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Highlights – Week 19

- The 2020 influenza season has not yet started, with no influenza detections in the last week. Sustained detections of influenza A(H1N1)pdm09 and to a lesser extent influenza B(Victoria) were made from Western Cape Province, in all surveillance programmes from week 2 to week 15, but numbers have now reduced.
- The 2020 RSV season has not yet started, however, ongoing detections of RSV are being made but not consistently exceeding the seasonal threshold. In the previous 3 years the average start of RSV season ranged from week 7 to week 9, therefore the start of the season in 2020 is substantially delayed compared to previous years, possibly in part due to the national lockdown.
- Testing for SARS-CoV-2 was initiated in all three surveillance programmes in week 10 (week starting 2 March 2020). In the current reporting week, three additional patients tested positive. To date, eight cases have been detected from all surveillance programmes, all are from the Western Cape Province.

Programme Descriptions

Programme	Influenza-like illness (ILI)	Viral Watch	National syndromic surveillance for pneumonia
Start year	2012	1984	2009
Provinces*	KZ NW WC**	EC FS GP LP MP NC NW WC	GP KZ MP NW WC
Type of site	Primary health care clinics	General practitioners	Public 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
Specimens collected	Oropharyngeal & nasopharyngeal swabs	Throat and/or nasal swabs or Nasopharyngeal swabs	Oropharyngeal & nasopharyngeal swabs
Main pathogens tested***	INF RSV BP SARS-CoV-2****	INF RSV BP SARS-CoV-2****	INF RSV BP SARS-CoV-2****

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*

****SARS-CoV-2: Severe acute respiratory syndrome coronavirus 2

Influenza, RSV, *Bordetella pertussis* and SARS-CoV-2 Surveillance Report

Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

Comments:

Influenza

The 2020 influenza season has not yet started although sustained detections of influenza A(H1N1)pdm09 and to a lesser extent influenza B(Victoria) were made from Western Cape Province, in all surveillance programmes from week 2 to week 15, but numbers have now reduced. There has been no influenza circulating from all other provinces in 2020.

ILI programme: In 2020 to date, specimens from 538 patients were received from 4 ILI sites. Influenza was detected in 52 specimens (all from Western Cape province), 36 (69%) were identified as influenza A(H1N1)pdm09, one (2%) influenza A subtype inconclusive, 12 (23%) as influenza B (Victoria) and three (6%) B lineage inconclusive.

Viral Watch programme: During the same period, specimens were received from 202 patients from Viral Watch sites in 8 provinces. Influenza was detected in 77 patients (76 from Western Cape and one imported case from Gauteng provinces). Of the 76 local cases; 74 (97%) were influenza A(H1N1)pdm09, one (1%) influenza A(H3N2) and one (1%) influenza B(Victoria). Six (8%; 6/76) of the positive cases had history of international travel.

Pneumonia surveillance: Since the beginning of 2020, specimens from 1105 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 26 patients (all from Western Cape province), of which 21 (81%) were influenza A(H1N1)pdm09, one (4%) influenza A subtype inconclusive and four (15%) influenza B(Victoria).

Respiratory syncytial virus

The 2020 RSV season has not yet started. However, however, ongoing detections of RSV are being made but not consistently exceeding the seasonal threshold. In the previous 3 years the average start of RSV season ranged from week 7 to week 9, therefore the start of the season is substantially delayed compared to previous years in 2020.

ILI programme: In 2020 to date, 538 specimens were tested and RSV was detected in specimens of seven (1%) patients.

Viral Watch programme: During the same period, 202 specimens were tested and RSV was not detected.

Pneumonia surveillance: Since the beginning of 2020, 1105 specimens were tested and RSV was detected in specimens of 87 (8%) patients.

Bordetella pertussis

ILI programme: From 1 January 2020 to date, combined nasopharyngeal and oropharyngeal specimens were tested from 514 patients for *B. pertussis*, one (<1%) tested positive.

Pneumonia surveillance: During the same period, combined nasopharyngeal and oropharyngeal specimens were tested from 1081 patients for *B. pertussis*, which was detected in eight (1%) specimens.

In addition, *B. pertussis* was not detected in 39 specimens from patients who met suspected *B. pertussis* case definition but did not meet the pneumonia/ILI surveillance case definition.

SARS-CoV-2 (Severe acute respiratory syndrome coronavirus 2)

Testing for SARS-CoV-2 was initiated in all three surveillance programmes in week 10 (week starting 2 March 2020).

ILI programme: In 2020 to date, specimens from 304 patients were tested and SARS-CoV-2 was detected in three (1%) patients at Mitchell's Plain Clinic.

Viral Watch programme: In 2020 to date, specimens were tested from 98 patients and SARS-CoV-2 was detected in one (1%) patient.

Pneumonia surveillance: In 2020 to date, specimens from 582 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in four (1%) patients, two from Red Cross Children's Hospital and another two from Mitchell's Plain Hospital.

