

WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

SOUTH AFRICA WEEK 24 2020

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

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CUMULATIVE DATA FROM



HIGHLIGHTS: WEEK 24

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, there has been no influenza since then.

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 the 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 19 additional patients that tested positive for SARS-CoV-2 in SARI (16) and ILI (three) surveillance programmes. To date, 72 cases have been detected from all surveillance programmes from Gauteng, North West and Western Cape provinces.

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

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, and no influenza since then. There has been no influenza circulating from all other provinces in 2020.

ILI programme: In 2020 to date, specimens from 631 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 (Figure1 and Table1).

Viral Watch programme: During the same period, specimens were received from 220 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) (Figure4 and Table4). Six (8%; 6/76) of the positive cases had history of international travel.

Pneumonia surveillance: Since the beginning of 2020, specimens from 1524 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) (Figure7 and Table 6).

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 2020 season is substantially delayed compared to previous years.

ILI programme: In 2020 to date, 631 specimens were tested and RSV was detected in specimens of seven (1%) patients.

Viral Watch programme: During the same period, 220 specimens were tested and RSV has not been detected.

Pneumonia surveillance: Since the beginning of 2020, 1524 specimens were tested and RSV was detected in specimens of 102 (7%) 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 397 patients were tested and SARS-CoV-2 was detected in 15 (4%) patients.

Viral Watch programme: In 2020 to date, specimens were tested from 116 patients and SARS-CoV-2 was detected in one (1%) patient.

Pneumonia surveillance: In 2020 to date, specimens from 1002 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 56 (6%) patients.

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

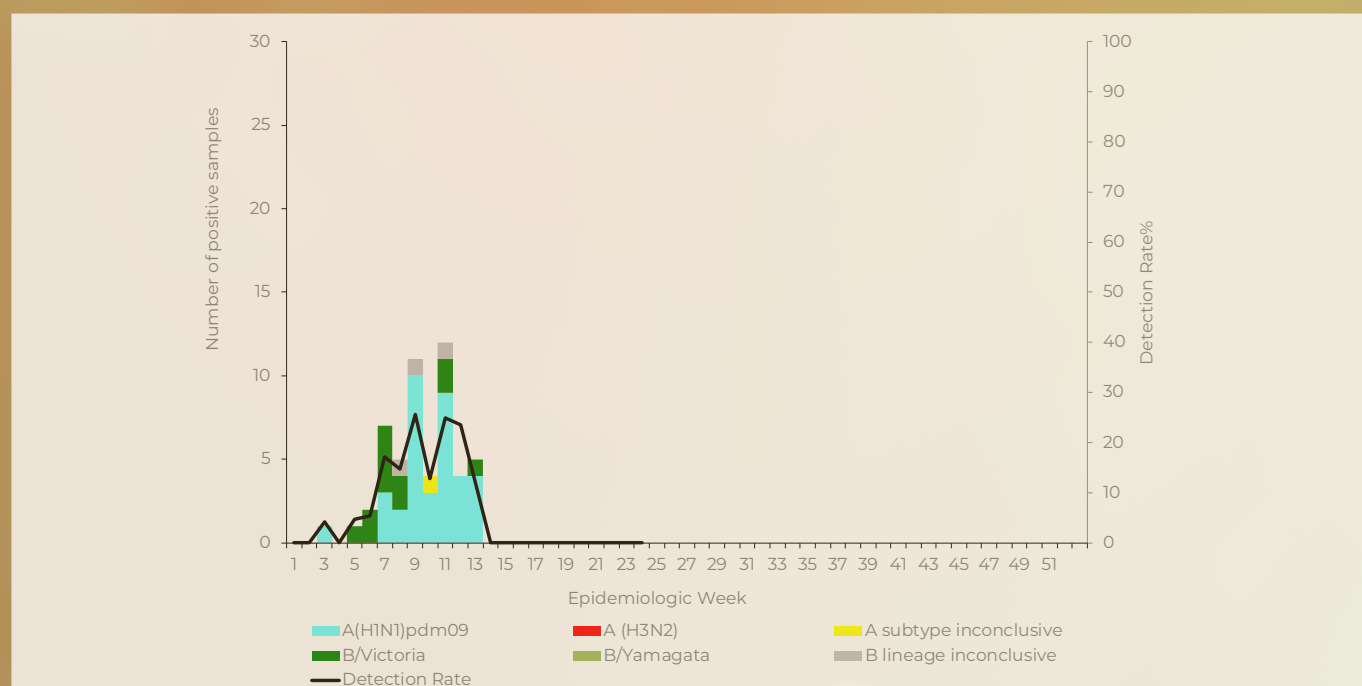


Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*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	290
Edendale Gateway (KZ)	0	0	0	0	0	0	84
Jouberton (NW)	0	0	0	0	0	0	129
Mitchell's Plain (WC)	3	0	0	0	0	0	128
Total:	36	0	1	12	0	3	631

