

WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

 NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 21 2020

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CUMULATIVE DATA FROM



HIGHLIGHTS: WEEK 21

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 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 six additional patients that tested positive for SARS-CoV-2 in SARI (five) and ILI (one) surveillance programs. To date, 14 cases have been detected from all surveillance programmes, 13 are from the Western Cape Province and one is from Gauteng Province.

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

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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

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COMMENTS

Notice

Since the start of the national lock down, we have seen a systematic decrease in the number of patients presenting to healthcare facilities and enrolled into our surveillance programmes. This includes patients presenting to public clinics, general practitioners and the number of patients admitted to hospital.

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 562 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 208 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 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 1225 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 between 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, 562 specimens were tested and RSV was detected in specimens of seven (1%) patients.

Viral Watch programme: During the same period, 208 specimens were tested and RSV has not been detected.

Pneumonia surveillance: Since the beginning of 2020, 1225 specimens were tested and RSV was detected in specimens of 96 (8%) patients.

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 328 patients were tested and SARS-CoV-2 was detected in four (1%) patients at Mitchell's Plain Clinic.

Pneumonia surveillance: In 2020 to date, specimens from 702 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in nine (1%) patients, four from Red Cross Children's Hospital, four from Mitchell's Plain Hospital and one from Helen Joseph Hospital.

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

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

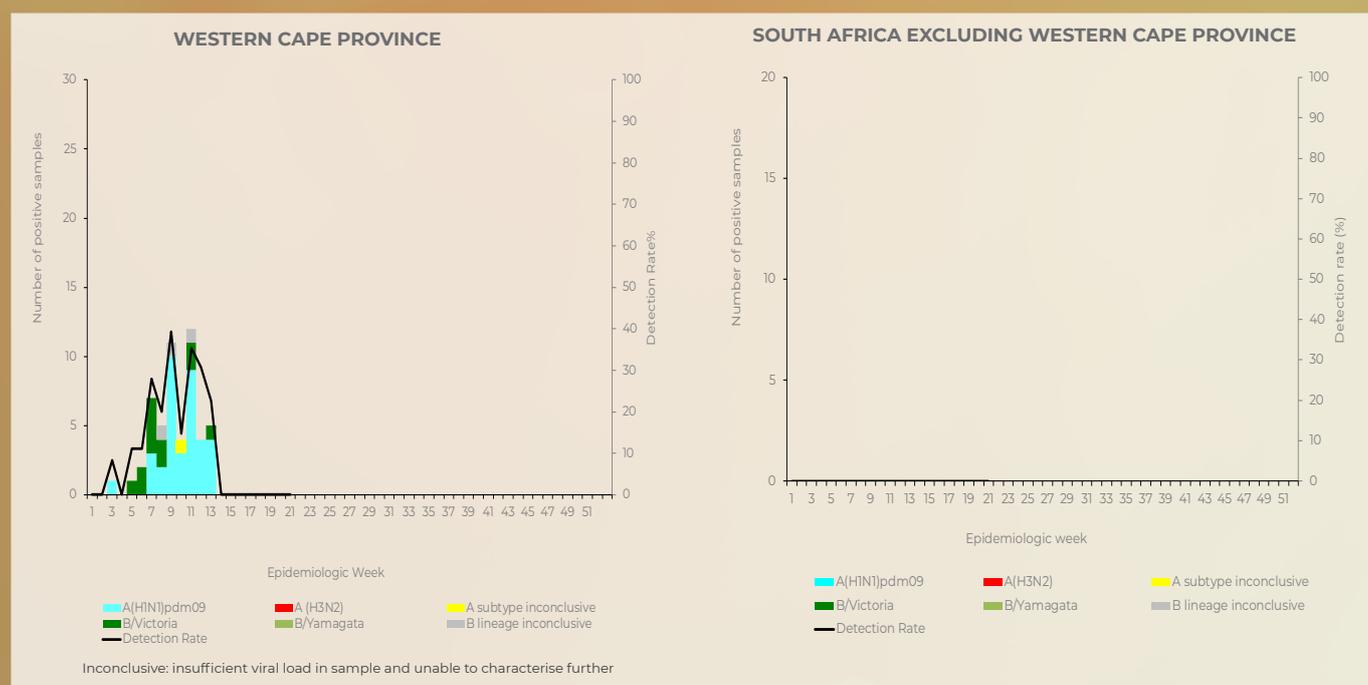


Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients with influenza-like illnesses at 4 sentinel sites in 3 provinces
**Only reported for weeks with >10 specimens submitted

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	250
Edendale Gateway (KZ)	0	0	0	0	0	0	84
Jouberton (NW)	0	0	0	0	0	0	113
Mitchell's Plain (WC)	3	0	0	0	0	0	115
Total:	36	0	1	12	0	3	562

