

WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

 NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 22 2020

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CUMULATIVE DATA FROM



HIGHLIGHTS: WEEK 22

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 fourteen additional patients that tested positive for SARS-CoV-2 in SARI (10) and ILI (four) surveillance programmes. To date, 29 cases have been detected from all surveillance programmes, 28 from the Western Cape Province and one 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	INF RSV BP	INF RSV BP
	SARS-CoV-2****	SARS-CoV-2****	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

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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 591 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 212 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 1 290 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, 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, 591 specimens were tested and RSV was detected in specimens of seven (1%) patients.

Viral Watch programme: During the same period, 212 specimens were tested and RSV has not been detected.

Pneumonia surveillance: Since the beginning of 2020, 1 290 specimens were tested and RSV was detected in specimens of 97 (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 360 patients were tested and SARS-CoV-2 was detected in eight (2%) patients from Western Cape Province.

Viral Watch programme: In 2020 to date, specimens were tested from 108 patients and SARS-CoV-2 was detected in one (1%) patient.

Pneumonia surveillance: In 2020 to date, specimens from 770 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 20 (3%) patients from Western Cape (19) Province and Gauteng (1) Province.

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

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

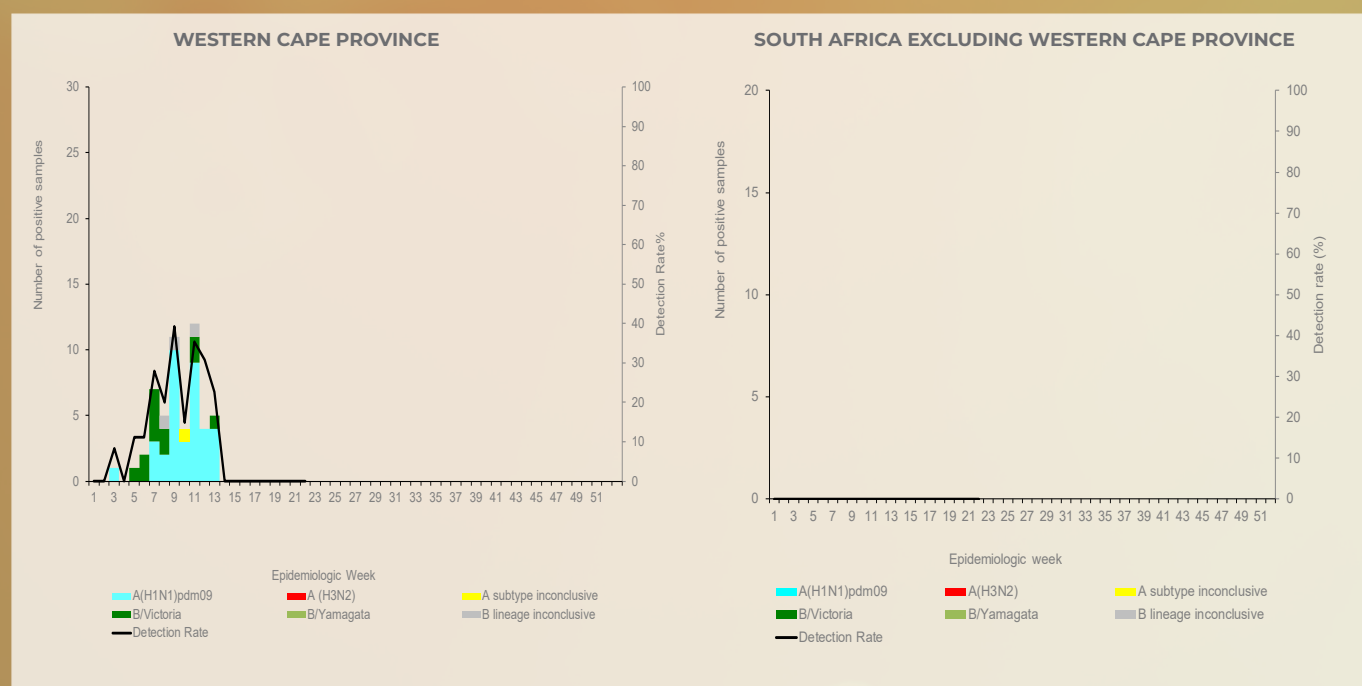


Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients with influenza-like illnesses at 4 sentinel sites in 3 provinces
 **Only reported for weeks with >10 specimens submitted
 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	272
Edendale Gateway (KZ)	0	0	0	0	0	0	84
Jouberton (NW)	0	0	0	0	0	0	116
Mitchell's Plain (WC)	3	0	0	0	0	0	119
Total:	36	0	1	12	0	3	591