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

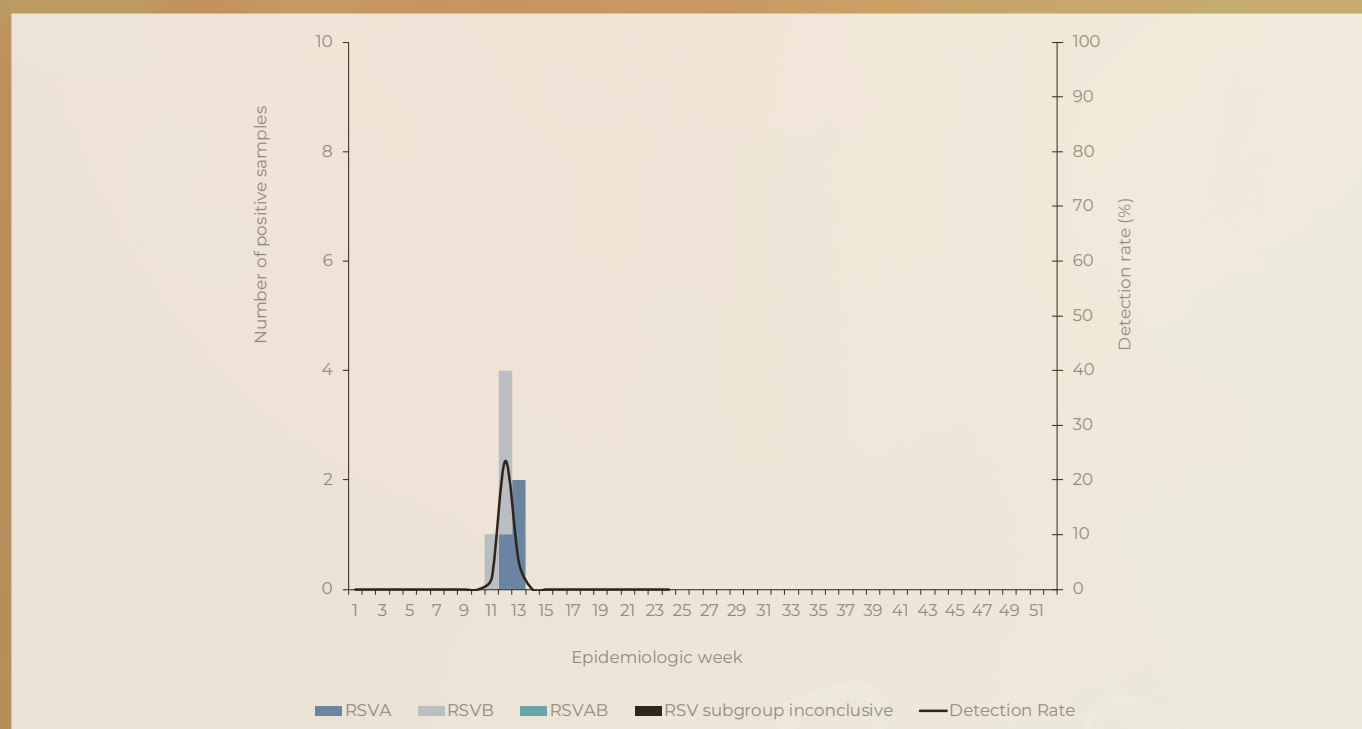


Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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	290
Edendale Gateway (KZ)	3	2	0	0	84
Jouberton (NW)	0	0	0	0	129
Mitchell's Plain (WC)	0	0	0	0	128
Total	3	4	0	0	631