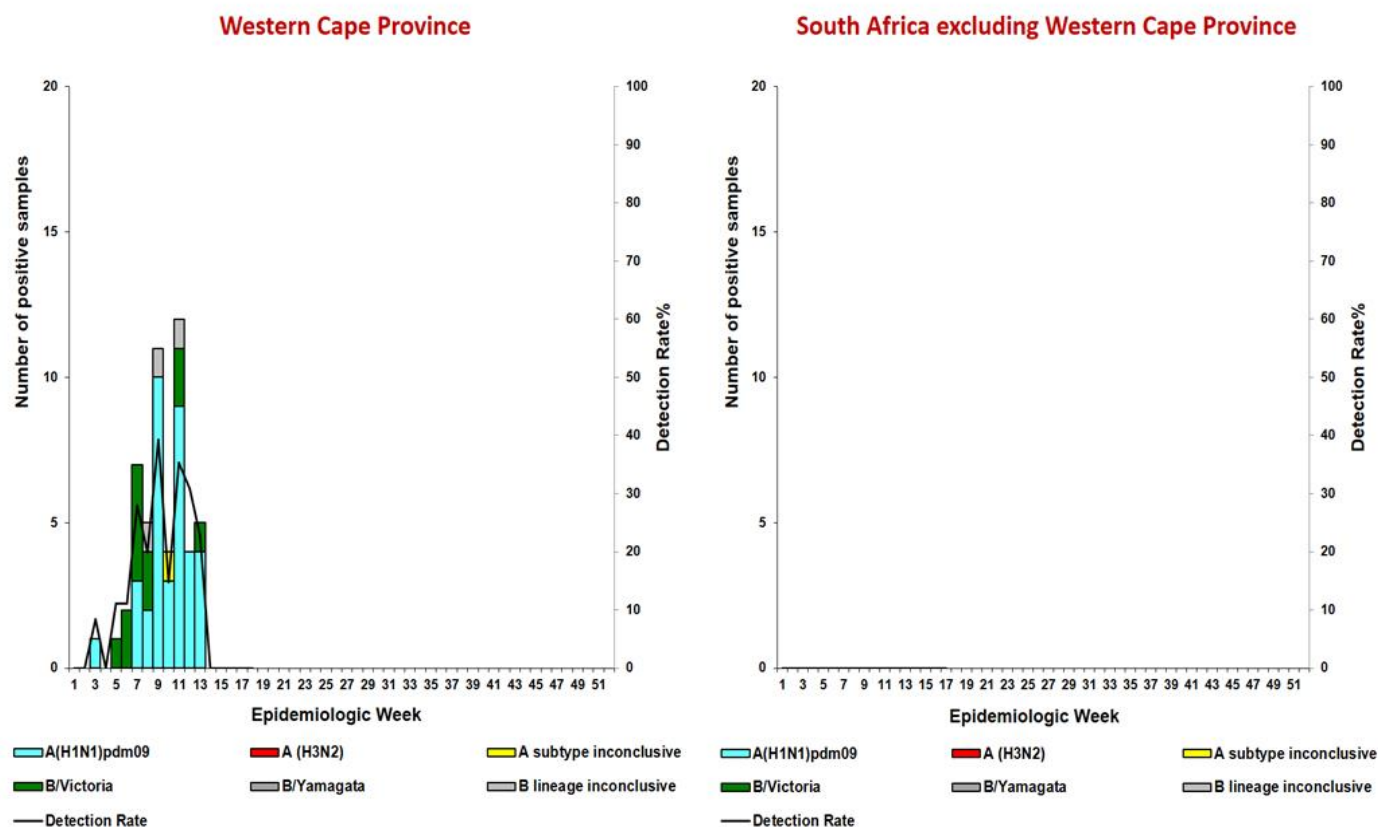
Data are provisional as reported to date (Data for this report drawn on 13/05/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

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)	33	0	1	12	0	3	232
Edendale Gateway (KZ)	0	0	0	0	0	0	84
Jouberton (NW)	0	0	0	0	0	0	111
Mitchell's Plain (WC)	3	0	0	0	0	0	111
Total:	36	0	1	12	0	3	538

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

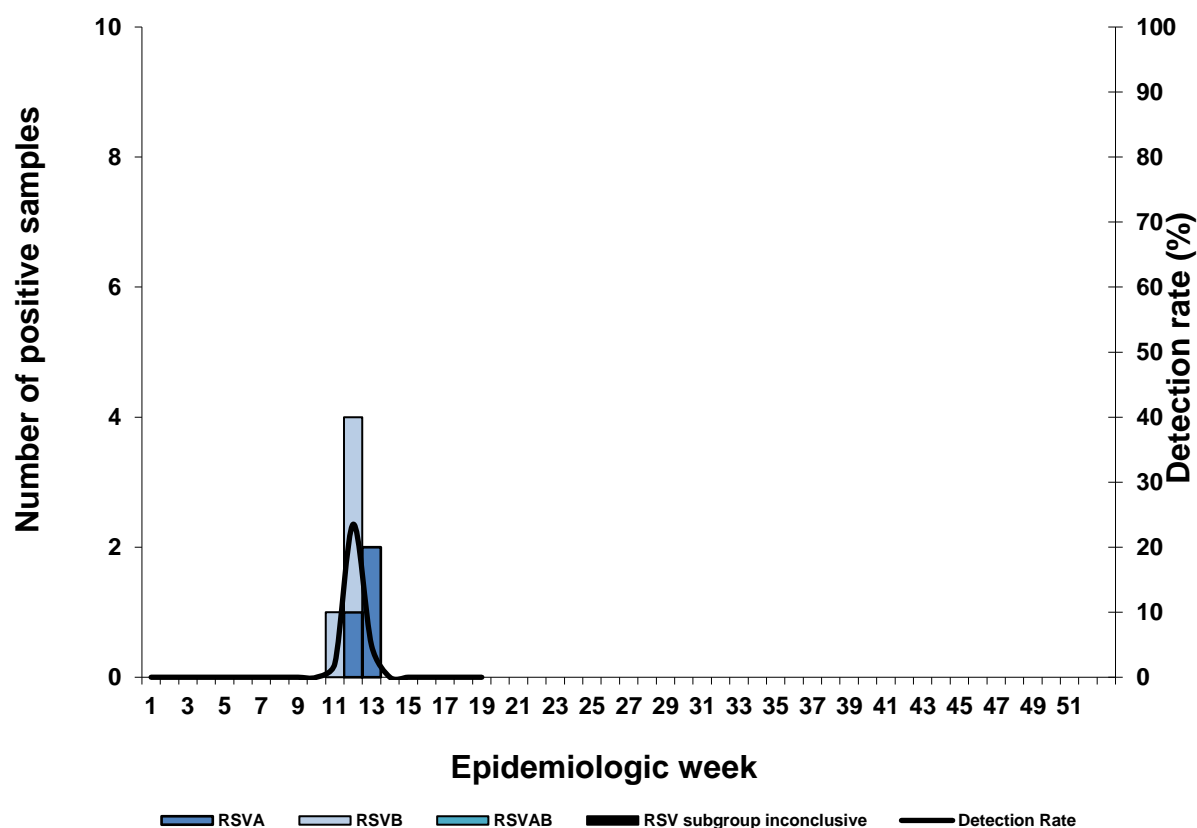
Inconclusive: insufficient viral load in sample and unable to characterise further

Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

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: 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)	0	2	0	0	232
Edendale Gateway (KZ)	3	2	0	0	84
Jouberton (NW)	0	0	0	0	111
Mitchell's Plain (WC)	0	0	0	0	111
Total	3	4	0	0	538

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

Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

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

Figure 3. Number of samples testing positive for *B. pertussis* and detection rate by month

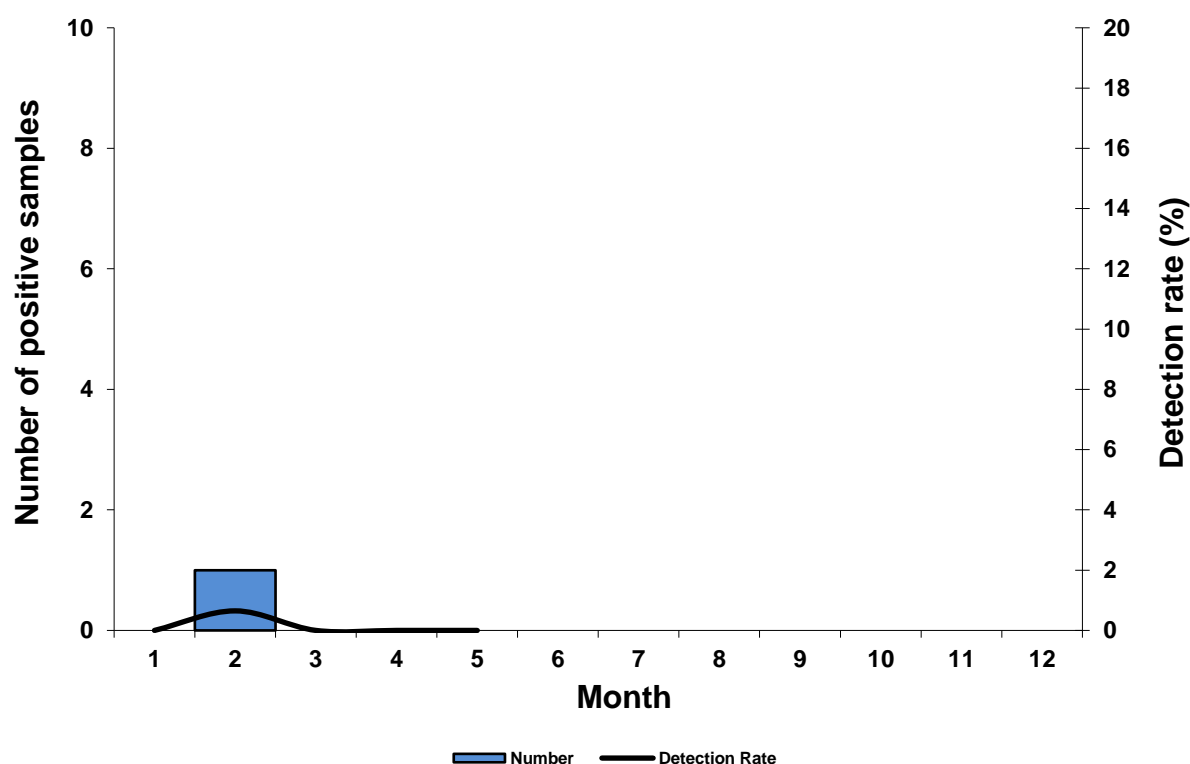


Table 3. Cumulative number of *B. pertussis* identified and total number of samples** tested by province

Clinic (Province)	<i>B. pertussis</i> Positive**	Total samples
Eastridge (WC)	0	218
Edendale Gateway (KZ)	0	84
Jouberton (NW)	1	111
Mitchell's Plain (WC)	0	101
Total:	1	514