KZ: KwaZulu-Natal; NW: North West; 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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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE PRIMARY HEALTH CARE CLINICS

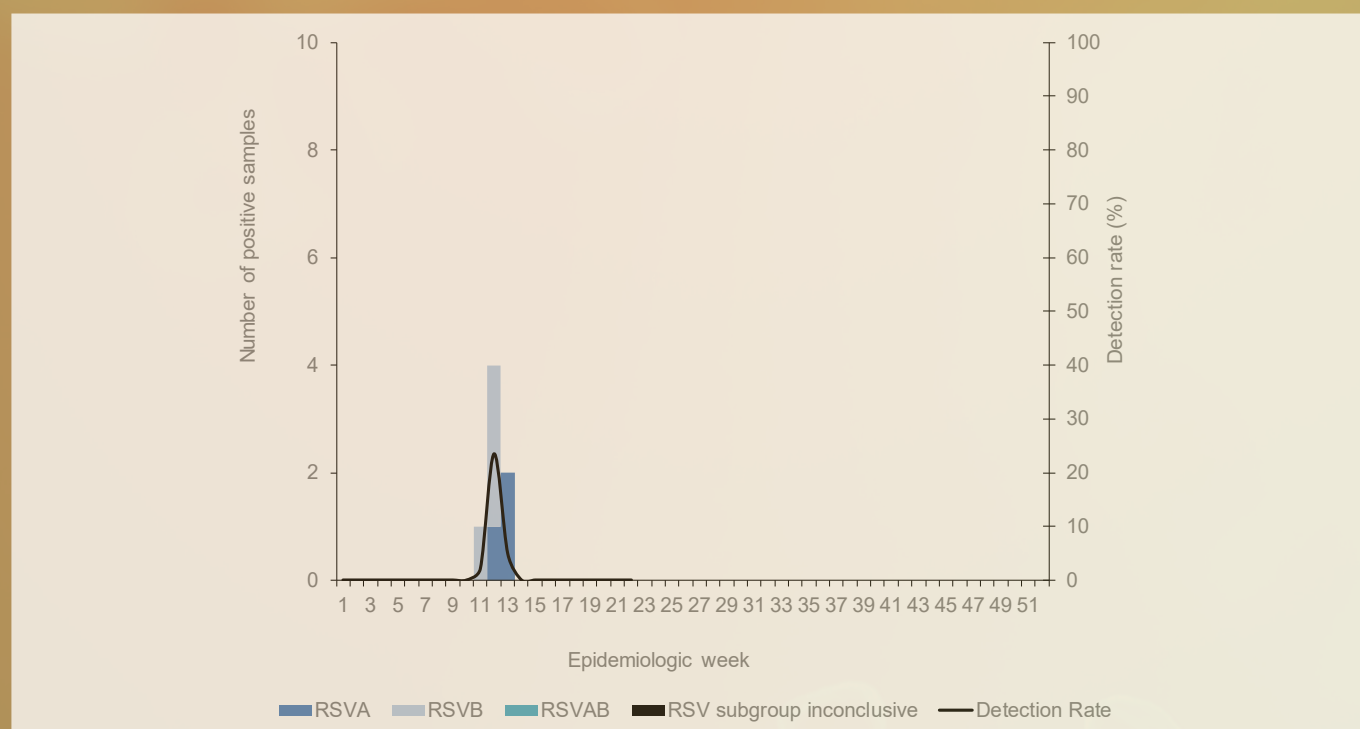


Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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	272
Edendale Gateway (KZ)	3	2	0	0	84
Jouberton (NW)	0	0	0	0	116
Mitchell's Plain (WC)	0	0	0	0	119
Total	3	4	0	0	591

