

WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

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

SOUTH AFRICA WEEK 23 2020

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CUMULATIVE DATA FROM



HIGHLIGHTS: WEEK 23

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 in the first three months of the year.

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 between 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 there were 21 additional patients that tested positive for SARS-CoV-2. To date, 49 cases have been detected from all surveillance programmes, 36 from the Western Cape Province, 10 from Gauteng, and three from North West Province.

INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 24 MAY 2020

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 (symptom onset ≤ 10 days) or chronic (symptom onset > 10) 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, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 21 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 07 JUNE 2020

COMMENTS

Influenza

The 2020 influenza season has not yet started, with no influenza detections since the week ending 5 April prior to which detections of influenza A(H1N1)pdm09, and to a lesser extent influenza B(Victoria), were made from the Western Cape Province in all surveillance programmes.

ILI programme: In 2020 to date, specimens from 609 patients were received from 4 ILI sites. Influenza was detected in 52 specimens (all from the Western Cape Province). Thirty-six (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 213 patients from Viral Watch sites in 8 provinces. Influenza was detected in 78 patients, 5 of whom had a history of international travel. The remaining 73 were all from the Western Cape and were identified as influenza A(H1N1)pdm09.

Pneumonia surveillance: Since the beginning of 2020, specimens from 1371 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 26 patients (all from the 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

Although the 2020 RSV season has not yet started, 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, 609 specimens were tested and RSV was detected in specimens of seven (1%) patients.

Viral Watch programme: During the same period, 213 specimens were tested and RSV was not detected.

Pneumonia surveillance: Since the beginning of 2020, 1371 specimens were tested and RSV was detected in specimens of 97 (7%) patients.

Bordetella pertussis

ILI programme: From 1 January 2020 to date, combined nasopharyngeal and oropharyngeal specimens were tested from 595 patients for *B. pertussis*, two (<1%) tested positive.

Pneumonia surveillance: During the same period, combined nasopharyngeal and oropharyngeal specimens were tested from 1382 patients for *B. pertussis*, which was detected in eight (<1%) specimens. In addition, specimens tested from patients who met suspected *B. pertussis* case definition, but did not meet the pneumonia/ILI surveillance case definition, were tested for *B. pertussis* and all were negative.

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 370 patients were tested and SARS-CoV-2 was detected in 10 (3%) patients all from the Western Cape.

Viral Watch programme: In 2020 to date, specimens were tested from 111 patients and SARS-CoV-2 was detected in one (<1%) patient.

Pneumonia surveillance: In 2020 to date, specimens from 869 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 38 (4%) patients, from Gauteng, North West Province and the Western Cape.

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 07 JUNE 2020

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE PRIMARY HEALTH CARE CLINICS

