

WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

 NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 37 2020

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CUMULATIVE DATA FROM



HIGHLIGHTS: WEEK 37

The 2020 influenza season has not yet started. Only one detection of influenza A(H1N1)pdm09 has been made in week 24 (week starting 8 June 2020), since the localised outbreak of influenza A(H1N1)pdm09 and to a lesser extent influenza B(Victoria) in the Western Cape Province, in the first three months of the year.

Although the 2020 RSV season has not started, with only sporadic detections since mid April, there has been a moderate increase in detection since week 29 (week ending 19 July) in the pneumonia surveillance programme and to a lesser extent in the ILI programme.

This week additional 10 patients tested positive for SARS-CoV-2 in SARI (6), ILI (4) and Viral Watch (0). To date, 561 cases have been detected from all surveillance programmes.

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

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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. In week 24 (week ending 14th June), one influenza case was detected in Gauteng province.

ILI programme: In 2020 to date, specimens from 1 057 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 343 patients from Viral Watch sites in 8 provinces. Influenza was detected in 78 patients, one is an imported case and one is a new case of week 24 since week 14 influenza detections were made. Of the 77 local cases; 75 (98%) were influenza A(H1N1)pdm09, one (1%) influenza A(H3N2) and one (1%) influenza B(Victoria) (Figure4 and Table4).

Pneumonia surveillance: Since the beginning of 2020, specimens from 2 843 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

Although the 2020 RSV season has not started, with only sporadic detections since mid April, there has been a moderate increase in detection since week 29 (week ending 19 July) in the pneumonia surveillance programme and to a lesser extent in the ILI programme.

ILI programme: In 2020 to date, 1 057 specimens were tested and RSV was detected in specimens of 28 (3%) patients.

Viral Watch programme: During the same period, 343 specimens were tested and RSV has not been detected.

Pneumonia surveillance: Since the beginning of 2020, 2 843 specimens were tested and RSV was detected in specimens of 258 (9%) 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 823 patients were tested and SARS-CoV-2 was detected in 123 (15%) patients.

Viral Watch programme: In 2020 to date, specimens were tested from 239 patients and SARS-CoV-2 was detected in 31 (13%) patients.

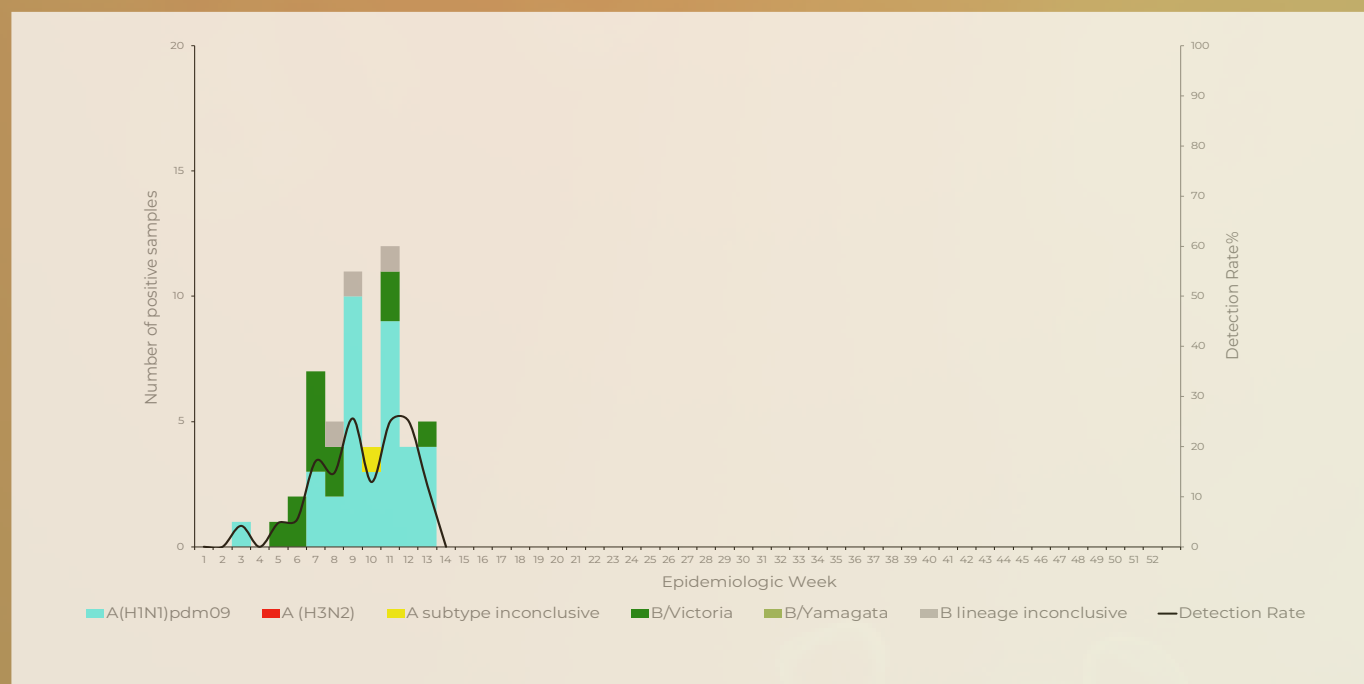
Pneumonia surveillance: In 2020 to date, specimens from 2 321 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 407 (18%) patients.