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

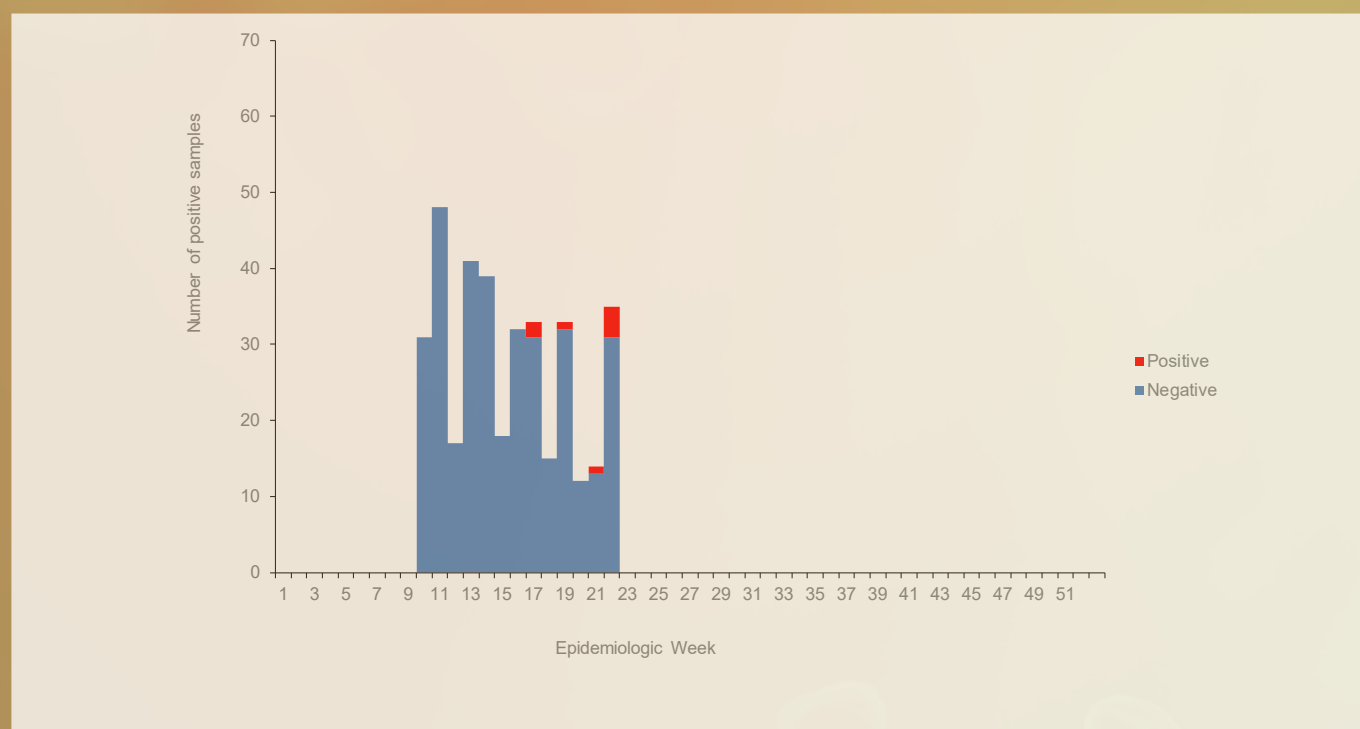


Figure 3. Number of samples* tested, and results, for SARS-CoV-2 by week

*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)	2	168	170
Edendale Gateway (KZ)	0	34	34
Jouberton (NW)	0	67	67
Mitchell's Plain (WC)	6	83	89
Total:	8	352	360