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

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

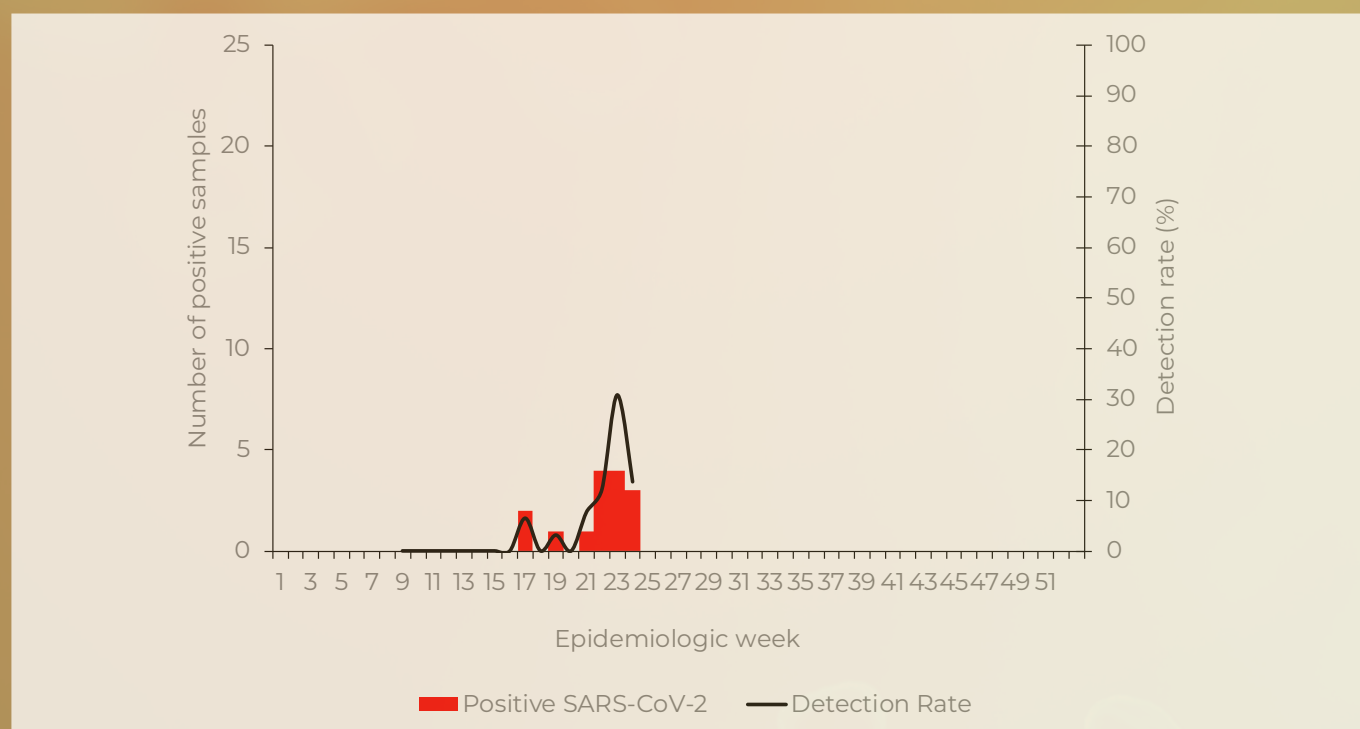


Figure 3. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

*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	Total samples tested
Eastridge (WC)	6	187
Edendale Gateway (KZ)	0	34
Jouberton (NW)	1	80
Mitchell's Plain (WC)	8	96
Total:	15	397