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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	442
Edendale Gateway (KZ)	0	0	0	0	0	0	131
Jouberton (NW)	0	0	0	0	0	0	227
Mitchell's Plain (WC)	3	0	0	0	0	0	257
Total:	36	0	1	12	0	3	1 057

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

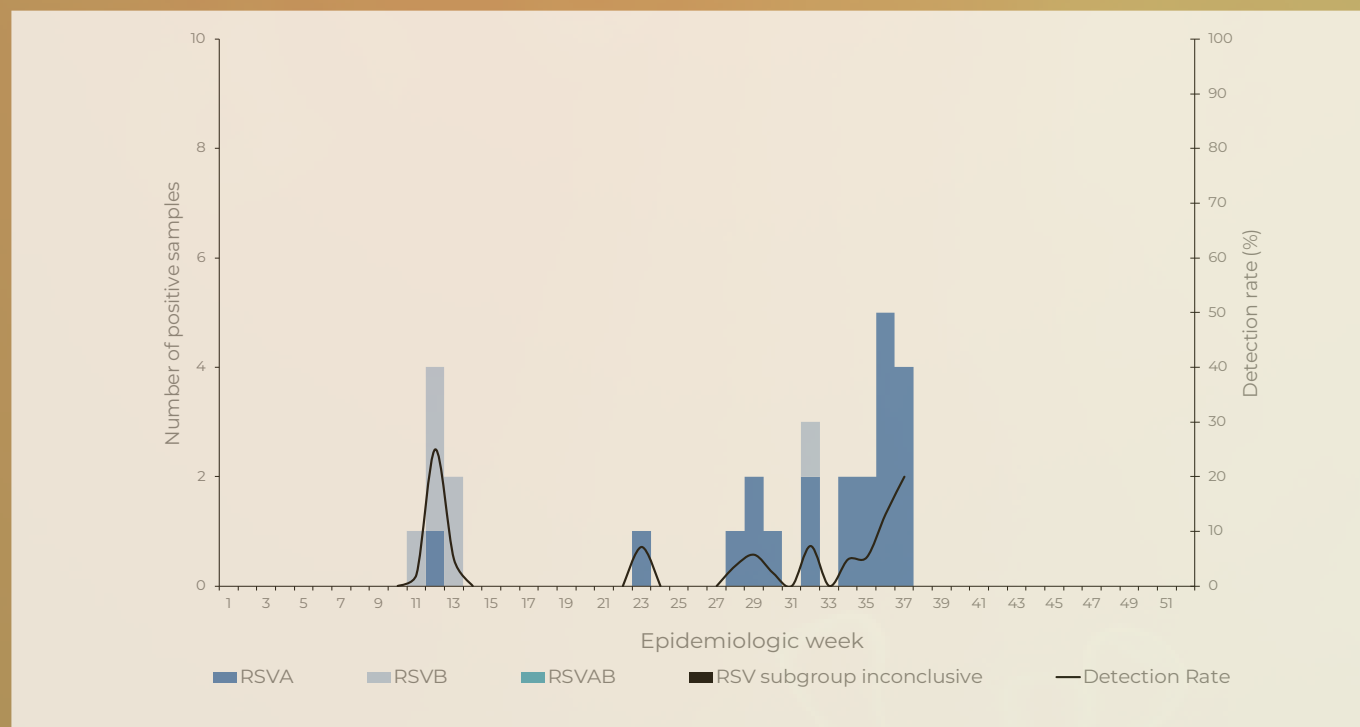
Inconclusive: insufficient viral load in sample and unable to characterise further

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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)	13	2	0	0	442
Edendale Gateway (KZ)	1	5	0	0	131
Jouberton (NW)	1	0	0	0	227
Mitchell's Plain (WC)	6	0	0	0	257
Total:	21	7	0	0	1 057