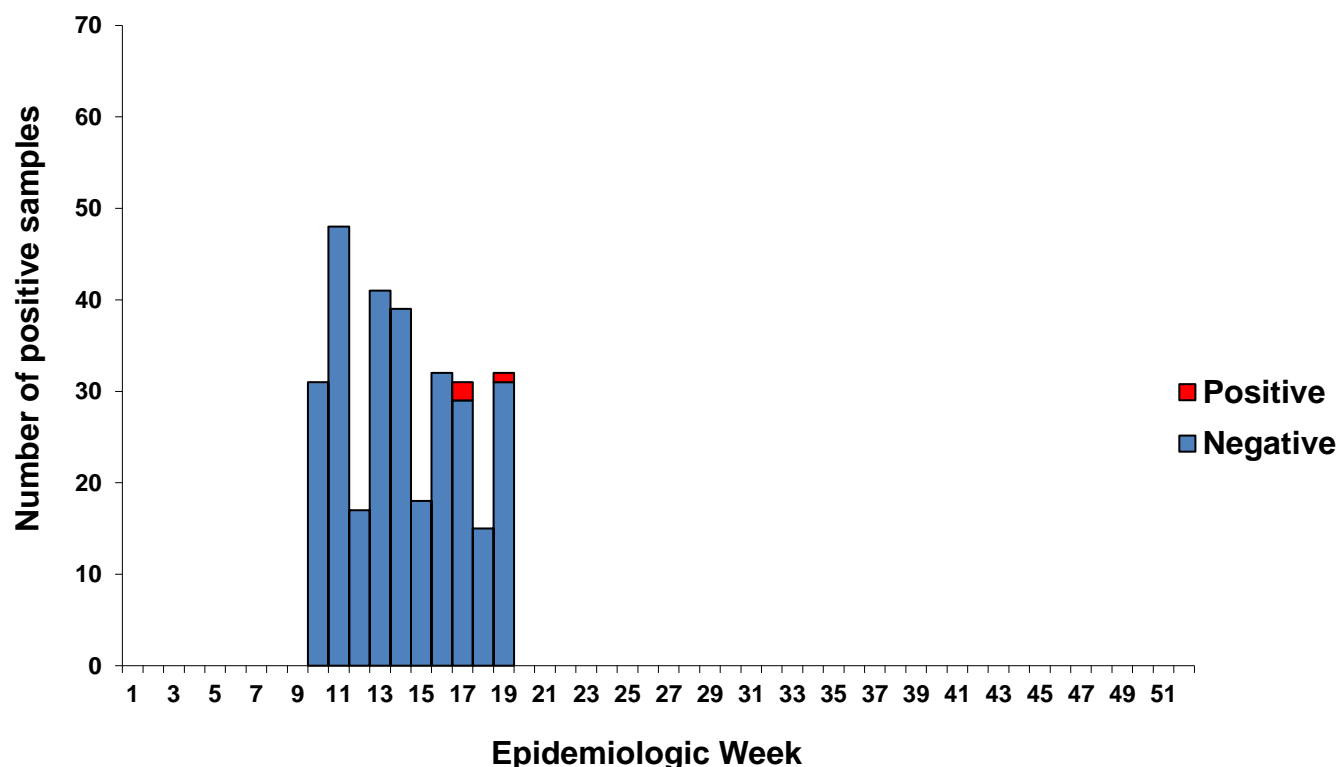
KZ: KwaZulu-Natal; NW: North West; WC: Western Cape

Reporting period 02/03/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

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

Figure 4. Number of samples* tested, and results, for SARS-CoV-2 by week



*Specimens from patients with influenza-like illnesses at 4 sentinel sites in 3 provinces

Table 4. Cumulative number of SARS-CoV-2 identified and total number of samples tested by clinic and province

Clinic (Province)	SARS-CoV-2 positive	SARS-CoV-2 negative	Total samples tested
Eastridge (WC)	0	129	129
Edendale Gateway (KZ)	0	34	34
Jouberton (NW)	0	62	62
Mitchell's Plain (WC)	3	76	79
Total:	3	301	304

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

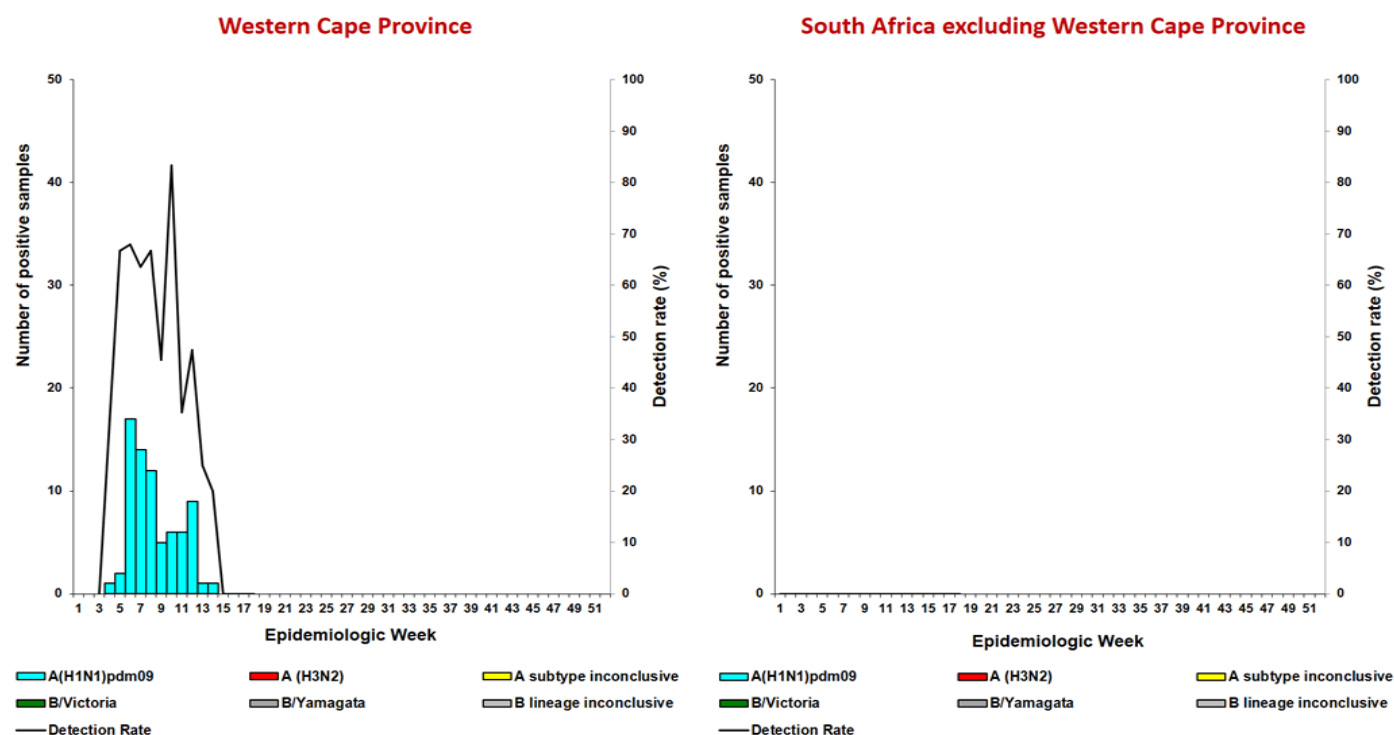
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Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

