WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK **27** 2021

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HIGHLIGHTS: WEEK 27

- · RSV activity remains below seasonal threshold in both influenza-like illness (ILI) and pneumonia surveillance programmes.
- · Two new cases of influenza, one each from Gauteng and Western Cape were detected in week 27. To date, 52 influenza cases have been detected from Gauteng, Western Cape, North West, Eastern Cape, Mpumalanga and KwaZulu-Natal sentinel surveillance sites. The influenza season has not started.
- · From 2 March 2020 to 11 July 2021, a total of 1 720 COVID-19 cases were detected from all surveillance programmes. An increase in number of positive samples detected has been noted in ILI programme, whereas pneumonia surveillance had a slight decrease in this reporting week compared to previous week. Of the 1 256 hospitalised COVID-19 cases reported with available data on outcome, 176 (14%) died.

CUMULATIVE DATA FROM



Summary of laboratory

confirmed SARS-CoV-2 cases



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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** MP***	EC FS GP LP MP NC NW	GP KZ MP NW WC
Type of site	Primary health care clinics	General practitioners	Public hospitals
Case definition	ILI: An acute respiratory illness with a temperature (≥38°C) and cough, & onset ≤10 days	ILI: An acute respiratory illness with a temperature (≥38°C) and cough, & onset ≤10 days	SRI: Acute (symptom onset≤10 days) or chronic (symptom onset >10) lower respiratory tract infection
	Suspected pertussis Any person with an acute cough illness lasting ≥14 days (or cough illness of any duration for children <1 year), without a more likely diagnosis AND one or more of the following signs or symptoms: • paroxysms of coughing, • or inspiratory "whoop", • or post-tussive vomiting • or apnoea in children <1 year; OR Any person in whom a clinician suspects pertussis		Suspected pertussis Any person with an acute cough illness lasting ≥14 days (or cough illness of any duration for children <1 year), without a more likely diagnosis AND one or more of the following signs or symptoms: • paroxysms of coughing, • or inspiratory "whoop", • or post-tussive vomiting • or apnoea in children <1 year; OR Any person in whom a clinician suspects pertussis.
	Suspected SARS-CoV-2 Any person presenting with an acute (≤14 days) respiratory tract infection or other clinical illness compatible with COVID-19 ^β	Suspected SARS-CoV-2 Any person presenting with an acute (≤14 days) respiratory tract infection or other clinical illness compatible with COVID-19β	Suspected SARS-CoV-2 Any person admitted with a physician-diagnosis of suspected COVID-19 and not meeting SRI case definition.
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.

\$Symptoms include ANY of the following respiratory symptoms: cough, sore throat, shortness of breath, anosmia (loss of sense of smell) or dysgeusia (alteration of the sense of taste), with or without other symptoms (which may include fever, weakness, myalqia, or diarrhoea)

^{*} 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

^{***}Started in November 2020

^{****}INF: influenza virus; RSV: respiratory syncytial virus; BP: Bordetella pertussis; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2

WEEK 27 2021 REPORTING PERIOD 2 MARCH 2020 TO 11 JULY 2021

COMMENTS

Influenza

The influenza 2021 season has not started. Since the first influenza positive case of 2021 was detected in pneumonia surveillance in week 9 of 2021 (week ending on the 07 March 2021), sporadic cases have been reported from week 16 to date. Of the 52 influenza cases detected in surveillance sites in 2021, the majority (42, 81%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 905 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in seven (0.8%) patients, of which five (71%) were influenza B(Victoria) and two (29%) were influenza B (lineage inconclusive). (Figure 1 and Table 1).

Viral Watch programme: In 2021 to date, specimens were received from 146 patients from Viral Watch sites in five of the 8 provinces participating in surveillance. Influenza was detected in nine (6.1%) patients, of which four (44%) were influenza B (Victoria), four (44%) influenza B (lineage inconclusive) and one (12%) was influenza B (pending lineage results). (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 2 915 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 25 (0.9%) patients, of which one (4%) was influenza A(H3N2), 22 (88%) influenza B (Victoria) and two (8%) wre influenza B (pending lineage results). (Figure 9 and Table 7).

In addition, influenza was detected in 11 (2%) specimens, all were influenza B (Victoria) from 506 patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ILI surveillance case definitions.

Respiratory syncytial virus

In 2021 to date, RSV transmission has been reported from all surveillance programmes, activity remains below seasonal threshold.