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

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

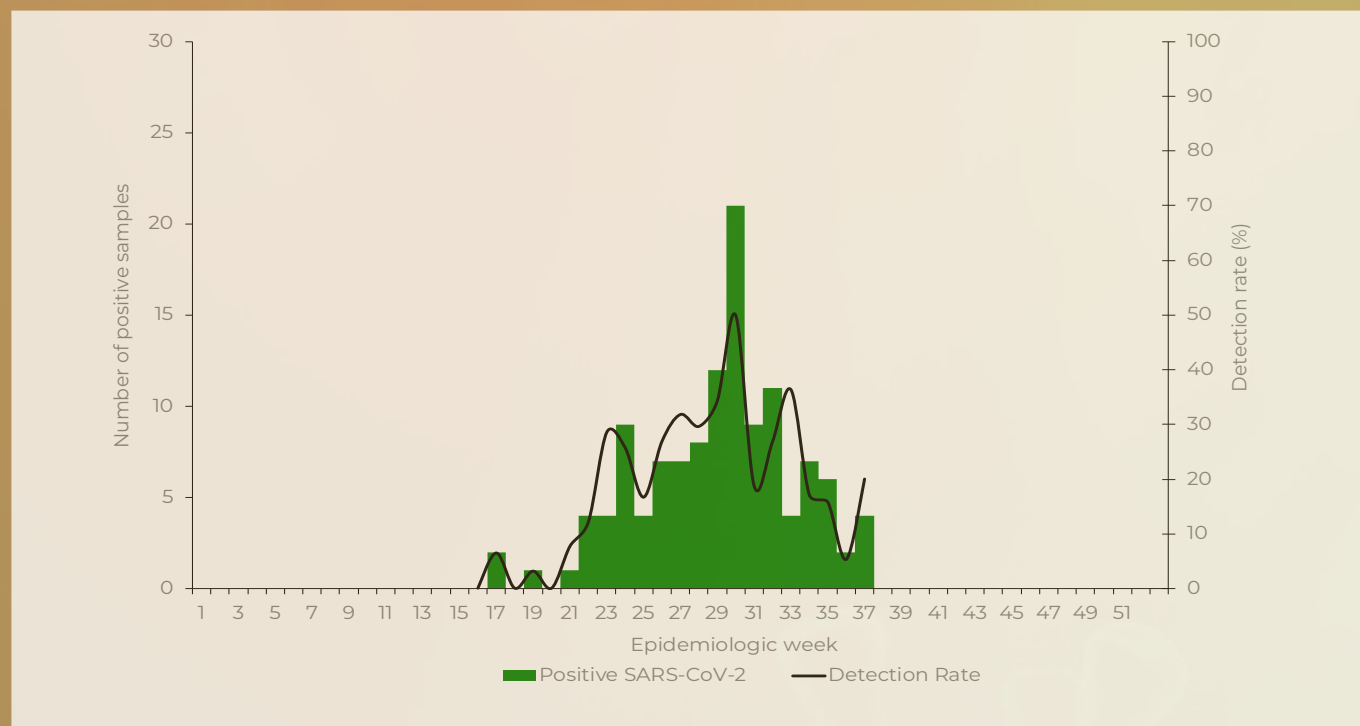
RSV AB: Both RSV A and B subgroup identified

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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)	26	339
Edendale Gateway (KZ)	21	81
Jouberton (NW)	38	178
Mitchell's Plain (WC)	38	225
Total:	123	823

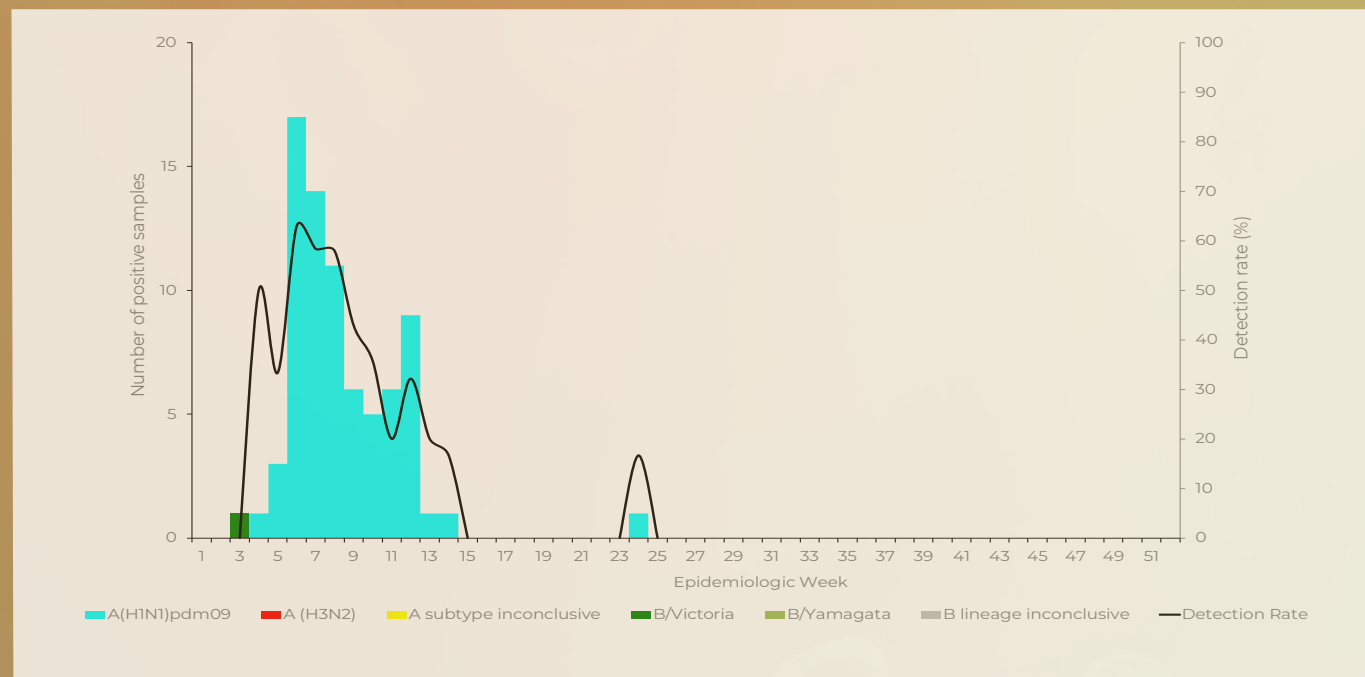
KZ: KwaZulu-Natal; NW: North West; WC: Western Cape