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

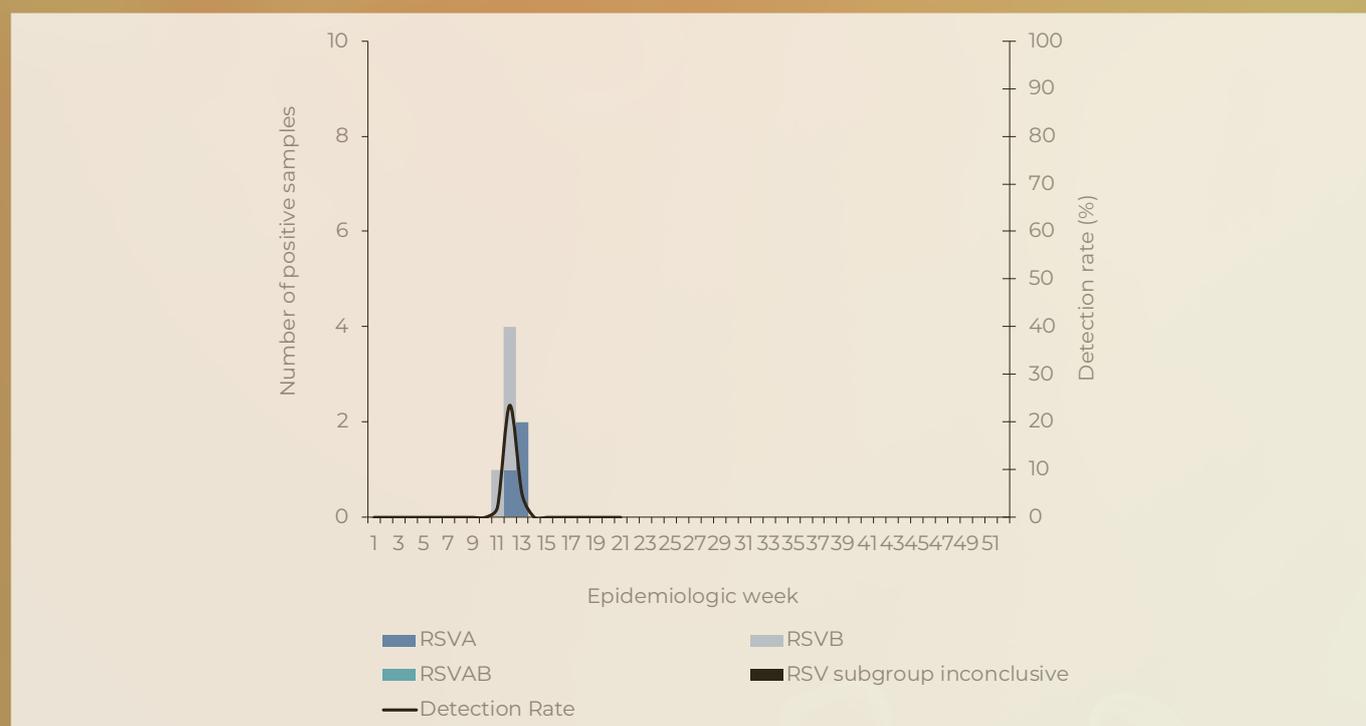


Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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	250
Edendale Gateway (KZ)	3	2	0	0	84
Jouberton (NW)	0	0	0	0	113
Mitchell's Plain (WC)	0	0	0	0	115
Total:	3	4	0	0	562

