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Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Programme Descriptions

Programme	Influenza-like illness (ILI)	Viral Watch	National syndromic surveillance for pneumonia	Private hospital consultations
Start year	2012	1984	2009	2002
Provinces*	KZ NW WC**	EC FS GP LP MP NC NW WC	GP KZ MP NW WC	EC FS GP LP MP NW WC
Type of site	Primary health care clinics	General practitioners	Public hospitals	Private hospitals
Case definition	An acute respiratory illness with a temperature ($\geq 38^{\circ}\text{C}$) and cough, & onset ≤ 10 days	An acute respiratory illness with a temperature ($\geq 38^{\circ}\text{C}$) and cough, & onset ≤ 10 days	Acute or chronic lower respiratory tract infection	ICD codes J10-J18
Specimens collected	Oropharyngeal & nasopharyngeal swabs	Throat and/or nasal swabs or Nasopharyngeal swabs	Oropharyngeal & nasopharyngeal swabs	Not applicable
Main pathogens tested***	INF RSV BP	INF RSV BP	INF RSV BP	Not applicable

Epidemic Threshold

Thresholds are calculated using the Moving Epidemic Method (MEM), a sequential analysis using the R Language, available from: <http://CRAN.R-project.org/web/package=mem>) designed to calculate the duration, start and end of the annual influenza epidemic. MEM uses the 40th, 90th and 97.5th percentiles established from available years of historical data to calculate thresholds of activity. Thresholds of activity for influenza and RSV are defined as follows: Below seasonal threshold, Low activity, Moderate activity, High activity, Very high activity. For influenza, thresholds from outpatient influenza like illness (Viral Watch Programme) are used as an indicator of disease transmission in the community and thresholds from pneumonia surveillance are used as an indicator of impact of disease.

* EC: Eastern Cape; FS: Free State; GP: Gauteng; KZ: KwaZulu-Natal; LP: Limpopo; MP: Mpumalanga; NC: Northern Cape; NW: North West; WC: Western Cape

**Started in 2019

***INF: influenza virus; RSV: respiratory syncytial virus; BP: *Bordetella pertussis*

Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

Comments:

Influenza

The 2019 season started in week 16 (week ending 21 April) when influenza detection in the Viral Watch programme rose above the seasonal threshold, as determined by the Moving Epidemic Method. A sustained decline in influenza detection rate since week 25 (week ending 23 June) was noticed until week 29 when the detection rate rose again to form a second peak in week 31. Influenza transmission is currently below threshold and impact is low.

ILI programme: In 2019 to date, specimens from 1279 patients were received from 3 ILI sites. Influenza was detected in 152 specimens, 23 (15%) were identified as influenza A(H1N1)pdm09, 126 (83%) as influenza A(H3N2) and three (2%) A subtype inconclusive.

Viral Watch programme: During the same period, specimens were received from 1257 patients from Viral Watch sites in 7 provinces. Influenza was detected in 771 patients, of which 43 (6%) were influenza A(H1N1)pdm09, 712 (92%) influenza A(H3N2), 14 (2%) A subtype inconclusive, one (<1%) influenza B(Victoria) and one (<1%) influenza B(Yamagata). From the total of detected influenza we had two dual specimens positive for influenza A(H1N1)pdm09 and A(H3N2) in week25 and one dual positive for influenza A(H3N2) and influenza B(Yamagata) in week27. Of the influenza positive, 19 gave a history of travel to the Northern Hemisphere prior to their illness.

Pneumonia surveillance: Since the beginning of 2019, specimens from 3059 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 210 patients, of which 13 (6%) were influenza A(H1N1)pdm09, 188 (90%) influenza A(H3N2), seven (3%) A subtype inconclusive, one (1%) influenza B(Victoria) and one (1%) influenza B(Yamagata). This includes one dual positive for influenza A(H1N1)pdm09 and A(H3N2) in week21.

Respiratory syncytial virus

The 2019 RSV season which started in week 8 (week starting 18 February) when RSV detections in pneumonia surveillance rose above the seasonal threshold as determined by the Moving Epidemic Method ended in week 25 (week starting 17 June). However, RSV continues to be detected in patients enrolled into the ILI and SRI surveillance programmes.

In 2019 to date, RSV has been detected in the specimens of 142 (11%) patients in the ILI programme, 766 (25%) patients in the pneumonia surveillance programme and in 27 (2%) patients in the Viral Watch programme.