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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	11
Gauteng	2	0	0	0	0	0	149
Limpopo	0	0	0	0	0	0	3
Mpumalanga	0	0	0	0	0	0	7
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	165
Total:	76	1	0	1	0	0	343

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).

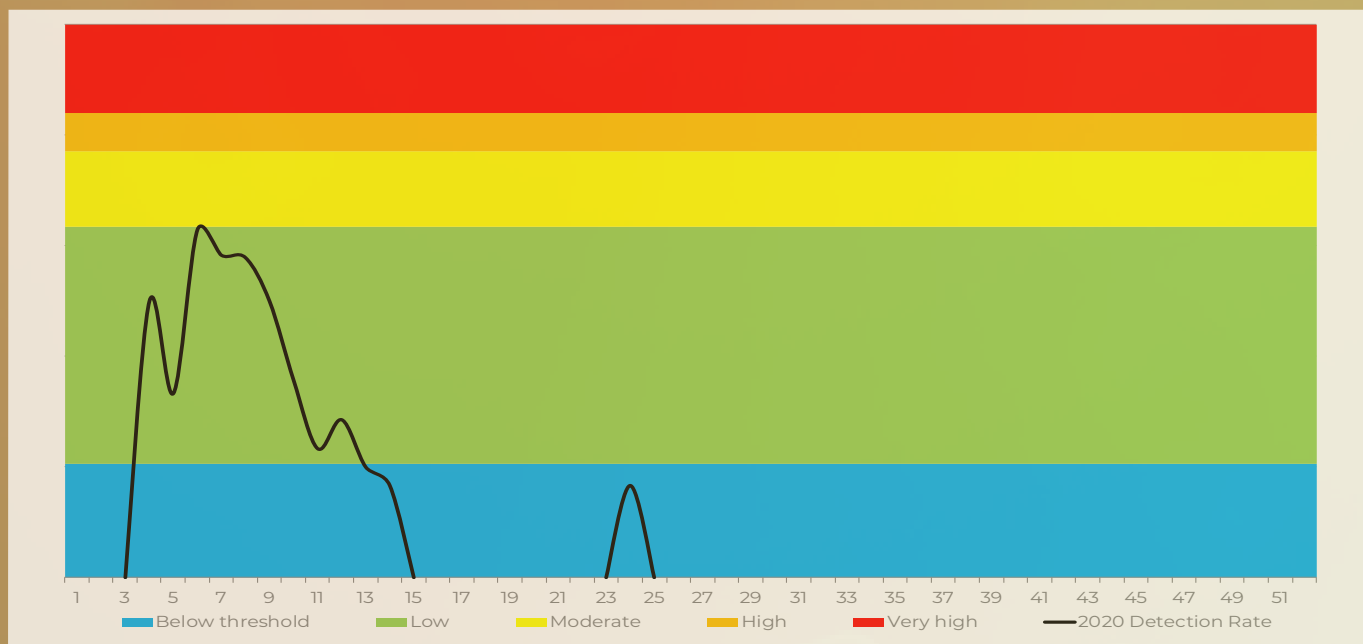
Patients known to have acquired influenza abroad are not included in the table or epidemiological curve.