ILI programme: In 2021 to date, 905 specimens were tested and RSV was detected in specimens of 69 (8%) patients.

Viral Watch programme: In 2021 to date, 146 specimens were tested and RSV was detected in specimens of six (4%) patients.

Pneumonia surveillance: Since the beginning of 2021, 2 915 specimens were tested and RSV was detected in specimens of 353 (12%) patients.

In addition, RSV was detected in 20 of 506 (4%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ ILI surveillance case definitions.

SARS-CoV-2 (Severe acute respiratory syndrome coronavirus 2)

Testing for SARS-CoV-2 was initiated in all three surveillance programmes in week 10 of 2020 (week starting 2 March 2020).

ILI programme: From March 2020 to date, specimens from 2 216 patients were tested and SARS-CoV-2 was detected in 382 (17%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 425 patients and SARS-CoV-2 was detected in 74 (17%) patients.

Pneumonia surveillance: From March 2020 to date, specimens from 6 893 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1 264 (18%) patients.

In addition, SARS-CoV-2 was detected in 107 of 698 (15%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ILI surveillance case definitions.

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

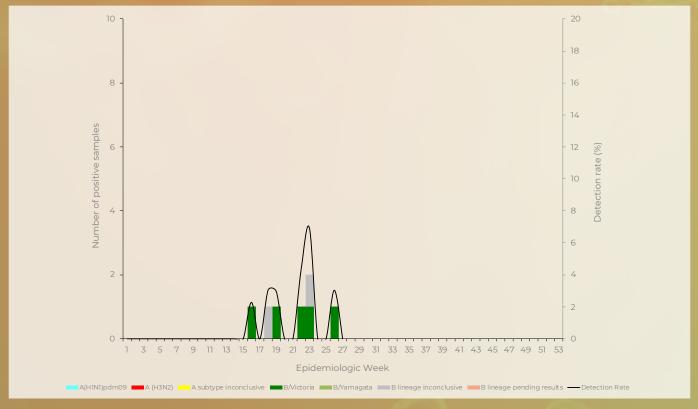


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	B lineage pending results***	Total samples
Agincourt (MP)	0	0	О	0	О	О	0	128
Eastridge (WC)	0	0	0	0	О	О	0	150
Edendale Gateway (KZ)	0	0	О	2	О	2	0	104
Jouberton (NW)	0	0	О	3	О	О	0	429
Mitchell's Plain (WC)	0	0	О	0	О	О	0	94
Total:	0	0	0	5	0	2	0	905

KZ; KwaZulu-Natal; NW: North West; WC: Western Cape; MP: Mpumalanga Inconclusive: insufficient viral load in sample and unable to characterise further

illness (ILI) case definition. These are not included in the table.
***influenza B lineage results are pending

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

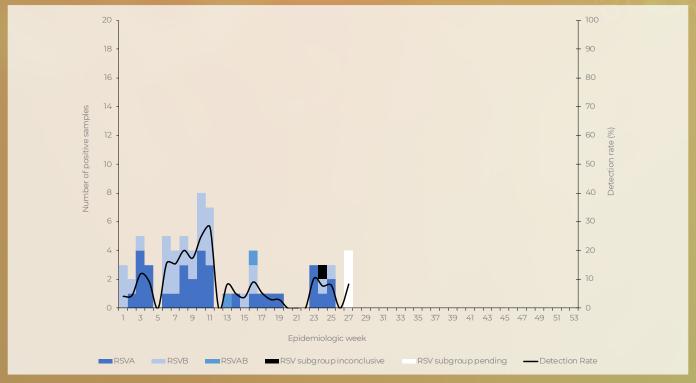


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	RSV subgroup pending*	Total samples
Agincourt (MP)	11	7		0	0	128
Eastridge (WC)	17	0		0	4	150
Edendale Gateway (KZ)		6	0	0	0	104
Jouberton (NW)	2	16	0		0	429
Mitchell's Plain (WC)	2	0	0	0	0	94
Total	33	29	2	1	4	905

Inconclusive: insufficient viral load in sample and unable to characterise further RSV AB: Both RSV A and B subgroup identified
*RSV results for subgroups are pending