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

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

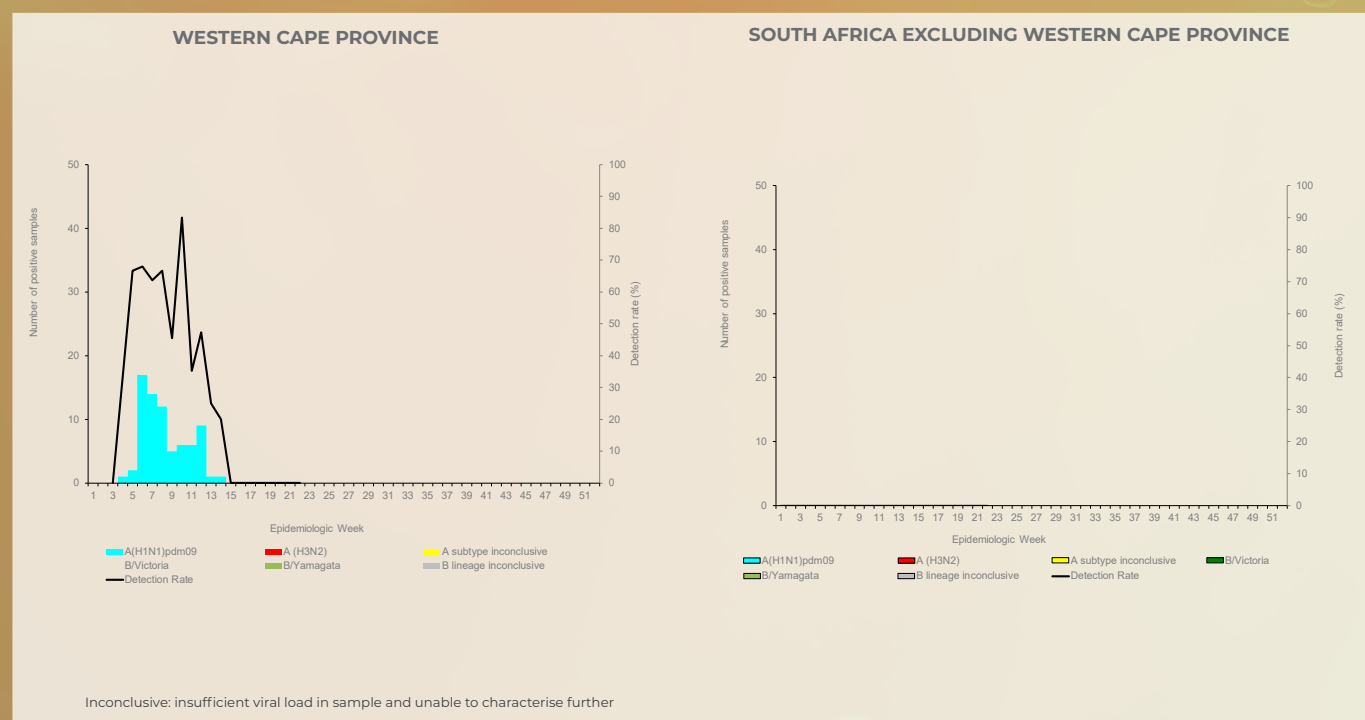


Figure 4. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*Specimens from patients with Influenza-like illnesses at 92 sentinel sites in 8 provinces
 ** Only reported for weeks with >10 specimens submitted.
 Inconclusive: insufficient viral load in sample and unable to characterise further

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	3
Gauteng	1	0	0	0	0	0	56
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	212

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

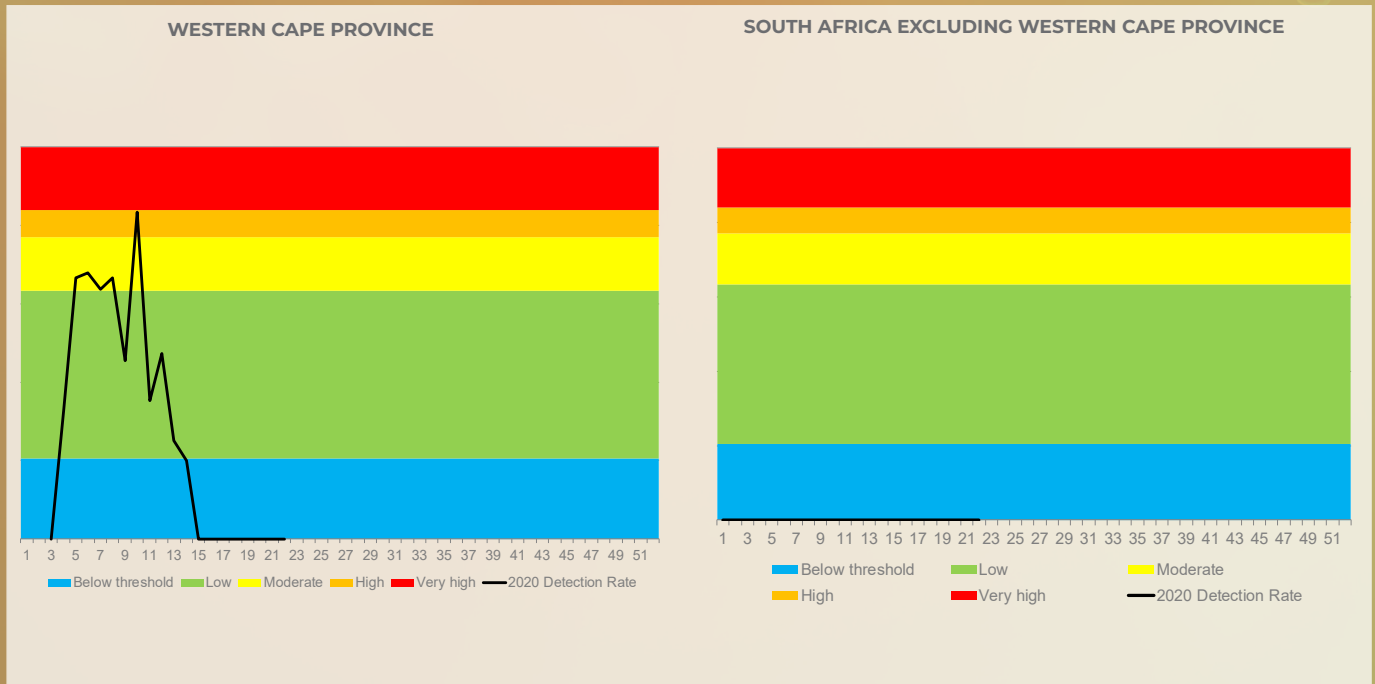


Figure 5. ILI surveillance and Viral Watch percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