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

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

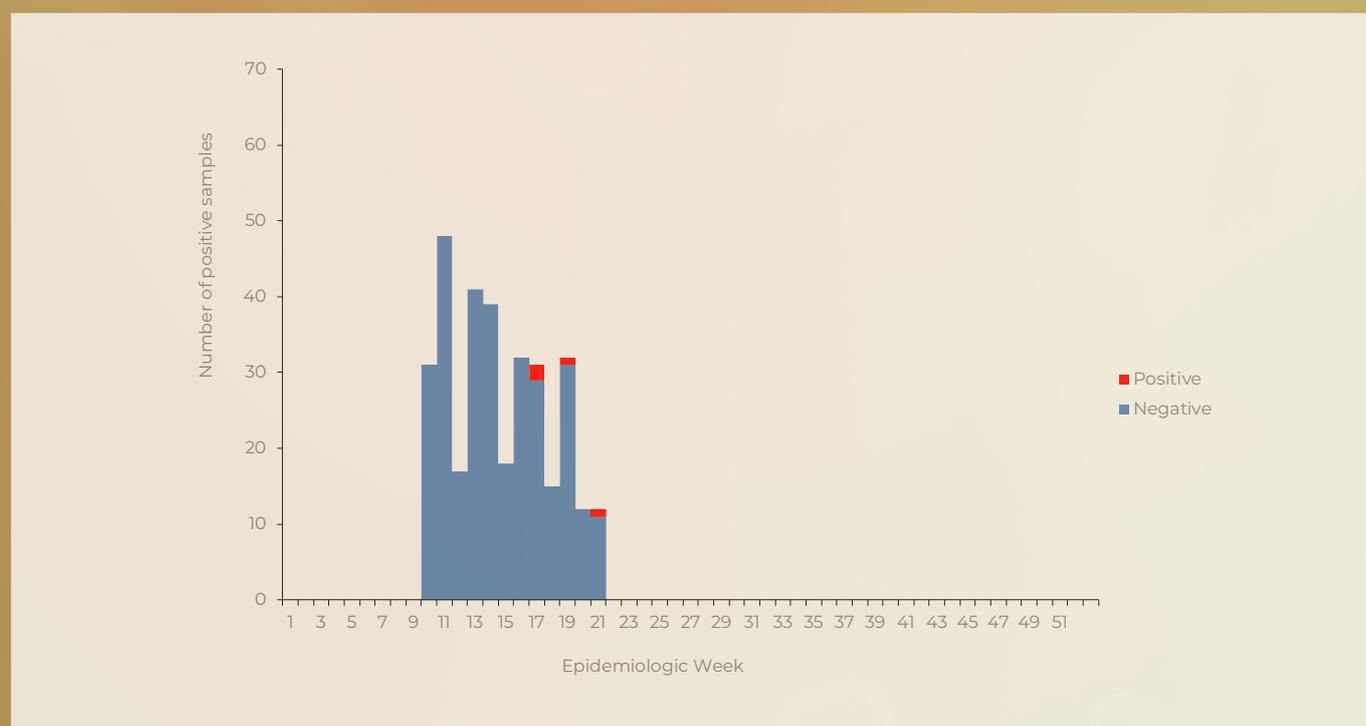


Figure 3. Number of samples* tested, and results, for SARS-CoV-2 by week

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

Table 3. 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	147	147
Edendale Gateway (KZ)	0	34	34
Jouberton (NW)	0	64	64
Mitchell's Plain (WC)	4	79	83
Total:	4	324	328