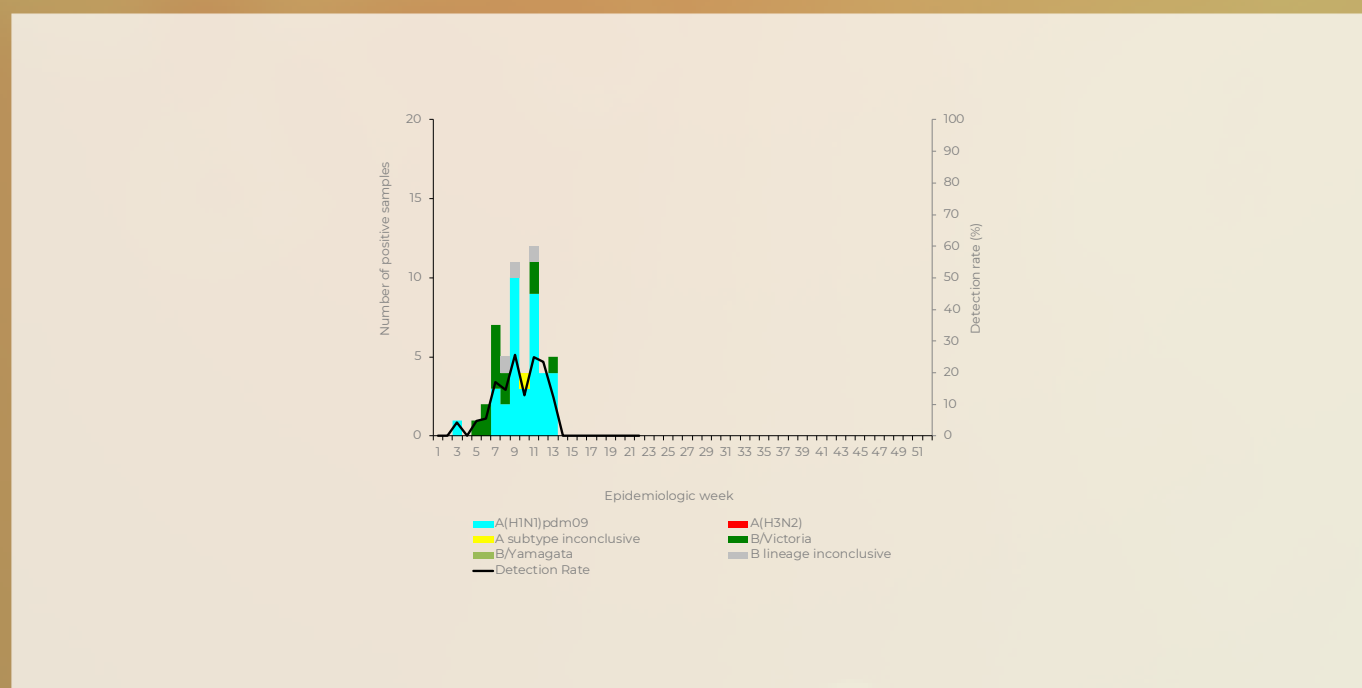


Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*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	279
Edendale Gateway (KZ)	0	0	0	0	0	0	84
Jouberton (NW)	0	0	0	0	0	0	118
Mitchell's Plain (WC)	3	0	0	0	0	0	128
Total:	36	0	1	12	0	3	609

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

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

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 07 JUNE 2020

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE PRIMARY HEALTH CARE CLINICS

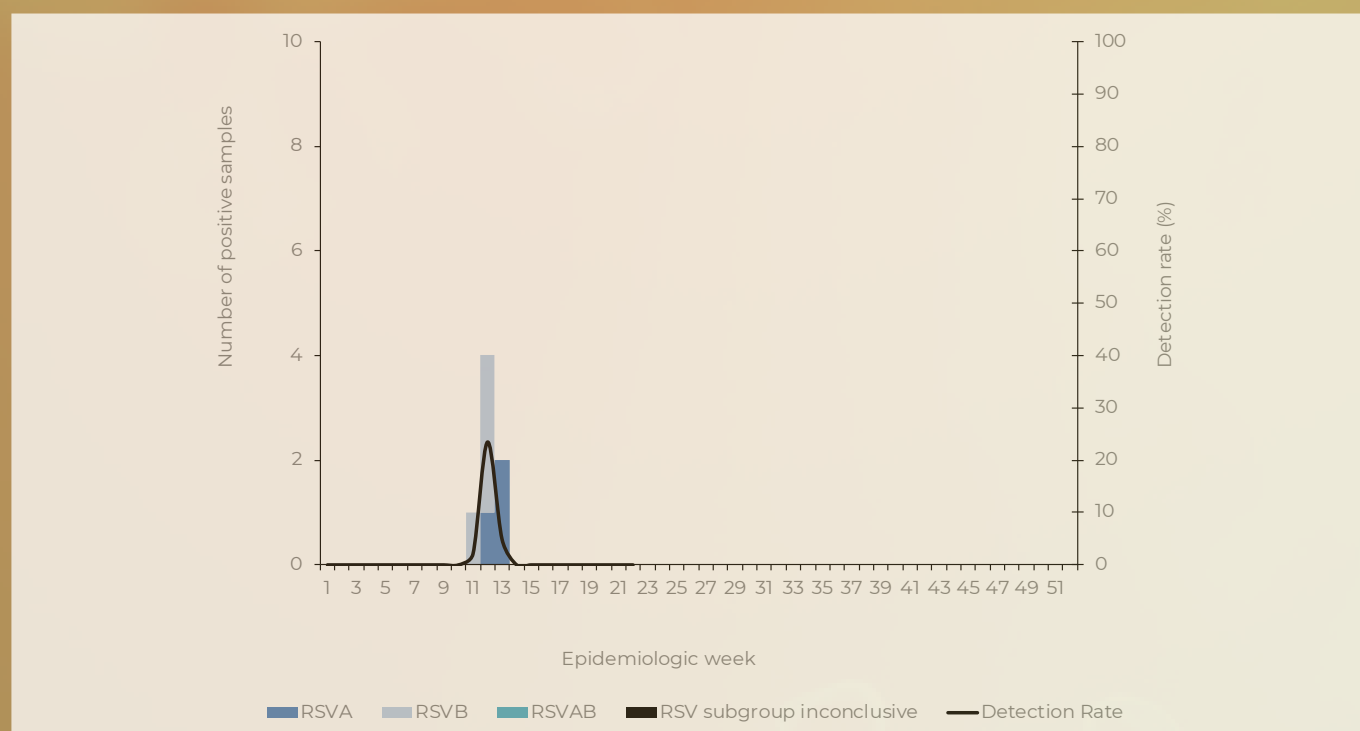


Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week
 Inconclusive: insufficient viral load in sample and unable to characterise further
 RSV AB: Both RSV A and B subgroup identified