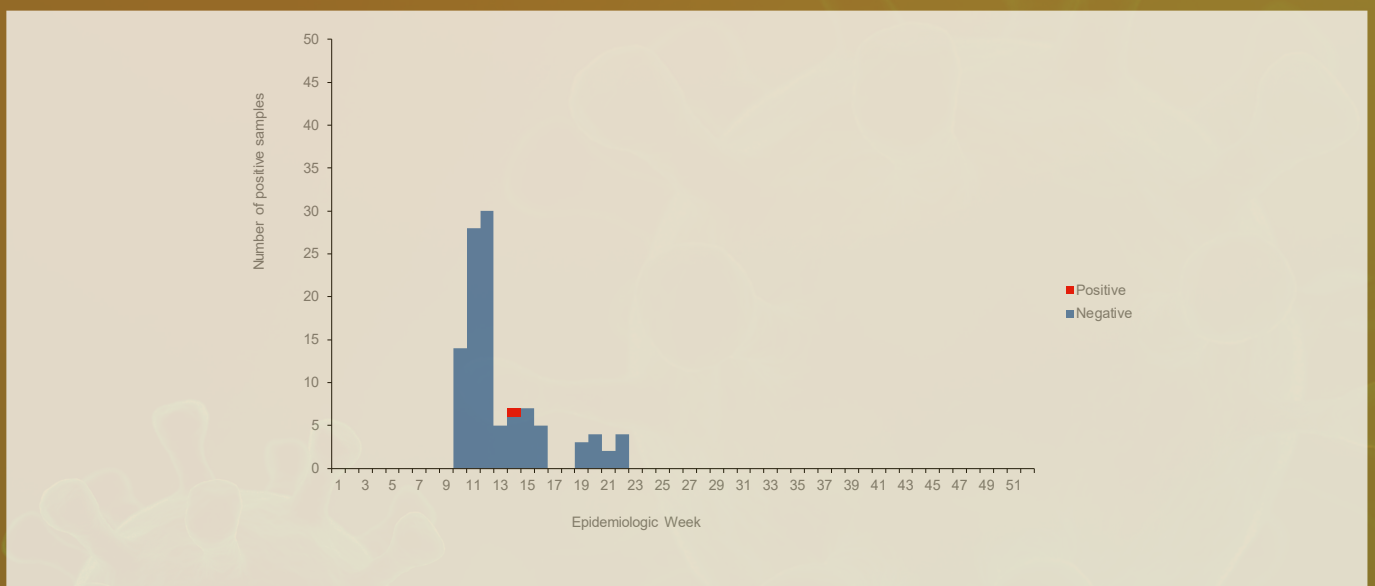


Figure 6. Number of samples* tested, and results, for SARS-CoV-2 by week

*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	3	3
Gauteng	0	45	45
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	107	108