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

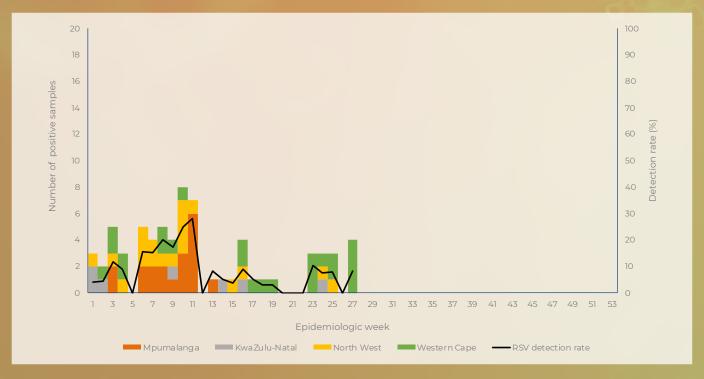


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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

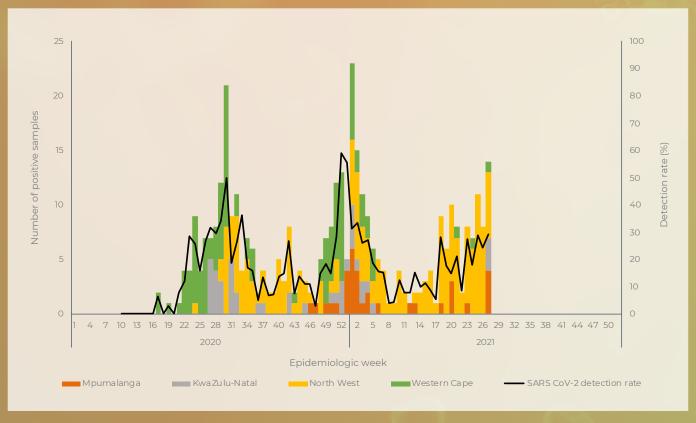


Figure 4. Number of samples testing positive for SARS-CoV-2*p by province and detection rate by week

PSARS-CoV-2 was detected in 85 of 549 (15%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet influenza-like illness (ILI) case definition. These are not included in the epidemiological curve.

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
Agincourt (MP)	34	158
Eastridge (WC)	47	638
Edendale Gateway (KZ)	42	245
Jouberton (NW)	191	752
Mitchell's Plain (WC)	68	423
Total:	382	2 216

KZ: KwaZulu-Natal; NW: North West; WCP: Western Cape; MP: Mpumalanga (started enrolling on the 10th November 2020)

**SARS-CoV-2 was detected in 85 of 549 (15%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet influenza-like illness (ILI) case definition. These are not included in the table

^{*}Specimens from patients with influenza-like illnesses at 5 sentinel sites in 4 provinces

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

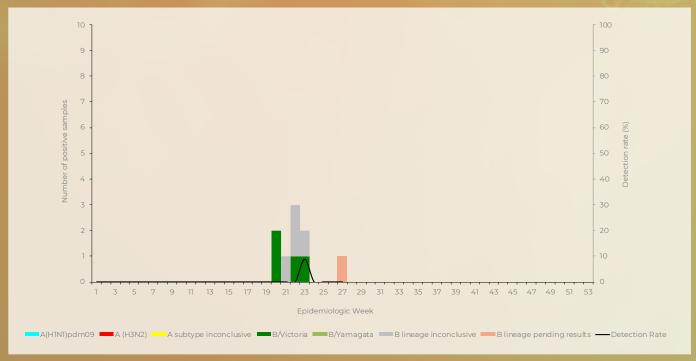


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	B lineage pending results*	Total samples
Eastern Cape	0	0	0		0	0	0	
Free State	0	0	О	0	0	0	0	0
Gauteng	0	О	О	3	0	4		129
Limpopo	0	О	О	О	0	О	0	0
Mpumalanga	0	О	0	0	0	О	0	
North West	0	О	0	О	0	О	0	2
Northern Cape	0	О	0	О	0	О	0	0
Western Cape	0	0	0	О	0	0	О	13
Total:	0	0	0	4	0	4		146