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

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



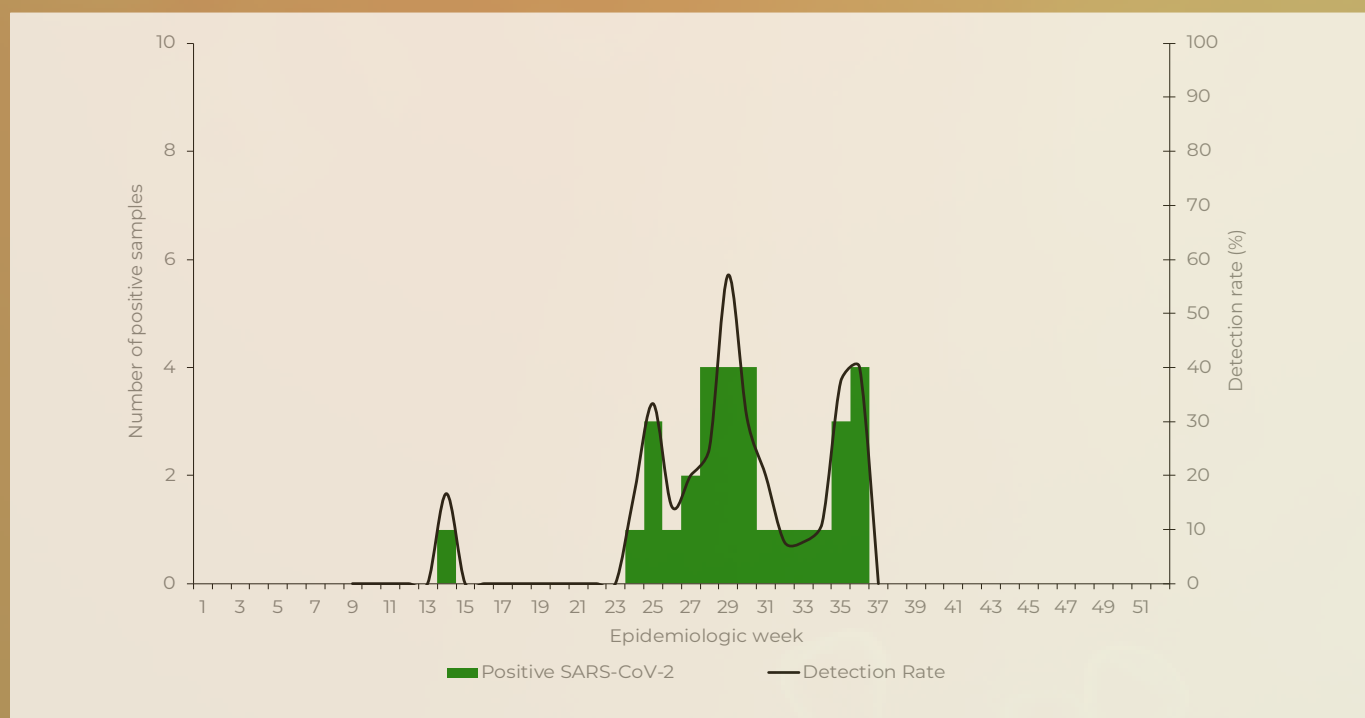
*Thresholds based on 2010-2019 data

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE: VIRAL WATCH

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

Table 5. Cumulative number of SARS-CoV-2 identified and total number of samples tested by province

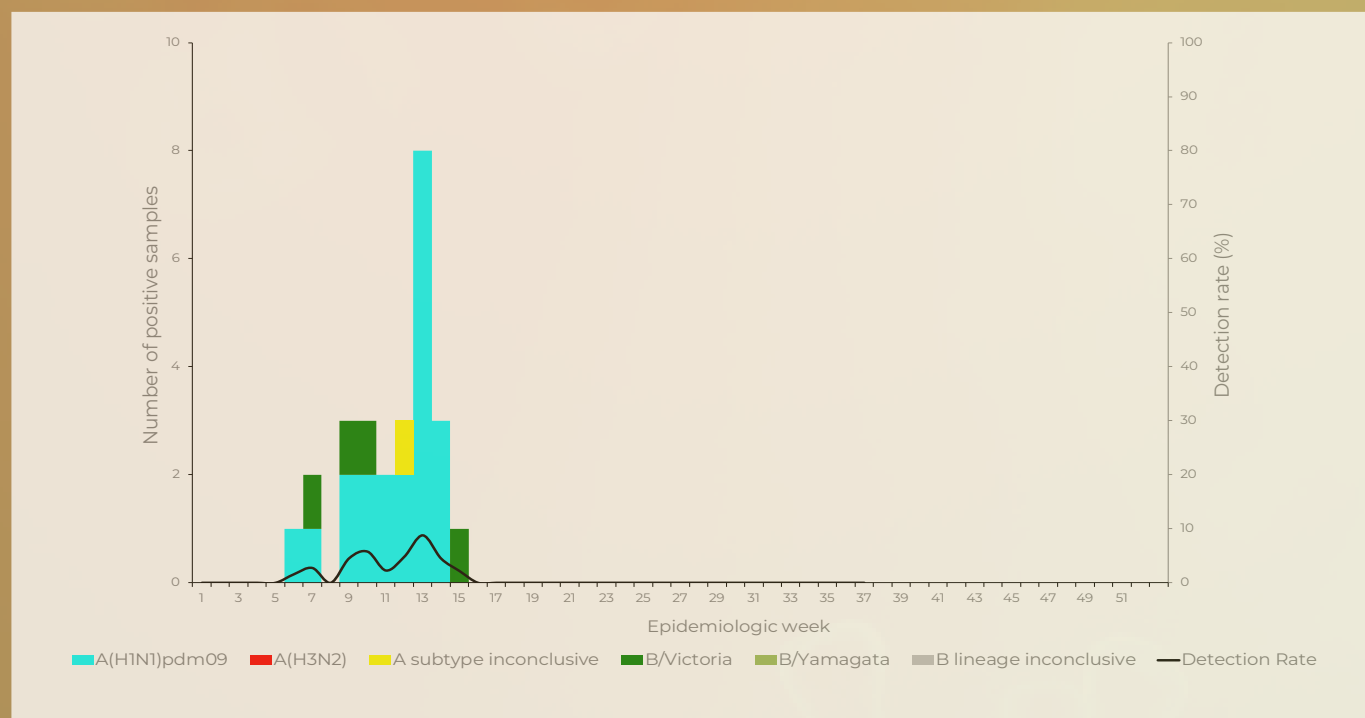
Province	SARS-CoV-2 positive	Total samples tested
Eastern Cape	0	3
Free State	0	11
Gauteng	23	138
Limpopo	0	2
Mpumalanga	1	5
North West	0	0
Northern Cape	0	2
Western Cape	7	78
Total:	31	239