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	279
Edendale Gateway (KZ)	3	2	0	0	84
Jouberton (NW)	0	0	0	0	118
Mitchell's Plain (WC)	0	0	0	0	128
Total:	3	4	0	0	609

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

INFLUENZA, RSVP, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 07 JUNE 2020

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE PRIMARY HEALTH CARE CLINICS

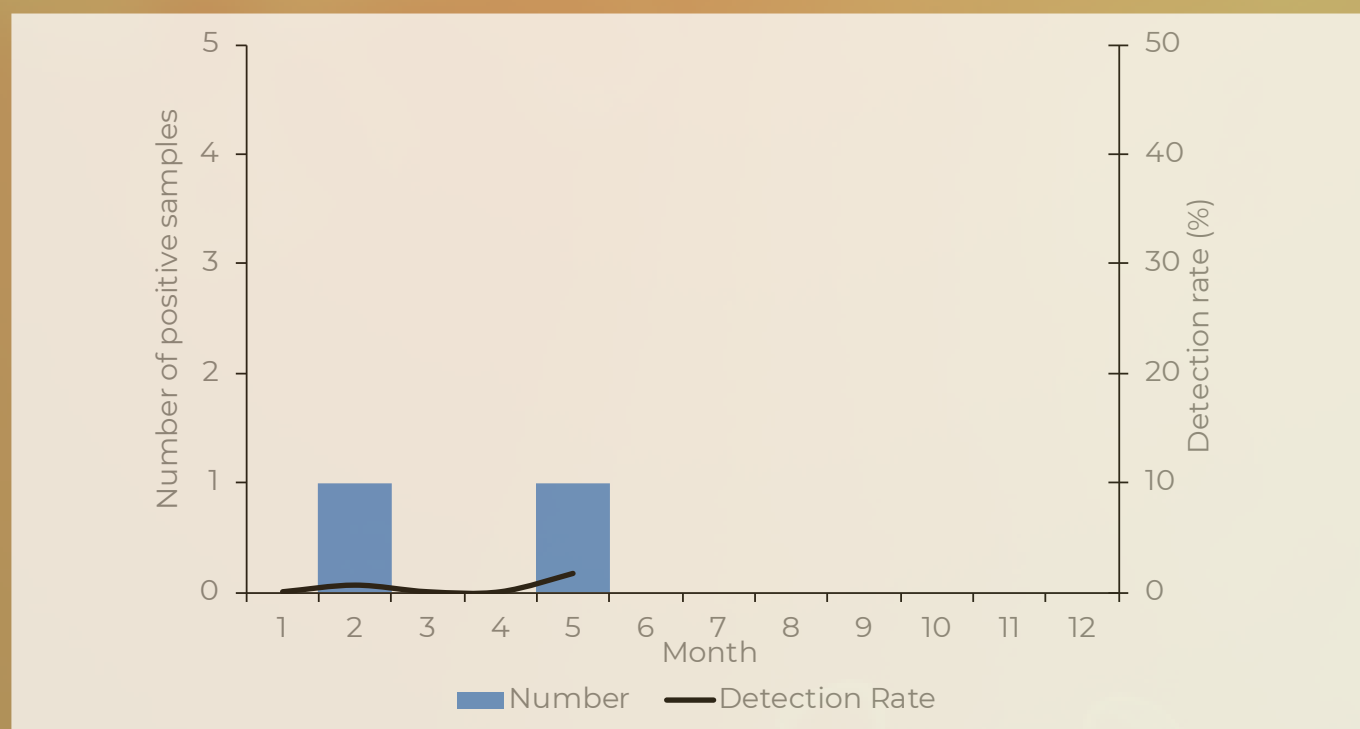


Figure 3. Number of samples testing positive for *B. pertussis* and detection rate by month

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

Clinic (Province)	<i>B. pertussis</i> positive	Total samples
Eastridge (WC)	1	272
Edendale Gateway (KZ)	0	84
Jouberton (NW)	1	116
Mitchell's Plain (WC)	0	123
Total:	2	595