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

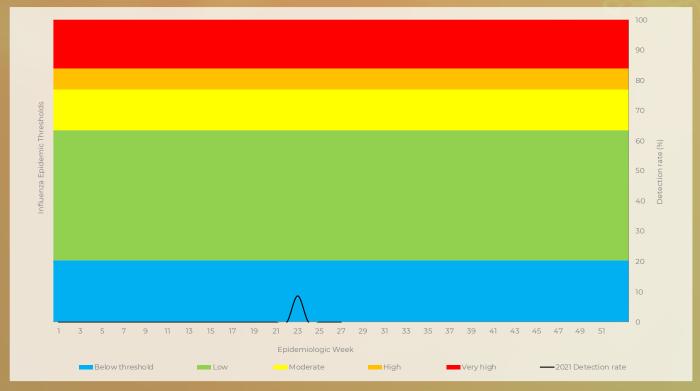


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

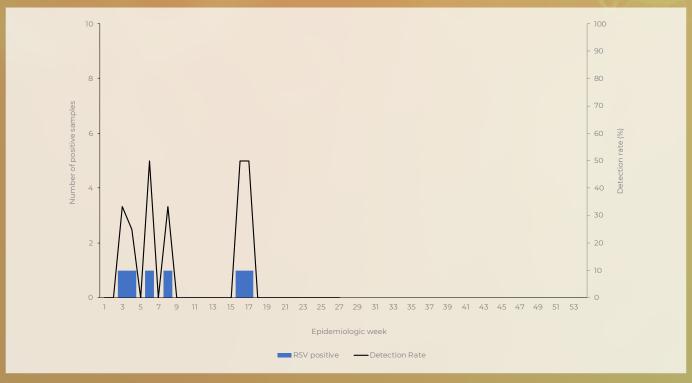


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

Table 5. Cumulative number of RSV positive cases identified and total number of samples tested by province

Province	RSV positive	Total samples tested
Eastern Cape	0	
Free State	0	0
Gauteng	4	129
Limpopo	0	0
Mpumalanga	0	
North West	0	2
Northern Cape	0	0
Western Cape	2	13
Total:	6	146

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

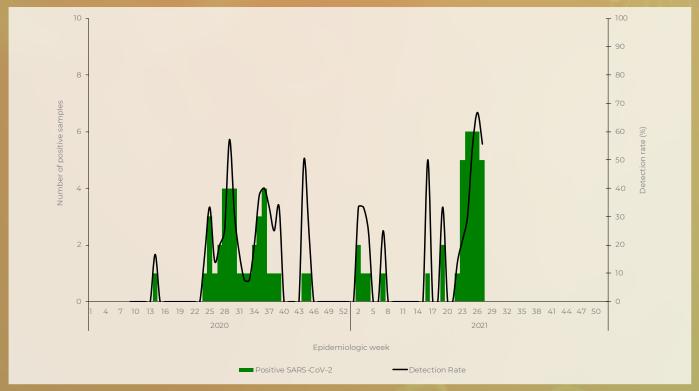


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

Table 6. Cumulative number of SARS-CoV-2 identified and total number of samples tested by province

Hospital (Province)	SARS-CoV-2 positive	Total samples
Eastern Cape		5
Free State		14
Gauteng	61	289
Limpopo	0	2
Mpumalanga		6
North West	0	2
Northern Cape	0	2
Western Cape	10	105
Total:	74	425

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

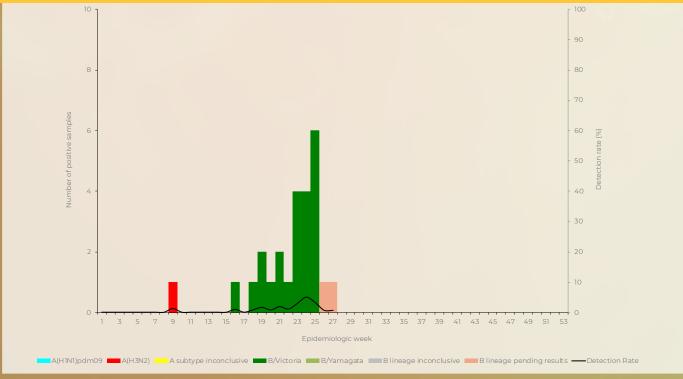


Figure 9. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

B lineage pending results: influenza B results for lineage are pending

Table 7. Cumulative number of identified influenza subtype and lineage** and total number of samples tested by hospital

Province	A(H1N1) pdm09	A(H3N2)	A subtype inconclusive	B/ Victoria	B/ Yamagata	B lineage inconclusive	B lineage pending results***	Total samples
Edendale (KZ)	0	0	0	7	0	0	0	385
Helen Joseph-Rahima Moosa (GP)	0	0	О	12	0	0	0	807
Klerksdorp-Tshepong (NW)	0	0	Ο	3	0	0	0	462
Mapulaneng- Matikwana (MP)	0	0	0	0	0	0	0	343
Red Cross (WC)	0	О	О	0	0	0		420
Mitchell's Plain (WC)	0		0	0	0	0	0	370
Tintswalo (MP)	0	0	0	О	0	0	1	128
Total:	0	1	0	22	0	0	2	2 915