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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	469
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	648
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	493
Mpumalanga - Matikwana (MP)	0	0	0	0	0	0	210
Mitchell's Plain (WC)	19	0	0	2	0	0	709
Red Cross (WC)	2	0	1	2	0	0	314
Total:	21	0	1	4	0	0	2 843

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

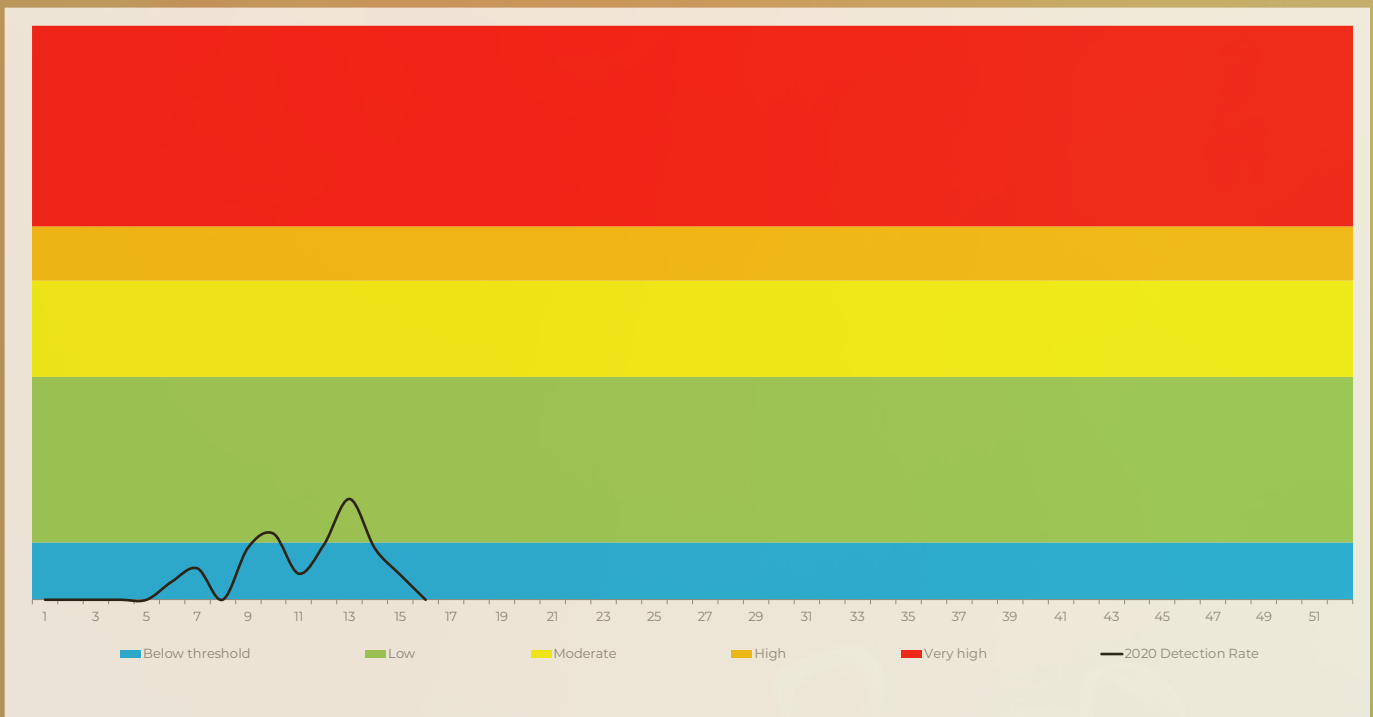
Inconclusive: insufficient viral load in sample and unable to characterise further