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

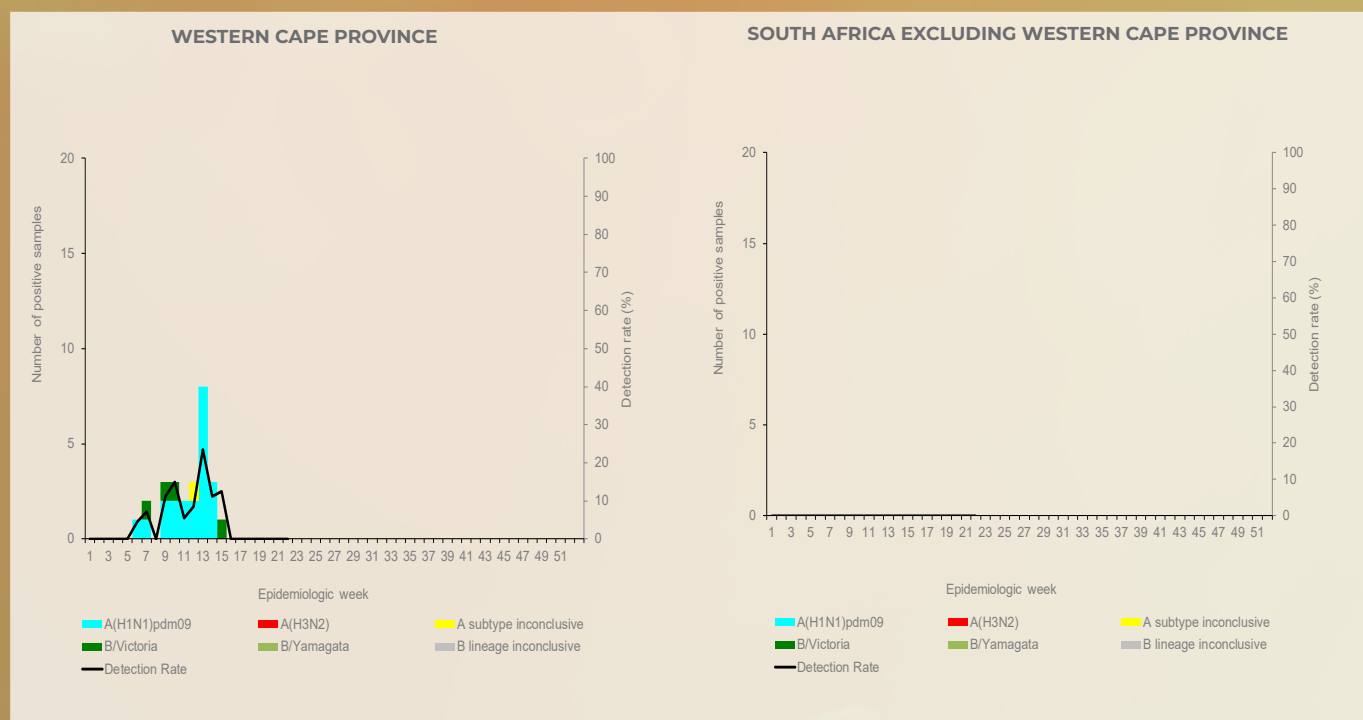


Figure 7. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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

**Only reported for weeks with >10 specimens submitted

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

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	186
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	290
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	186
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	107
Red Cross (WC)	19	0	0	2	0	0	369
Mitchell's Plain (WC)	2	0	1	2	0	0	152
Total:	21	0	1	4	0	0	1290

