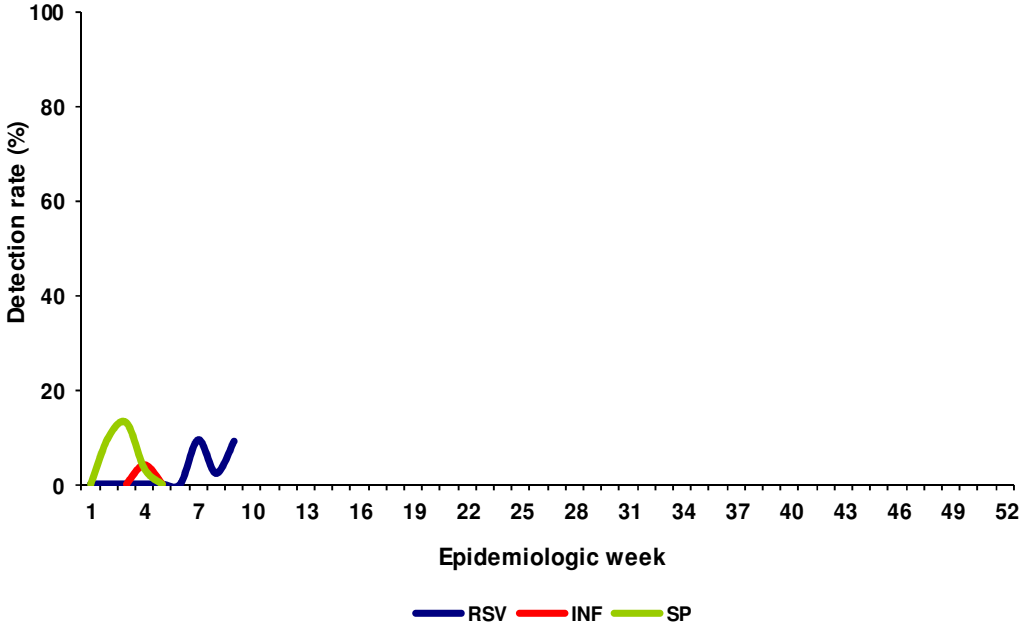
Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

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

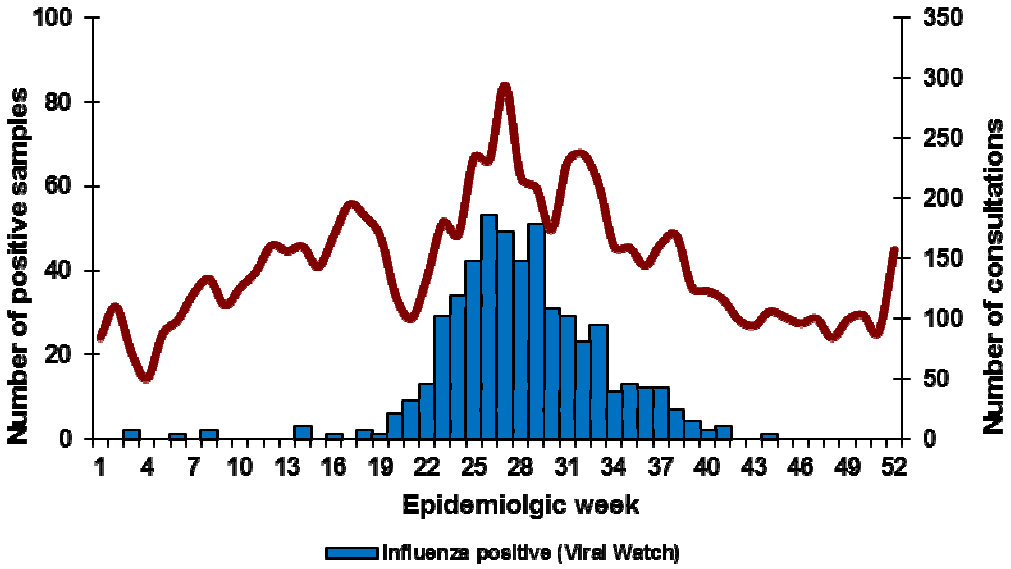
Figure 37. Detection rate for influenza (INF), respiratory syncytial virus (RSV) and pneumococcus (SP) by week



Private hospital consultations

Reporting period 01/01/2014 to 31/12/2014 *Results until end of epidemiologic week 52 (2014)*