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

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



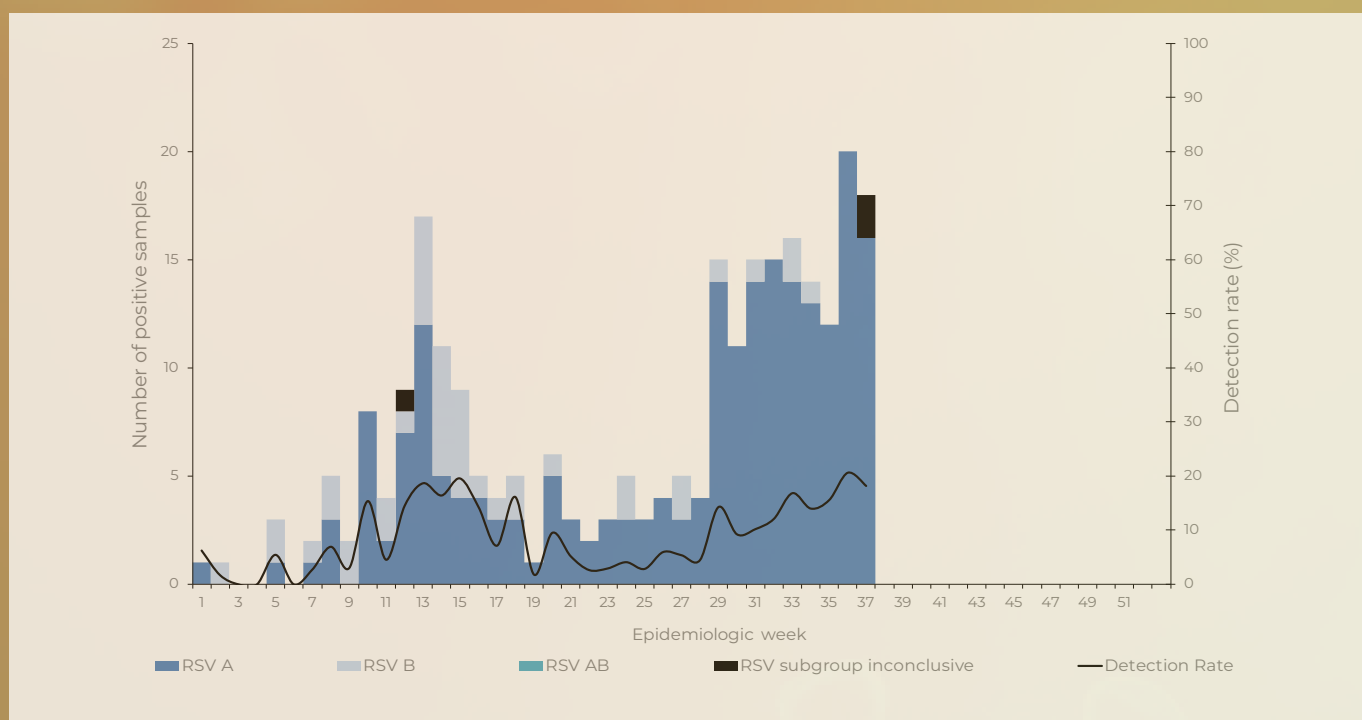
*Thresholds based on 2010-2019 data

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

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

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	9	0	1	469
Helen Joseph-Rahima Moosa (GP)	39	10	0	0	648
Klerksdorp-Tshepong (NW)	2	0	0	0	493
Mpumalanga - Matikwana (MP)	0	0	0	0	210
Red Cross (WC)	141	22	0	1	709
Mitchells Plain (WC)	30	0	0	1	314
Total:	214	41	0	3	2 843