Influenza-like illness (ILI) surveillance Viral Watch

Figure 5. 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: insufficient viral load in sample and unable to characterise further

Table 5. 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	0	0	0	0	0	0	4
Free State	0	0	0	0	0	0	0
Gauteng	0	0	0	0	0	0	49
Limpopo	0	0	0	0	0	0	1
Mpumalanga	0	0	0	0	0	0	2
North West	0	0	0	0	0	0	0
Northern Cape	0	0	0	0	0	0	4
Western Cape	74	1	0	1	0	0	142
Total:	74	1	0	1	0	0	202

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

From 01 January 2020 to date, 10 patients were tested for influenza at the time of entry into South Africa following travel abroad and influenza was detected in three patients, of which one influenza A(H1N1)pdm09 and two influenza A(H3N2).

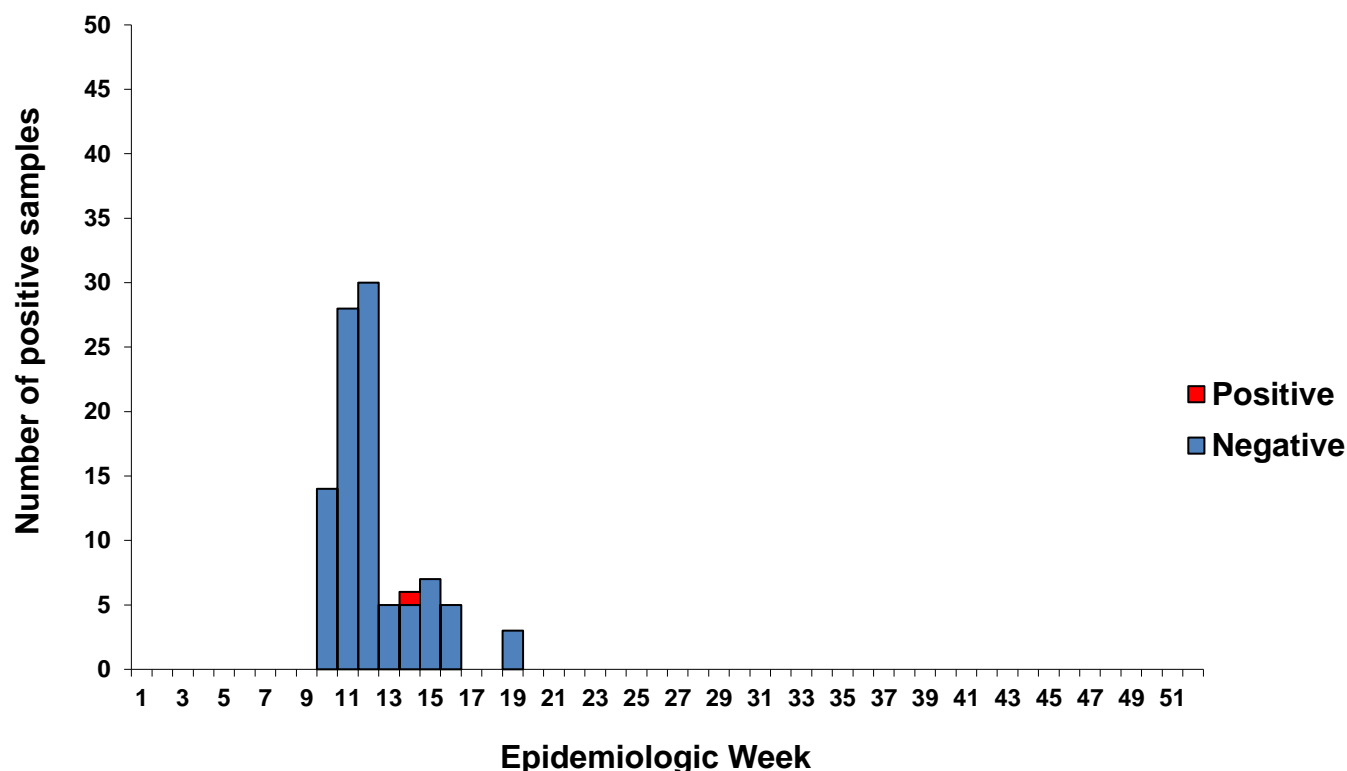
Patients known to have acquired influenza abroad are not included in the table or epidemiological curve.