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West; MP: Mpumalanga (Tintswalo started enrolling on the 10th Feb 2021); WC: Western Cape Inconclusive: insufficient viral load in sample and unable to characterise further

**Influenza B(Victoria) was detected from one of 87 (1%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet pneumonia (SRI) case definition. These are not included in the table.
***influenza B lineage results are pending

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^{*}Specimens from patients hospitalised with pneumonia at 7 sentinel sites in 5 provinces

^{**}Influenza B(Victoria) was detected from one of 87 (1%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet pneumonia (SRI) case definition. These are not included in the epidemiological curve.

^{***}Only reported for weeks with >10 specimens submitted

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

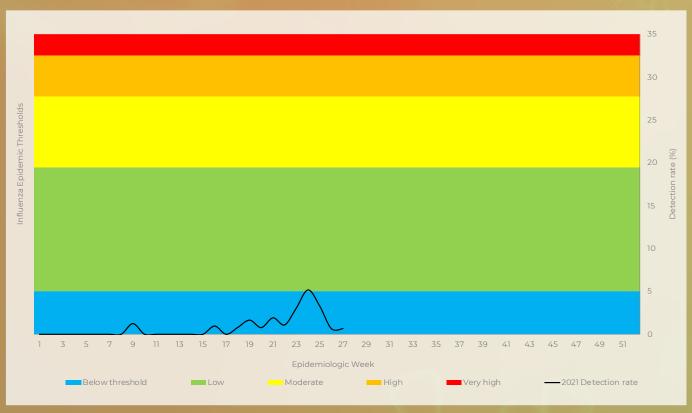


Figure 10. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

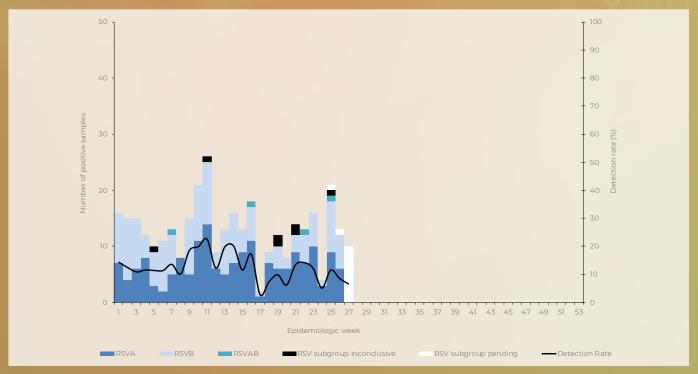


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

Table 8: Cumulative number of respiratory syncytial virus** subgroups identified and total number of samples tested by hospital

Hospital (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	RSV subgroup pending*	Total samples
Edendale (KZ)	5	28	0	0		385
Helen Joseph-Rahima Moosa (GP)	35	42	О	0	0	807
Klerksdorp-Tshepong (NW)	8	42	0	2	0	462
Mapulaneng-Matikwana (MP)	20	7		0	0	343
Red Cross (WC)	66	27	2	4	8	420
Mitchell's Plain (WC)	31	6			3	370
Tintswalo (MP)	10	3	0	0	0	128
Total:	175	155	4	7	12	2 915

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West; MP: Mpumalanga (Tintswalo started enrolling on the 10th Feb 2021); WC: Western Cape Inconclusive: insufficient viral load in sample and unable to characterise further RSV AB: Both RSV A and B subgroup identified *RSV results for subgroups are pending

**RSV was detected in five of 87 (6%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet pneumonia (SRI) case definition. These are not included in the table.

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

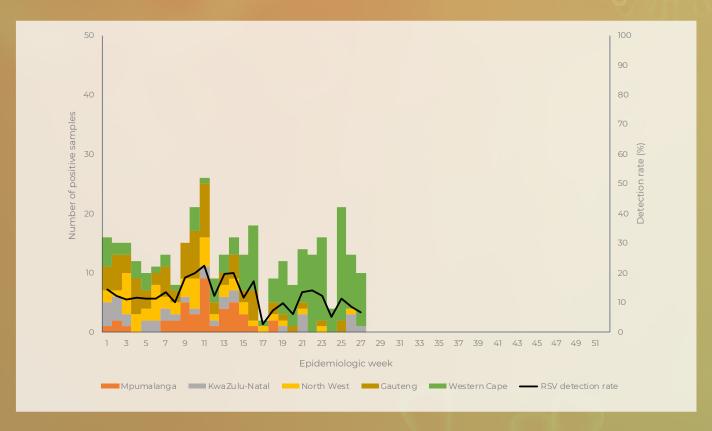


Figure 12. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

*RSV was detected in five of 87 (6%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet pneumonia (SRI) case definition. These are not included in the epidemiological curve.