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

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 07 JUNE 2020

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

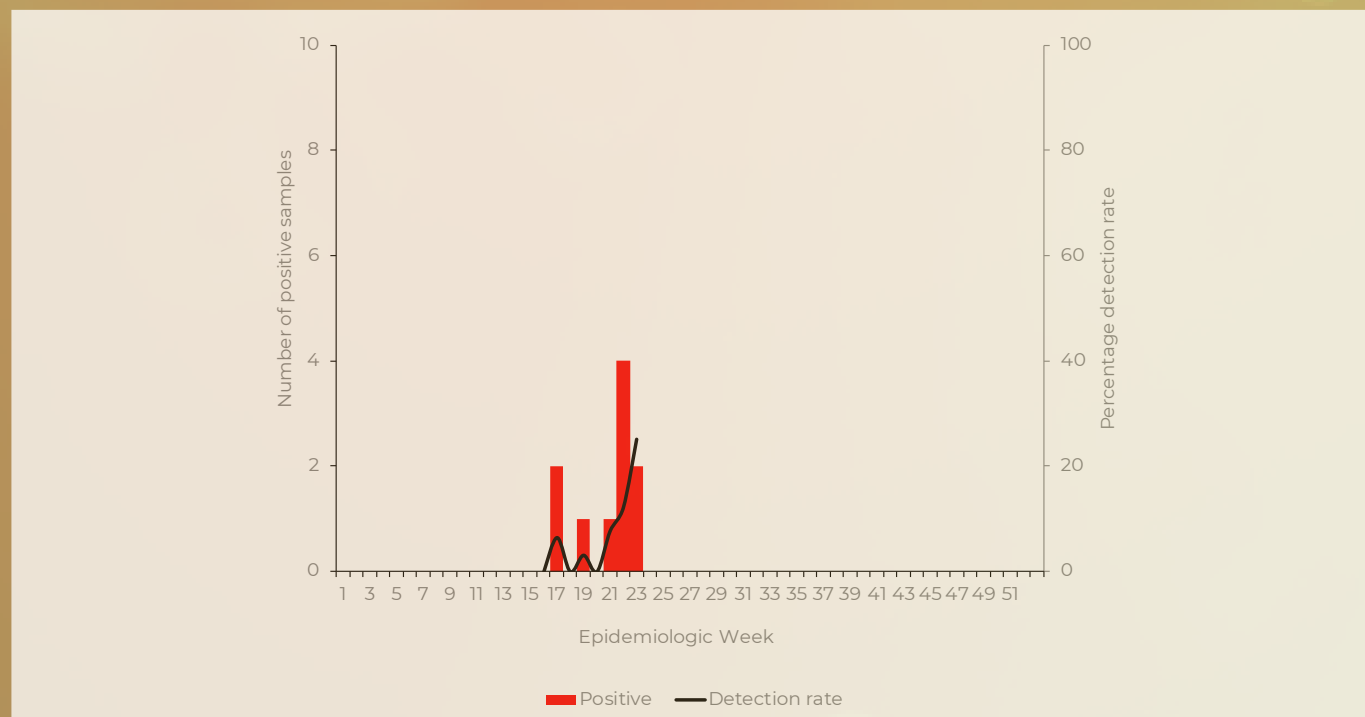


Figure 4. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients with Influenza-like illnesses at 4 sentinel sites in 48 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)	4	172	176
Edendale Gateway (KZ)	0	34	34
Jouberton (NW)	0	69	69
Mitchellsplain (WC)	6	85	91
Total:	10	360	370

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.