Reporting period 02/03/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

Influenza-like illness (ILI) surveillance: Viral Watch

Figure 6. Number of samples* tested, and results, for SARS-CoV-2 by week



*Specimens from patients with Influenza-like illnesses at 92 sentinel sites in 8 provinces

Table 6. Cumulative number of SARS-CoV-2 identified and total number of samples tested by province

Province	SARS-CoV-2 positive	SARS-CoV-2 negative	Total samples tested
Eastern Cape	0	3	3
Free State	0	0	0
Gauteng	0	38	38
Limpopo	0	0	0
Mpumalanga	0	0	0
North West	0	0	0
Northern Cape	0	2	2
Western Cape	1	54	55
Total:	1	97	98

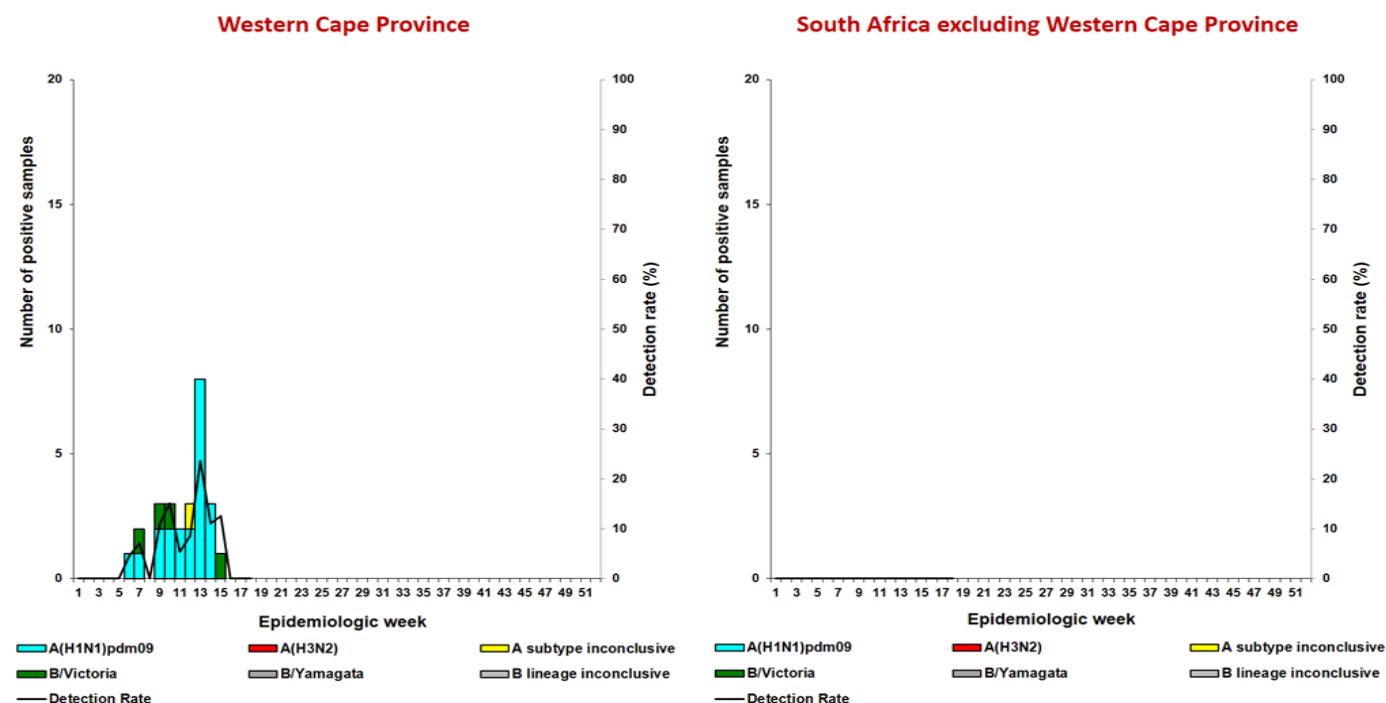
Influenza, RSV, *Bordetella pertussis* and SARS-CoV-2 Surveillance Report

Reporting period 01/01/2020 to 10/05/2019

Results until end of epidemiologic week 19(2020)

National syndromic surveillance for pneumonia

Figure 7. 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

Table 7. 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)	0	0	0	0	0	0	159
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	250
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	156
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	104
Red Cross (WC)	19	0	0	2	0	0	311
Mitchell's Plain (WC)	2	0	1	2	0	0	125
Total:	21	0	1	4	0	0	1105