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

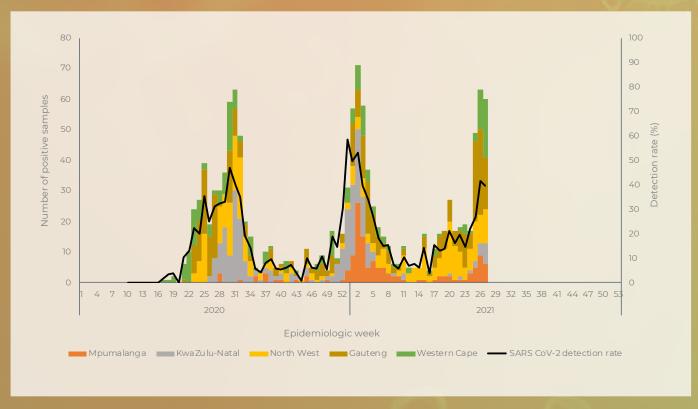


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

Table 9. 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)	256	1 207
Helen Joseph-Rahima Moosa (GP)	363	1 645
Klerksdorp-Tshepong (NW)	307	1054
Mapulaneng-Matikwana (MP)	112	645
Red Cross (WC)	46	1 380
Mitchell's Plain (WC)	157	837
Tintswalo (MP)	23	125
Total:	1 264	6 893

^{**}SARS-CoV-2 was detected in 22 of 149 (15%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet pneumonia (SRI) case definition. These are not included in the table.

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SUMMARY OF LABORATORY CONFIRMED SARS-COV-2 CASES

Table 10. Characteristics of laboratory-confirmed cases of COVID-19, enrolled in influenza-like illness (ILI) and

Characteristic	Influenza-like illness (ILI), public-sector, n=382 (%)	Pneumonia, n=1 264 (%)
Age group		
0-9	35/382 (9)	83/1264 (6)
10-19	26/382 (7)	8/1264 (1)
20-39	165/382 (43)	216/1264 (17)
40-59	124/382 (32)	467/1264 (37)
60-79	30/382 (8)	445/1264 (35)
≥80	2/382 (1)	45/1264 (4)
Sex-female	219/382 (57)	767/1264 (61)
Province*		
Gauteng	N/A	363/1264 (29)
KwaZulu-Natal	42/382 (11)	256/1264 (20)
Mpumalanga**	34/382 (9)	135/1264 (11)
North West	191/382 (50)	307/1264 (24)
Western Cape	115/382 (30)	203/1264 (16)
Race		
Black	271/382 (71)	1031/1256 (82)
Coloured	101/382 (26)	154/1256 (12)
Asian/Indian	1/382 (<1)	35/1256 (3)
Other	9/382 (2)	36/1256 (3)
Presentation		
Fever	368/382 (96)	653/1256 (52)
Cough	379/382 (99)	1208/1256 (96)
Shortness of breath	131/382 (34)	991/1256 (79)
Chest pain	165/382 (43)	498/1256 (40)
Diarrhoea	40/382 (10)	82/1256 (7)

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Characteristic	Influenza-like illness (ILI), public-sector, n=382 (%)	Pneumonia, n=1 264 (%)
Underlying conditions		U
Hypertension	12/382 (3)	124/1256 (10)
Cardiac	0/382 (0)	8/1256 (1)
Lung disease	0/382 (0)	2/1256 (<1)
Diabetes	7/382 (2)	266/1256 (21)
Cancer	0/382 (0)	7/1256 (1)
Tuberculosis	3/382 (1)	33/1256 (3)
HIV-infection	59/382 (15)	251/1256 (20)
Other ***	10/382 (3)	88/1256 (7)
Management		
Oxygen therapy	3/382 (1)	894/1256 (72)
ICU admission	N/A	33/1256 (3)
Ventilation	N/A	37/1256 (3)
Outcome***		
Died	0/382 (0)	176/1256 (14)