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

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

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

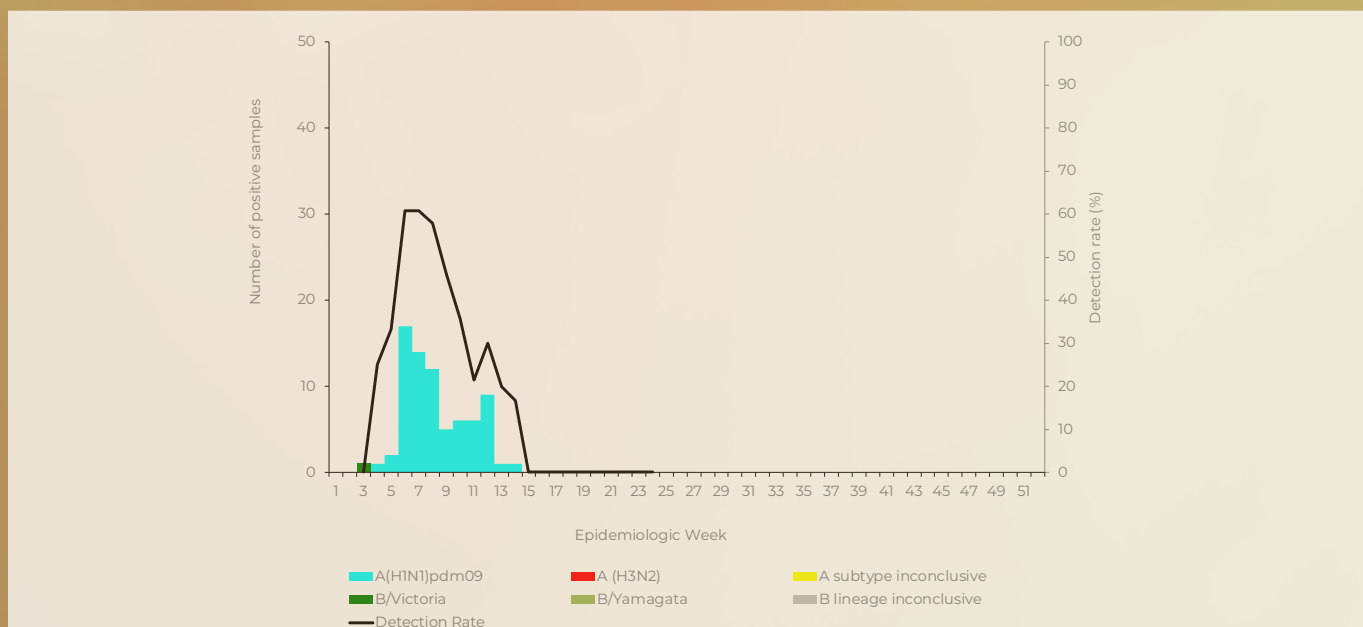


Figure 4. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*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	63
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	143
Total:	75	1	0	1	0	0	220

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

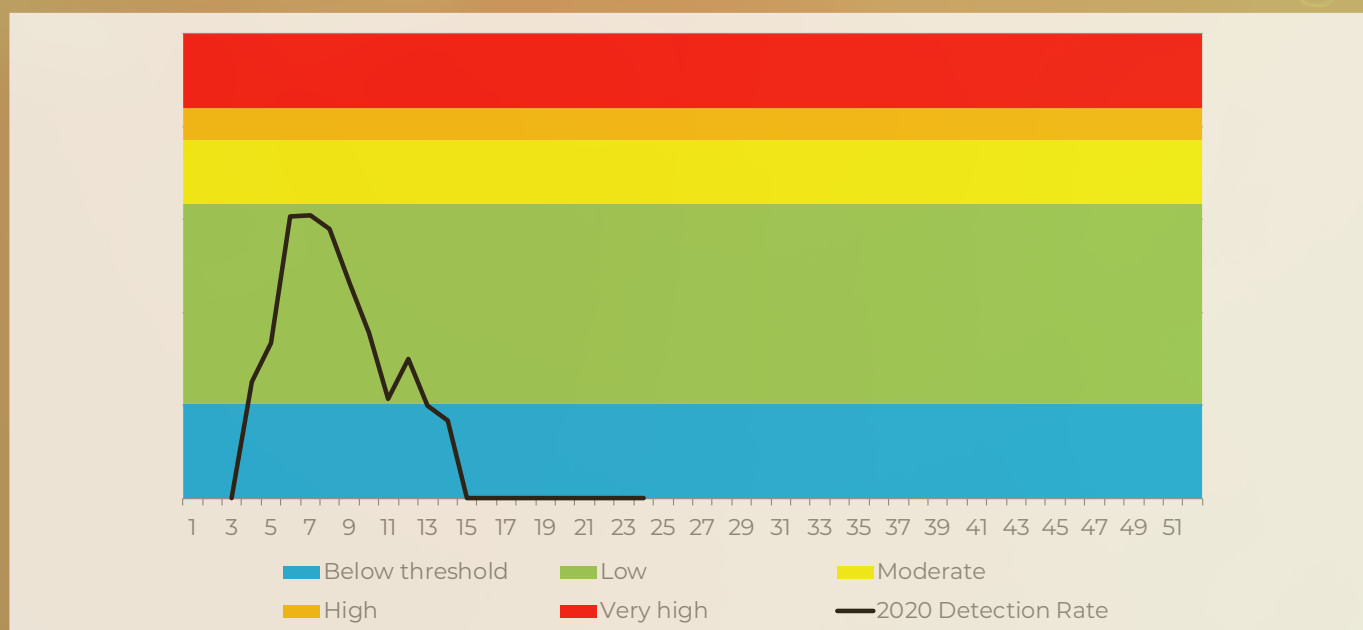


Figure 5. ILI surveillance and Viral Watch percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