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

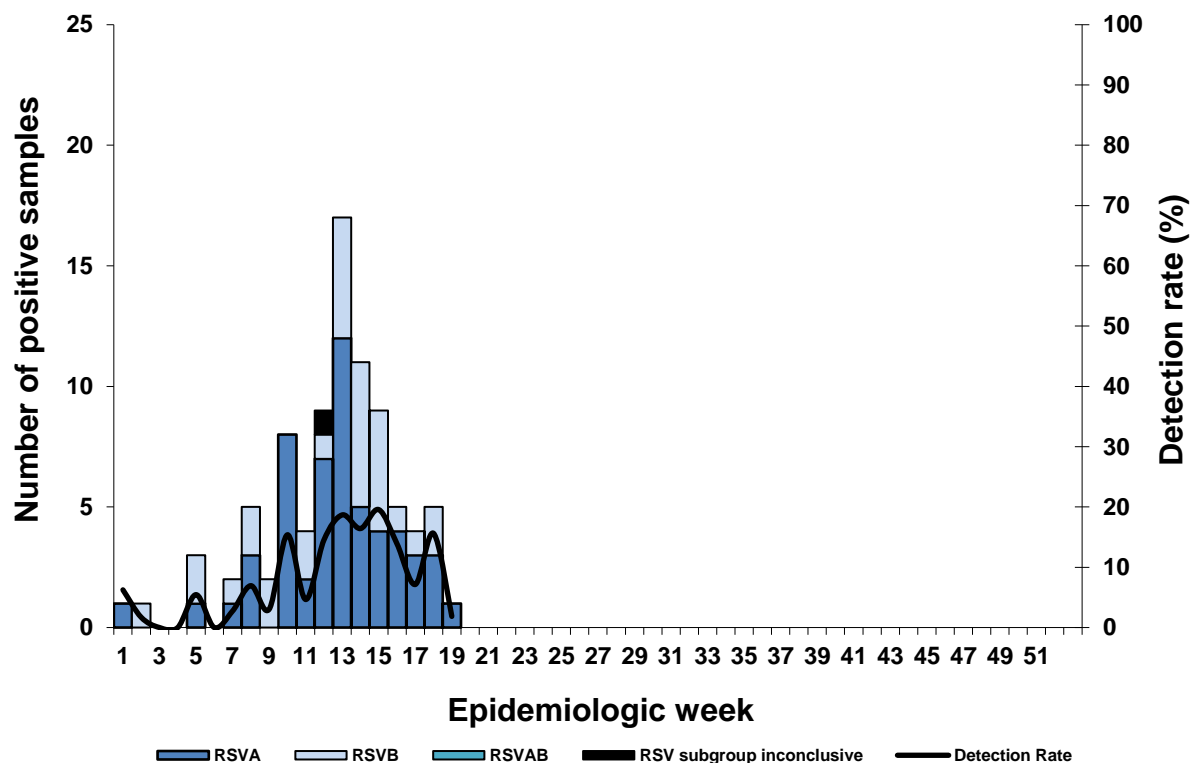
Inconclusive: insufficient viral load in sample and unable to characterise further

Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

National syndromic surveillance for pneumonia

Figure 8. 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 8. 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)	1	8	0	1	159
Helen Joseph-Rahima Moosa (GP)	29	9	0	0	250
Klerksdorp-Tshepong (NW)	1	0	0	0	156
Mapulaneng-Matikwana (MP)	0	0	0	0	104
Red Cross (WC)	23	14	0	0	311
Mitchell's Plain (WC)	1	0	0	0	125
Total:	55	31	0	1	1105

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

Reporting period 01/01/2020 to 10/05/2020

Results until end of epidemiologic week 19(2019)

National syndromic surveillance for pneumonia

Figure 9. Number of samples testing positive for *B. pertussis* and detection rate by month

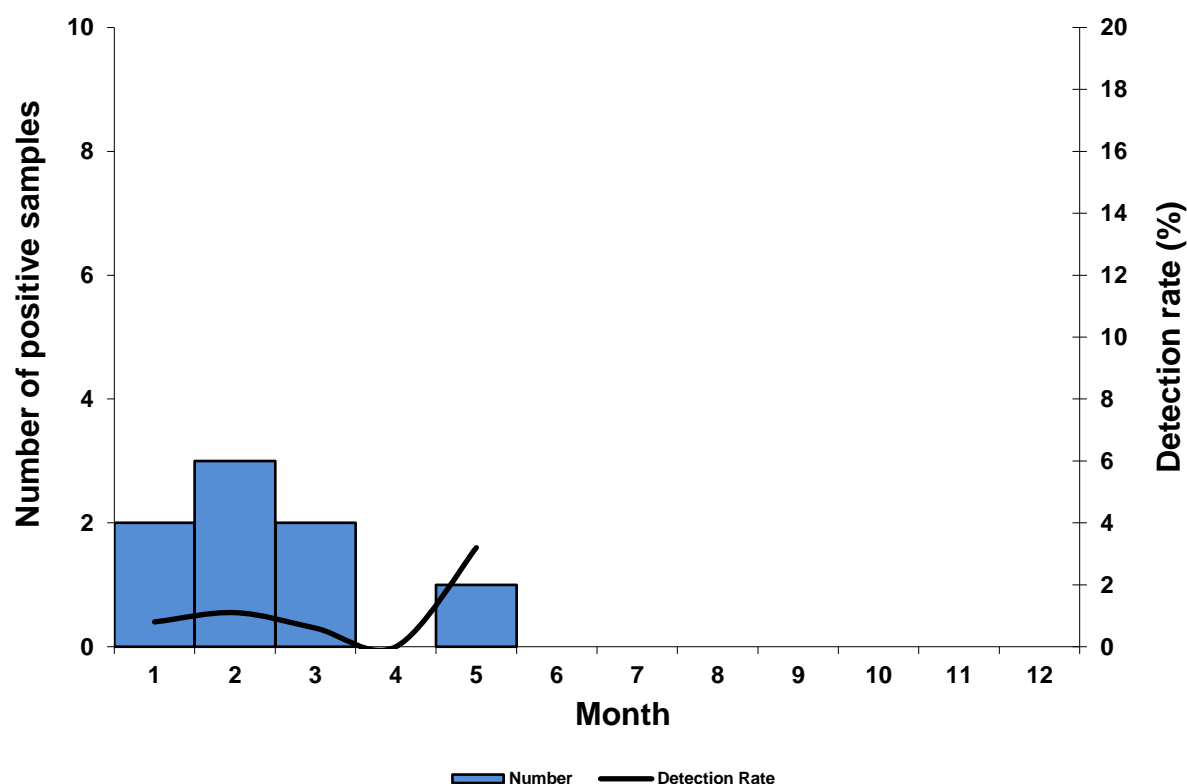


Table 9. Cumulative number of *B. pertussis* identified and total number of samples tested by hospital and province