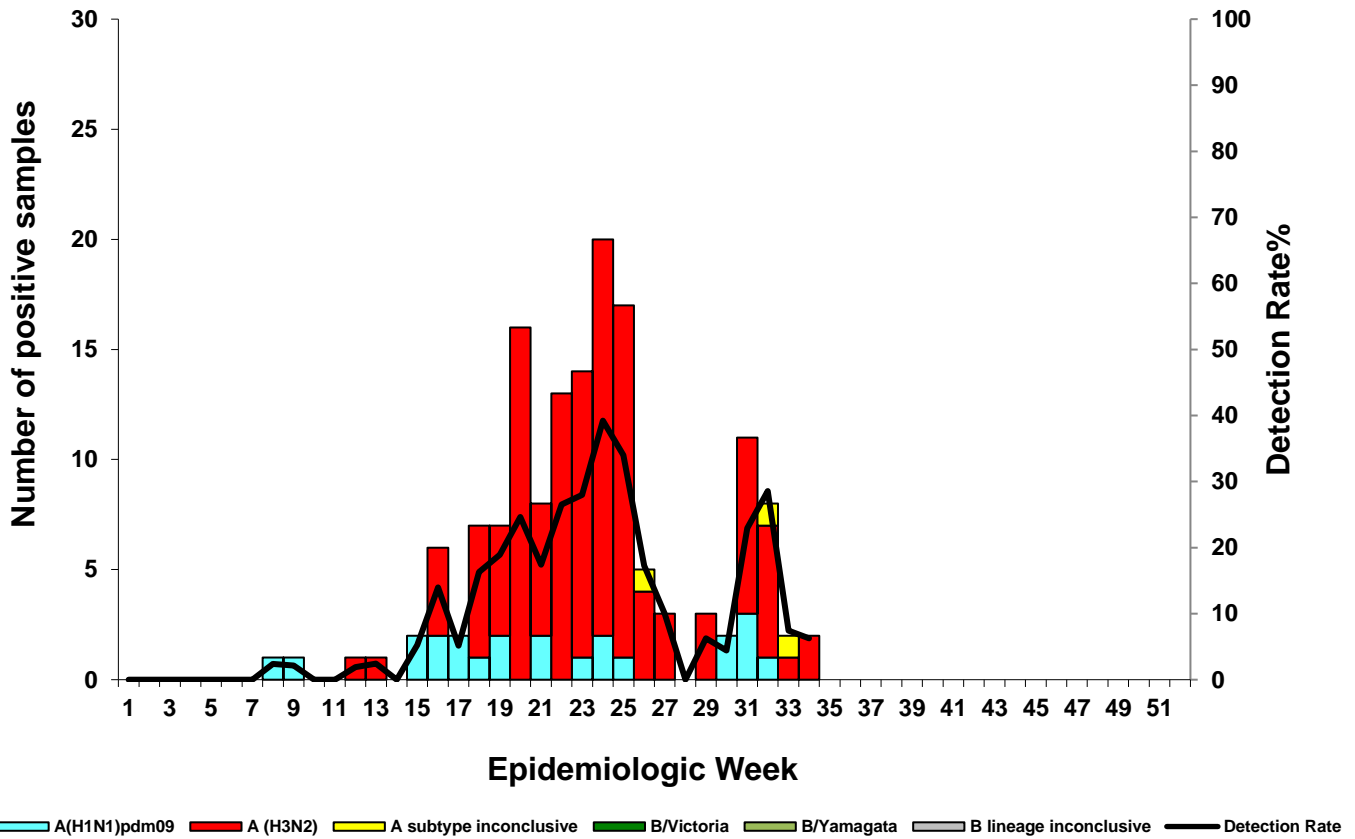
Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

Influenza-like illness (ILI) surveillance primary health care clinics

Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week



*Specimens from patients with influenza-like illnesses at 3 sentinel sites in 3 provinces

**Only reported for weeks with >10 specimens submitted

Inconclusive: insufficient viral load in sample and unable to characterise further

Table 1. Cumulative number of influenza subtype and lineage and total number of samples tested by clinic and province

Clinic (Province)	A(H1N1)pdm09	A(H3N2)	A subtype inconclusive	B/Victoria	B/Yamagata	B lineage inconclusive	Total samples
Eastridge (WC)	16	55	0	0	0	0	668
Edendale Gateway (KZ)	3	22	3	0	0	0	103
Jouberton (NW)	2	44	0	0	0	0	420
Mitchell's Plain (WC)	2	5	0	0	0	0	88
Total:	23	126	3	0	0	0	1279