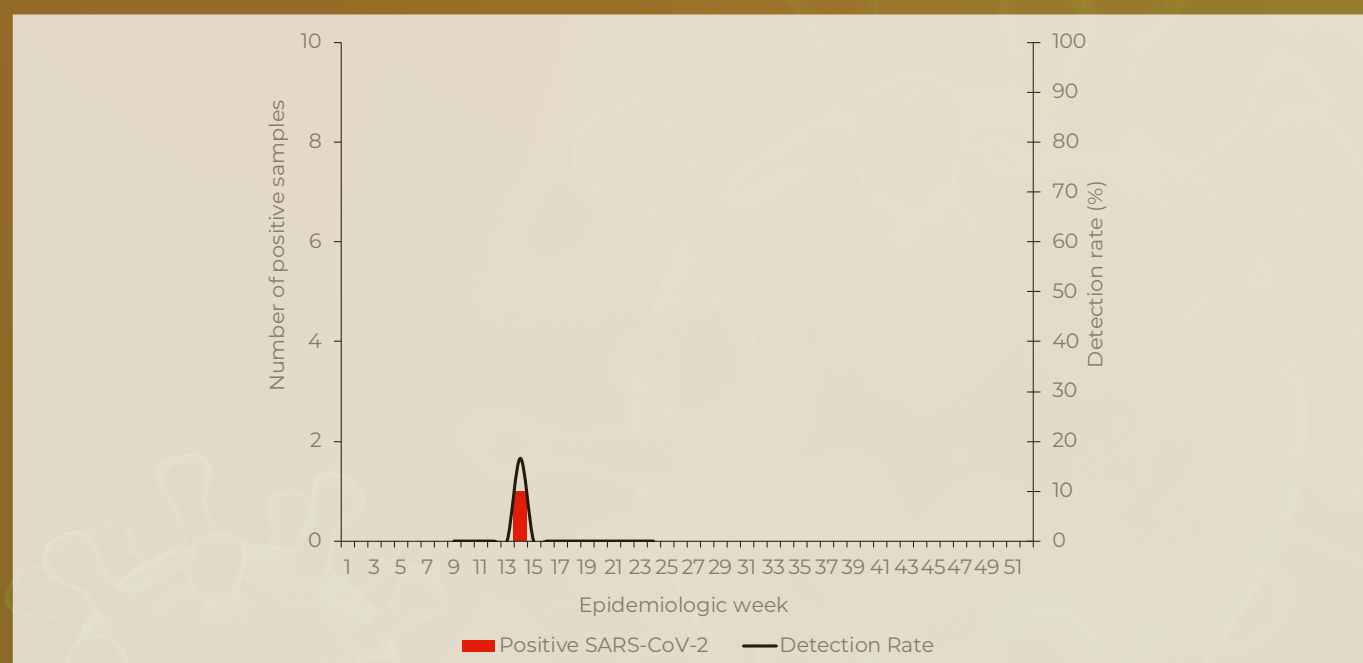


Figure 6. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

*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	Total samples tested
Eastern Cape	0	3
Free State	0	3
Gauteng	0	52
Limpopo	0	0
Mpumalanga	0	0
North West	0	0
Northern Cape	0	2
Western Cape	1	56
Total:	1	116