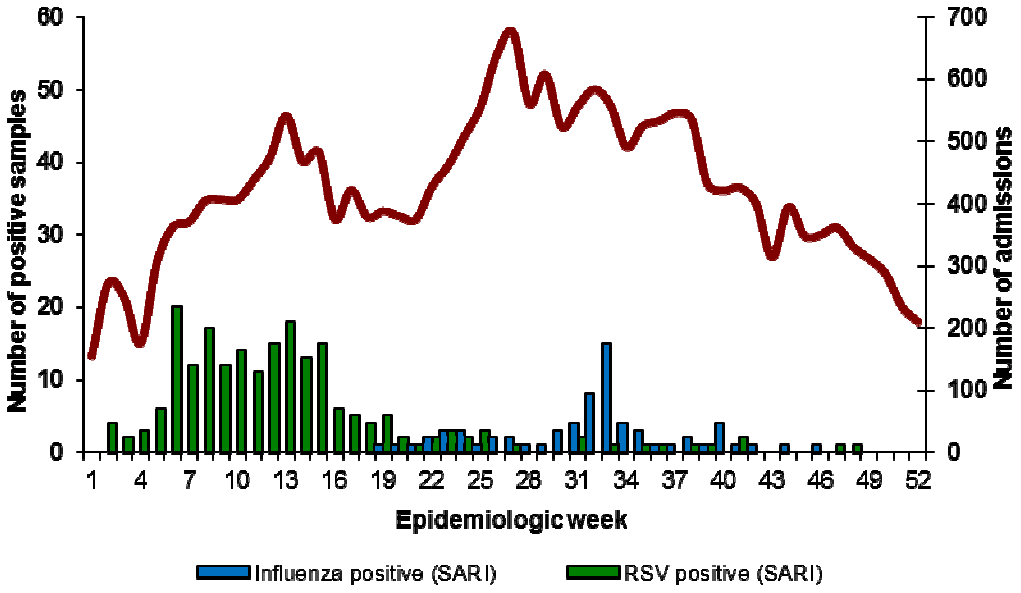
Figure 34. Number of private hospital outpatient consultations* with a discharge diagnosis of pneumonia and influenza (P&I) and viral isolates**



* 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 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Programme Description:

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.

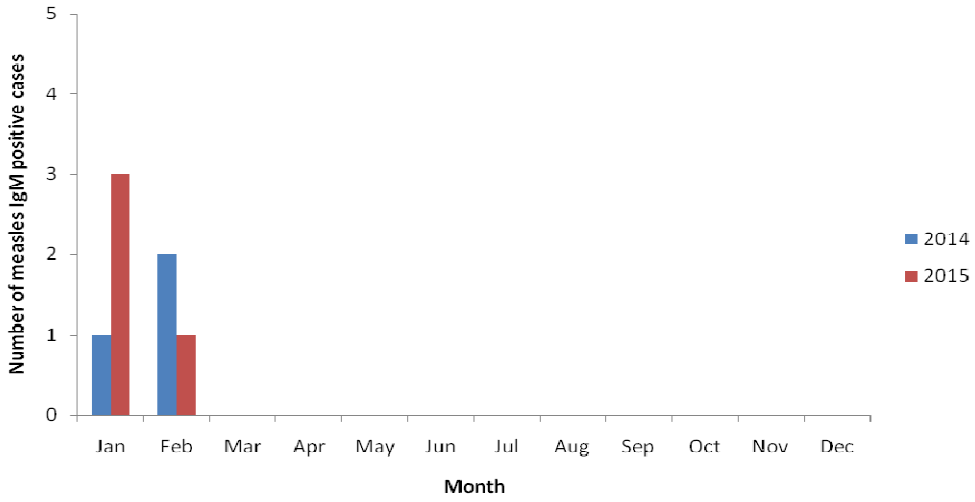
Comments:

For the period 29 December 2014 to 27 February 2015 (week 9), four laboratory-confirmed measles IgM positive cases were detected through measles surveillance, 3 from Northern Cape Province and 1 from North West Province. Three confirmed cases were part of the measles outbreak in ZF Mgcawu district in Northern Cape Province, which affected mostly children below 9 months of age and adults. There has been a reduction in incidence of new measles cases from ZF Mgcawu district following a vaccination campaign there. No measles IgM laboratory confirmed cases have been reported from Northern Cape Province to the measles testing laboratory at NICD since 26 January 2015.