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

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

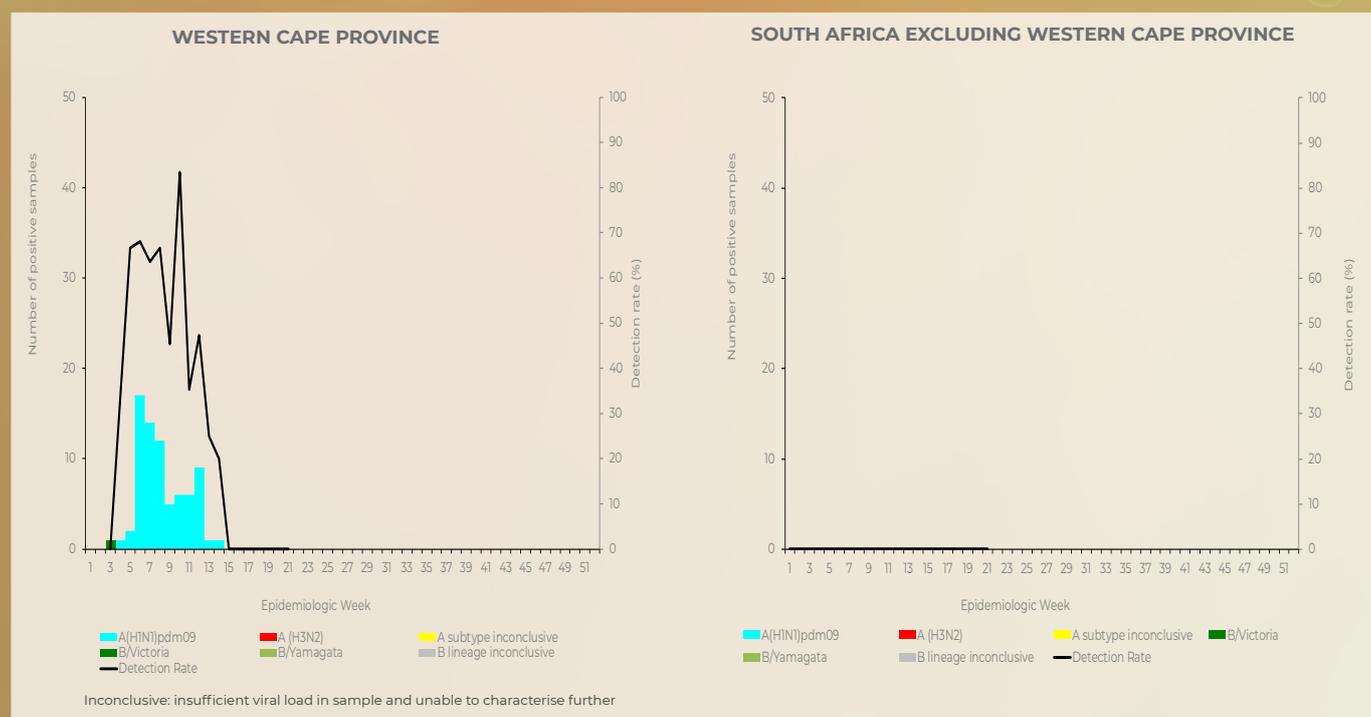


Figure 4. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients with Influenza-like illnesses at 92 sentinel sites in 8 provinces
 ** Only reported for weeks with >10 specimens submitted.

Table 4. 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	2
Gauteng	1	0	0	0	0	0	53
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:	75	1	0	1	0	0	208

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.

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

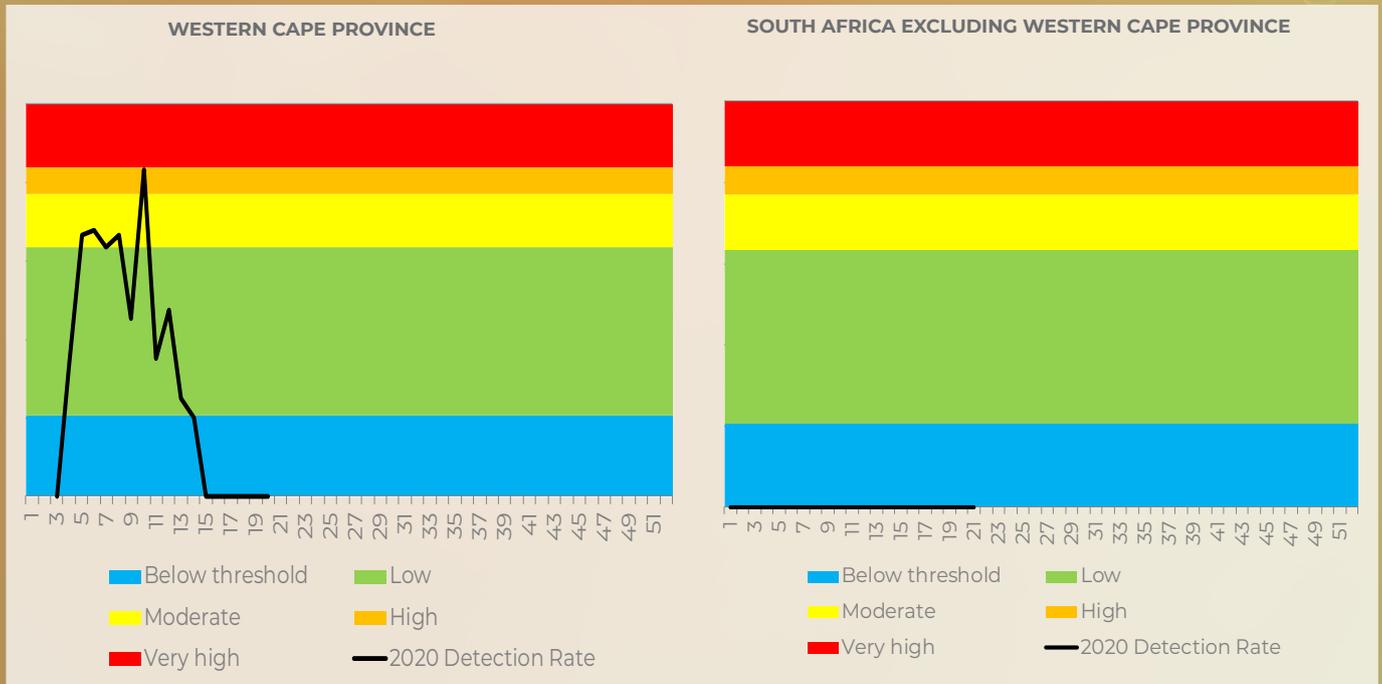


Figure 5. ILI surveillance and Viral Watch percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