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

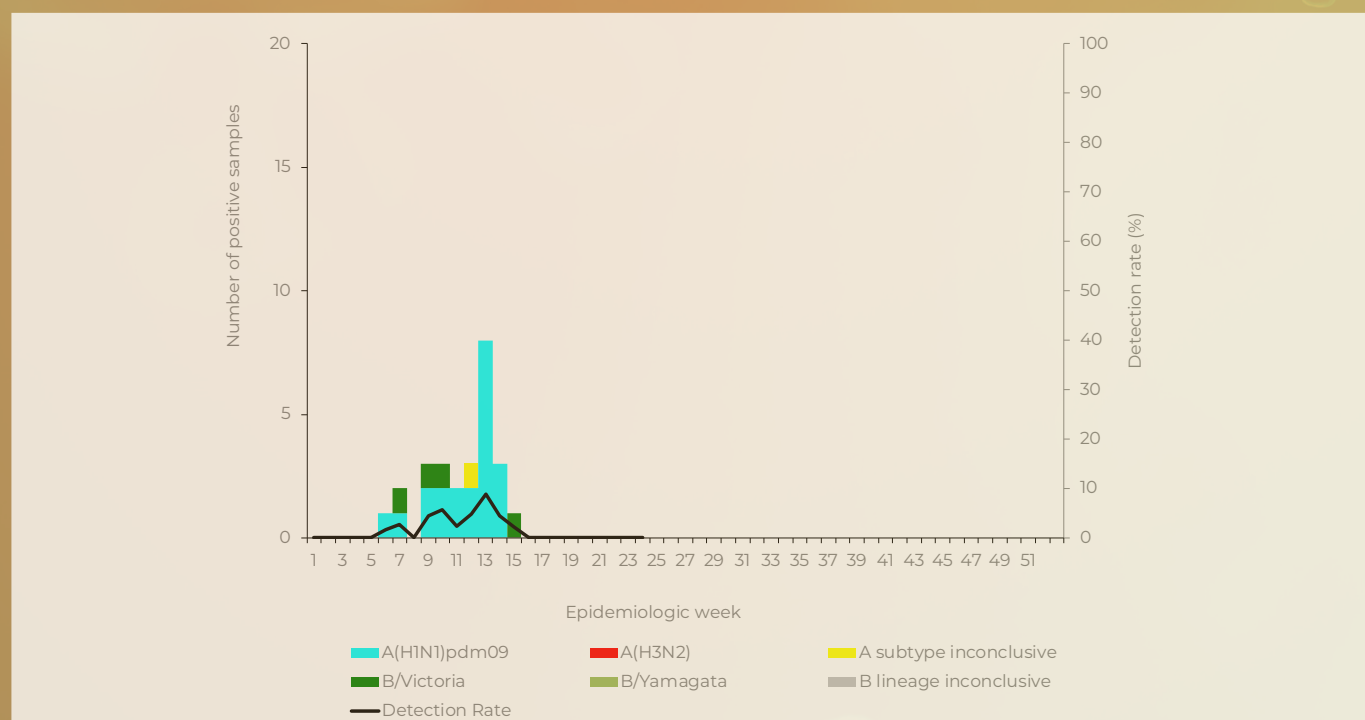


Figure 7. Number of positive samples* by influenza subtype and lineage and detection rate** by week

*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	213
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	384
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	225
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	113
Red Cross (WC)	19	0	0	2	0	0	403
Mitchell's Plain (WC)	2	0	1	2	0	0	186
Total:	21	0	1	4	0	0	1 524