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 01 JUNE 2020

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

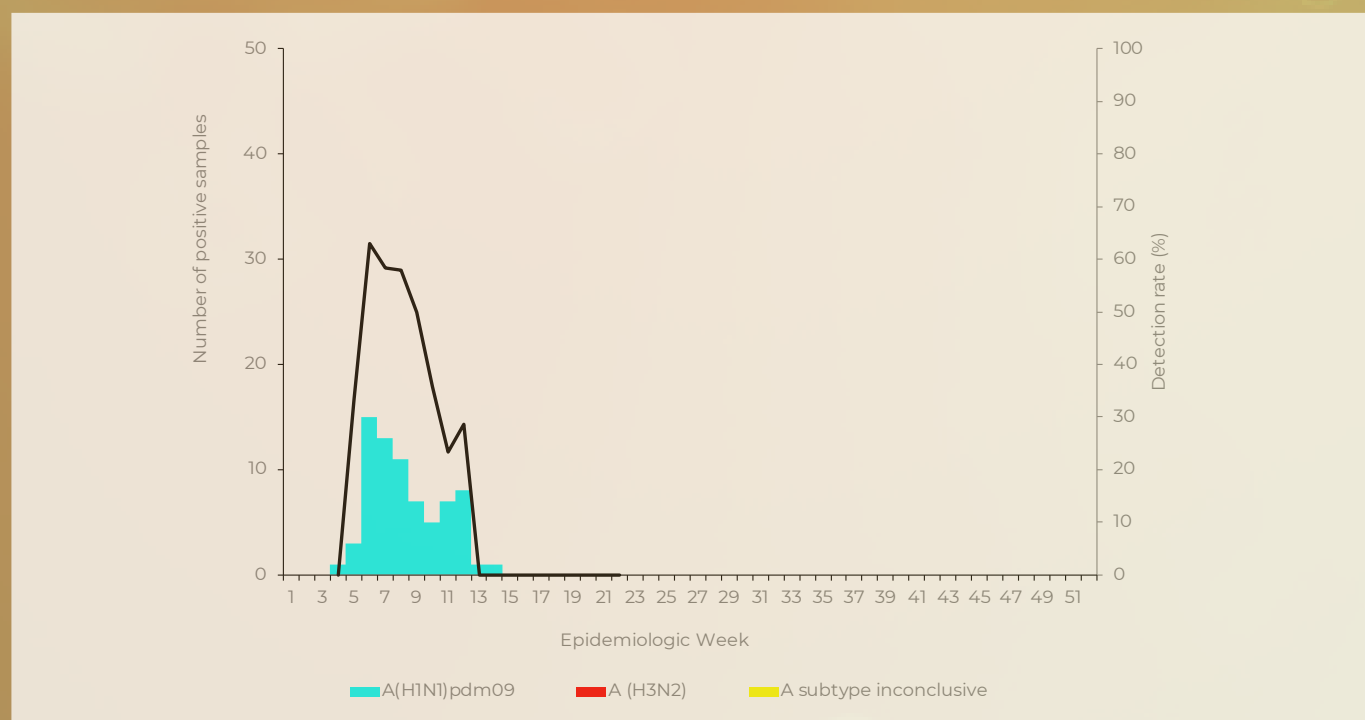


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients with Influenza-like illnesses at 92 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	3
Gauteng	1	0	0	0	0	0	55
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	0	0	0	0	0	144
Total:	74	0	0	0	0	0	213

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.

INFLUENZA, RSV, PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 01 JUNE 2020

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

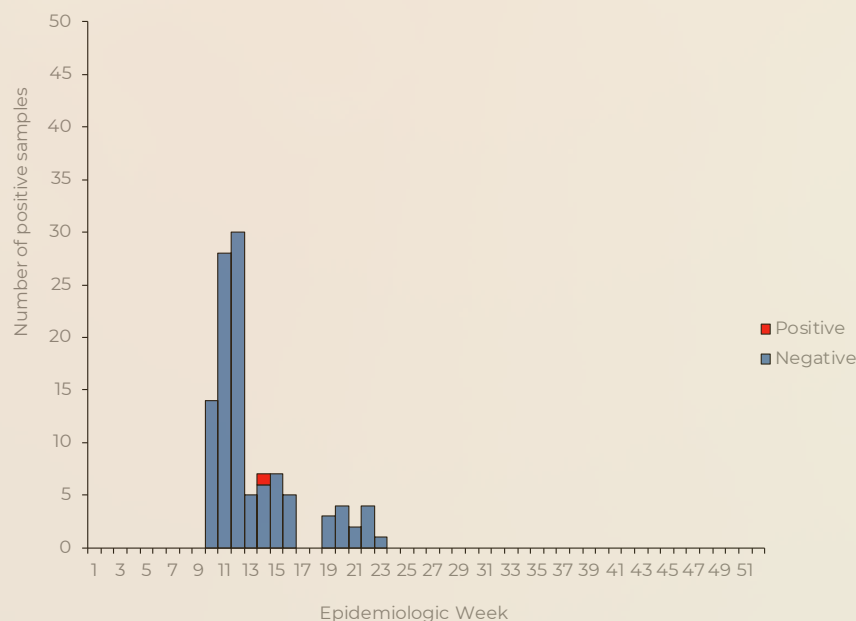


Figure 6. Number of samples *tested, and results, for SARS-CoV-2 by week

*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	4	4
Free State	0	3	3
Gauteng	0	46	46
Limpopo	0	0	0
Mpumalanga	0	0	0
North West	0	0	0
Northern Cape	0	2	2
Western Cape	1	54	56
Total:	1	109	111