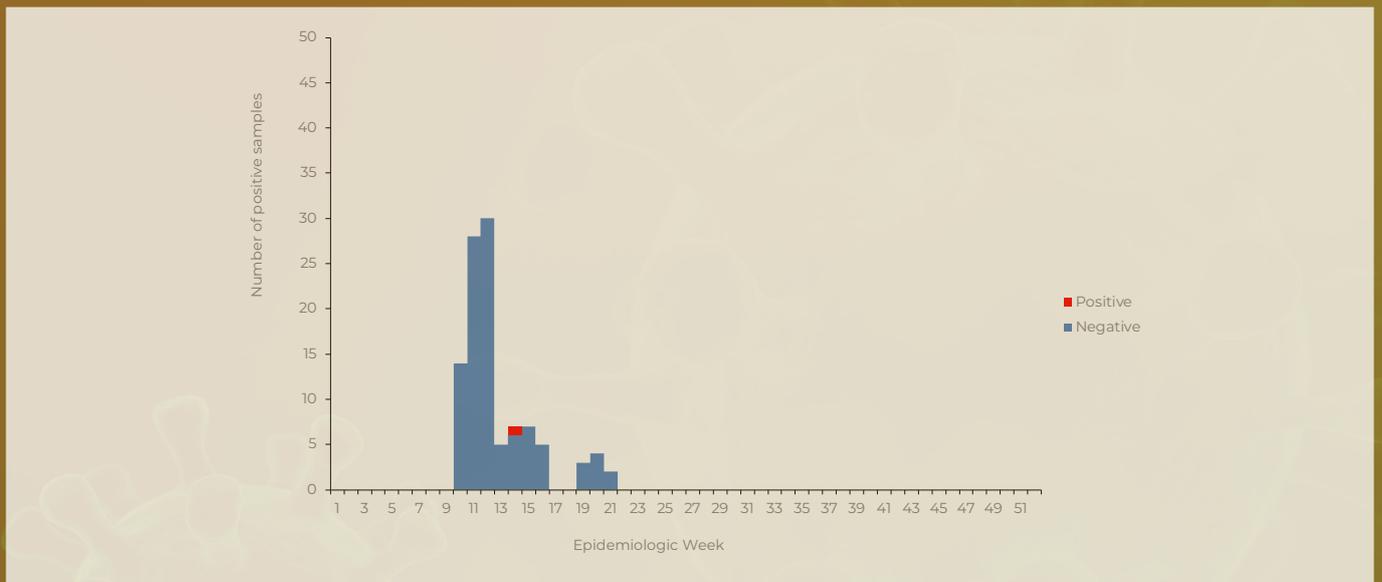


Figure 6. Number of samples* tested, and results, for SARS-CoV-2 by week

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

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

Table 5. 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	2	2
Gauteng	0	42	42
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	103	104