KZ: KwaZulu-Natal; NW: North West; WCP: Western Cape

Inconclusive: insufficient viral load in sample and unable to characterise further

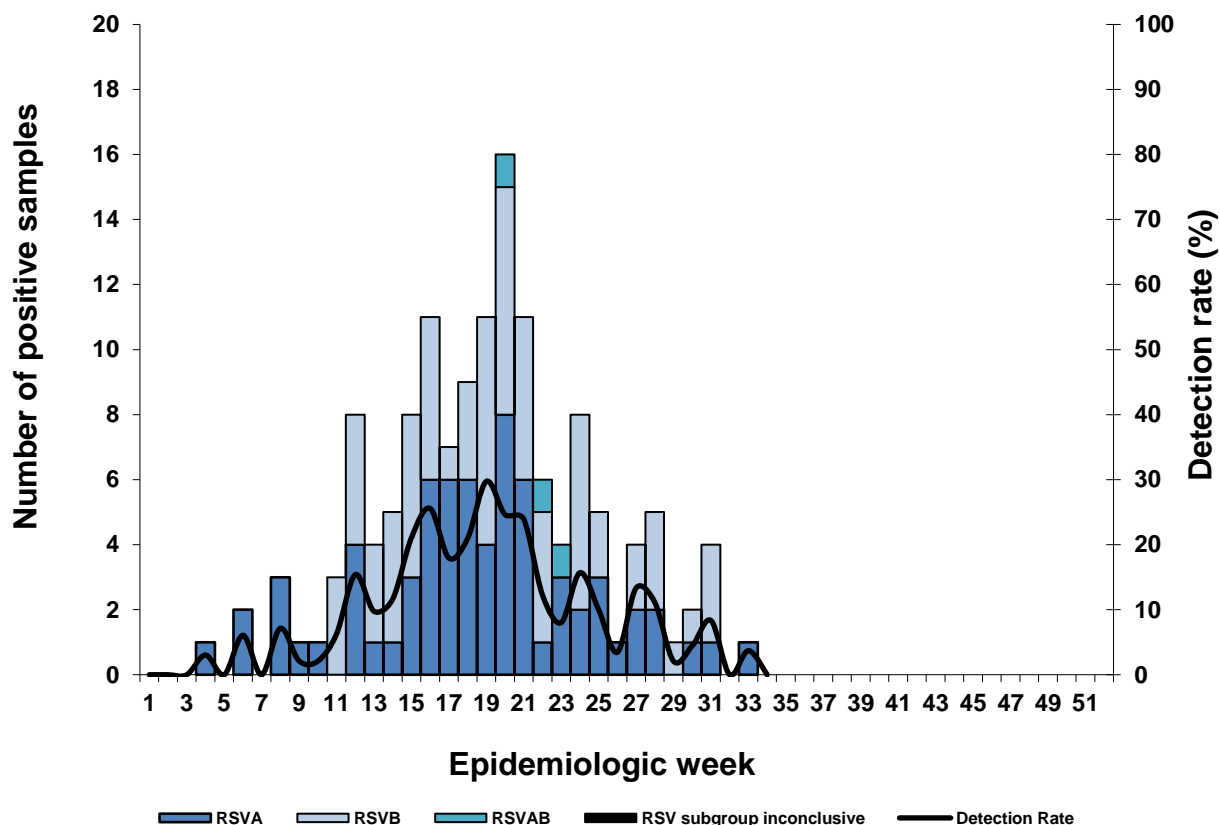
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Influenza-like illness (ILI) surveillance primary health care clinics

Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week



Inconclusive typing: insufficient viral load in sample and unable to characterise further
 RSV AB: Both RSV A and B subgroup identified

Table 2. Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by clinic and province

Clinic (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	Total samples
Eastridge (WC)	28	64	2	0	668
Edendale Gateway (KZ)	5	0	0	0	103
Jouberton (NW)	37	0	1	0	420
Mitchell's Plain (WC)	0	5	0	0	88
Total	70	69	3	0	1279

KZ: KwaZulu-Natal; NW: North West; WC: Western Cape
 Inconclusive: insufficient viral load in sample and unable to characterise further
 RSV AB: Both RSV A and B subgroup identified