Table 12. Number of laboratory-confirmed cases per province, South Africa, 2015

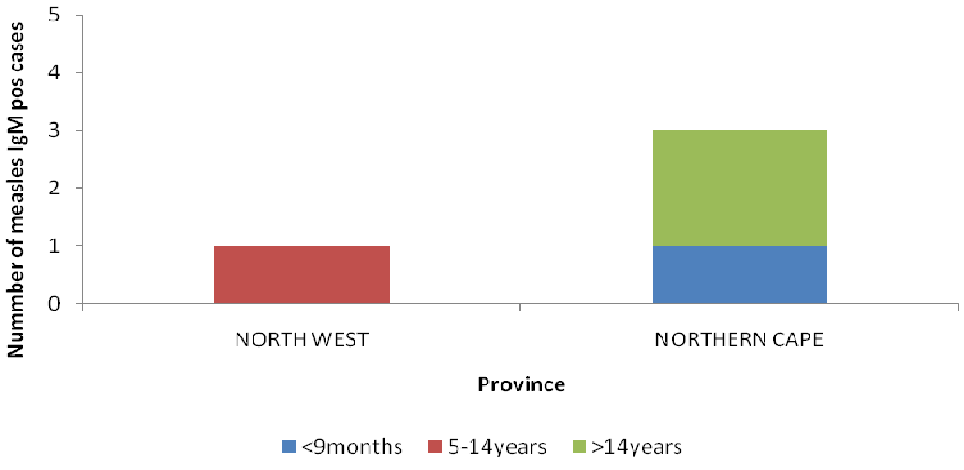
Province	Measles IgM Positive
Eastern Cape	0
Free State	0
Gauteng	0
KwaZulu-Natal	0
Limpopo	0
Mpumalanga	0
Northern Cape	3
North West	1
Western Cape	0
South Africa	**4**

Figure 36. Number* of laboratory-confirmed measles cases by month of specimen collection, South Africa, 2014 and 2015



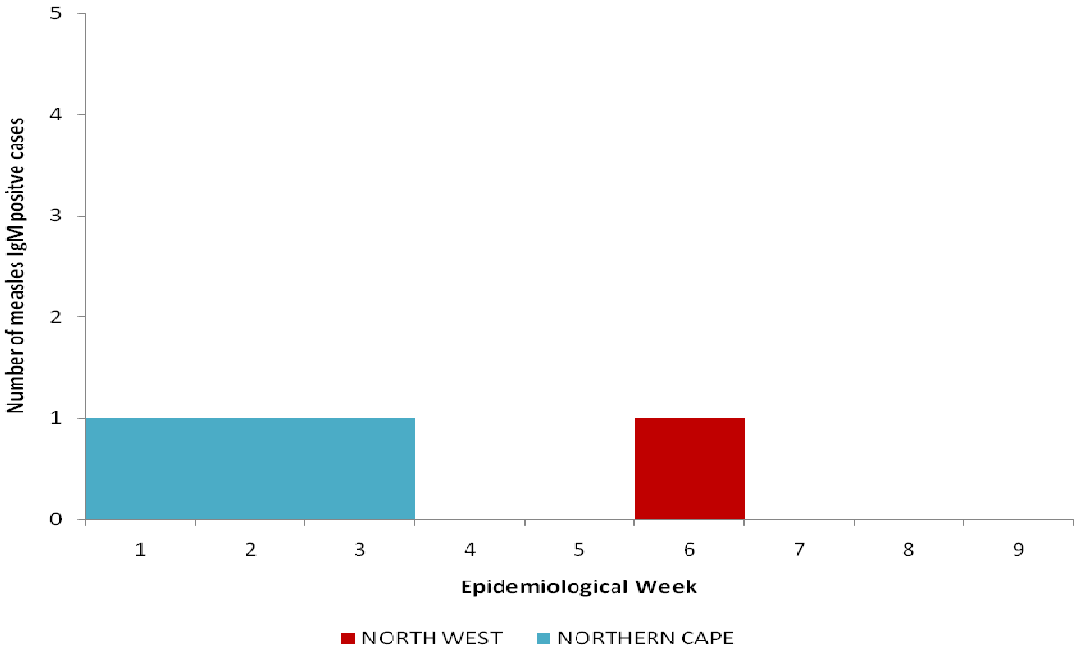
*Includes measles cases from Northern Cape Province outbreak which started in September 2014. Only measles cases with date of onset in 2015 were included for comparison.