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 01 JUNE 2020

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

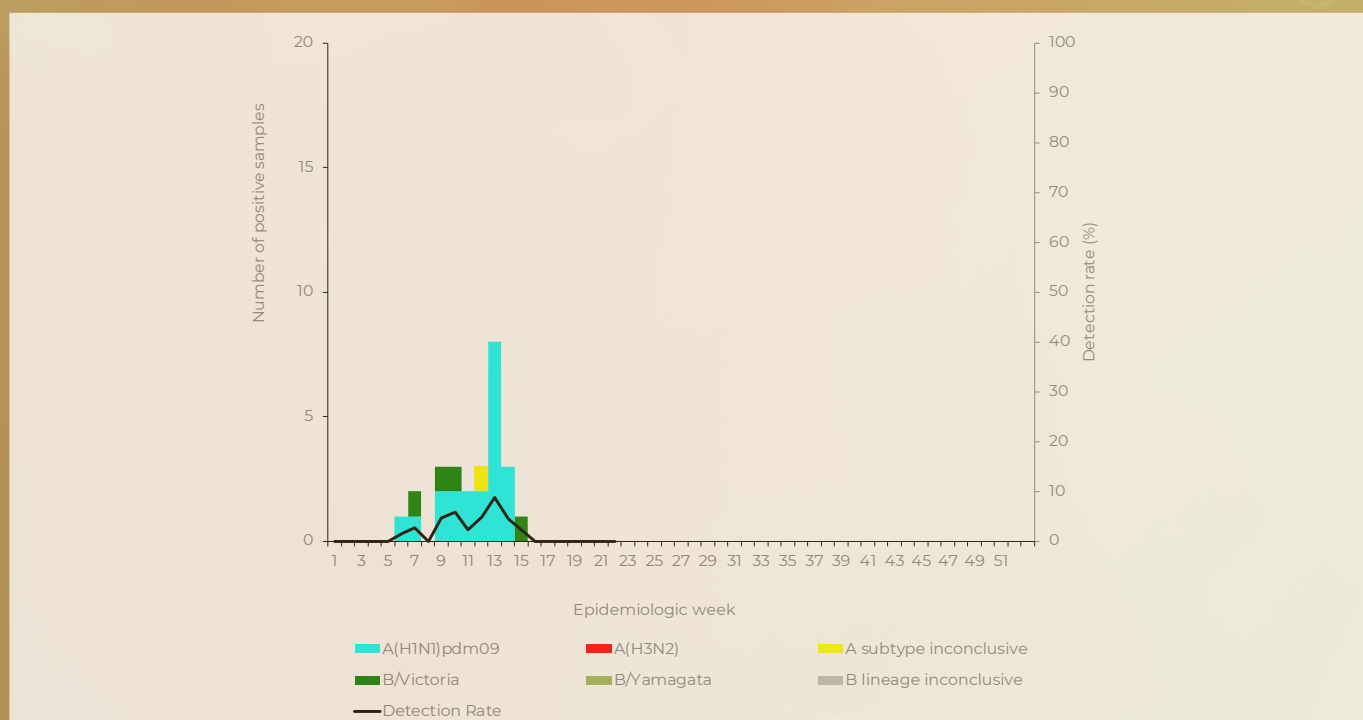


Figure 7. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients hospitalized 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 SARS-CoV-2 identified and total number of samples tested by province

Hospital (Province)	A9(H1N1) pdm09	A(H3N2)	A SUBTYPE INCLUSIVE	B/Victoria	Y/ Yamagata	B lineage inconclusive	Total samples
Edendale (KZ)	0	0	0	0	0	0	186
Helen Joseph-Rahima Mooas (GP)	0	0	0	0	0	0	329
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	203
Mpumalanga - Matikwana (MP)	0	0	0	0	0	0	109
Red Cross (WC)	19	0	0	0	2	0	380
Mitchellsplain (WC)	2	0	0	1	2	0	164
Total:	21	0	1	1	4	0	1371