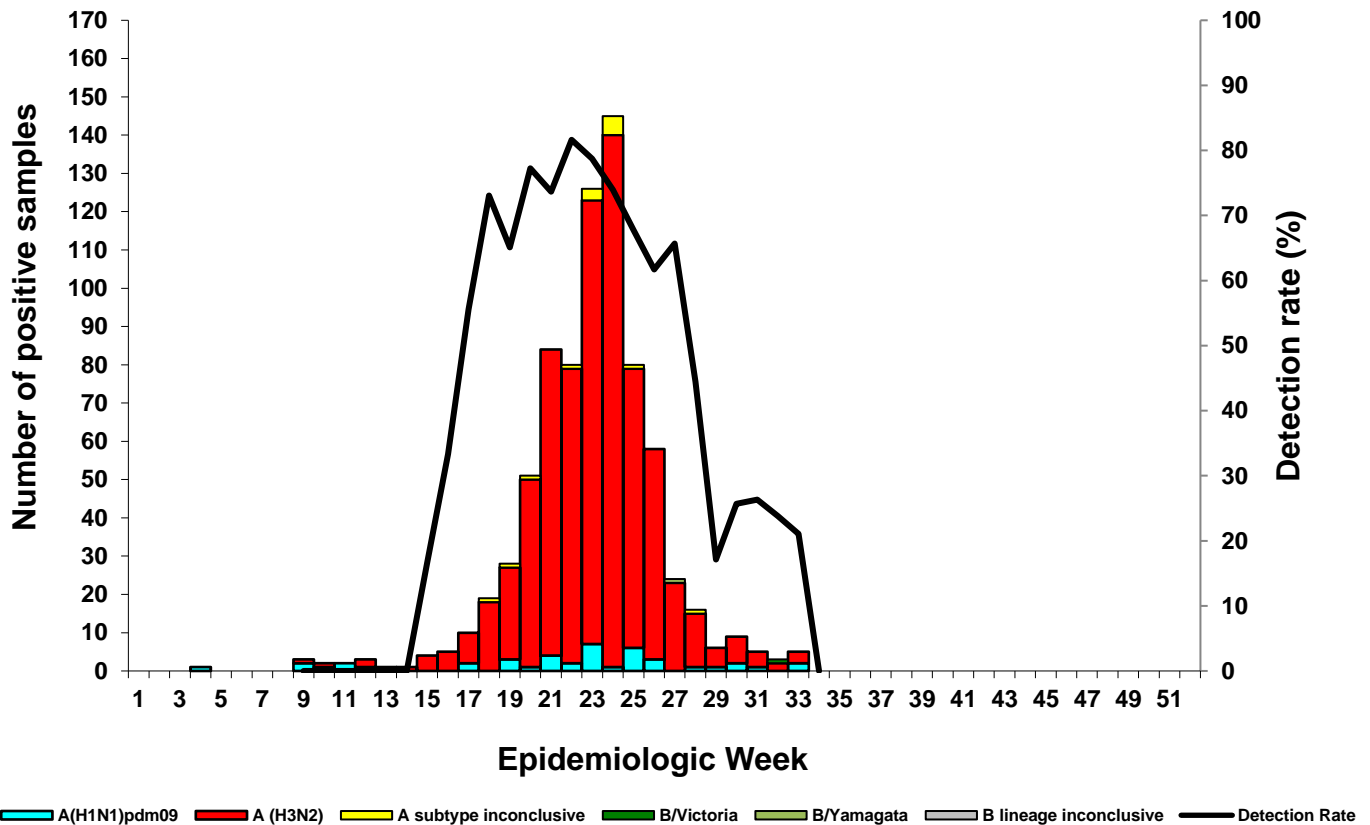
Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

Influenza-like illness (ILI) surveillance Viral Watch

Figure 3. Number of positive samples* by influenza subtype and lineage and detection rate** by week