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

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

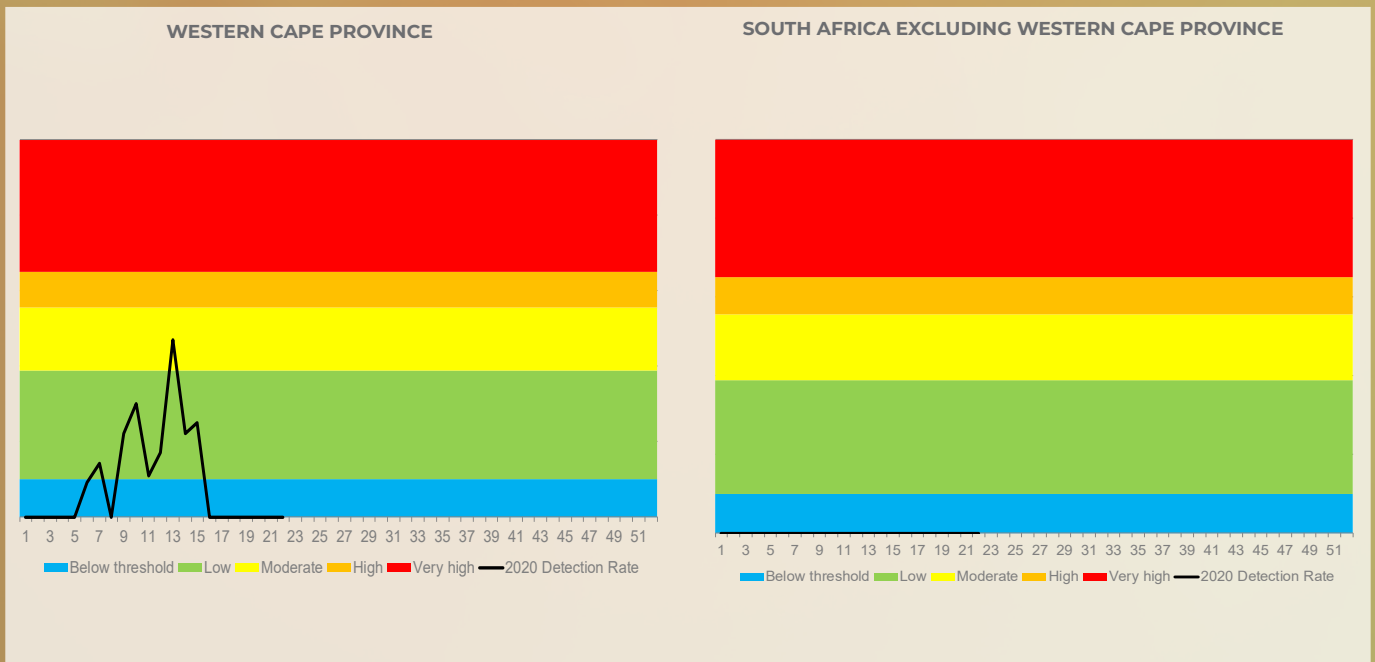


Figure 8. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

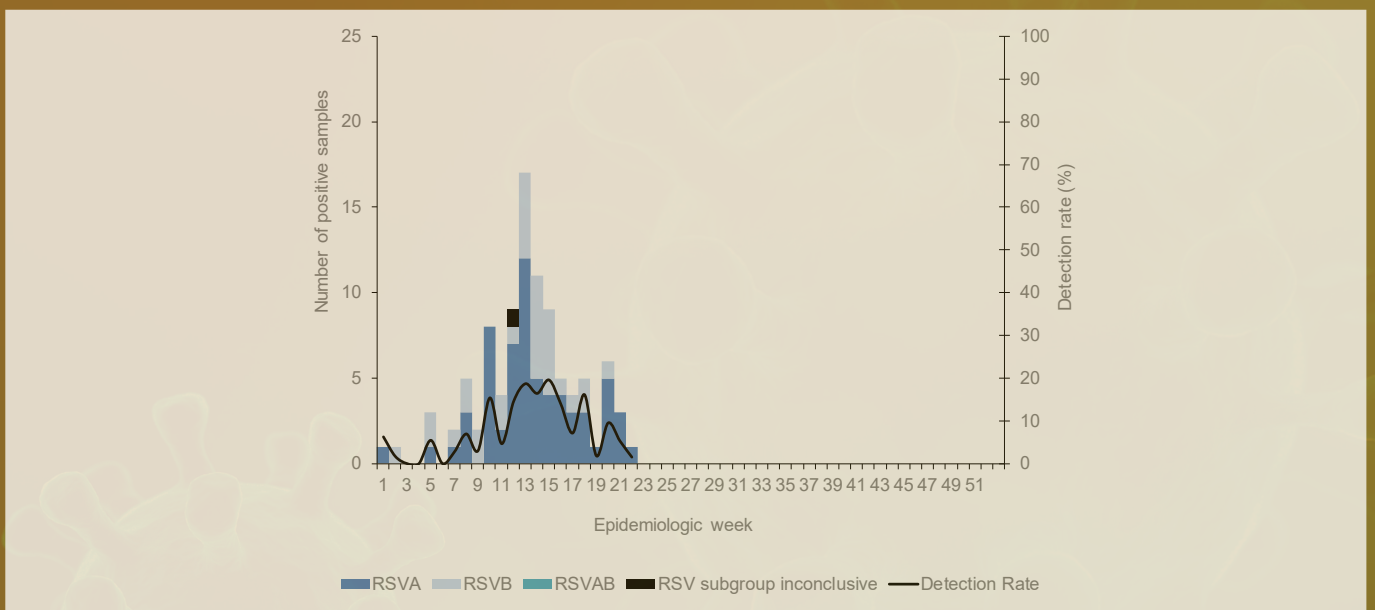


Figure 9. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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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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	186
Helen Joseph-Rahima Moosa (GP)	32	10	0	0	290
Klerksdorp-Tshepong (NW)	1	0	0	0	186
Mapulaneng-Matikwana (MP)	0	0	0	0	107
Red Cross (WC)	28	14	0	0	369
Mitchell's Plain (WC)	1	0	0	0	152
Total:	64	32	0	1	1 290