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

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

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 01 JUNE 2020

NATIONAL SYNDROMIC FOR PNEUMONIA

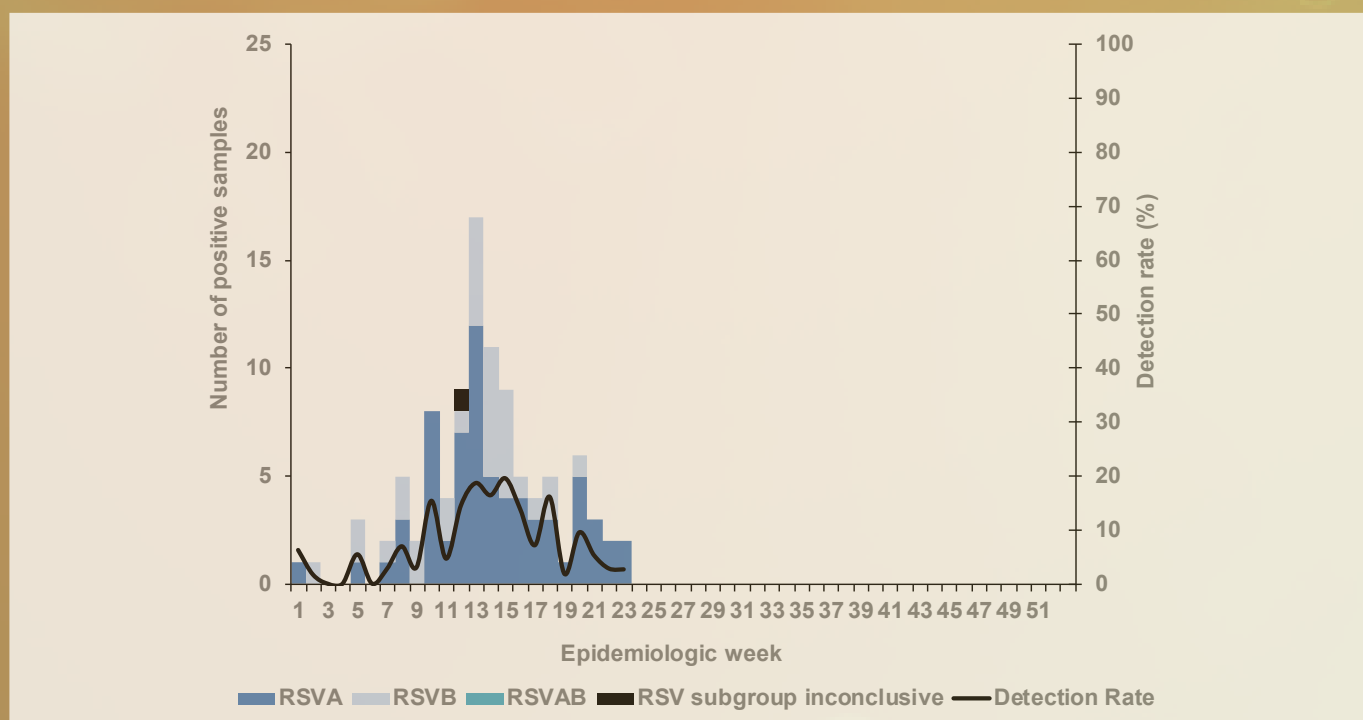


Figure 8. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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	RSVB	RSVB subgroup inconclusive	Total samples
Edendale (KZ)	11	2	8	0	1
Helen Joseph-Rahima Mooas (GP)	42	32	10	0	0
Klerksdorp-Tshepong (NW)	1	1	0	0	0
Mpumalanga - Matikwana (MP)	0	0	0	0	0
Red Cross (WC)	42	28	14	0	0
Mitchells Plain (WC)	1	1	0	0	0
Total:	97	64	32	0	1

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

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 23 2020 | REPORTING PERIOD 1 JANUARY 2020 TO 01 JUNE 2020

NATIONAL SYNDROMIC FOR PNEUMONIA

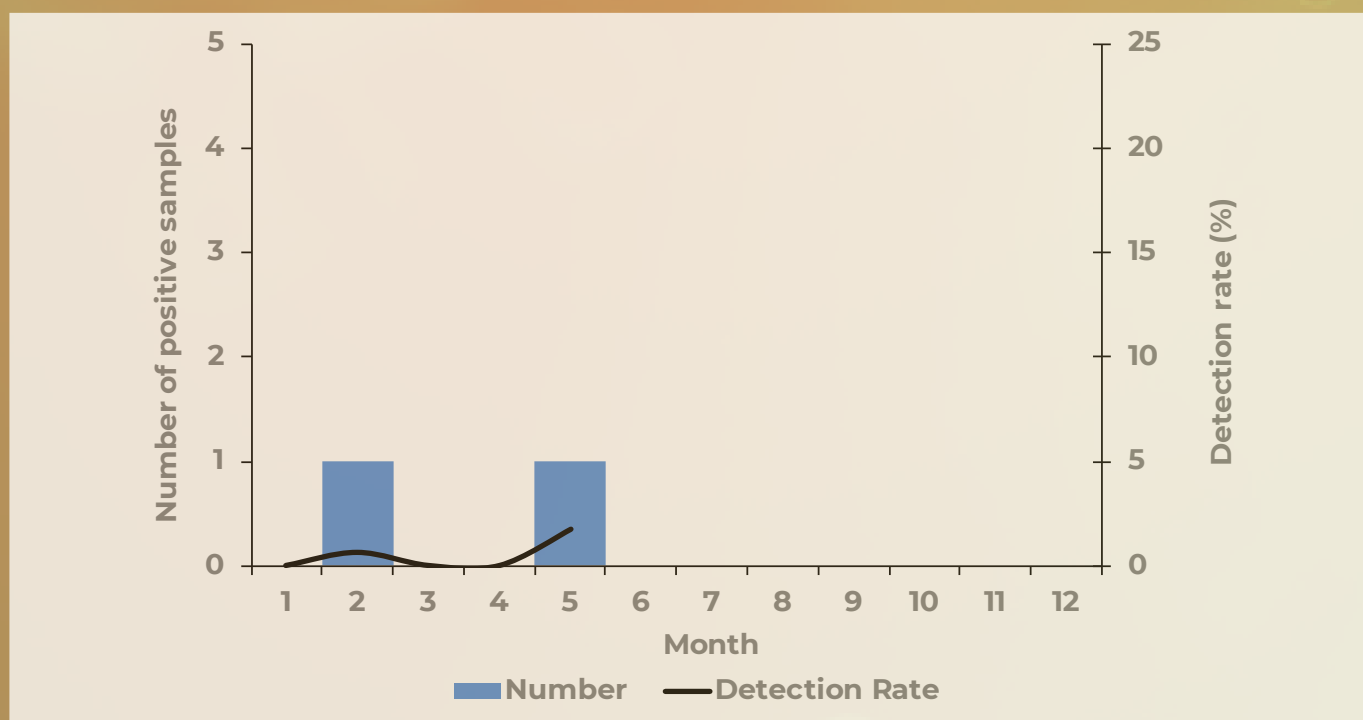


Figure 9. Number of samples testing positive for B. pertussis and detection rate by month