Hospital (Province)	<i>B. pertussis</i> Positive**	Total samples
Edendale (KZ)	1	159
Helen Joseph-Rahima Moosa (GP)	1	250
Klerksdorp-Tshepong (NW)	1	151
Mapulaneng-Matikwana (MP)	0	103
Red Cross (WC)	4	305
Mitchell's Plain (WC)	1	113
Total:	8	1081

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

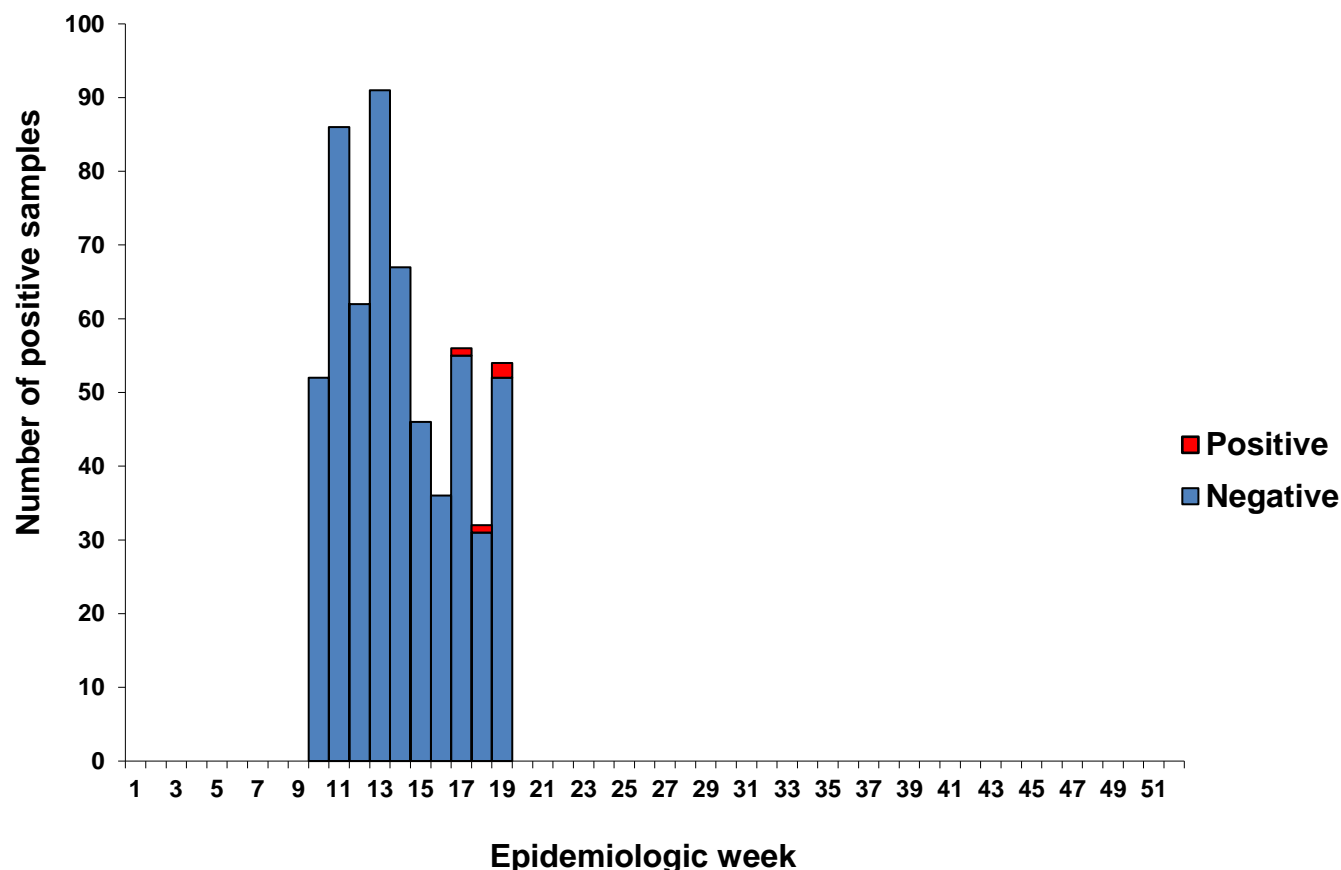
**39 cases met the suspected pertussis case definition but did not meet Pneumonia Surveillance case definition. These are not included in the table and epidemiologic curve.

Reporting period 02/03/2020 to 10/05/2020

Results until end of epidemiologic week 19(2020)

National syndromic surveillance for pneumonia

Figure 10. Number of samples* tested, and results, for SARS-CoV-2 by week



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

Table 8. Cumulative number of identified SARS-CoV-2 and total number of samples tested by hospital

Hospital (Province)	SARS-CoV-2 positive	SARS-CoV-2 negative	Total samples tested
Edendale (KZ)	0	84	84
Helen Joseph-Rahima Moosa (GP)	0	115	115
Klerksdorp-Tshepong (NW)	0	81	81
Mapulaneng-Matikwana (MP)	0	55	55
Red Cross (WC)	2	167	169
Mitchell's Plain (WC)	2	76	78
Total:	4	578	582

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