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

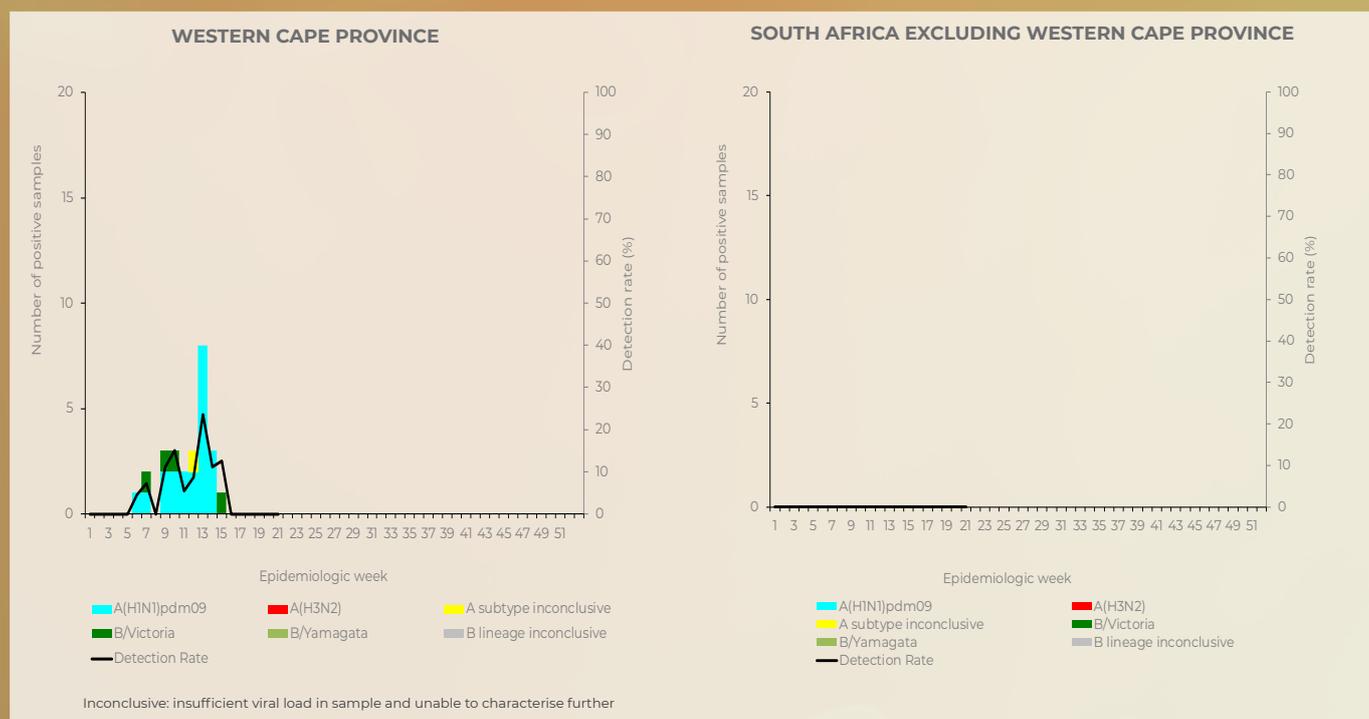


Figure 7. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients hospitalised with pneumonia at 6 sentinel sites in 5 provinces
 **Only reported for weeks with >10 specimens submitted

Table 6. 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	181
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	276
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	174
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	106
Red Cross (WC)	19	0	0	2	0	0	350
Mitchell's Plain (WC)	2	0	1	2	0	0	138
Total:	21	0	1	4	0	0	1225