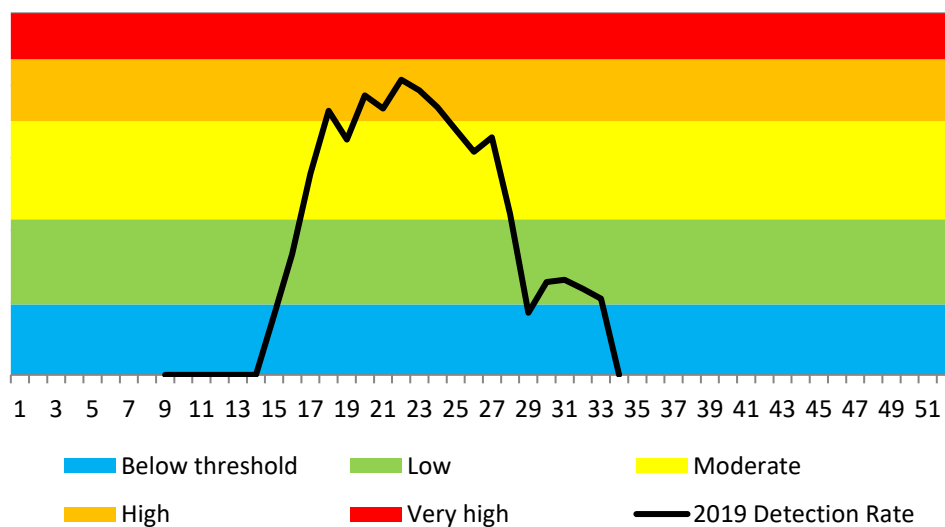


*Specimens from patients with Influenza-like illnesses at 90 sentinel sites in 8 provinces

** Only reported for weeks with >10 specimens submitted.

Inconclusive typing: insufficient viral load in sample and unable to characterise further

Figure 4. ILI surveillance Viral Watch percentage influenza detections and epidemic thresholds*



*Thresholds based on 2008-2018 data (Excluding 2009)

Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

Table 3. Cumulative number of influenza subtype and lineage and total number of samples tested by province

Province	A(H1N1)pdm09	A(H3N2)	A subtype inconclusive	B/Victoria	B/Yamagata	B lineage inconclusive*	Total samples
Eastern Cape	2	47	3	0	0	0	66
Free State	0	52	0	0	0	0	72
Gauteng	12	373	7	1	1	0	649
Limpopo	1	32	0	0	0	0	45
Mpumalanga	4	27	1	0	0	0	69
North West	0	4	0	0	0	0	8
Northern Cape	0	0	0	0	0	0	0
Western Cape	24	177	3	0	0	0	348
Total:	43	712	14	1	1	0	1257

*Inconclusive: insufficient viral load in sample and unable to characterise further

Included in the table are 2 dual specimens positive for influenza A(H1N1)pdm01 & influenza A(H3N2) in week25 and one dual positive for influenza A(H3N2) & influenza B(Yamagata) in week27

From 01 January 2019 to date, 31 patients were tested for influenza at the time of entry into South Africa following travel abroad and influenza was detected in four patients, of which one influenza A(H1N1)pdm09, two influenza A(H3N2) and one influenza B (lineage inconclusive).

Patients known to have acquired influenza abroad are not included in the table or epidemiological curve.

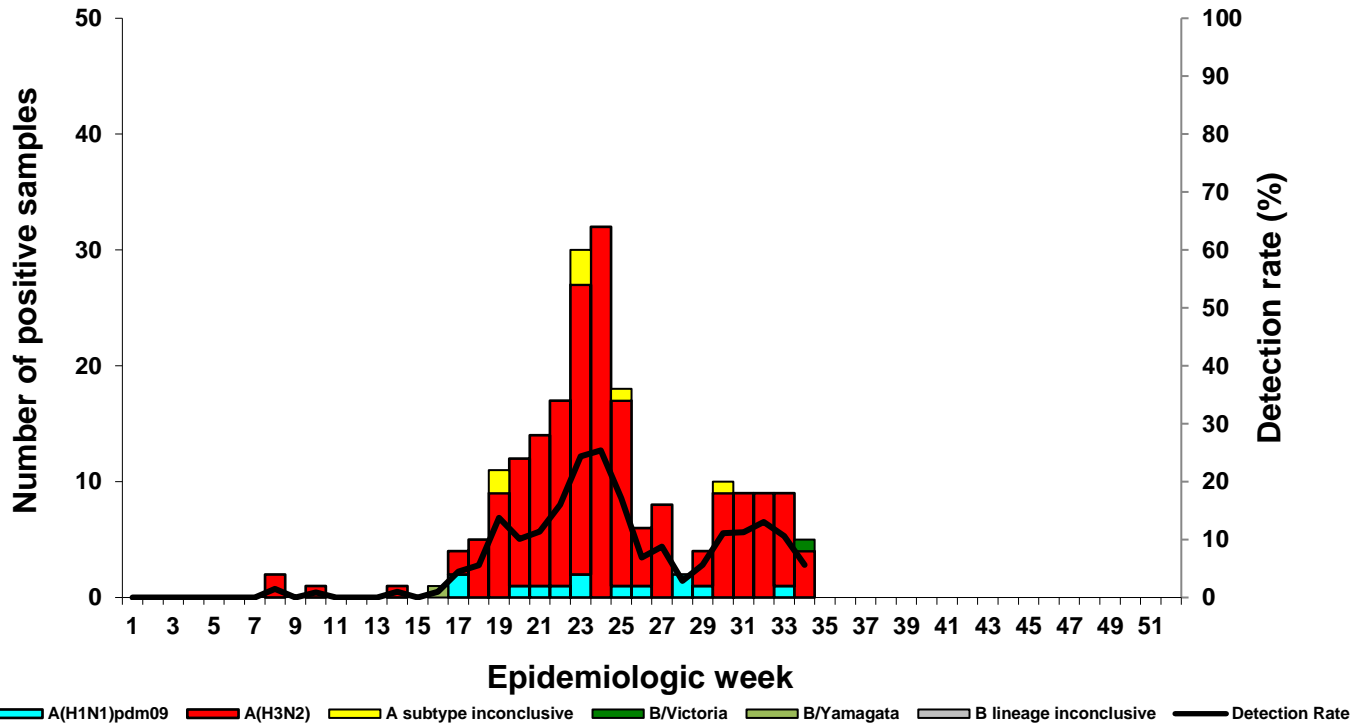
Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