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

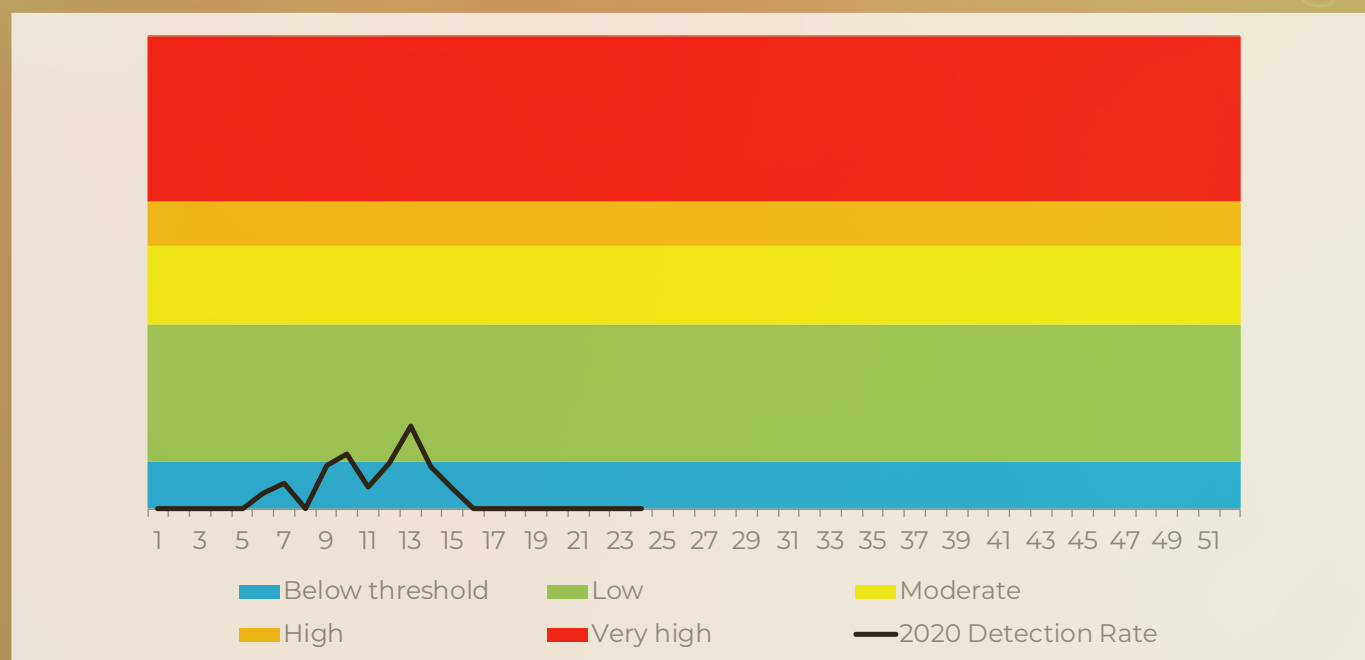


Figure 8. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

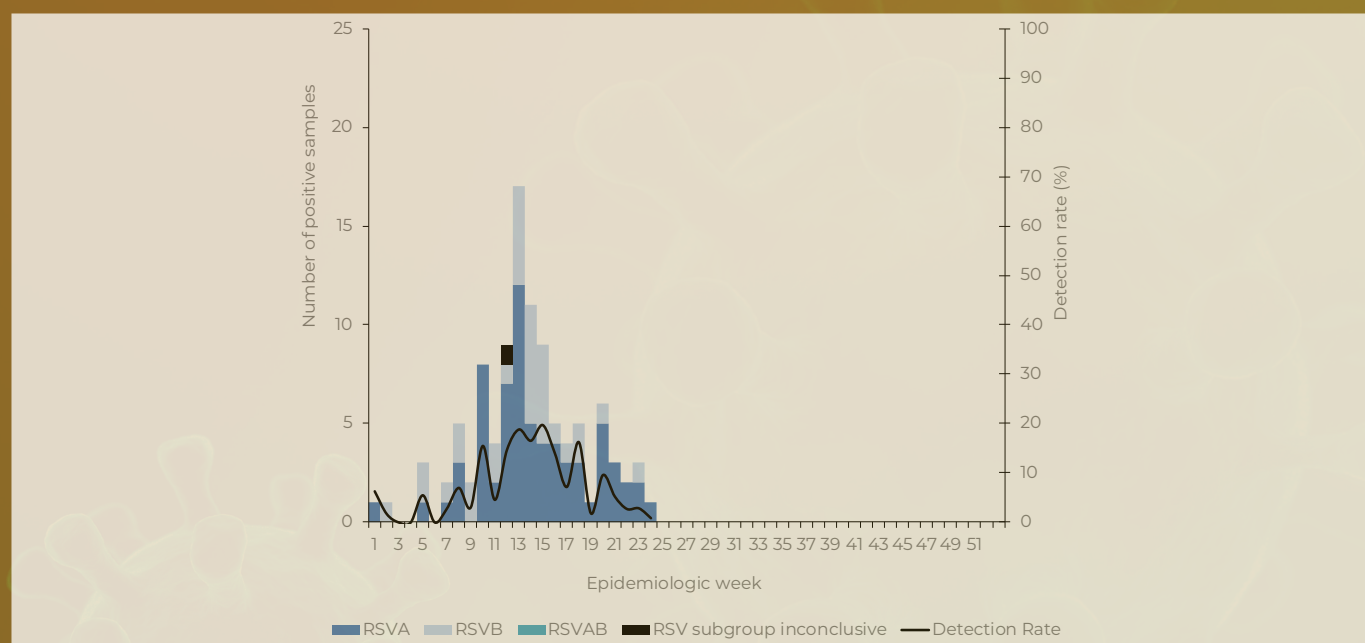


Figure 9. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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

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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	RSVB subgroup inconclusive	Total samples
Edendale (KZ)	2	8	0	1	213
Helen Joseph-Rahima Moosa (GP)	34	10	0	0	384
Klerksdorp-Tshepong (NW)	1	0	0	0	225
Mapulaneng-Matikwana (MP)	0	0	0	0	113
Red Cross (WC)	30	15	0	0	403
Mitchell's Plain (WC)	1	0	0	0	186
Total:	68	33	0	1	1 524