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

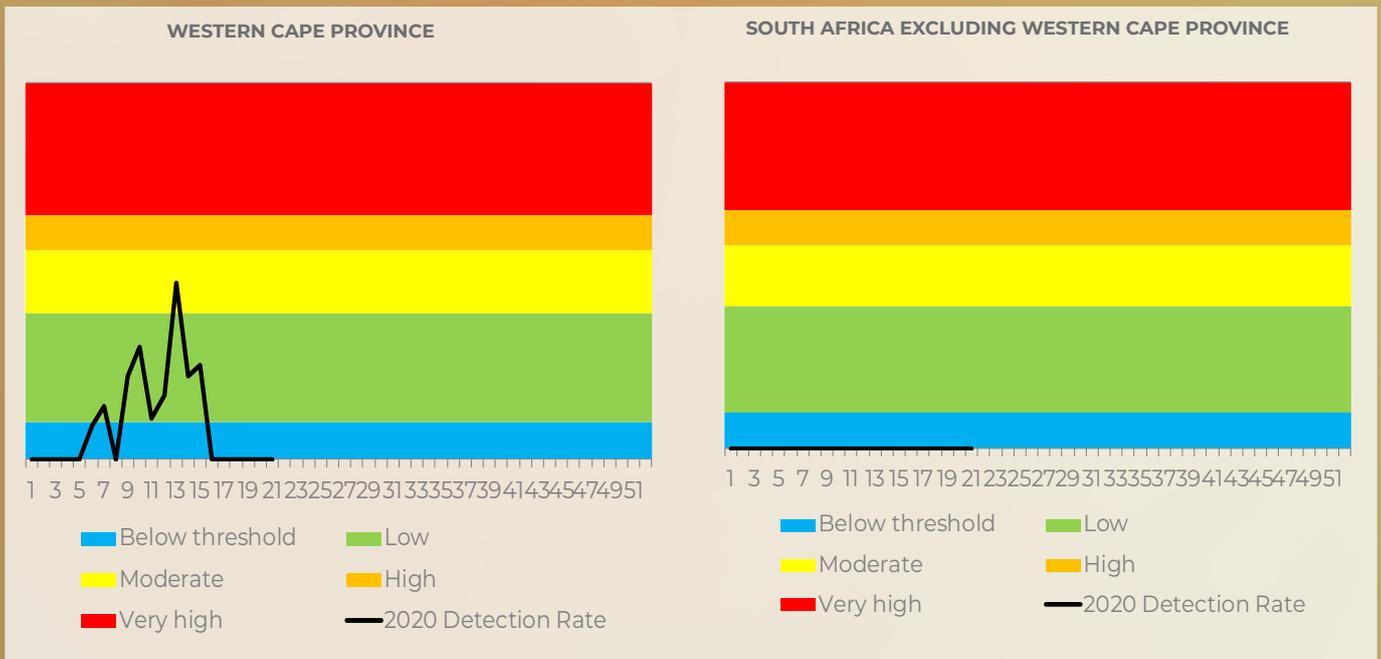


Figure 8. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

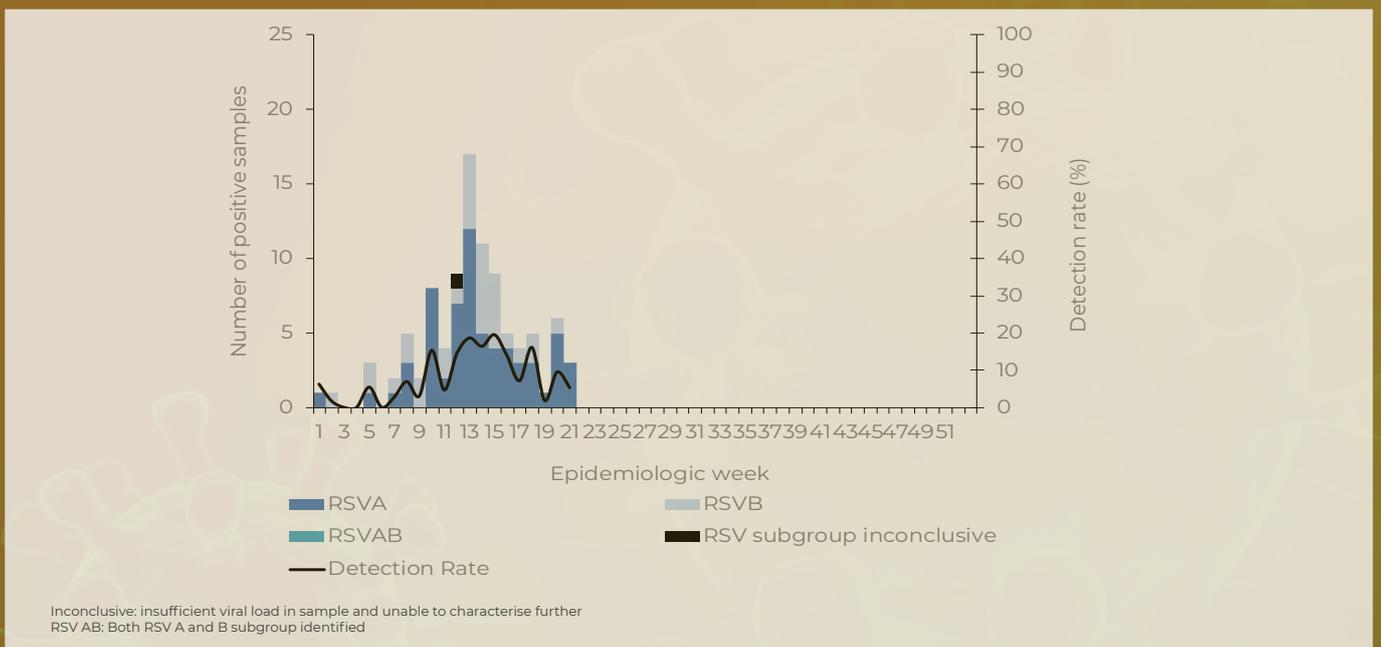


Figure 9. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Table 7: 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)	2	8	0	1	181
Helen Joseph-Rahima Moosa (GP)	32	10	0	0	276
Klerksdorp-Tshepong (NW)	1	0	0	0	174
Mapulaneng-Matikwana (MP)	0	0	0	0	106
Red Cross (WC)	27	14	0	0	350
Mitchell's Plain (WC)	1	0	0	0	138
Total:	63	32	0	1	1 225