National syndromic surveillance for pneumonia

Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week



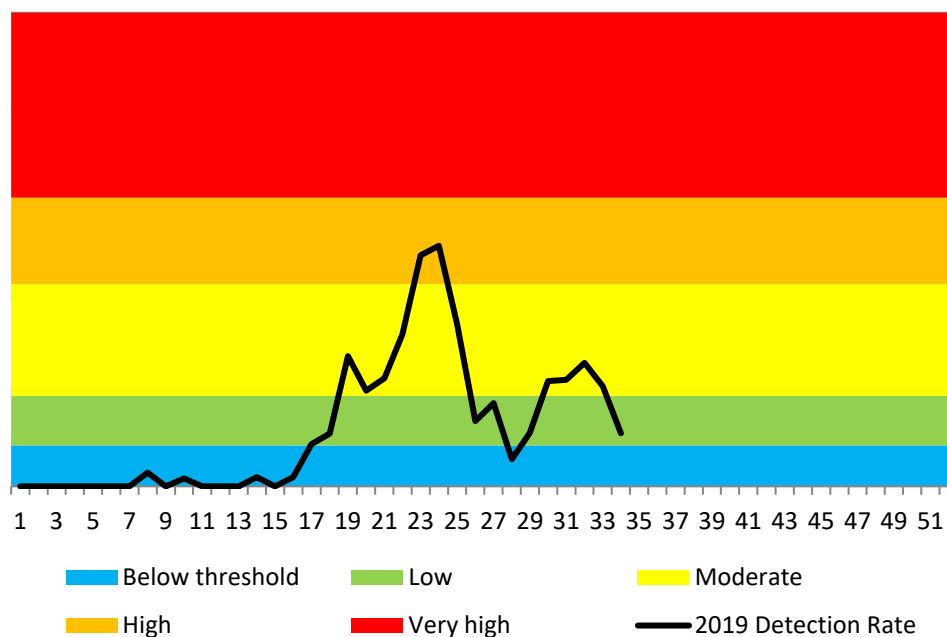
*Specimens from patients hospitalised with pneumonia at 6 sentinel sites in 5 provinces

**Only reported for weeks with >10 specimens submitted

Inconclusive: insufficient viral load in sample and unable to characterise further

Dual positives are included in the graph cumulatively

Figure 6. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*



Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

*Thresholds based on 2010-2018 data

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

Table 4. Cumulative number of identified influenza subtype and lineage and total number of samples tested by hospital

Hospital (Province)	A(H1N1)pdm09	A(H3N2)	A subtype inconclusive	B/Victoria	B/Yamagata	B lineage inconclusive*	Total samples
Edendale (KZ)	7	30	2	0	0	0	521
Helen Joseph-Rahima Moosa (GP)	0	36	2	1	0	0	722
Klerksdorp-Tshepong (NW)	0	50	0	0	0	0	460
Mapulaneng-Matikwana (MP)	1	25	0	0	1	0	321
Red Cross (WC)	3	32	1	0	0	0	778
Mitchell's Plain (WC)	2	15	2	0	0	0	257
Total:	13	188	7	1	1	0	3059