Table 9. Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by hospital

Hospital (Province)	B. pertussis positive**	Total samples
Edendale (KZ)	1	187
Helen Joseph-Rahima Mooas (GP)	1	292
Klerksdorp-Tshepong (NW)	1	189
Mpumalanga - Matikwana (MP)	0	109
Red Cross (WC)	4	163
Mitchells Plain (WC)	1	399
Total:	8	1339

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.

INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

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NATIONAL SYNDROMIC FOR PNEUMONIA

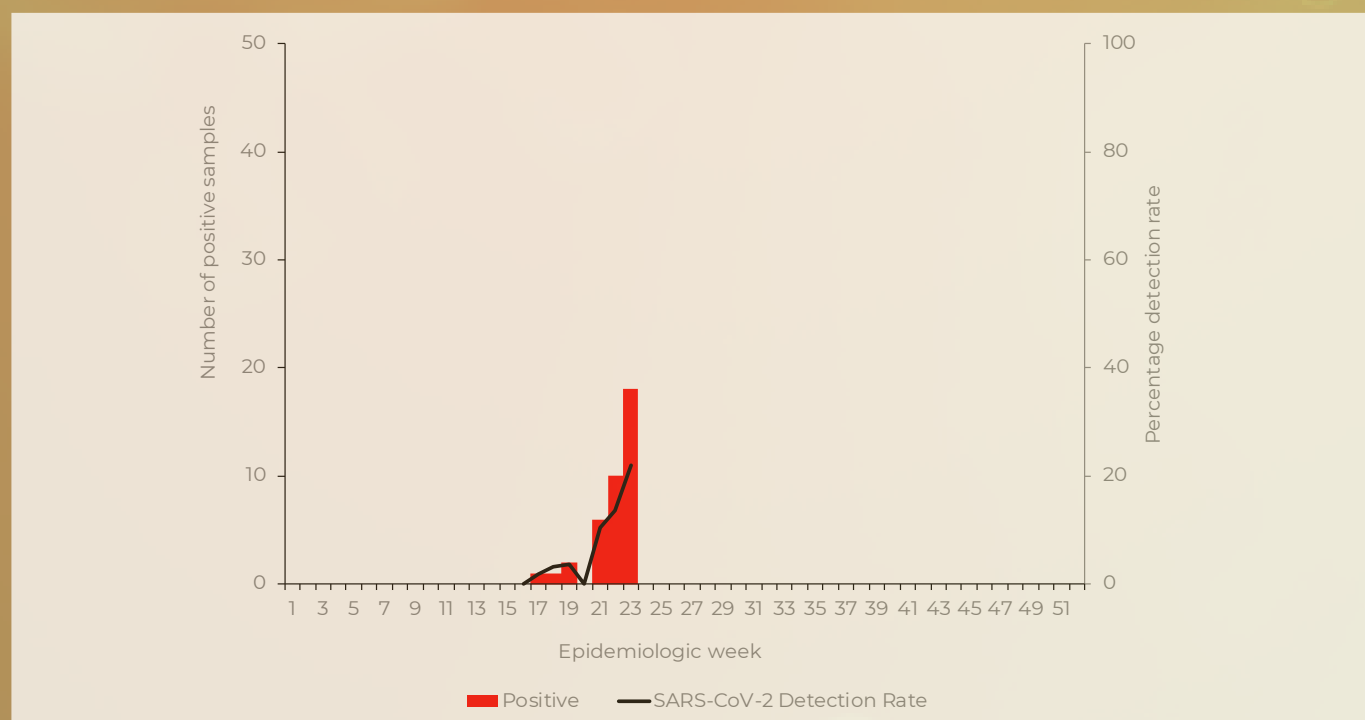


Figure 10. Number of positive samples*, and detection rate, for SARS-CoV-2 by week
*Specimens from patients with pneumonia at 6 sentinel sites in 5 provinces

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	125	125
Helen Joseph-Rahima Mooas (GP)	10	187	197
Klerksdorp-Tshepong (NW)	3	1126	129
Mapulaneng - Matikwana (MP)	0	63	63
Red Cross (WC)	9	229	238
Mitchells Plain (WC)	16	101	117
Total:	38	831	869

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