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

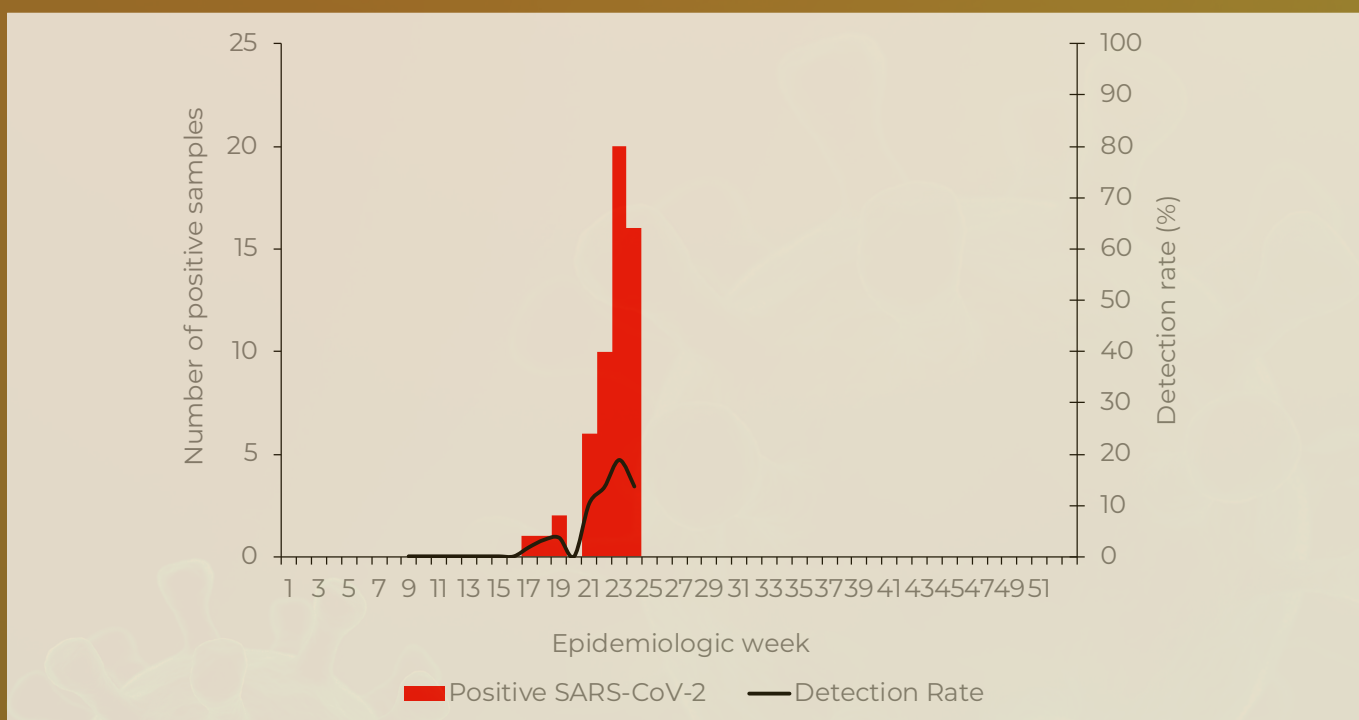


Figure 10. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

*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
Edendale (KZ)	0	138
Helen Joseph-Rahima Moosa (GP)	23	249
Klerksdorp-Tshepong (NW)	4	151
Mapulaneng-Matikwana (MP)	0	64
Red Cross (WC)	9	261
Mitchell's Plain (WC)	20	139
Total:	56	1 002

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- 14 June 2020

Characteristic	Influenza -like illness (ILI), public-sector, n =15 (%)	Pneumonia surveillance, n=56 (%)
Age group		
0-9	3/15 (20)	9/56 (16)
10-19	1/15 (7)	2/56 (4)
20-29	4/15 (26)	7/56 (13)
30-39	3/15 (20)	12/56 (21)
40-49	3/15 (20)	13/56 (23)
50-59	1/15 (7)	7/56 (13)
60-69	0/15 (0)	4/56 (7)
70-79	0/15 (0)	2/56 (4)
≥80	0/15 (0)	0/56 (0)
Sex-female	8/15 (53)	37/56 (66)
Province*		
Gauteng	0/15 (0)	23/56 (41)
North West	1/15 (7)	4/56 (7)
Western Cape	14/15 (93)	29/56 (52)
Ethnicity		
Black	10/15 (58)	37/56 (66)
Coloured	5/15 (42)	12/56 (21)
Asian/Indian	0/15 (0)	7/56 (13)
Other	0/15 (0)	0/56 (0)
Presentation		
Fever	15/15 (100)	46/56 (82)
Cough	15/15 (100)	49/56 (88)
Shortness of breath	0/15 (0)	25/56 (45)
Tight chest	0/15 (0)	5/56 (10)
Diarrhoea	0/15 (0)	1/56 (2)

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SUMMARY OF LABORATORY CONFIRMED SARS-CoV-2 CASES

Underlying conditions

None	14/15 (93)	33/54 (61)
1 underlying condition	1/15 (7)	18/54 (33)
≥2 underlying conditions	0/15 (0)	3/54 (6)
Hypertension	0/15 (0)	4/54 (7)
Cardiac	0/15 (0)	0/54 (0)
Respiratory	0/15 (0)	1/54 (2)
Diabetes	1/15 (7)	10/54 (19)
Cancer	0/15 (0)	1/54 (2)
Other**	0/15 (0)	10/54 (19)
HIV-infection	0/15 (0)	2/54 (4)

Management

Oxygen therapy	2/15 (13)	21/54 (39)
ICU admission	N/A	2/54 (4)
Ventilation	N/A	3/54 (6)

Outcome***

Died	0/15 (0)	2/54 (5)
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*Only provinces with positive cases included in the table, ILI surveillance not conducted in Gauteng Province; ** 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: The majority of SARS-CoV-2 cases in both ILI (8/15,53%) and pneumonia (37/56,66%) surveillance were female. Two patients, a 39-year-old female and a 60-year-old male, died. Both had underlying medical conditions. Children may be over-represented among hospitalised patients due to the inclusion of a large paediatric hospital in Cape Town