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West; MP: Mpumalanga; WC: Western Cape

*Inconclusive: insufficient viral load in sample and unable to characterise further

From the influenza positive specimens reflected on the above table we detected one dual specimen positive for influenza A(H1N1)pdm01 & influenza A(H3N2) in week21

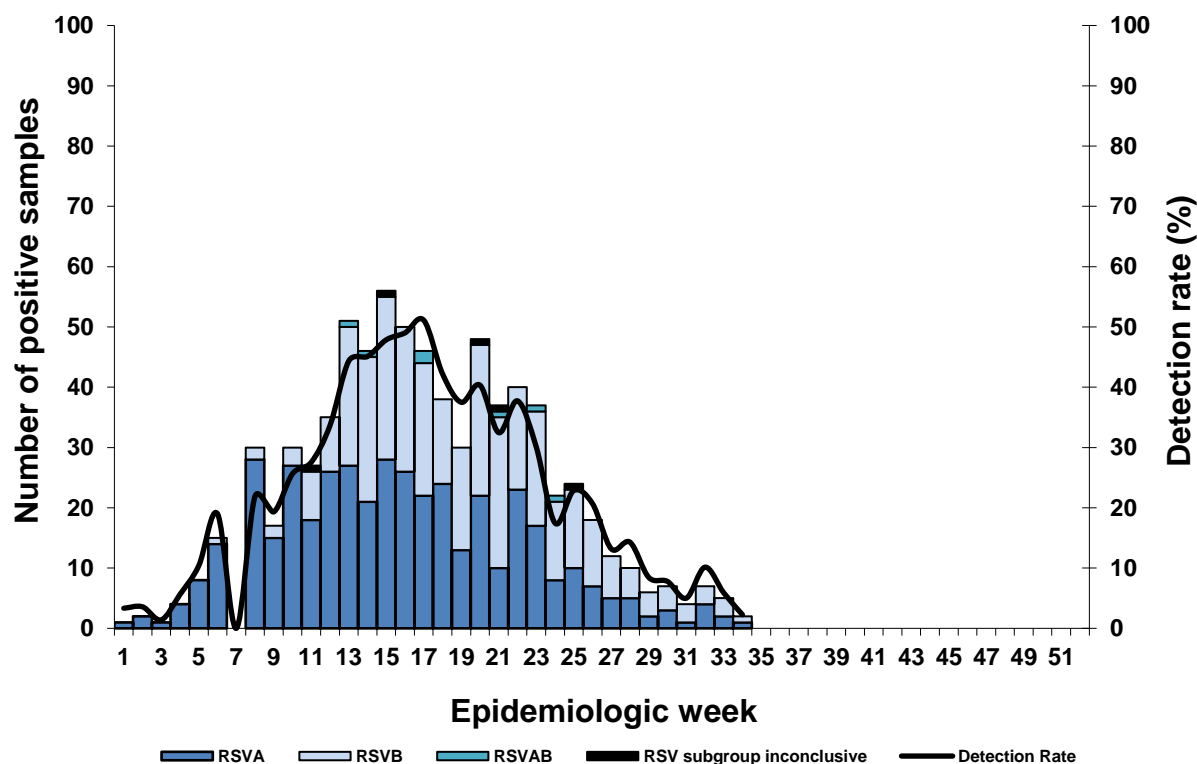
Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 25/08/2019

Results until end of epidemiologic week 34 (2019)

National syndromic surveillance for pneumonia

Figure 7. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week



Inconclusive: insufficient viral load in sample and unable to characterise further
 RSV AB: Both RSV A and B subgroup identified

Table 5: Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by hospital

Hospital (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	Total samples
Edendale (KZ)	123	5	0	1	521
Helen Joseph-Rahima Moosa (GP)	108	58	3	0	722
Klerksdorp-Tshepong (NW)	50	8	0	1	460
Mapulaneng-Matikwana (MP)	54	1	0	0	321
Red Cross (WC)	69	210	4	3	778
Mitchell's Plain (WC)	21	47	0	0	257
Total:	425	329	7	5	3059

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West; MP: Mpumalanga; WC: Western Cape

Inconclusive: insufficient viral load in sample and unable to characterise further