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

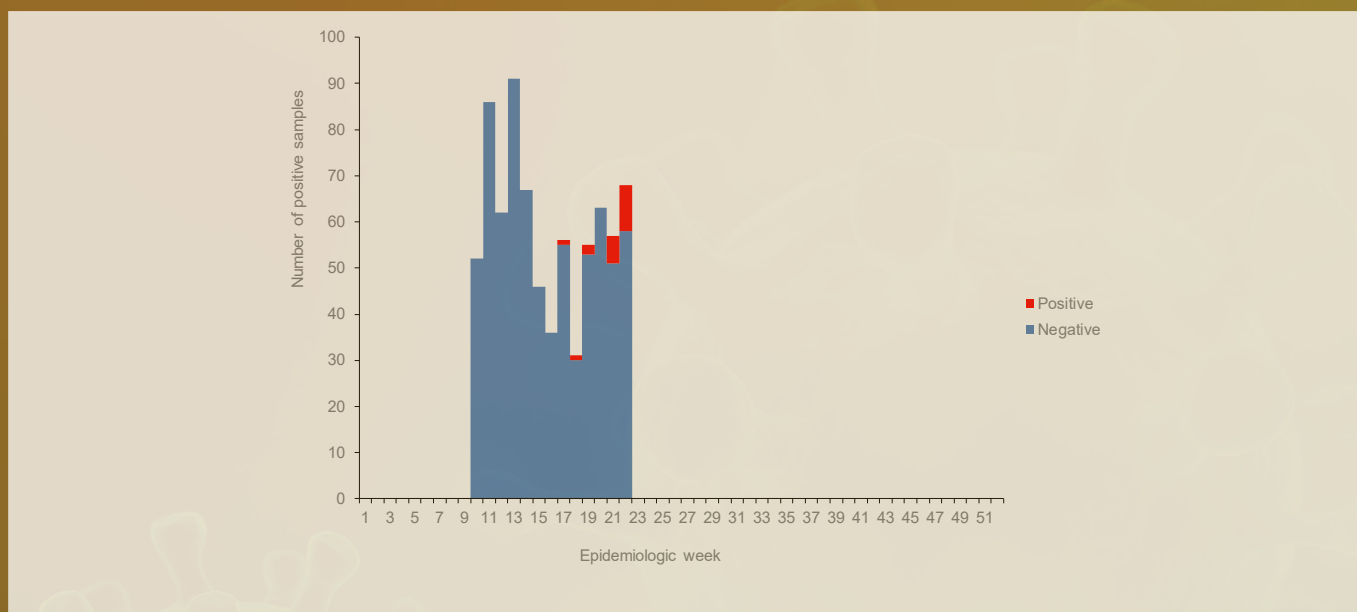


Figure 10. Number of samples* tested, and results, for SARS-CoV-2 by week

*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	111	111
Helen Joseph-Rahima Moosa (GP)	1	154	155
Klerksdorp-Tshepong (NW)	0	111	111
Mapulaneng-Matikwana (MP)	0	58	58
Red Cross (WC)	7	221	228
Mitchell's Plain (WC)	12	95	107
Total:	20	750	770

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 LABORATORY CONFIRMED SARS-COV-2 CASES

Table 9. Characteristics of laboratory -confirmed cases of COVID-19, enrolled in influenza-like illness (ILI) and pneumonia surveillance programmes, South Africa, 02 March 2020- 31 May 2020

Characteristic	Influenza -like illness (ILI), public-sector, n =8 (%)	Pneumonia surveillance, n=20 (%)
Age group		
0-9	2/8 (25)	6/20 (30)
10-19	1/8 (13)	1/20 (5)
20-29	3/8 (38)	2/20 (10)
30-39	1/8 (13)	4/20 (20)
40-49	0/8 (0)	4/20 (20)
50-59	1/8 (13)	1/20 (5)
60-69	0/8 (0)	1/20 (5)
70-79	0/8 (0)	1/20 (5)
≥80	0/8 (0)	0/20 (0)
Sex-female	4/8 (50)	15/20 (75)
Province*		
Gauteng	0/8 (0)	1/20 (5)
Western Cape	8/8 (100)	19/20 (95)
Ethnicity		
Black	6/8 (75)	16/20 (80)
Coloured	2/8 (25)	4/20 (20)
Indian	0/8 (0)	0/20 (0)
Other	0/8 (0)	0/20 (0)
Presentation		
Fever	8/8 (100)	20/20 (100)
Cough	8/8 (100)	20/20 (100)
Shortness of breath	0/8 (0)	9/20 (45)
Tight chest	0/8 (0)	0/20 (0)
Diarrhoea	0/8 (0)	1/20 (5)
Underlying conditions		
None	0/8 (0)	13/20 (65)
1 underlying condition	0/8 (0)	6/20 (30)
≥2	0/8 (0)	1/20 (5)
Hypertension	0/8 (0)	0/7 (0)
Cardiac	0/8 (0)	0/7 (0)
Respiratory	0/8 (0)	0/7 (0)

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

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SUMMARY OF LABORATORY CONFIRMED SARS-COV-2 CASES

Diabetes	0/8 (0)	4/7 (57)
Cancer	0/8 (0)	0/7 (0)
Other**	0/8 (0)	3/7 (43)
HIV-infection	0/8 (0)	0/7 (0)
Management		
Oxygen therapy	0/8 (0)	9/20 (45)
ICU admission	N/A	1/20 (5)
Ventilation	N/A	0/20 (0)
Outcome***		
Died	0/8 (0)	1/20 (5)

*Only provinces with positive cases included in the table; ** Chronic liver conditions, malnutrition, obesity, tracheostomy, prematurity, seizure, stroke, asthma, chronic lung disease, includes liver, renal, artery, therapy, organ, anaemia, asplenia, burns, immune, sle, nephron, spinal, seizure, emphysema; ***Outcome accounts for patient's discharged, still admitted, referred and those that died. Therefore those that haven't died are discharged/referred or still admitted

Note: Children may be over-represented among hospitalised patients due to the inclusion of a large paediatric hospital in Cape Town