Figure 37. Number of measles cases by province and age group in South Africa, 2015



Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Figure 38. Number of laboratory-confirmed measles cases by epidemiological week of specimen collection, South Africa, 2015



Polio/ Acute Flaccid Paralysis (AFP) Surveillance

Reporting period 01/01/2015 to 28/02/2015 *Results until end of epidemiologic week 9 (2015)*

Programme Description:

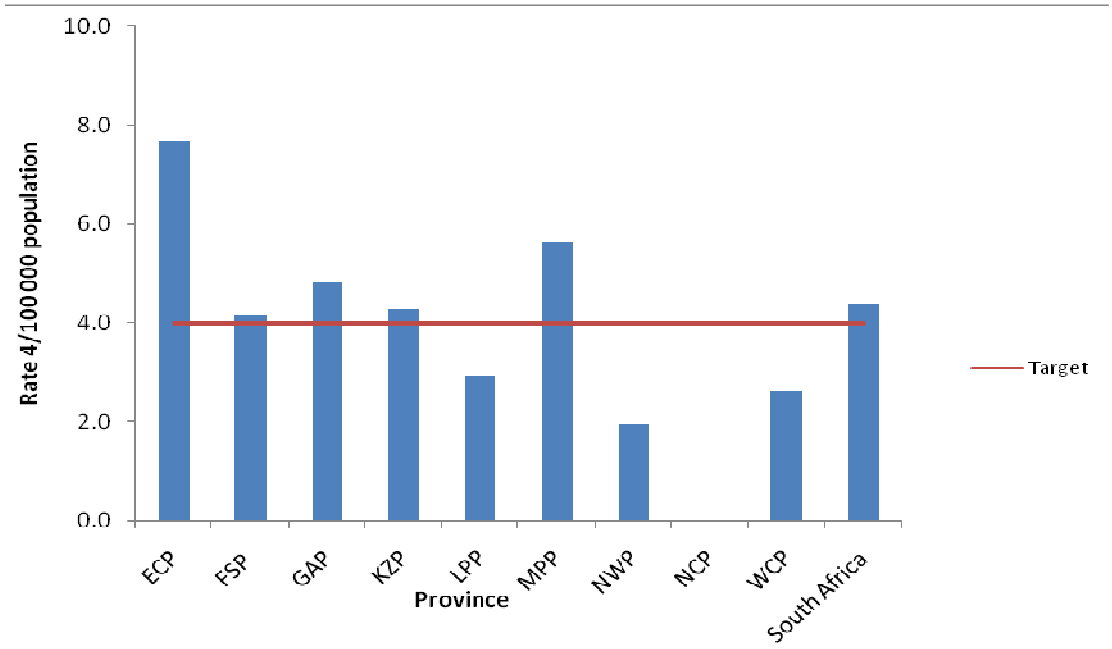
Data presented in this report are generated from the AFP surveillance database and represent specimens received at the National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS). These figures may differ from those presented by the National Department of Health who may receive information on cases from whom no specimen was 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 in good condition and sufficient quantity collected at least 24 -48 hours apart within 14 days of the onset of paralysis.

Comments:

From 29 December 2014 to 28 February 2015 (epidemiological week 9 of 2015), 167 specimens were received from AFP surveillance in South Africa. Sixty-seven AFP cases were detected with date of onset of paralysis in 2015. Of the 67 AFP cases with date of onset in 2015, 65 were <15 years old corresponding to an annualised Non-Polio AFP detection rate of 1.5 per 100 000: range 0 to 7.7 (Fig 39). The overall AFP surveillance detection rate was 4.4 per 100 000, which is above the new target rate of 4 per 100 000 population under the age of 15 years. There are silent districts with no AFP case detection. These districts need support to intensify AFP surveillance so that they do not miss AFP cases used as a proxy for polio cases surveillance.

Ninety-nine percent (99%) of the specimens were received in good condition, while 62% 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 7% (Table 14).

Figure 39. Annualised Non-Polio AFP detection rate by province, South Africa, 2015



*Target for detection rate is 4/100,000 population

Table 14. Acute Flaccid Paralysis (AFP) surveillance, laboratory performance indicators, South Africa, 2015*

Laboratory indicators	2015*	Target
Specimens received in good condition	99%	90%
Specimens received within 3 days of collection	62%	80%
Specimens resulted within 14 days of receipt	100%	80%
Non-Polio enterovirus isolation rate	7%	10%

* Samples received in 2015 (1 January—28 February)