RSV AB: Both RSV A and B subgroup identified

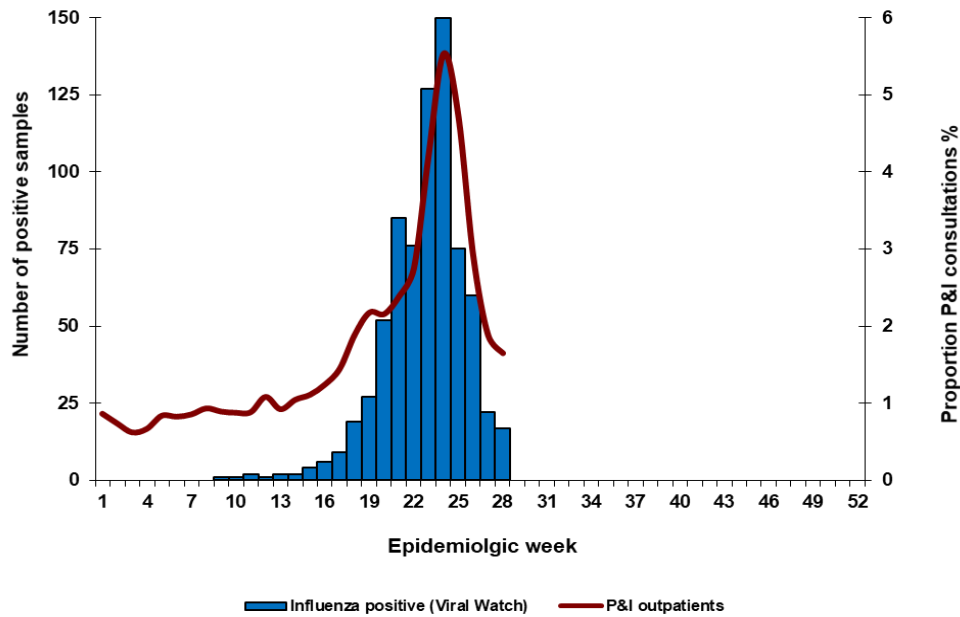
Weekly Influenza and Respiratory Syncytial Virus Surveillance Report

Reporting period 01/01/2019 to 14/07/2019

Results until end of epidemiologic week 28 (2019)

Private hospital consultations

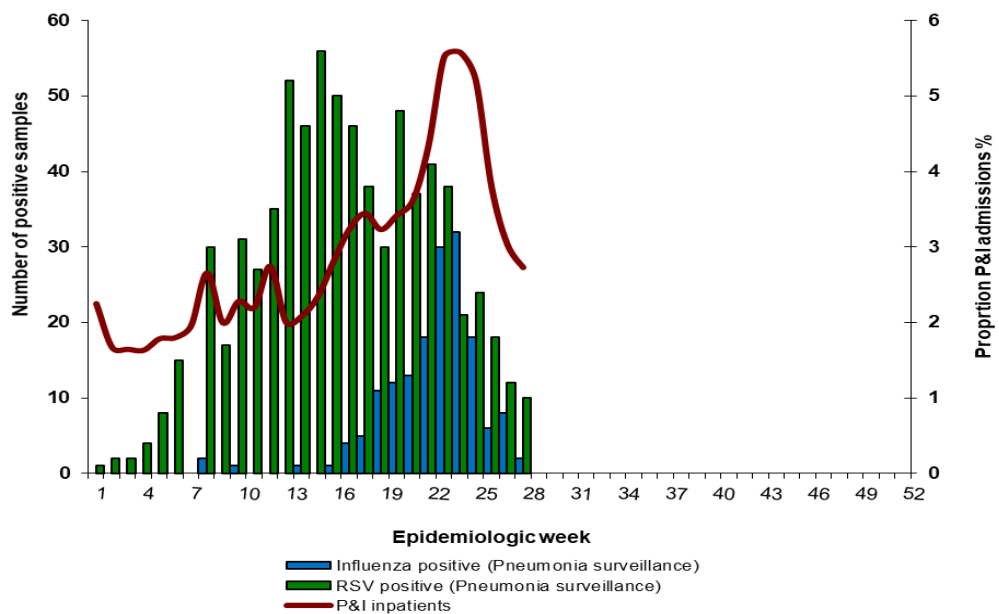
Figure 8. Number of private hospital outpatient consultations* with a diagnosis of pneumonia and influenza (P&I) and viral isolates**



* 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 9. 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 national syndromic surveillance for pneumonia.