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

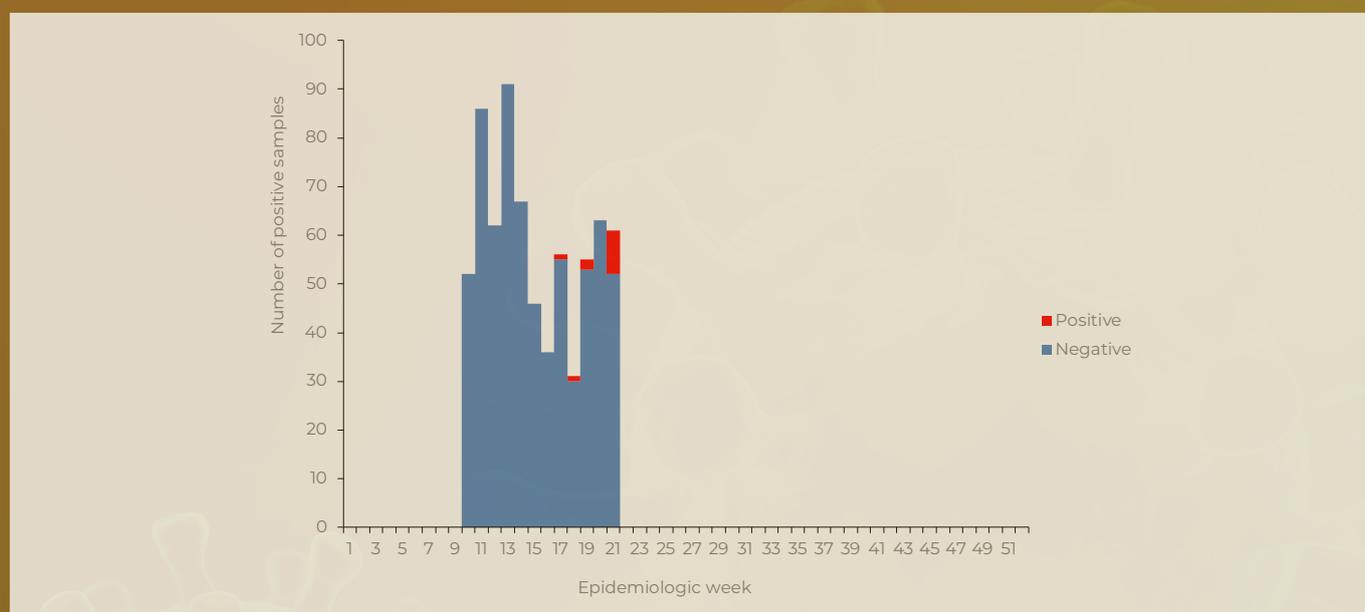


Figure 10. Number of samples* tested, and results, for SARS-CoV-2 by week

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

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	106	106
Helen Joseph-Rahima Moosa (GP)	1	140	141
Klerksdorp-Tshepong (NW)	0	99	99
Mapulaneng-Matikwana (MP)	0	57	57
Red Cross (WC)	4	204	208
Mitchell's Plain (WC)	4	87	91
Total:	9	693	702

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

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

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SUMMARY OF CASES COVID-19 FROM SYNDROMIC SURVEILLANCE 10 MARCH 2020 - 24 MAY 2020

Case No	Date of birth	Age	Sex	Date of admission or consultation	Presentation	Surveillance	Underlying conditions	Oxygen/ICU/Ventilation	Outcome	Date of Outcome	Epi link	Province
1	15/07/1952	67Y	Female	02/04/2020	Flu-like symptoms	ILI- Viral Watch	Leukaemia in remission	None	Discharged	02/04/2020	Nil	Western Cape
2	11/01/2004	16Y	Female	22/04/2020	Respiratory distress	Pneumonia	Obesity, Scoliosis+ tracheostomy	Oxygen therapy, ICU	Discharged	22/04/2020	Close contact of case	Western Cape
Surveillance												
3	26/12/1999	21Y	Male	23/04/2020	Flu-like symptoms	ILI public-sector	None	None	Discharged	23/04/2020	Close contact of case	Western Cape
4	14/03/2014	15Y	Male	20/04/2020	Flu-like symptoms	ILI public-sector	None	None	Discharged	24/04/2020	None known	Western Cape
5	09/03/2020	2M	Female	30/04/2020	Cough	Pneumonia surveillance	None	None	Discharged	02/05/2020	Close contact of case	Western Cape
6	03/01/1977	43Y	Female	04/05/2020	Difficulty breathing	Pneumonia surveillance	None	Oxygen	Discharged	05/05/2020	Close contact of case	Western Cape
7	27/12/1972	47Y	Female	07/05/2020	Difficulty breathing, fever, cough	Pneumonia surveillance	None	None	Discharged	08/05/2020	None known	Western Cape
8	15/03/1992	28Y	Male	08/05/2020	Fever and cough	ILI public-sector	None	None	Discharged	08/05/2020	Close contact of case	Western Cape
9	04/03/1975	45Y	Male	20/05/2020	Not available	Pneumonia Surveillance	Not available	Not available	Not available	Not available	Not available	Western Cape
10	02/12/1980	39Y	Female	20/05/2020	Not available	Pneumonia Surveillance	Not available	Not available	Not available	Not available	Not available	Western Cape
11	11/02/1969	51Y	Female	21/05/2020	Fever and cough	ILI public-sector	Not available	Not available	Discharged	Not available	Not available	Western Cape
12	27/03/2020	1M	Female	22/05/2020	Not available	Pneumonia Surveillance	Not available	Not available	Not available	Not available	Not available	Western Cape
13	10/04/2020	1M	Female	22/05/2020	Not available	Pneumonia Surveillance	Not available	Not available	Not available	Not available	Not available	Western Cape
14	15/07/1987	33Y	Female	19/05/2020	Shortness of breath, fever and cough	Pneumonia Surveillance	None	None	Transferred to another hospital	23/05/2020	None known	Gauteng