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

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

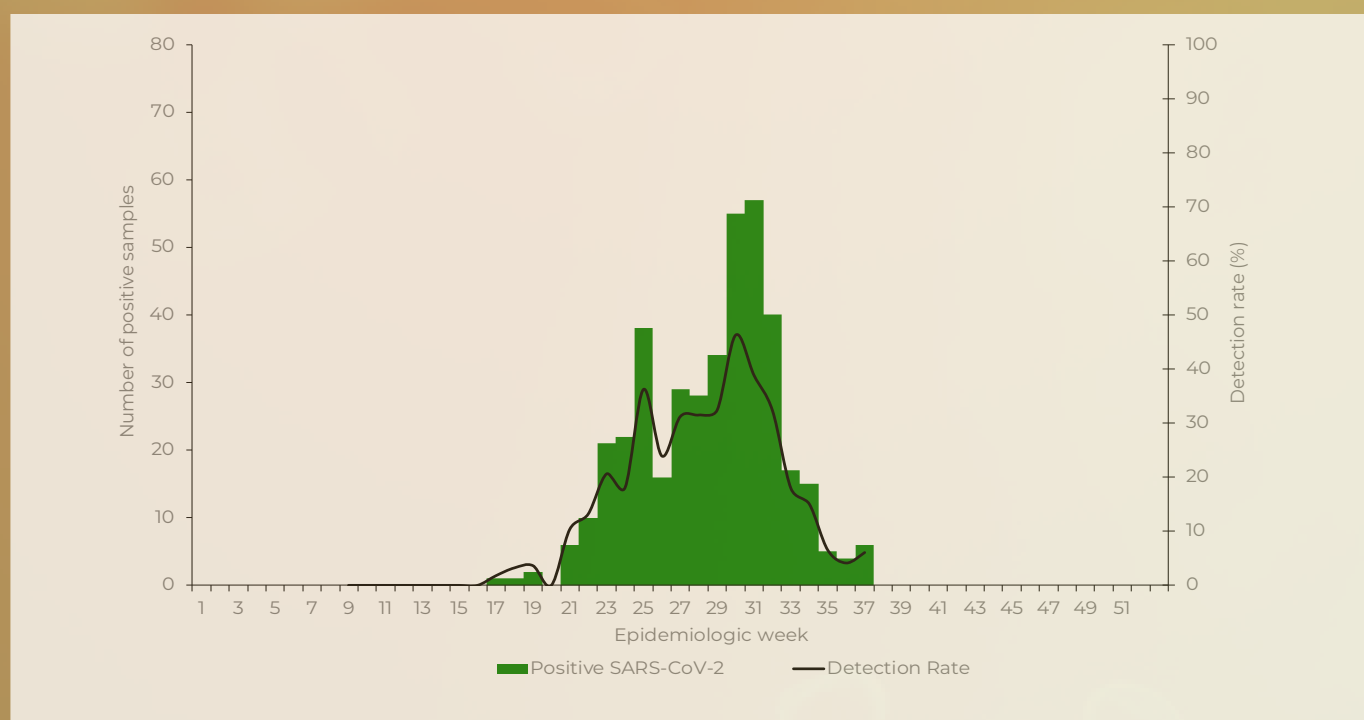
RSV AB: Both RSV A and B subgroup identified

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 10. Number of samples testing positive for SARS-CoV-2*, and detection rate 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	Total samples tested
Edendale (KZ)	90	394
Helen Joseph-Rahima Moosa (GP)	113	513
Klerksdorp-Tshepong (NW)	119	419
Mapulaneng-Matikwana (MP)	9	161
Mitchell's Plain (WC)	25	567
Red Cross (WC)	51	267
Total:	407	2 321

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, 2 March - 13 September 2020

Characteristic	Influenza -like illness (ILI), public sector, n =123 (%)	Pneumonia surveillance, n=407 (%)
Age group		
0-9	21/123 (17)	32/407 (8)
10-19	12/123 (10)	4/407 (1)
20-29	59/123 (48)	81/407 (20)
40-59	23/123 (18)	156/407 (38)
60-79	8/123 (7)	126/407 (31)
≥80	0/123 (0)	8/407 (2)
Sex-female	65/123 (52)	249/407 (61)
Province*		
Gauteng	N/A	113/407 (28)
KZN	21/123 (17)	90/407 (22)
Mpumalanga	N/A	9/407 (2)
North West	38/123 (31)	119/407 (29)
Western Cape	64/123 (52)	76/407 (19)
Race		
Black	74/118 (63)	323/397 (81)
Coloured	44/118 (37)	52/397 (13)
Asian/Indian	0/118 (0)	18/397 (5)
Other	0/118 (0)	4/397 (1)
Presentation		
Fever	116/118 (98)	235/397 (59)
Cough	117/118 (99)	394/397 (99)
Shortness of breath	23/118 (19)	319/397 (80)
Tight chest	37/118 (31)	195/397 (49)
Diarrhoea	12/118 (10)	22/397 (6)

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SUMMARY OF LABORATORY-CONFIRMED SARS-CoV-2 CASES

Characteristic	Influenza -like illness (ILI), public sector, n =123 (%)	Pneumonia surveillance, n=407 (%)
Underlying conditions		
Hypertension	8/118 (7)	53/394 (13)
Cardiac	0/118 (0)	8/394 (2)
Respiratory	1/118 (1)	17/394 (4)
Diabetes	1/118 (1)	90/394 (23)
Cancer	0/118 (0)	1/394 (<1)
Tuberculosis	0/118 (0)	13/394 (3)
HIV-infection	14/118 (12)	83/394 (21)
Other **	4/118 (3)	70/394 (18)
Management		
Oxygen therapy	1/118 (1)	254/394 (64)
ICU admission	N/A	16/394 (4)
Ventilation	N/A	12/394 (3)
Outcome***		
Died	0/110 (0)	49/382 (13)

* ILI surveillance not conducted in Gauteng & Mpumalanga provinces

** Chronic lung, lung, liver and kidney disease, organ transplant, pregnancy, malnutrition, obesity, tracheostomy, prematurity, seizure, stroke, anaemia, asplenia, burns, Systemic lupus erythematosus, seizures

*** Outcome includes patients who are still hospitalised, have been discharged or referred, and those who died

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

Of the 49 patients who died, six were in the 20-39 year age group, 17 in the 40-59 year age group, and 26 were ≥60 years; 32/49 (65%) were female. All except four were known to have underlying medical conditions